DRAFT

Environmental Impact Report

Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project

UPD# EIR-2018-033 SCH# 2019100658

July 2020

Prepared for:

San Diego Unified Port District
3165 Pacific Highway
San Diego, California 92101
Juliette Orozco

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Prepared by:

600 B Street, Suite 2000
San Diego, California 92101
(619) 236-1778
Contact: Kristin Blackson

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°C	degrees Celsius
°F	degrees Fahrenheit
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
2017 Scoping Plan	2017 Climate Change Scoping Plan
AB	Assembly Bill
ACM	asbestos-containing material
AIA	Airport Influence Area
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
AQIA	Air Quality Impact Analysis
AST	aboveground storage tank
bgs	below ground surface
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
California NAGPRA	California Native American Graves Protection and Repatriation Act
CAO	Cleanup and Abatement Order
CAP	Climate Action Plan
CARB	California Air Resources Board
CCA	California Coastal Act
CCAA	California Clean Air Act
CCAT	California Climate Action Team
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFG	California Fish and Game
cfs	cubic feet per second
CH_4	methane
City CAP	City of San Diego Climate Action Plan
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CAO	Cleanup and Abatement Order
CRHR	California Register for Historical Resources
CWA	Clean Water Act

dB	decibel
dBA	A-weighted decibel
District	San Diego Unified Port District
DMA	drainage management area
DPM	diesel particulate patter
DOT	U.S. Department of Transportation
DTSC	Department of Toxic Substances Control
EFH	essential fish habitat
EIR	environmental impact report
EO	Executive Order
FESA	Endangered Species Act
FGC	Fish and Game Code
First Update	First Update to the Climate Change Scoping Plan
FMC	Fisheries Management Council
FMP	fisheries management plan
FTA	Federal Transit Administration
GHG	greenhouse gas
GPS	Global Positioning System
HAPC	habitat area of particular concern
HBMS	Hazardous Building Materials Survey
HCFC	hydrochlorofluorocarbons
HMD	Hazardous Materials Division
INRMP	Integrated National Resources Management Plan
IUDP	Individual User Discharge Permit
JRMP	Jurisdictional runoff management plan
LBP	lead-based paint
LCS	lead-containing surface
L_{dn}	day-night average noise level
L_{eq}	equivalent energy level
Lockheed Martin	Lockheed Martin Corporation
MBTA	Migratory Bird Treaty Act
mg/cm^2	milligram per square centimeter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MLLW	mean lower low water
MMPA	Marine Mammal Protection Act
MMT	million metric ton
MSCP	Multiple Species Conservation Program
MT	metric ton
MTF	Lockheed Martin Marine Terminal Facilities
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAS	Naval Air Station
NF_3	nitrogen trifluoride
NMFS	National Marine Fisheries Service

NOP	Notice of Preparation
NO_X	oxides of nitrogen
NRHP	National Register of Historic Places
NSLU	noise-sensitive land use
O_3	ozone
Pb	lead and lead compounds
PCB	polychlorinated biphenyl
PDF	project design feature
PLM	polarized light microscopy
PM_{10}	particulate matter of 10 microns in diameter or smaller
$PM_{2.5}$	particulate matter of 2.5 microns in diameter or smaller
PMP	Port Master Plan
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
project	Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project
RAQS	Regional Air Quality Strategy
RCRA	Resource Conservation and Recovery Act
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCP	Site Cleanup Program
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SDIA	San Diego International Airport
Sea Level Rise Policy Guidance	California Coastal Commission Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits
SEIR	subsequent environmental impact report
sf	square feet
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SMA	sediment management area
SO_X	oxides of sulfur
SPCC	spill prevention control and countermeasure
SWPPP	stormwater pollution prevention plan
SWQMP	stormwater quality management plan
TAC	toxic air contaminant
TCR	tribal cultural resource
USACE	U.S. Army Corps of Engineers
USC	United States Code
UST	underground storage tank
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VdB	vibration decibel

VOC	volatile organic compound
XRF	x-ray fluorescence
ZOI	zone of influence

Executive Summary

Introduction

This chapter provides a summary of the Environmental Impact Report (EIR) prepared for the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project) prepared in compliance with the California Environmental Quality Act (CEQA). The San Diego Unified Port District (District) is the CEQA lead agency for the EIR and, as such, has the primary responsibility to evaluate the environmental effects of the proposed project and to consider whether to approve or disapprove the proposed project in light of these effects.

As required by CEQA, this EIR does the following: (1) describes the proposed project, including its location, objectives, and features; (2) describes the existing conditions at the project site and nearby environs; (3) analyzes the direct, indirect, and cumulative adverse physical effects that would occur on the existing conditions should the proposed project be implemented; (4) identifies feasible means of avoiding or substantially lessening the significant adverse effects; (5) provides a determination of significance for each impact after mitigation is incorporated; and (6) evaluates a reasonable range of feasible alternatives to the proposed project that would meet the basic project objectives and reduce a project-related significant impact.

Project Description

Project Location and Existing Land Uses

The project proposes demolition of landside and waterside components of the existing Lockheed Martin Marine Terminal Facilities (MTF) at 1160 Harbor Island Drive and remediation of the waterside sediment in the adjacent basin. The project site is in Port Master Plan Planning District 2 (Harbor Island/Lindbergh Field) in the East Harbor Island and East Basin Industrial Subareas. Planning District 2 embraces two different activities: the transportation hub of the San Diego International Airport with its ancillary commercial and industrial activities and Harbor Island with its public parks and tourist commercial orientation (District 2017). Land and water uses include Aviation-Related Commercial, Commercial Recreation, Aviation-Related Industrial, Industrial Business Park, International Airport, Open Space, Park, Promenade, Harbor Services, Recreational Boating Berthing, Specialized Berthing, Open Bay/Water, Harbor Services, and Navigational Corridor as shown on Figure 2-2, Port Master Plan Existing Land Use Designations, in Chapter 2.

The land use designation for the project site is Industrial Business Park, and the water use designations are Specialized Berthing, Boat Navigation Corridor, and Recreational Boat Berthing. According to the Port Master Plan, the Industrial Business Park land use designation permits a range of industrial and business uses sited in development that emphasize clustering of buildings, extensive landscaping, and shared open space (District 2017). The water use designations for the project site

include Recreational Boat Berthing, Specialized Berthing, and Boat Navigation Corridor. The Recreational Boat Berthing land use permits a wide range of recreational and commercial boating uses and includes essential facilities for providing waterside docking refuge to recreational marine craft and commercial passenger vessels (District 2017). The Specialized Berthing land use permits a wide range of marine commercial and industrial uses (District 2017). Typical specialized berthing includes dry docks, graving docks, heavy lift equipment, barge cranes, mooring dolphins, pile-supported platforms, steel hatch decking, margin wharves, and ship berths for a variety of cargo, such as roll-on/roll-off containers, bulk loading, and break bulk. Finally, the Boat Navigation Corridor land use provides adequate draft for ship maneuverability, safe transit, and access to marine terminals, marine-related industrial areas, and military bases (District 2017).

The project site currently consists of a 5,500-square-foot Marine Terminal Building, a 165-foot pier, a 328-foot-long marine railway, concrete, asphalt paving, utilities, and support structures as shown on Figure 2-3, Project Site Features. Currently, the building is unoccupied, and the waterside facilities are not in use.

Project Objectives

In accordance with Section 15124(b) of the CEQA Guidelines (CEQA Guidelines, Section 15000 et seq.), the District has identified the following objectives for the project:

1. Remediate the project site through implementation and completion of the Remedial Action Plan as required under the San Diego Regional Water Quality Control Board Draft Cleanup and Abatement Order No. R9-2017-0021.
2. Restore the project site by removing the installations and improvements from the MTF premises in accordance with the Lockheed Martin Marine Terminal Demolition Draft Work Plan (Exhibit D of the 2017 Settlement Agreement).
3. Prevent the further release or threatened release of hazardous substances from historical uses on the project site.
4. Fulfill and implement the end of the lease terms of the original lease agreement between the District and Lockheed Martin by remediating the project site, including the removal of the installations and improvements.
5. Reduce public safety hazards by eliminating risk of fire, personal injury to trespassers, vandalism, and crime associated with an abandoned facility.
6. Further the District's responsibility and fiduciary duty for administering its public trust lands consistent with the Public Trust and the Port Act, including promoting water-oriented uses that benefit the public.

Project Components

As described in Chapter 2, Project Description, activities would be broken down into three phases: (1) landside demolition; (2) waterside demolition, dredging, and sediment remediation; and (3) post-remediation activities. Phase 1 would include demolition of the existing building; Phase 2 would include demolition of the existing pier and marine railway and waterside remediation; and Phase 3 would include post-remediation activities, including demolition of paved areas.

Phase 1

Landside Demolition

The first phase would include the demolition of the Marine Terminal Building. Existing utilities in the existing two-story, 5,500-square-foot building would be disconnected and removed. This would include removing power to the San Diego Gas & Electric transformer vault, removing the gas lines to the nearest valve box, capping the fire sprinkler lines 6 inches above grade, removing the sewage tank and associated pipes, capping the outlets to the sewage tank, and removing the water to the backflow preventer on site. Then, the existing building would be demolished.

After building demolition, the foundation would be removed, and any resulting depressions would be filled with compactable, clean fill. The site would then be graded to match the existing elevation. The existing concrete and asphalt parking areas would remain and be used as part of the sediment management area (SMA) during the sediment remediation component. The SMA would be confined with an impermeable barrier (potentially an asphalt berm or K-rails sealed at the base with an impervious fabric) to prevent discharge into San Diego Bay or into underlying soils.

Phase 2

Waterside Demolition

Phase 2 would include the waterside component of the project, beginning with the waterside demolition. The project would include demolition of the in-water, 165-foot pier and the 328-foot-long marine railway and support structures extending into the bay. The piles from the pier would be removed using equipment staged on a barge or on the landside. The barge would be the storage area for the removed piles and debris. Outfall erosion protection would be constructed along the northern shoreline using 400 square feet of riprap and gravelly sand. Debris would be removed from the water by a heavy clamshell bucket. Removed piles and debris would be brought ashore and sorted according to its general classification. The debris would then be transported for disposal by haul truck trips.

Dredging

Once the existing waterside facilities are demolished, waterside contaminated sediments with elevated mercury levels would be dredged in an approximately 22,676-square-foot area, as shown

on Figure 2-5, Project Components. The sediments would be removed using mechanical dredging means, such as a barge-mounted derrick crane, an enclosed clamshell bucket, or a standard clamshell bucket.

Dredged material would then be placed in water-tight scows, large, flat-bottomed boats with square ends used for transporting bulk materials, that would be transported to the upland SMA for processing. Prior to offloading sediments, dewatering would occur, where any ponded water would be pumped within the scow into a water treatment system. The on-site water treatment system would consist of a series of holding and weir tanks and would be sufficient to meet the discharge requirements into the City of San Diego's sewer system (through an Individual User Discharge Permit [IUDP]). Prior to discharge, water samples would be collected and analyzed in accordance with the IUDP. If the effluent contains analytical concentrations that exceed IUDP standards, the water would then be treated on site using options such as the addition of chemicals to reduce analytical concentrations to levels acceptable within IUDP standards or removal from the site by a licensed waste hauler and disposal in accordance with local, state, and federal requirements.

At the SMA, dredged sediment would be stabilized with Portland cement (as necessary to pass the paint filter test) to accelerate the drying process. The paint filter test is a test to determine the presence of free liquids in a representative sample of waste before the waste can be disposed of in a landfill. The dredged sediment would be tested based on the selected upland disposal landfill's profile requirements and then loaded into lined haul trucks and transported to an upland disposal location. Dredged materials would be disposed of at an approved Class III or Class II landfill, depending on the level of contamination. The nearest available landfill would be the Otay Landfill, which is designated as Class III, in Chula Vista, California.

Sediment Remediation

Once dredging is complete, the project would place clean sand cover on approximately 92,170 square feet of the site (Figure 2-5). As time passes, the clean cover would mix into the underlying sediment through benthic interactions, such as organism burrowing. Equipment required for placement would be similar to the equipment used during dredging but would be supplemented with a conveyor. The clean sand would be transported to the project site by haul truck or barge. If the material arrives by truck, the material would be loaded onto barges and transported to the placement area. A silt curtain would be placed around the sand placement area to reduce turbidity caused by placement operations.

Phase 3

After demolition, dredging, and remediation, the project site would be returned to a vacant, undeveloped site. Once the sediment has been dredged and disposed of, the existing asphalt and concrete paved areas that were used as the SMA would be demolished. The retaining wall above the shore protection would remain and allow the site to be graded such that slopes would be

shallow and allow stormwater to be absorbed and minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain, and the site would be graded so that the excess water from storm events would be directed to those spillways.

The existing mature trees would be left undisturbed. Non-invasive, drought-tolerant vegetation would be planted, and an irrigation system would be installed. The irrigation system, if necessary, would be connected to the existing backflow flow protector on site and would have manual valves due to the lack of on-site power. There would be no further operations following remediation activities.

Construction

It is anticipated that the project would be completed in approximately 5 to 6 months, with Phase 1 occurring from November through December 2020, Phase 2 occurring from September through November 2021, and Phase 3 beginning in May 2022. Phase 1 would include demolition of the upland area to create an area to support Phase 2 activities. In addition, the in-water construction window would be constrained by California least tern (*Sternula antillarum browni*) nesting and foraging season, which extends from March 31 to September 15. Proposed work would take place within the District's jurisdiction.

The in-water construction activities would require specific types of construction equipment including a floating crane barge used to remove concrete piles, dredging, and sand placement; deck barges for delivery and storage of materials or debris; jet pumps, a vibratory hammer, or a clamshell bucket; and tug boats for moving equipment. The landside construction activities would require the use of equipment such as a land-based mobile crane, trucks for delivery and removal of construction materials, heavy equipment (e.g., loader, bulldozer, forklift, and scraper), and an on-site water treatment system.

Discretionary Actions

The project includes the discretionary actions by the District, San Diego Regional Water Quality Control Board, and U.S. Army Corps of Engineers, which are listed in Table ES-1, Discretionary Actions.

Table ES-1. Discretionary Actions

Action	Approving Agency
Certification of EIR and adoption of a Mitigation Monitoring and Reporting Program, Findings of Fact, and a Statement of Overriding Considerations	District
Approval of a Final Remedial Action Plan Section 401 Water Quality Certification	San Diego Regional Water Quality Control Board
Clean Water Act 401 and Rivers and Harbors Act Section 10 Permit	U.S. Army Corps of Engineers

Notes: District = San Diego Unified Port District; EIR = environmental impact report

Potential Areas of Controversy and Issues to Be Resolved

Section 15123 of the CEQA Guidelines requires the summary of an EIR to include areas of controversy known to the lead agency, including issues raised by agencies and the public, and to address issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects. The District circulated a Notice of Preparation (NOP) to solicit agency and public comments on the scope and content of the environmental analysis beginning October 31, 2019, and ending December 2, 2019. The NOP is included in Appendix A, Notice of Preparation and Initial Study.

Comments were considered in preparation of this EIR. Two comment letters were received during the NOP public review period, and one letter was received after the NOP public review period ended. A copy of each letter is provided in Appendix A of this EIR. Additionally, the complete text of the NOP and the NOP comments are included in Appendix A. The comment letters received are summarized in Table ES-2, Notice of Preparation Comment Letter Index.

Table ES-2. Notice of Preparation Comment Letter Index

Comment Letter	Commenter	Subject of Comment	Location in EIR Where Comment Is Addressed
1	Save Our Heritage Organization	Requests an alternative to the demolition of the MTF	Chapter 5, Alternatives to the Proposed Project
2	Native American Heritage Commission	Recommends the consultation with California Native American tribes	Section 3.8, Tribal Cultural Resources
3	Sunroad Enterprise and Sunroad Marina	Requests final depth of dredge area to be 15 feet as opposed to 10 feet	Chapter 2, Project Description

Notes: EIR = environmental impact report; MTF = Lockheed Martin Marine Terminal Facilities

Summary of Project Impacts

This EIR examines the potential environmental effects of the proposed project, including information related to existing site conditions, analyses of the types and magnitude of individual and cumulative environmental impacts, and feasible mitigation measures that could reduce or avoid environmental impacts. In accordance with Appendix G of the CEQA Guidelines, potential environmental effects of the proposed project were analyzed for the following areas:

- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Tribal Cultural Resources

Table ES-3, Summary of Impacts of the Proposed Project, at the end of this chapter, provides a summary of the significant environmental impacts that could result from implementation of the proposed project and feasible mitigation measures that would reduce or avoid the impacts. For each impact, Table ES-3 identifies the applicable mitigation measures and the level of significance of the impact after implementation of the mitigation measures. Impacts to historic resources would remain significant and unavoidable. Impacts to Aesthetics, Agriculture and Forestry Resources, Energy, Geology and Soils, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, Transportation, Utilities and Service Systems, and Wildfire are considered to be "effects found not to be significant" in accordance with Section 15128 of the CEQA Guidelines. These issues are discussed and analyzed in the Initial Study (Appendix A).

Summary of Project Alternatives

Section 15126.6(d) of the CEQA Guidelines requires an EIR to provide sufficient information about each alternative to allow for meaningful evaluation, analysis, and comparison with the project. The District selected the alternatives for analysis based on the "rule of reason" and ability for each alternative to meet most of the basic project objectives. A description of the three alternatives carried forward for analysis is provided in the following subsections.

Alternative 1: No Project/No Remediation

The No Project/No Remediation Alternative is required by CEQA to discuss and analyze potential impacts that would occur if the proposed project was not implemented. Under the No Project/No Remediation Alternative, the proposed remediation of the MTF and completion of the Remedial Action Plan as required under the San Diego Regional Water Quality Control Board Draft Cleanup and Abatement Order No. R9-2017-0021 would not be implemented. In addition, the end of lease terms of the original lease agreement between the District and Lockheed Martin would not be honored. The installations, including the significant historic structure, and associated improvements would remain on site.

Alternative 2: Remediation of Waterside Portions of Project Site Only

The Remediation of Waterside Portions of Project Site Only Alternative would be similar to the proposed project but would not include the Phase 1 landside demolition of the Marine Terminal Building and associated utilities and the Phase 3 post-remediation activities. This alternative would only proceed with Phase 2, the waterside remediation activities. This alternative would include the demolition of the pier and marine railway, dredging of waterside contaminated sediment, and placement of clean sand. The Marine Terminal Building would remain in its current state on the project site.

The pier and marine railway constitute two of the three contributing elements of the MTF. Although the pier and marine railway are important components of the MTF's eligibility under Criterion 1, the Marine Terminal Building would retain eligibility under Criterion 3 even if the waterside

components are removed as required by the San Diego Regional Water Quality Control Board's Cleanup and Abatement Order. Therefore, the Marine Terminal Building would remain eligible after the demolition of these contributing resources. In addition, although the removal of the pier and marine railway constitutes a significant adverse impact to contributing historic resources under Criterion 1, under Criterion 3, the Remediation of Waterside Portions of Project Site Only Alternative would result in a less than significant impact with respect to the Marine Terminal Building. However, unless the building is rehabilitated and reused, this alternative has the potential to result in continued dilapidation, resulting in the inability to document and photograph the building railway in the Historic American Building Survey documentation. Therefore, the Remediation of Waterside Portions of Project Site Only Alternative is intended to reduce the project's significant and unavoidable impact to historic resources related to the landside demolition of the MTF.

Alternative 3: Reuse of Marine Terminal Building

The Reuse of Marine Terminal Building Alternative would be similar to the proposed project, except that it would not include the Phase 1 landside demolition of the Martine Terminal Building and associated utilities and the Phase 3 post-remediation activities. This alternative would include the waterside component of the proposed project, including the demolition of the pier and marine railway, dredging of waterside contaminated sediment, and placement of clean sand. Instead of demolishing the Marine Terminal Building, this alternative would restore and renovate the Marine Terminal Building to be available for use. Renovation activities would include the removal of asbestos-containing material, lead-containing surfaces, and other potentially hazardous building materials. It is assumed that renovation work would follow the Secretary of the Interior's Standards and that identified character-defining features of the Marine Terminal Building would be repaired and maintained to the highest degree feasible. Furthermore, work would be completed under the review of an architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualifications Standards. Renovation activities would also be required to upgrade the building consistent with applicable California Building Code standards.

The project site is in Port Master Plan Planning District 2 (Harbor Island/Lindbergh Field). The land use designation for the project site is Industrial Business Park. Based on the current land use designation, a number of uses could be established, provided the District is able to secure a tenant to use the space. As noted below, reuse of the building would result in operational features not present for the proposed project, including generating vehicle trips and air emissions and introducing noise-generating facilities. The District has not been presented with any proposal for reuse of the Marine Terminal Building, and it would be speculative to assume a specific future use. Therefore, the discussion of potential impacts associated with this alternative is qualitative.

The pier and marine railway constitute two of the three contributing elements of the MTF. Although the pier and marine railway are important components of the MTF's eligibility under Criterion 1, the Marine Terminal Building would retain eligibility under Criterion 3 even if the waterside components are removed as required by the San Diego Regional Water Quality Control Board's Cleanup and Abatement Order. Therefore, the Marine Terminal Building would remain eligible for listing. Renovation of the building and implementation of Mitigation Measures CUL-1 and CUL-2 would result in a less than significant impact to the MTF under Criterion 3. Therefore, the Reuse of Marine Terminal Building Alternative is intended to reduce the project's significant and unavoidable impact to historic resources related to the landside demolition of the MTF.

Table ES-3. Summary of Impacts of the Proposed Project

Issue Area	Mitigation Measure(s)	Impact Determination after Mitigation
Biological Resources		
Candidate, Sensitive, or Special-Status Species	**BIO-1A: Preconstruction California Least Tern Surveys.** The project proponent shall schedule and complete all in-water construction activity outside of the nesting season for California least tern (generally between April 1 and mid-September). Should in-water construction occur during the California least tern nesting season, the following construction measures shall be implemented: 1. Prior to the start of construction, the contractor, shall retain a qualified biologist approved by the District, that shall continually conduct monitoring of the San Diego Bay waters within 500 feet of construction activities to identify presence of terns displaying foraging behavior (e.g., searching and diving) and assess the potential for adverse impacts or adverse impacts, if any, on California least tern. If adverse impacts on terns occur (e.g., agitation or startling during foraging activities), construction may not commence, and in the event construction has commenced, construction shall cease until the biological monitor determines that no adverse impacts would occur or the California least tern has left the site for longer than 10 minutes. **BIO-1B: Marine Mammal and Sea Turtle Construction Monitoring.** Prior to construction activities involving in-water vibratory or impact hammer pile removal activities, the project proponent shall implement a marine mammal and sea turtle monitoring program. The monitoring program shall be approved by the San Diego Unified Port District and shall include the following components: 1. For a period of 15 minutes prior to the start of in-water construction, a qualified biologist who meets the minimum requirements as defined by the National Oceanic Atmospheric Administration's Guidance for Developing a Marine Mammal Monitoring Plan shall be retained by the project proponent and approved by the San Diego Unified Port District and shall continuously monitor the applicable zones of influence of any vibratory pile removal (does not include pile jetting). The contractor shall halt in-water pile removal work if any marine mammals or green sea turtles are observed within the defined zone of influence for the species encountered. Work shall not re-commence until it has been determined that the marine mammals	Less than Significant

Table ES-3. Summary of Impacts of the Proposed Project

Issue Area	Mitigation Measure(s)	Impact Determination after Mitigation
	and turtles have left the area or have not been seen on the surface within the zones of influence for a period of 15 minutes. 2. The construction contractor shall not start work if any observations of special-status species are made prior to starting pile removal until marine mammals and turtle(s) have not been seen on the surface within the zones of influence for a period of 15 minutes. 3. The qualified biologist shall continually monitor the zone of influence during pile removal activities to observe any marine mammals or sea turtles that approach or enter the zone of influence. The qualified biologist shall have authority to stop all work on site and shall do so if a marine mammal or green sea turtle enters the zone of influence or could otherwise be impacted by construction noise from vibratory or impact hammer pile removal operations. 4. When performing vibratory pile removal, the contractor shall commence work with a few short pulses followed by a 1-minute period of no activity prior to commencing full pile removal activities. The purpose of this activity is to encourage the marine mammals and green sea turtles in the area to leave the project site prior to commencement of work. The contractor, under the direction of a qualified biologist, shall then commence monitoring as described to determine if marine mammals or turtles are in the area. This process should be repeated if pile removal ceases for a period of greater than an hour. **BIO-1C: Construction Vessels.** Construction vessel traffic shall not exceed existing ambient speed limits for the marina. **BIO-1D: Preconstruction Raptor and General Avian Nest Surveys.** If project demolition activities are scheduled to commence during the raptor nesting season (generally January 15 through August 31), preconstruction surveys for raptor nests shall be performed by a qualified biologist within 500 feet of project construction activities no more than 7 days prior to the initiation of construction. Demolition activities within 500 feet of an identified active raptor nest shall not commence during the breeding season until a qualified biologist determines that the nest is no longer active and any young birds in the area have adequately fledged and are no longer reliant on the nest. Trees with inactive nests can be removed outside the breeding season without causing an impact.	

Table ES-3. Summary of Impacts of the Proposed Project

Issue Area	Mitigation Measure(s)	Impact Determination after Mitigation
Riparian Habitat or Other Sensitive Natural Communities	**BIO-2A: Eelgrass Surveys.** Prior to the start of any waterside construction activities, a qualified marine biologist who would be retained by the project proponent and approved by the San Diego Unified Port District shall conduct a preconstruction eelgrass survey per the California Eelgrass Mitigation Policy 2014. Surveys for eelgrass shall be conducted during the active eelgrass growing season (March–October), and results shall be valid for 60 days, unless completed in September or October; if completed in September or October, results shall be valid until resumption of the next growing season. The qualified marine biologist shall submit the results of the preconstruction survey to the San Diego Unified Port District and resource agencies within 30 days. If preconstruction eelgrass surveys identify eelgrass, the qualified marine biologist shall demarcate the distribution of eelgrass to allow tug and barge operators to maintain a safe distance to avoid impacts to eelgrass during construction. If eelgrass is found during the preconstruction survey, within 30 days of completion of in-water construction activities, a qualified marine biologist retained by the project proponent and approved by the San Diego Unified Port District shall conduct a post-construction eelgrass survey. The post-construction survey shall evaluate potential eelgrass impacts associated with construction. Upon completion of the post-construction survey, the qualified marine biologist shall submit the survey report to San Diego Unified Port District and resource agencies within 30 days. **BIO-2B: Eelgrass Mitigation.** In the event that the post-construction survey identifies any impacts on eelgrass, the project proponent shall implement the following: • A qualified marine biologist retained by the project proponent and approved by the San Diego Unified Port District shall develop a mitigation plan for in-kind mitigation. The qualified marine biologist shall submit the mitigation plan to the San Diego Unified Port District and resource agencies within 60 days following the post-construction survey. • The Eelgrass Mitigation Plan shall specify that the contractor/entity harvesting eelgrass to implement the required mitigation would need to obtain a scientific collecting permit for eelgrass harvest and a letter of authorization at least 30–60 days prior to implementation.	Less than Significant

Table ES-3. Summary of Impacts of the Proposed Project

Issue Area	Mitigation Measure(s)	Impact Determination after Mitigation
	• Mitigation for eelgrass impacts shall be at a ratio of no less than 1.2:1 as required by the California Eelgrass Mitigation Policy Mitigation shall commence within 135 days of any noted impacts on eelgrass, such that mitigation commences within the same eelgrass growing season that impacts occur. • Upon completing mitigation, the qualified biologist shall conduct mitigation performance monitoring per the California Eelgrass Mitigation Policy, at performance milestones of 0, 12, 24, 36, 48, and 60 months. The qualified biologist shall conduct all mitigation monitoring during the active eelgrass growing season and shall avoid the low growth season (November–February). Performance standards shall be in accordance with those prescribed in the California Eelgrass Mitigation Policy. • The qualified biologist shall submit the monitoring reports and spatial data to the San Diego Unified Port District and resource agencies within 30 days after the completion of each monitoring period. The monitoring reports shall include all the specific requirements identified in the California Eelgrass Mitigation Policy. **BIO-2C: Avoidance of Eelgrass Due to Anchored Barges, Boat Navigation, and Propeller Wash**. If eelgrass is found during the preconstruction survey, tug and barge operators shall ensure that anchored construction barges are outside of eelgrass beds. Additionally, tugboat operators shall be instructed that propeller wash can damage eelgrass. No anchoring (and other bottom-disturbing activities) shall occur within eelgrass beds, and propeller wash shall not be directed toward eelgrass beds.	

Table ES-3. Summary of Impacts of the Proposed Project

Issue Area	Mitigation Measure(s)	Impact Determination after Mitigation
Cultural Resources		
Historic Resources	**CUL-1: Historic American Buildings Survey Level 2 Documentation.** Prior to demolition, the Marine Terminal Building, marine railway, and pier shall be documented to Historic American Buildings Survey Level 2 standards, according to the outline format described in the Historic American Building Survey Guidelines for Preparing Written Historical Descriptive Data, and be approved by the District. Photographic documentation shall follow the Photographic Specification – Historic American Building Survey, including 10–20 archival quality, large-format photographs of the exterior and interior of the building and its architectural elements. Construction techniques and architectural details shall be documented, especially noting the measurements, hardware, and other features that tie architectural elements to a specific date. If feasible, views of the pier and/or railway and their association with the building should be documented from the water with views to the west. The original architectural plans shall be archivally reproduced following Historic American Buildings Survey standards. Three copies of the Historic American Buildings Survey documentation package, with one copy including original photograph negatives, shall be produced, and at least one of these copies shall be placed in an archive or history collection accessible to the general public. **CUL-2: Historical Interpretive Exhibit.** An interpretative opportunity that would communicate the significance of the Lockheed Martin Marine Terminal Facilities to the San Diego community would be developed. This opportunity shall consist of a permanent interpretive exhibit that shall incorporate information from historic photographs, Historic American Buildings Survey documentation, or other materials in a location accessible to the public. The minimum size of the exhibit should be 2 feet by 3 feet and could be mounted on a pedestal at an angle or mounted vertically on a building or structure. The interpretive exhibit shall be developed by a qualified team, including a historian and graphic designer, and approved by the San Diego Unified Port District. If the exhibit could not be located at the current location, another appropriate venue on Harbor Island shall be considered by the San Diego Unified Port District during development and review of the interpretive exhibit.	Significant and Unavoidable

Chapter 1 Introduction

1.1 Project Overview

The proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project) includes the demolition of the existing Lockheed Martin Marine Terminal Facilities, which include the landside Marine Terminal Building and waterside pier and marine railway structure, and remediation of the waterside sediment in the surrounding basin. The Marine Terminal Facilities are at 1160 Harbor Island Drive on land that is owned by the San Diego Unified Port District (District) and that has been leased by various Lockheed Martin Corporation entities since 1966. Project activities would be broken into three phases: (1) landside demolition; (2) waterside demolition, dredging, and sediment remediation; and (3) post-remediation activities. Phase 1 would include demolition of the existing Marine Terminal Building; Phase 2 would include demolition of the existing pier and marine railway, dredging, and waterside remediation; and Phase 3 would include post-remediation activities, including demolition of paved areas. It is anticipated that the project would be completed in approximately 5 to 6 months, with the Phase 1 occurring from November through December 2020, Phase 2 occurring from September through November 2021, and Phase 3 beginning in May 2022. In addition to the project overview previously provided, this chapter briefly discusses (1) the purpose of the California Environmental Quality Act (CEQA) and this Environmental Impact Report (EIR), (2) the intended uses for this EIR, (3) the scope and content of this EIR, and (4) the organization of this EIR.

1.2 Purpose of the California Environmental Quality Act and the Environmental Impact Report

This EIR evaluates the environmental effects of the proposed project and has been prepared in compliance with CEQA (California Public Resources Code, Section 21000 et seq.) and the CEQA Guidelines (CEQA Guidelines, Section 15000 et seq.). This EIR has also been prepared in compliance with the District's Guidelines for Compliance with the California Environmental Quality Act (Resolution 97-191).

CEQA was enacted by the California Legislature in 1970. As noted in CEQA Guidelines, Section 15002, CEQA has the following four basic purposes:

1. Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities.
2. Identify the ways that environmental damage can be avoided or significantly reduced.
3. Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

An EIR is an informational document, the purpose of which is to inform members of the public and agency decision makers of the significant environmental effects of a proposed project, identify feasible ways to reduce the significant effects of the proposed project, and describe a reasonable range of feasible alternatives to the project that would reduce one or more significant effects and still meet the proposed project's objectives. In instances where significant impacts cannot be avoided or mitigated, the proposed project may nonetheless be carried out or approved if the approving agency finds that economic, legal, social, technological, or other benefits outweigh the unavoidable significant environmental impacts.

1.3 Intended Uses of the Environmental Impact Report

This section discusses the intended uses for this EIR and includes (1) a list of agencies that would be expected to use this EIR for decision-making, (2) a list of required permits and other approvals that would be required to implement the proposed project, and (3) an explanation of the project-level analyses contained in this EIR. Environmental review and consultation requirements under federal, state, or local laws, regulations, or policies in addition to CEQA are discussed in the applicable individual resource sections in Chapter 3, Environmental Analysis.

1.3.1 Agencies Expected to Use the Environmental Impact Report

The District is the CEQA lead agency, as defined under CEQA Guidelines, Section 15050, because it has principal responsibility for approving the proposed project. As the lead agency, the District also has primary responsibility for complying with CEQA. As such, the District analyzed the environmental effects of the proposed project; the results of this analysis are presented in this EIR. The Board of Port Commissioners, in its role as the decision-making body of the District, is responsible for certifying the Final EIR and approving the Findings of Fact and Statement of Overriding Considerations pursuant to Sections 15090–15093 of the CEQA Guidelines prior to project approval.

1.4 Scope and Content of the Environmental Impact Report

As the CEQA lead agency, the District is responsible for determining the scope and content of this EIR, a process referred to as "scoping." As part of the scoping process, the District considered the environmental resources present on site and in the surrounding area and identified the probable environmental effects of the proposed project. On October 31, 2019, the District posted a Notice of Preparation (NOP) with the County Clerk in accordance with Section 15082 of the CEQA Guidelines. The 30-day public review period for the NOP began on October 31, 2019, and ended on December 2, 2019. The NOP and notices of NOP availability were mailed to public agencies, organizations, and other interested individuals to solicit their comments on the scope and content of the environmental analysis. The District also held a public scoping meeting on November 13, 2019, at the San Diego Unified Port District Administration Building, Training Room, 3165 Pacific Highway, San Diego, California 92101.

Based on the District's preliminary evaluation of the probable effects of the proposed project and a thorough review of the comments on the NOP and Initial Study, this EIR analyzes effects associated with the following resources:

- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Tribal Cultural Resources

The Initial Study prepared October 2019, determined that the proposed project would not have a potentially significant adverse effect on Aesthetics, Agriculture and Forestry Resources, Energy, Geology and Soils, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, Transportation, Utilities and Service Systems, and Wildfire. This EIR references the Initial Study, included in Appendix A, Notice of Preparation and Initial Study, for the areas of impact analysis not provided in this EIR. Chapter 4, Additional Consequences of Project Implementation and Effects Found Not to Be Significant, includes a brief analysis of why impacts would not be significant, as discussed in the NOP and Initial Study.

1.4.1 Comments Received in Response to the Notice of Preparation

Several specific environmental issues were raised in the comments on the NOP. A summary of these comments and the EIR chapters in which they are addressed are provided in Table 1-1, Notice of Preparation Comment Letter Index. Only comments that pertain to the environmental scope of this EIR are summarized.

Table 1-1. Notice of Preparation Comment Letter Index

Comment Letter	Commenter	Subject of Comment	Location in EIR Where Comment is Addressed
1	Save Our Heritage Organization	Requests an alternative to the demolition of the Marine Terminal Facilities	Chapter 5, Alternatives to the Proposed Project
2	Native American Heritage Commission	Recommends the consultation with California Native American tribes	Section 3.8, Tribal Cultural Resources
3	Sunroad Enterprise and Sunroad Marina	Requests final depth of dredge area to be 15 feet as opposed to 10 feet	Chapter 2, Project Description

Notes: EIR = environmental impact report

1.5 Organization of the EIR

The content and format of this EIR are designed to meet the requirements of CEQA and the CEQA Guidelines:

- **Executive Summary**. Includes a brief summary of the proposed project; identifies each significant effect, including proposed mitigation measures and alternatives to reduce or avoid the effect; identifies the areas of controversy known to the lead agency, including issues raised by agencies and the public; and summarizes the issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects (CEQA Guidelines, Section 15123).
- **Chapter 1, Introduction.** Discusses the purpose of CEQA and this EIR, the scope and content of this EIR, the organization of this EIR, and the intended uses for this EIR (CEQA Guidelines, Section 15124[d]).
- **Chapter 2, Project Description**. Provides a detailed description of the proposed project, including its location, environmental setting, background information, project objectives, and project implementation phases (CEQA Guidelines, Sections 15125, 5124[a], [b], [c]).
- **Chapter 3, Environmental Analysis** Describes the existing physical conditions for each resource area, lists the applicable laws and regulations related to the specific resource, describes the impact assessment methods, lists the criteria for determining whether an impact is significant, identifies the direct and indirect significant impacts that would result from implementation of the proposed project, and provides feasible mitigation measures that would eliminate or reduce the identified significant impacts (CEQA Guidelines, Sections 15125–15126.4).
- **Chapter 4, Additional Consequences of Project Implementation and Effects Found Not to Be Significant.** Discusses the way the proposed project could foster economic or population growth, either directly or indirectly, in the surrounding environment; describes the significant irreversible changes associated with the proposed project's implementation; and provides a brief discussion of the environmental resource impacts that were found to be not significant during preparation of this EIR (CEQA Guidelines, Sections 15126.2[c], [d], 15127, 15128).
- **Chapter 5, Alternatives to the Proposed Project.** Describes a reasonable range of alternatives to the proposed project, including the No Project Alternative; compares and contrasts the significant environmental impacts of alternatives to the proposed project; and identifies the environmentally superior alternative (CEQA Guidelines, Section 15126.6).
- **Chapter 6, List of Preparers and Agencies Consulted.** Lists the individuals and agencies involved in preparing this EIR (CEQA Guidelines, Section 15129).
- **Chapter 7, References.** Provides a comprehensive listing by chapter of all references cited in this EIR (CEQA Guidelines, Section 15148).

Chapter 2 Project Description

2.1 Introduction

The proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project) includes the demolition of the existing Lockheed Martin Marine Terminal Facilities (MTF), which include the landside Marine Terminal Building and waterside pier and marine railway structure, and remediation of the waterside sediment in the surrounding basin. Project activities would be broken into three phases: (1) landside demolition; (2) waterside demolition, dredging, and sediment remediation; and (3) post-remediation activities. The project would return the site to its original undeveloped state. The applicant is the Lockheed Martin Corporation (Lockheed Martin). The following sections provide the project description as required by Section 15124 of the California Environmental Quality Act (CEQA) Guidelines.

2.2 Project Background

The MTF are at 1160 Harbor Island Drive on land that is owned by the San Diego Unified Port District (District) and have been leased by various Lockheed Martin entities since 1966 (Figure 2-1, Regional Location). Lockheed Aircraft Company began leasing the MTF site from the District in April 1966. At that time, the site included a recently constructed (between 1965 and 1966) building and a pier and railway that extended into San Diego Bay's East Basin. The Deep Quest, a deep-submergence vehicle owned by the Lockheed Missiles and Space Company, began operating from the Lockheed Marine Terminal and Railway Facility (i.e., the MTF) in 1969. In 1971, the Lockheed site lease was assigned to the Lockheed Missiles and Space Company. From 1971 through 2009, as part of the U.S. Navy's Deep Submergence Systems Program, deep-submergence vehicle and deep-submergence rescue vehicle maintenance operations were conducted on the site. Per the lease with the District, upon termination, Lockheed Martin would be required to remove the installations and improvements on the MTF. The MTF are currently vacant.

Polychlorinated biphenyls, metals, and other pollutant wastes were discharged to San Diego Bay from the MTF throughout the years and have resulted in the accumulation of contaminants in marine sediments along the northern shore of central San Diego Bay. This accumulation has resulted in conditions identified by the San Diego Regional Water Quality Control Board (RWQCB) as potentially impacting beneficial uses (aquatic life, aquatic-dependent wildlife, and human health). The final cleanup and abatement order was issued for the site on April 4, 2017.[1]

The District and Lockheed Martin entered into a settlement agreement in March 2017 in response to the release or threatened release of hazardous substances at the MTF. Under the settlement agreement, Lockheed Martin is responsible for the implementation of site remediation pursuant to

[1] Available at https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/8943440318/TOW%20Basin-Lockheed%20CAO.pdf.

the San Diego RWQCB's cleanup and abatement order. The final cleanup and abatement order determined that the landside portion of the MTF did not require site remediation (RWQCB 2015). The Draft Remedial Action Plan dated March 2017 was prepared to address contaminated sediment present in the East Basin of Harbor Island on the waterside of the Former Tow Basin and MTF. The proposed project includes the cleanup of the waterside portions of the Former Tow Basin but does not include the landside remediation at that site. The San Diego RWQCB will consider approval of a Final Remedial Action Plan following the completion of the CEQA process. The Draft Remedial Action Plan (March 2017) is included as Appendix B, March 2017 Remedial Action Plan, to this EIR.

2.3 Project Location and Setting

2.3.1 Existing Land Uses

The project site is in the Port Master Plan Planning District 2 (Harbor Island/Lindbergh Field) in the East Harbor Island and East Basin Industrial Subareas. Planning District 2 embraces two different activities: the transportation hub of San Diego International Airport with its ancillary commercial and industrial activities, and the human-made peninsula known as "Harbor Island" with its public parks and tourist commercial orientation (District 2017). Land and water uses include Aviation-Related Commercial, Commercial Recreation, Aviation-Related Industrial, Industrial Business Park, International Airport, Open Space, Park, Promenade, Harbor Services, Recreational Boating Berthing, Specialized Berthing, Open Bay/Water, Harbor Services and Navigational Corridor as shown on Figure 2-2, Port Master Plan Existing Land Use Designations.

The land use designation for the project site is Industrial Business Park, and the water use designations are Specialized Berthing, Boat Navigation Corridor, and Recreational Boat Berthing. According to the Port Master Plan, the Industrial Business Park land use designation permits a wide range of industrial and business uses sited in development that emphasizes clustering of buildings, extensive landscaping, and shared open space (District 2017). The water use designations for the project site include Recreational Boat Berthing, Specialized Berthing, and Boat Navigation Corridor. The Recreational Boat Berthing land use permits a wide range of recreational and commercial boating uses and includes essential facilities for providing waterside docking refuge to recreational marine craft and commercial passenger vessels (District 2017). The Specialized Berthing land use permits a wide range of marine commercial and industrial uses (District 2017). Typical specialized berthing includes dry docks, graving docks, heavy lift equipment, barge cranes, mooring dolphins, pile-supported platforms, steel hatch decking, margin wharves, and ship berths for a variety of cargo, such as roll on/roll off containers, bulk loading, and break bulk. Finally, the Boat Navigation Corridor land use provides adequate draft for ship maneuverability, safe transit, and access to marine terminals, marine-related industrial areas, and military bases (District 2017).

The landside portion of the project site is 0.725 acre and includes a 5,500-square-foot building. The project site also includes a 165-foot pier, a 328-foot-long marine railway, concrete, asphalt paving, utilities, support structures, and a 2.6-acre waterside remediation area, as shown on Figure 2-3, Project Site Features. Currently, the building is unoccupied, and the marine terminal, waterside pier, and marine railway are not in use.

2.3.2 Surrounding Land Uses

The project site is in a marine-related industrial park (Figure 2-4, Surrounding Land Uses). It is bounded to the north by the human-made, riprapped shoreline of the San Diego waterfront and to the west and south by Harbor Island. Harbor Island is a human-made narrow strip of land in San Diego Bay south of the San Diego International Airport and is a maritime development consisting of marinas, hotels, and some restaurants leased from the District. The eastern side of the project site is adjacent to the East Basin, with a pier and marine railway extending from the property in that location. Approximately two-thirds of the East Basin is occupied by the Sunroad Resort Marina, which includes docks accommodating approximately 550 slips, with the project site on the western portion of the basin. A large hotel is west of the property on the western side of Harbor Island Drive. The surrounding area includes the Port of San Diego Harbor Police Building and San Diego International Airport to the north and Harbor Island to the south.

2.4 Project Objectives

In accordance with Section 15124(b) of the CEQA Guidelines, the District identified the following objectives for the project:

1. Remediate the project site through implementation and completion of the Remedial Action Plan as required under the San Diego RWQCB Draft Cleanup and Abatement Order No. R9-2017-0021.
2. Restore the project site by removing the installations and improvements from the MTF premises in accordance with the Lockheed Martin Marine Terminal Demolition Draft Work Plan (Exhibit D of the 2017 Settlement Agreement).
3. Prevent the further release or threatened release of hazardous substances from historical uses on the project site.
4. Fulfill and implement the end of the lease terms of the original lease agreement between the District and Lockheed Martin by remediating the project site, including the removal of the installations and improvements.
5. Reduce public safety hazards by eliminating risk of fire, personal injury to trespassers, vandalism, and crime associated with an abandoned facility.
6. Further the District's responsibility and fiduciary duty for administering its public trust lands consistent with the Public Trust and the Port Act, including promoting water-oriented uses that benefit the public.

2.5 Project Components

The project proposes demolition of landside and waterside components of the existing MTF at 1160 Harbor Island Drive (Figure 2-5, Project Components) and remediation of the waterside sediment in the surrounding basin. As described in Section 2.1, Introduction, project activities would be broken into three phases: (1) landside demolition; (2) waterside demolition, dredging, and sediment remediation; and (3) post-remediation activities. Phase 1 would include demolition of the existing building; Phase 2 would include demolition of the existing pier and marine railway and waterside remediation; and Phase 3 would include post-remediation activities (including continued compliance the California Eelgrass Mitigation Policy and Implementing Guidelines, if required), including demolition of paved areas.

2.5.1 Phase 1

2.5.1.1 Landside Demolition

The first phase would include the demolition of the landside structures including the Marine Terminal Building and associated infrastructure. Existing utilities in the existing two-story, 5,500-square-foot building would be disconnected and removed. This would include removing power to the San Diego Gas & Electric transformer vault, removing the gas lines to the nearest valve box, capping the fire sprinkler lines 6 inches above grade, removing the sewage tank and associated pipes, capping the outlets to the sewage tank, and removing the water to the backflow preventer on site. Then, the existing building would be demolished.

After building demolition, the foundation would be removed, and any resulting depressions would be filled with compactable, clean fill. The site would then be graded to match the existing elevation. The existing concrete and asphalt parking areas would remain and be used as part of the sediment management area (SMA) during the sediment remediation component. The SMA would be confined with an impermeable barrier (potentially an asphalt berm or K-rails sealed at the base with an impervious fabric) to prevent discharge into San Diego Bay or into underlying soils.

2.5.2 Phase 2

2.5.2.1 Waterside Demolition

Phase 2 would include the waterside component of the project, beginning with the waterside demolition. The project would include demolition of the in-water, 165-foot pier and the 328-foot-long marine railway structure and support structures extending into the bay. The piles from the pier would be removed using equipment staged on a barge or on the landside. The barge would be the storage area for the removed piles and debris. Outfall erosion protection would be constructed along the northern shoreline using 400 square feet of riprap and gravelly sand. Debris would be removed from the water by a heavy clamshell bucket. Removed piles and debris would be brought

ashore and sorted according to its general classification. The debris would then be transported for disposal by haul-truck trips.

2.5.2.2 Dredging

Once the existing waterside facilities are demolished, waterside sediments with elevated contaminant levels would be dredged in an approximately 22,676-square-foot area, as shown on Figure 2-5. The sediments would be removed using mechanical dredging means, such as a barge-mounted derrick crane, an enclosed clamshell bucket, or a standard clamshell bucket.

Dredged material would then be placed in water-tight scows, large, flat-bottomed boats with square ends used for transporting bulk materials, that would be transported to the upland SMA for processing. Prior to offloading sediments, dewatering would occur, where any ponded water would be pumped within the scow into a water treatment system. The on-site water treatment system would consist of a series of holding and weir tanks and would be sufficient to meet the discharge requirements into the City of San Diego's sewer system (through an Individual User Discharge Permit [IUDP]). Prior to discharge, water samples would be collected and analyzed in accordance with the IUDP. If the effluent contains analytical concentrations that exceed IUDP standards, the water would then be treated on site using options such as the addition of chemicals to reduce analytical concentrations to levels acceptable within IUDP standards or removal from the site by a licensed waste hauler and disposal in accordance with local, state, and federal requirements.

At the SMA, dredged sediment would be stabilized with Portland cement (as necessary to pass the paint filter test) to accelerate the drying process. The paint filter test is a test to determine the presence of free liquids in a representative sample of waste before the waste can be disposed of in a landfill. The dredged sediment would be tested based on the selected upland disposal landfill's profile requirements and then loaded into lined haul trucks and transported to an upland disposal location. Dredged materials would be disposed of at an approved Class III or Class II landfill, depending on the level of contamination. The nearest available landfill would be the Otay Landfill, which is designated as Class III, located in Chula Vista, California.

2.5.2.3 Sediment Remediation

Once dredging is complete, the project would place clean sand cover on up to 92,170 square feet of the site (Figure 2-5). As time passes, the clean cover would mix into the underlying sediment through benthic interactions, such as organism burrowing. Equipment required for placement would be similar to the equipment used during dredging but would be supplemented with a conveyor. The clean sand would be transported to the project site by haul truck or barge. If the material arrives by truck, the material would be loaded onto barges and transported to the placement area.

2.5.3 Phase 3

After demolition, dredging, and remediation, the project site would be returned to an unoccupied, undeveloped site. Once the sediment has been dredged and disposed of, the existing asphalt and concrete paved areas that were used as the SMA would be demolished. The retaining wall above the shore protection would remain and allow the site to be graded such that slopes would be shallow and allow stormwater to be absorbed and minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain, and the site would be graded so that the excess water from storm events would be directed to those spillways.

The existing mature trees would be left undisturbed. Non-invasive, drought-tolerant vegetation would be planted, and an irrigation system would be installed. If necessary, the irrigation system would be connected to the existing backflow flow protector on site and would have manual valves due to the lack of on-site power. There would be no further operations following remediation activities.

2.5.4 Project Design Features

The following project design features (PDFs) have been incorporated into the project, which would reduce the potential for impacts associated with these issues. The cleanup and abatement order issued by the RWQCB requires a Remedial Action Plan that includes a Remediation Monitoring Plan. The Remediation Monitoring Plan consists of water quality monitoring, sediment monitoring, silt curtain monitoring by a qualified biologist, and disposal monitoring. The water quality monitoring must be sufficient to demonstrate that implementation of the selected remedial activities does not result in violations of water quality standards outside the construction area.

2.5.4.1 Water Quality Project Design Features

PDF-WQ-1: **Silt Curtains.** The proposed project shall require the deployment of a silt curtain around the pile removing, dredging, and clean sand placement areas to contain suspended sediment in accordance with the 401 Water Quality Certification. Each silt curtain would include an oil boom component contained in the silt curtain, which would float on the water surface. Silt curtains would be weighted and positioned using anchors or marine structures or by being connected to shoreline locations. In addition, a floating surface debris boom would be equipped with skirts and absorbent pads to capture floating surface debris and to control potential oil sheen movement.

PDF-WQ-2: **Water Monitoring.** The water's turbidity levels would be monitored during demolition, dredging, and sediment remediation activities. Manual water quality monitoring to include measurements for pH, dissolved oxygen, and turbidity would be conducted to confirm compliance with the San Diego Basin Plan and Clean Water Act Section 401 Water Quality Certification requirements. Dredging operations would be evaluated and modified as necessary in coordination with the RWQCB if water

quality monitoring shows exceedance of predetermined numerical targets due to dredging operations.

PDF-WQ-3: **Bucket Movement Control.** The bucket would be positioned using Global Positioning System (GPS) software. The speed of bucket movement would be limited in the water column of dredging to minimize the disturbance of sediments and the resuspension of materials. In addition, the drag of the dredge bucket would be prohibited along the sediment surface.

PDF-WQ-4: **Spill Apron**. A spill apron, consisting of steel plates, plywood platforms, or a similar assembly with secondary containment, would be placed between the barge and shore to collect drippings or spillage and direct it back into the barge or collection point.

PDF-WQ-5: **Truck Wash.** Prior to leaving the SMA, haul trucks would be washed at an on-site truck wash to prevent sediment trackout.

2.5.4.2 Noise Project Design Feature

PDF-NO-1: **Nighttime Construction**. Nighttime construction would be prohibited. In addition, no lights would be used to illuminate the project site at night.

2.5.5 Construction

It is anticipated that the project would be completed in approximately 5 to 6 months, with Phase 1 occurring from November through December 2020, Phase 2 occurring from September through November 2021, and Phase 3 beginning in May 2022. The in-water construction window would be constrained by California least tern (*Sternula antillarum browni*) nesting and foraging season, which extends from mid-April to mid-September. Proposed work would take place within the District's jurisdiction.

Phase 1

Phase 1 would include demolition of the Marine Terminal Building, utility removal, and site preparation to create an area to support Phase 2 activities. A total of 0.73 acre would be disturbed during this phase, and 840 tons of demolition debris would be exported. After building demolition, the foundation would be removed, and any resulting depressions would be filled with compactable clean fill. It is assumed that the import of 5,205 cubic yards of material would be required for remediation activities. The landside construction activities would require the use of equipment such as a land-based mobile crane, trucks for delivery and removal of construction materials, heavy equipment (e.g., loader, bulldozer, forklift, and scraper), and an on-site water treatment system.

Phase 2

Phase 2 would include the waterside component of the project, beginning with the demolition of the pier and marine railway structure. Removed piles and debris would be brought ashore and transported for disposal by haul-truck trips. A total of 1,040 tons of material would be exported from the site. During dredging activities, approximately 3,500 cubic yards of contaminated sediments would be exported from the project site. A total of 4,500 cubic yards of clean sand would be imported to cover the remediation area following sediment disposal.

The in-water construction activities during Phase 2 would require specific types of construction equipment including a floating crane barge used for concrete piles removal, dredging, and sand placement; deck barges for delivery and storage of materials or debris; jet pumps, a vibratory hammer, or a clamshell bucket; and tug boats for moving equipment. Phase 2 activities would result in 1,483 truck trips (one-way) and 23 average daily construction worker trips.

Phase 3

Phase 3 would include the post-remediation work activities. This phase would include minimal construction equipment for grading and demolition to return the site to an undeveloped condition with non-native vegetation. No import or export is expected to occur.

The worst-case average number of daily truck trips for the proposed project would occur in Phase 1 during the filling operations following demolition. In total, 695 truck trips are anticipated over 5 working days, for an average of approximately 139 truck trips per day. In addition, a worst case of 23 average daily construction worker trips would occur during construction.

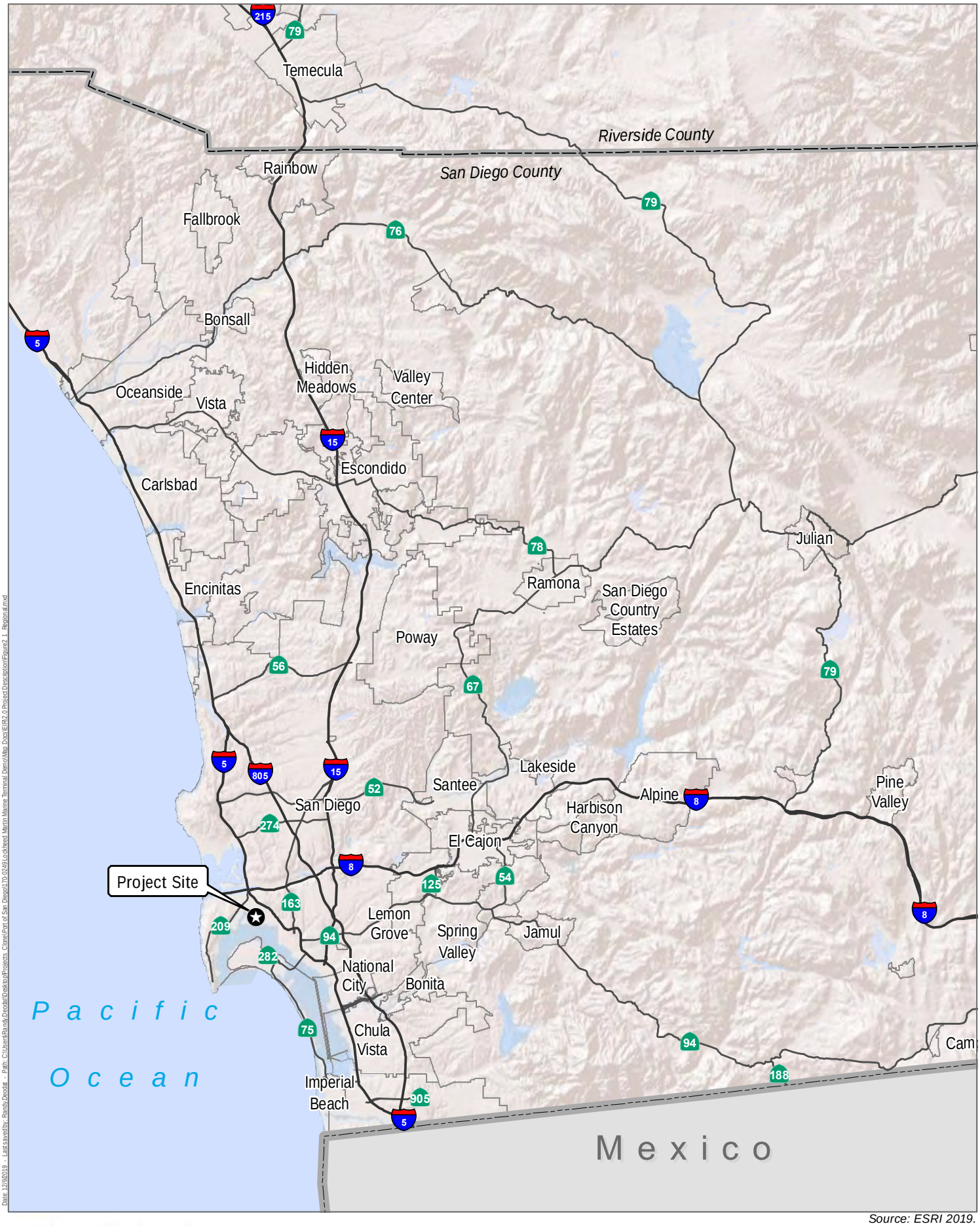
2.6 Discretionary Actions

The project requires and includes several discretionary actions by the District, San Diego RWQCB, and U.S. Army Corps of Engineers, which are listed in Table 2-1, Discretionary Actions.

Table 2-1. Discretionary Actions

Action	Approving Agency
Certification of Environmental Impact Report and adoption of a Mitigation Monitoring and Reporting Program, Findings of Fact, and a Statement of Overriding Considerations	District
Approval of a Final Remedial Action Plan 401 Water Quality Certification	San Diego RWQCB
Clean Water Act 401 and 404 and Rivers and Harbors Act Section 10 Permit	U.S. Army Corps of Engineers

Notes: District = San Diego Unified Port District; RWQCB = Regional Water Quality Control Board



Source: ESRI 2019.

Harris & Associates

0 5 10
Miles

Figure 2-1

Regional Location

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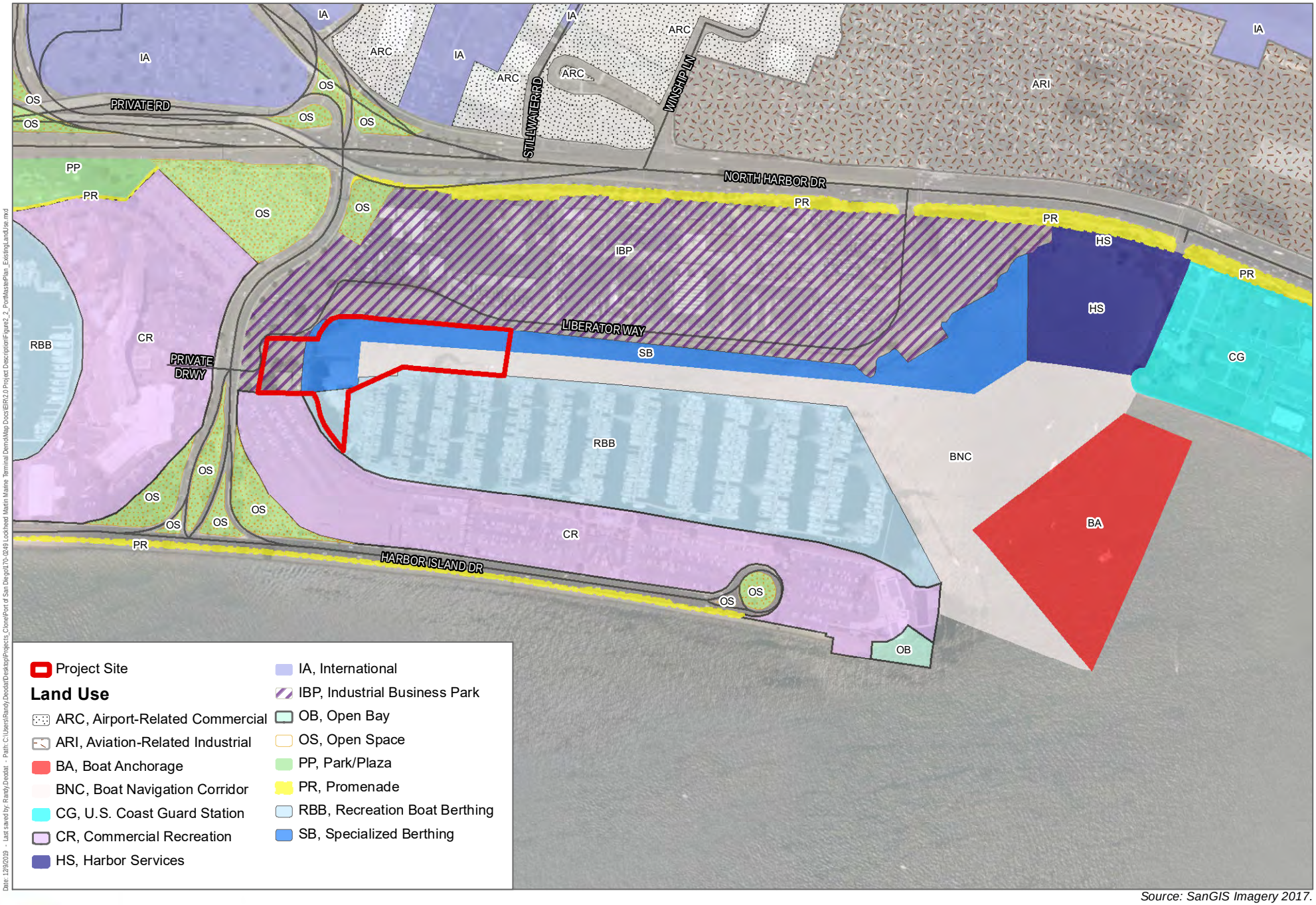

Source: SanGIS Imagery 2017.

Harris & Associates

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Figure 2-2

Port Master Plan Existing Land Use Designations

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Source: SanGIS Imagery 2017.

Harris & Associates

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Figure 2-3

Project Site Features

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Source: SanGIS 2019; SanGIS Imagery 2017.

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Figure 2-4

Surrounding Land Uses

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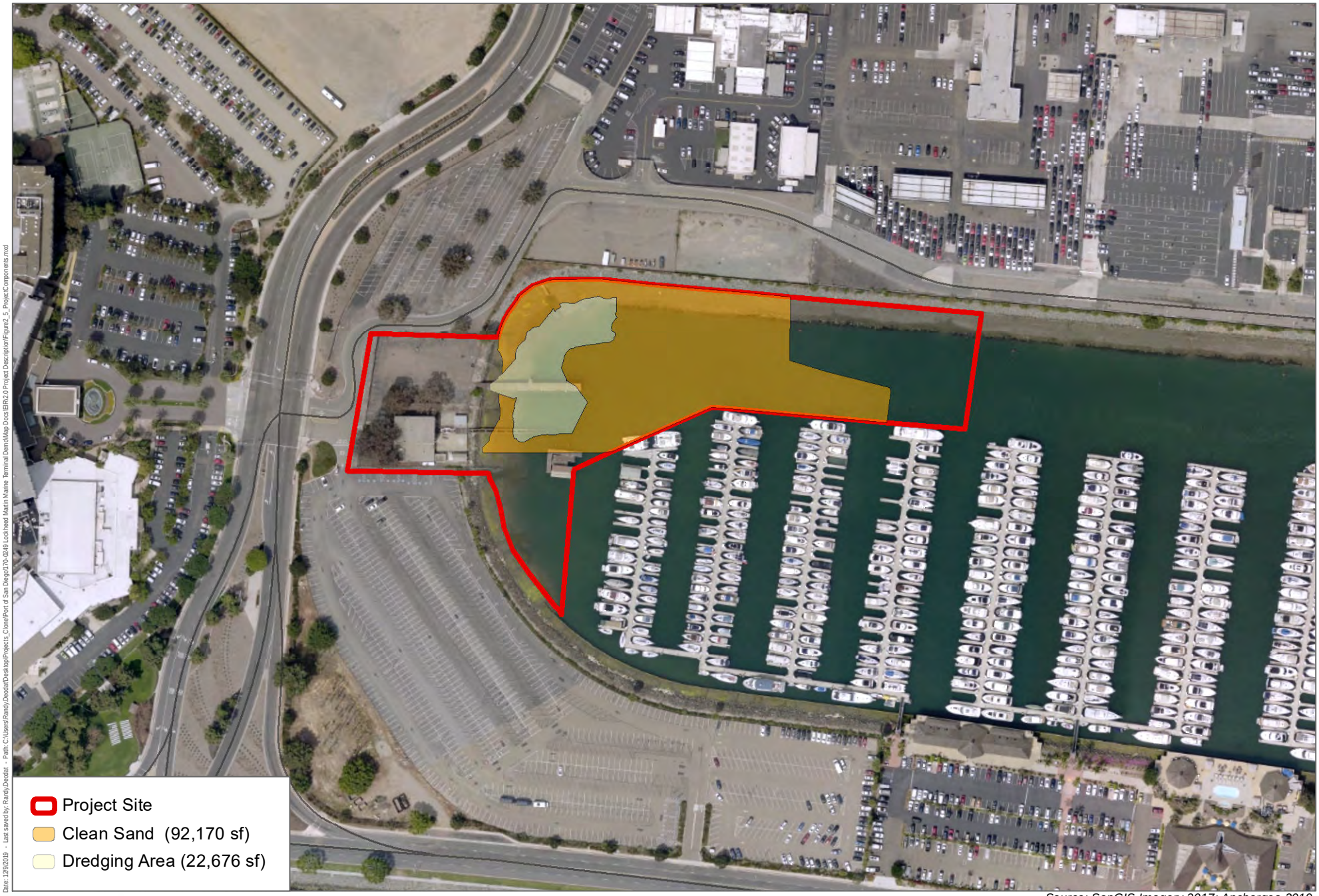

Source: SanGIS Imagery 2017; Anchorqea 2019.

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Figure 2-5

Project Components

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Chapter 3 Environmental Analysis

Introduction

Sections 3.1 through 3.8 of this Environmental Impact Report (EIR) contain a discussion of the potential environmental effects from implementation of the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project), including information related to existing site conditions, direct and cumulative environmental impact analyses, and mitigation measures that would reduce or avoid environmental impacts.

Potential Environmental Impacts

This chapter provides an analysis of the following potential environmental impacts of the proposed project:

- 3.1, Air Quality
- 3.2, Biological Resources
- 3.3, Cultural Resources
- 3.4, Greenhouse Gas Emissions
- 3.5, Hazards and Hazardous Materials
- 3.6, Hydrology and Water Quality
- 3.7, Noise
- 3.8, Tribal Cultural Resources

Additionally, an Initial Study (included in Appendix A, Notice of Preparation and Initial Study) was prepared in accordance with the California Environmental Quality Act (CEQA) Guidelines, Section 15063(c), during the environmental scoping process. The Initial Study determined that no impacts or less than significant impacts would result to the environmental effects listed in Appendix G of the CEQA Guidelines associated with the following resources:

- Aesthetics
- Agriculture and Forestry Resources
- Energy
- Geology and Soils
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Transportation

- Utilities and Service Systems
- Wildfire

Please refer to the Initial Study (Appendix A) for analyses on these resources.

Format of the Environmental Impact Analysis and CEQA Requirements

The following subsections compose the eight environmental topics in Sections 3.1 through 3.8 of this EIR.

Environmental Setting

According to Section 15125 of the CEQA Guidelines, an EIR must include a description of the existing physical environmental conditions in the vicinity of a project to provide the "baseline condition" against which project-related impacts are compared. Normally, the baseline condition is the physical condition that exists when the Notice of Preparation (NOP) is published. The NOP for this EIR was published on October 31, 2019.

Regulatory Setting

This subsection provides a summary of regulations, plans, policies, and laws that are relevant to each environmental topic at the federal, state, and regional and/or local levels.

Thresholds of Significance

Impact significance criteria are used to determine whether potential environmental effects are significant. The impact significance criteria used in this analysis are primarily based on Appendix G of the CEQA Guidelines and define the type, amount, and extent of impact that would be considered a significant adverse change in the environment. The thresholds of significance are intended to assist the reader in understanding how and why an EIR reaches a conclusion that an impact is significant.

Method of Analysis

This subsection describes the methods used to evaluate the potential environmental impacts of the proposed project. The methods may include references to major sources used in the analysis, definitions of terms, and the general steps taken in the analysis. Where technical reports are used as the basis of the analysis, the methods of the report are briefly summarized.

Project Impacts and Mitigation

This subsection describes the potential environmental impacts of the proposed project. The analysis is largely based on the categories provided in Appendix G of the CEQA Guidelines;

however, some of the applicable issues and significance criteria have been combined or reworded slightly to facilitate the environmental analysis.

Impact Analysis

The analysis of environmental impacts considers both the construction and operational aspects of implementation of the proposed project. As required by Section 15126.2(a) of the CEQA Guidelines, direct, indirect, short-term, extended-term, on-site, and off-site impacts are addressed, as appropriate, for the environmental issue being analyzed.

Significance of Impact

This chapter uses the following categories to describe the level of significance of impacts identified during the course of the environmental analysis:

No Impact: This term is used when the project's construction or operation would have no adverse effect on a resource.

Less than Significant. This term is used to refer to (1) impacts resulting from implementation of the proposed project that are not likely to exceed the defined standards of significance and (2) potentially significant impacts that are reduced to a level that does not exceed the defined standards of significance after implementation of mitigation measures.

Significant. This term is used to refer to impacts resulting from implementation of the proposed project that exceed the defined standards of significance before identification of mitigation measures. A "significant effect" is defined by Section 15382 of the CEQA Guidelines as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment [but] may be considered in determining whether the physical change is significant."

Significant and Unavoidable. This term is used to refer to significant impacts resulting from implementation of the proposed project that cannot be eliminated or reduced to below applicable standards of significance through implementation of feasible mitigation measures.

Mitigation Measures

Section 15126.4 of the CEQA Guidelines requires an EIR to "describe feasible measures which could minimize significant adverse impacts" if avoidance is not possible. CEQA Guidelines, Section 15364, defines "feasibility" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, legal, social, and technological

factors." This subsection lists the mitigation measures that could reduce the severity of impacts identified in the Impact Analysis subsection.

Significance After Mitigation

This subsection includes a resultant summary of project impacts with the implementation of the mitigation measures prescribed for the project.

Cumulative Impacts

CEQA requires that EIRs discuss cumulative impacts in addition to project impacts. In accordance with CEQA, the discussion of cumulative impacts must reflect the severity of the impacts and the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. Further, the discussion is guided by the standards of practicality and reasonableness. According to Section 15355 of the CEQA Guidelines, "cumulative impacts" are defined as:

> Two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Section 15130(a) of the CEQA Guidelines further states that a "cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts."

In addition, CEQA Guidelines, Section 15130(a), also requires that EIRs discuss the cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Therefore, the discussion of cumulative impacts in an EIR evaluates whether the impacts of the project will be significant when considered in combination with past, present, and future reasonably foreseeable projects and whether the project would make a cumulatively considerable contribution to those impacts. CEQA recognizes that the analysis of cumulative impacts need not be as detailed as the analysis of project-related impacts but, instead, should "be guided by the standards of practicality and reasonableness." CEQA Guidelines, Section 15130, indicates that, where a lead agency is examining a project with an incremental effect that is not cumulatively considerable, it need not consider the effect significant but shall briefly describe the basis for its conclusion. As

further clarified by Section 15065(a)(3) of the CEQA Guidelines, "cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. CEQA Guidelines, Section 15130(a)(3), allow a project's contribution to be rendered less than cumulatively considerable with implementation of or funding its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

The geographic scope of the cumulative impact analysis varies depending on the specific environmental issue area being analyzed. The geographic scope defines the geographic area within which projects may contribute to a specific cumulative impact. Therefore, past, present, and future reasonably foreseeable projects within the defined geographic area for a given cumulative issue must be considered.

CEQA Guidelines, Section 15130(b), presents two possible approaches for considering past, present, and future reasonably foreseeable projects. It indicates that either of the following could be used:

1. A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency.
2. A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

In determining the present and probable future projects to include in the cumulative impact analysis, the following guidance is provided by the Communities for a Better Environment v. California Resources Agency (2002) (103 Cal.App.4th 98). Probable projects include those that (1) have an application on file at the time the NOP is released; (2) are included in an adopted capital improvement program, general plan, regional transportation plan, or similar plan; (3) are included in a summary of projections of projects (or development areas designated) in a general plan or similar plan; (4) are anticipated as later phases of approved projects; or (5) are included in money budgeted by public agencies.

This EIR uses the "list" approach. The full range of past, present, and probable future (proposed) projects that were considered part of the baseline for evaluating cumulative impacts is provided in Table 3-1, Cumulative Projects. Cumulative impacts of the proposed project are discussed in the each of the appropriate environmental issue sections. Collectively, those cumulative projects are in various stages of development, including in the planning phase, design stage, or construction phase. The distance from the project site was measured from the outermost boundary of the project site closest to the outermost boundary of the cumulative project site closest to the project site.

Table 3-1. Cumulative Projects

No.	Project Name	Description	Project Location	Project Status
1	Hotel Development for the Elbow Parcel on Harbor Island	The proposed project includes development of a dual-branded, 450-room hotel structure on a parcel of land on East Harbor Island known as the "Elbow Parcel." The shared amenities include approximately 10,000 square feet of meeting space, an approximate 1,600-square-foot fitness center, 350 surface parking stalls, an outdoor swimming pool with Jacuzzi spa, retail shops, and an open space event lawn adjacent to the pool.	2040 Harbor Island Drive	In CEQA review
2	Water Group 1030 Project	The proposed project is part of the City of San Diego's Water Mainline Replacement Program. The project would replace mainly cast iron water mains in order to meet current service need and comply with City of San Diego design standards.	Shelter Island	CEQA document approved September 2019; construction underway
3	B Street Shore Power Project	Project consists of infrastructure components to provide shore power to existing terminal operations at the B Street and Broadway Piers (three berths) with the result of reducing air pollutant emissions and greenhouse gas emissions while cruise ships are berthed. Initially, shore power will be available to one ship at a time; in subsequent years, two ships will be able to use shore power at the same time.	B Street Pier and 1140 and 1000 North Harbor Drive	CEQA document approved; divided into phases, and Phase 2 construction anticipated in 2020
4	B Street Cruise Ship Terminal Maintenance Projects	Projects on the B Street Pier are required to address routine maintenance requirements to improve safety, security, integrity, aesthetics, and comfort of this facility. Roof replacement, canopy improvements, roll-up and rolling rate doors installation, fire system upgrades, clean and paint ceilings and hangers, mobile gangway and platform painting, and a photovoltaic system.	B Street Pier1140 North Harbor Drive	CEQA document approved December 2012; project design and review
5	Portside Pier Restaurant Redevelopment Project	Project involves the redevelopment of an existing waterfront restaurant with a new facility, including new pilings, piers, decking, and structure. Development involves demolition of an existing restaurant and supporting	1360 North Harbor Drive	CEQA document approved July 2016; construction complete

Table 3-1. Cumulative Projects

No.	Project Name	Description	Project Location	Project Status
		structure (including 66 piles) and redevelopment with a new, two-story restaurant and supporting structure (on 53 piles). The new facility would be approximately 33,577 square feet and include three distinct dining establishments, a coffee and gelato shop, an expanded dock and dine for short-term boat berthing, and a public viewing deck. The project would involve an approximately 8,722-square-foot increase in building floor area and a 4,480-square-foot net increase in water coverage. Restaurant seating would be increased by 464 seats. A new public viewing deck with approximately 108 seats is proposed and the replacement dock and dine boat dock would increase slips from 2 to 12 boat slips. The new building would be 7 feet taller than the existing.		
6	San Diego Symphony Bayside Performance Park	The project proposed park enhancements which include the replacement and enhancement of public park amenities throughout Embarcadero Marina Park South, provision of public access enhancements, and installation of a permanent performance stage and event venue within a portion of Embarcadero Marina Park South to be named the "Bayside Performance Park." Following project construction, Embarcadero Marina Park South would continue to be operated by the District, with the exception that the Bayside Performance Park portion would be operated and maintained by the project applicant, the San Diego Symphony Orchestra Association.	Portion of Embarcadero Marina Park South, 224 Marina Park Way	CEQA document approved January 2018; currently under construction
7	Tenth Avenue Marine Terminal	This project includes both project and programmatic components. The program-level component include up to five gantry cranes, additional and consolidated dry bulk storage capacity, enhancements to the existing conveyor system, demolition of molasses tanks and Warehouse	686 Switzer Street	CEQA document approved December 2016; currently under construction

Table 3-1. Cumulative Projects

No.	Project Name	Description	Project Location	Project Status
		C, additional open storage space, and on-dock intermodal rail facilities. The project-level improvements would involve the demolition of the two transit sheds, installation of a small gear shack with restrooms and outdoor storage space, and on-terminal rail upgrades.		
8	Fifth Avenue Landing Redevelopment	The project proposes commercial and recreational bayside redevelopment on approximately 18 acres. The project would include construction and operation an 850-room market-rate hotel tower; approximately 55,583 square feet of meeting space; up to 565-bed approximately 82-foot-high, 5-story, lower-cost, visitor-serving hotel; approximately 6,000 square feet of retail development along the Embarcadero Promenade; public plaza and park areas throughout the project site; on-site parking spaces; and a two-phase expanded marina with up to 50 new slips (approximately 23 slips in Phase I and 27 slips in Phase II) that, combined with the existing 12 slips, would total up to 62 slips.	South of Harbor Drive and the San Diego Convention Center west of the existing Hilton San Diego Bayfront Hotel	CEQA review complete; document available for public review December 2017; Final EIR not yet certified
9	Huntington Ingalls Industries San Diego Shipyard, Inc. Marginal Wharf Repair and As-Needed Pile Replacement Project	The project includes both landside and waterside facilities. The landside portions of the project site include surface parking, office buildings, warehouses, outdoor storage areas, stormwater facilities, and various other industrial buildings that are involved with repair and maintenance operations. The focus of this project is the waterside portions of the project site that include wharves and piers used to moor vessels undergoing repairs at the shipyard.	1995 Bay Front Street	CEQA document approved April 2019
10	Navy Broadway Complex Project	The project involves redevelopment of a 13.7-acre parcel with 2.9 million square feet of office space, including a 351,000-square-foot museum, 213,000- square feet of retail and restaurant space, more than 3,100 parking spaces, and a 1.9-acre	Broadway/Harbor Drive/Pacific Coast Highway	CEQA document approved October 1990; Development Agreement, Master Plan, Phase I Buildings Consistency

Table 3-1. Cumulative Projects

No.	Project Name	Description	Project Location	Project Status
		public park at the corner of Broadway and Harbor Drive.		Determination approved in 2009; divided into phases; Phase 2 under construction as of 2018
11	Mitsubishi Cement Corporation at Warehouse C: Bulk Cement Warehouse and Loading Facility Project	Involves improvements to Warehouse C at the Tenth Avenue Marine Terminal to import up to 500,000 metric tons of cement per year with an estimated 20,000 annual customer truck trips for an average of less than 55 trucks per day during operations with a maximum 192 trucks visiting the site per day.	850 B. Water Street, within District's Tenth Avenue Marine Terminal	Foreseeable project, not entitled. Draft SEIR public review completed; Final SEIR pending hearing

Note: CEQA = California Environmental Quality Act; District = San Diego Unified Port District; SEIR = subsequent environmental impact report

Conclusion

This subsection summarizes whether each of the project's significant environmental effects discussed and analyzed in the impact analysis has or has not been reduced to below a level of significance through mitigation. This subsection includes discussion supported by a synopsis of the rationale for the conclusion. Additionally, where the EIR concludes that there are unmitigated adverse impacts, their implications and reasons why the project is still being proposed without an alternative design, notwithstanding their effect, are also discussed in this section. Finally, this subsection also discusses why an impact could not be mitigated or otherwise reduced to a level below significant.

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3.1 Air Quality

The following analysis is based on the Air Quality Memorandum prepared for the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project) by Harris and Associates in February 2020 and included in Appendix F, Air Quality Memorandum and Greenhouse Gas Emissions Analysis, to this Environmental Impact Report.

3.1.1 Environmental Setting

Air quality is defined by the concentration of pollutants in relation to their impact on human health. Concentrations of air pollutants are determined by the rate and location of pollutant emissions released by pollution sources, and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, and sunlight. Therefore, ambient air quality conditions in the local air basin are influenced by such natural factors as topography, meteorology, and climate, in addition to the amount of air pollutant emissions released by existing air pollutant sources.

Climate, topography, and meteorology influence regional and local ambient air quality. Southern California is characterized as a semiarid climate, although it contains three distinct zones of rainfall that coincide with the coast, mountain, and desert. The Lockheed Martin Marine Terminal Facilities are on Harbor Island, a human-made narrow strip of land in San Diego Bay, and within the San Diego Air Basin (SDAB). The SDAB is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountain ranges to the east. The topography in the SDAB region varies greatly, from beaches on the west to mountains and then desert to the east.

3.1.1.1 Climatology

Regional climate and local meteorological conditions influence ambient air quality. The climate of the SDAB is dominated by a semi-permanent high-pressure cell located over the Pacific Ocean. This high-pressure cell typically creates a pattern of late-night and early morning low clouds, hazy afternoon sunshine, daytime onshore breezes, and little temperature variation year-round. The climatic classification for San Diego is a Mediterranean climate, with warm, dry summers and mild, wet winters (County of San Diego 2007). Meteorological data on the project site is gathered at the San Diego International Airport Lindbergh Field station, approximately 0.2 mile north of the project site. On the project site, the normal daily maximum temperature is 76 degrees Fahrenheit (°F) in August, and the normal daily minimum temperature is 48°F in January. The normal precipitation on the project site is approximately 10 inches annually, occurring primarily from November through March.

The high-pressure cell creates subsidence inversions, also known as temperature inversions, which occur during the warmer months as descending air associated with the Pacific high-pressure cell comes into contact with cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. In addition, the region experiences daytime onshore flow and nighttime offshore flow, which leads to emissions being blown out to sea at night and returning to land the following day. Under certain conditions, this atmospheric oscillation results in the offshore transport of air, and pollutants, from the Los Angeles region to the County of San Diego (County), which typically results in higher ozone (O_3) concentrations being measured at the County (County of San Diego 2007).

3.1.1.2 Air Pollutants

Air quality laws and regulations have divided air pollutants into two broad categories: criteria air pollutants and toxic air contaminants (TACs). Criteria air pollutants are a group of common air pollutants regulated by the federal and state governments by means of ambient standards based on criteria regarding public health and environmental effects of pollution (USEPA 2018). TACs are pollutants with the potential to cause significant adverse health effects. In California, the California Air Resources Board (CARB) identifies exposure thresholds for TACs that indicate the level below which no significant adverse health effects are anticipated from exposure to the identified substance. However, thresholds are not specified for TACs that have no safe exposure level, or where insufficient data is available to identify an exposure threshold (CARB 2011).

Criteria Air Pollutants

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. Six air pollutants have been identified by the U.S. Environmental Protection Agency (USEPA) and CARB as being of concern both on a nationwide and statewide level: carbon monoxide (CO), nitrogen oxides (NO_x), O_3, particulate matter (PM), sulfur dioxide (SO_2), and lead. The following describes the health effects for each of these criteria air pollutants. Emissions from lead typically result from industrial processes such as ore and metals processing, and leaded aviation gasoline (USEPA 2018).

Carbon Monoxide (CO)

CO is a colorless, odorless, poisonous gas, produced by combustion processes, primarily mobile sources. When CO gets into the body, it combines with chemicals in the blood and prevents the blood from providing oxygen to cells, tissues, and organs. Because the body requires oxygen for energy, high-level exposures to CO can cause serious health effects, including death (USEPA 2018).

Nitrogen Oxides (NO_x)

NO_x is a general term pertaining to compounds, including nitric oxide (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen. NO_x is produced from burning fuels, including gasoline, diesel, and coal. NO_x reacts with volatile organic compounds (VOCs) to form ground-level O_3 (smog). NO_x is linked to a number of adverse respiratory system effects (USEPA 2018).

Ozone (O_3)

Ground-level O_3 is not emitted directly in the air, but is formed by chemical reactions of "precursor" pollutants – NO_x and volatile VOCs – in the presence of sunlight. Major emissions sources include NO_x and VOC emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents. O_3 can trigger a variety of health problems, particularly for sensitive receptors, including children, the elderly, and people of all ages who have lung diseases such as asthma (USEPA 2018).

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM includes dust, metals, organic compounds, and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of diesel fuels by trucks and buses, industrial processes, and fires. Particulate pollution can cause nose and throat irritation and heart and lung problems. PM is measured in microns, which are 1 millionth of a meter in length (or 1 thousandth of a millimeter). PM_{10} is small (respirable) PM measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine PM measuring no more than 2.5 microns in diameter (USEPA 2018).

Sulfur Dioxide (SO_2)

SO_2 is formed primarily by the combustion of sulfur-containing fossil fuels, especially at power plants and industrial facilities. SO_2 is linked with a number of adverse effects on the respiratory system (USEPA 2018).

3.1.1.3 Existing Air Quality

Air Quality Monitoring Data

Ambient air pollutant concentrations in the SDAB are measured at air quality monitoring stations operated by CARB and the San Diego Air Pollution Control District (SDAPCD). The closest air quality monitoring station to the project site is the station at 1110 Beardsley Street, approximately 4 miles south of the project site. This station monitors ambient O_3, NO_2, PM_{10}, and $PM_{2.5}$ concentrations. Table 3.1-1, Air Quality Monitoring Data, presents a summary of the highest pollutant concentrations monitored during the 3 most recent years (2014 through 2016) for which the SDAPCD has reported data for these stations.

Table 3.1-1. Air Quality Monitoring Data

Pollutant	Monitoring Station	2014	2015	2016
Ozone				
Maximum 1-hour concentration (ppm)	San Diego – 1110 Beardsley Street	0.093	0.089	0.072
Days above 1-hour state standard (>0.09 ppm)		0	0	0
Maximum 8-hour concentration (ppm)		0.072	0.067	0.061
Days above 8-hour state standard (>0.07 ppm)		1	0	0
Respirable Particulate Matter (PM_{10})				
Peak 24-hour concentration ($\mu g/m^3$)	San Diego – 1110 Beardsley Street	41	54	51
Days above state standard (>50 $\mu g/m^3$)		0	1	1
Days above federal standard (>150 $\mu g/m^3$)		0	0	0
Fine Particulate Matter ($PM_{2.5}$)				
Peak 24-hour concentration ($\mu g/m^3$)	San Diego – 1110 Beardsley Street	37.2	44.9	34.4
Days above federal standard (>35 $\mu g/m^3$)		1	0	0
Nitrogen Dioxide				
Peak 1-hour concentration (ppm)	San Diego – 1110 Beardsley Street	0.075	0.062	0.073
Days above state 1-hour standard (0.18 ppm)		0	0	0

Source: CARB 2018.

Notes: PPM = parts per million, $\mu g/m^3$ = micrograms per cubic meter

As shown in Table 3.1-1, the 1-hour O_3 concentration did not exceed the state or federal standards during the 2014–2016 time period. The 8-hour O_3 concentration exceeded the state standard one time during 2014, and no violations occurred during 2015 or 2016. The daily PM_{10} concentration exceeded the state standard in 2015 and 2016. The federal standard for daily PM_{10} was not exceeded during this period. The federal 24-hour $PM_{2.5}$ standard was violated one day during 2014, but was not exceeded during 2015 or 2016. The state standard for NO_2 was not exceeded at any time during 2014–2016.

Toxic Air Contaminants

In addition to criteria pollutants, both federal and state air quality regulations also focus on TACs. TACs can be separated into carcinogens and noncarcinogens based on the nature of the effects associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts would not occur. Any exposure to a carcinogen poses some risk of contracting cancer. Noncarcinogens differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

TACs may be emitted by stationary, area, or mobile sources. Common stationary sources of TAC emissions include gasoline stations, dry cleaners, and diesel backup generators, which are subject to local air district permit requirements. The other, often more significant, sources of TAC emissions are motor vehicles on freeways, high-volume roadways, or other areas with high numbers of diesel vehicles, such as distribution centers. Off-road mobile sources are also major contributors of TAC emissions and include construction equipment, ships, and trains.

Particulate exhaust emissions from diesel-fueled engines (diesel particulate patter [DPM]) were identified as a TAC by CARB in 1998. Federal and state efforts to reduce DPM emissions have focused on the use of improved fuels, adding particulate filters to engines, and requiring the production of new-technology engines that emit fewer exhaust particulates.

Diesel engines tend to produce a much higher ratio of fine particulates than other types of internal combustion engines. The fine particles that make up DPM tend to penetrate deep into the lungs and the rough surfaces of these particles makes it easy for them to bind with other toxins within the exhaust, increasing the hazards of particle inhalation. Long-term exposure to DPM is known to lead to chronic, serious health problems including cardiovascular disease, cardiopulmonary disease, and lung cancer.

The SDAPCD samples for TACs at the El Cajon and Chula Vista monitoring stations. Excluding DPM, data from these stations indicate that the background cancer risk in 2014 due to TACs was 345 in 1 million in Chula Vista and 394 in 1 million in El Cajon (AECOM 2018). CARB estimates the excess cancer risk from DPM in California in 2012 as 520 in a million (SDAPCD 2017).

Sensitive Receptors

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. The City of San Diego's (City's) California Environmental Quality Act (CEQA) Guidelines defines a sensitive receptor as a person who is particularly susceptible to health effects due to exposure to an air contaminant relative to the population at large. These include children, the elderly, and people with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Air quality regulators typically define sensitive receptors as schools, hospitals, resident care facilities, daycare centers, or other facilities that may house individuals who are particularly susceptible to health effects that would be adversely impacted by changes in air quality.

The project site is in a marine-related industrial park. Approximately two-thirds of the East Basin is occupied by the Sunroad Resort Marina. The Sheraton San Diego Hotel & Marina is 0.1 mile west of the property on the western side of Harbor Island Drive. There is no residential development or zoned residential development within the vicinity of the project site. The closest school to the project site is

High Tech Elementary, approximately 1.33 miles west of the project site in Point Loma. The closest place of worship is the Our Lady of the Rosary, which is approximately 2 miles southwest.

Odor

Odors are considered an air quality issue both at the local level (e.g., odor from wastewater treatment) and at the regional level (e.g., smoke from wildfires). Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and is subjective. Some individuals have the ability to smell minute quantities of specific substances, while others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person (e.g., from a fast-food restaurant or bakery) may be perfectly acceptable to another. Unfamiliar odors may be more easily detected and likely to cause complaints than familiar ones.

Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

Several examples of common land use types that generate substantial odors include wastewater treatment plants, landfills, composting/green waste facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting/coating operations, rendering plants, and food packaging plants. There are no wastewater treatment plants, landfills, composting facilities, refineries, or chemical plants in the vicinity of the project site.

3.1.2 Regulatory Setting

The air quality management agencies of direct importance in the County are the USEPA, CARB, and SDAPCD. The USEPA has established federal air quality standards for which CARB and the SDAPCD have primary implementation responsibility. CARB and the SDAPCD are also responsible for ensuring that state air quality standards are met. The following sections discuss federal, state, and local regulations applicable to the project.

3.1.2.1 Federal

Clean Air Act

The Clean Air Act (CAA) of 1970 is the comprehensive federal law that regulates air emissions from stationary and mobile sources. The CAA authorizes the USEPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants. Current NAAQS are listed in Table 3.1-2, National and California Ambient Air Quality Standards. The primary standards listed below have been set at levels intended to protect public health. The USEPA has classified air basins (or portions thereof) as being in "attainment," "nonattainment," or "unclassified" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. The USEPA classifies the SDAB as in attainment for the federal CO, NO_2, lead, $PM_{2.5}$, and SO_2 standards. It is unclassifiable for PM_{10} with respect to federal air quality standards. The SDAB is classified as moderate nonattainment for O_3 (SDAPCD 2016a). Table 3.1-3, San Diego Air Basin Attainment Status, lists the attainment status of the SDAB for criteria pollutants.

The CAA requires states to develop a plan to attain and maintain the NAAQS in all areas of the country and a specific plan to attain the standards for each area designated nonattainment for a NAAQS. These plans, known as State Implementation Plans (SIPs), are developed by state and local air quality management agencies and submitted to USEPA for approval. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The SIP is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them.

Table 3.1-2. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	Federal Standards[2]	
		Concentration[3]	Primary[3, 4]	Secondary[3, 5]
Ozone (O_3)[6]	1-hour	0.09 ppm (180 µg/m^3)	—	Same as Primary Standards
	8-hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	
Respirable Particulate Matter (PM_{10})[7]	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary Standards
	Annual Arithmetic Mean	20 µg/m^3	—	
Fine Particulate Matter ($PM_{2.5}$)[7]	24 Hour	—	35 µg/m^3	Same as Primary Standards
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	15 µg/m^3
Carbon Monoxide (CO)	8-hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	None
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)[8]	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary Standard

Table 3.1-2. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	Federal Standards[2]	
		Concentration[3]	Primary[3, 4]	Secondary[3, 5]
	1-hour	0.18 ppm (470 mg/m^3)	100 ppb (188 µg/m^3)	
Sulfur Dioxide (SO_2)[9]	Annual Arithmetic Mean	—	0.030 ppm (for certain areas)	—
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas)	—
	3 Hour	—	—	0.5 ppm (1300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	—
Lead[10, 11]	30 Day Average	1.5 µg/m^3	—	—
	Calendar Quarter	—	1.5 µg/m^3 (for certain areas)	Same as Primary Standard
	Rolling 3-Month Average[7]	—	0.15 µg/m^3	
Visibility-Reducing Particles[12]	8-hour	See Footnote 12.	No Federal Standards	
Sulfates	24 Hour	25 µg/m^3	No Federal Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	No Federal Standards	
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m^3)	No Federal Standards	

Source: CARB 2016.

Notes: µg/m^3 = micrograms per kilogram

1 California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride standards are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than O_3, PM, and those based on annual averages) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in 1 year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current national policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; parts per million (ppm) in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

5 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

6 On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

7 On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

8 To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

9 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of ppb. California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm

[10] The CARB had identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[11] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 μg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[12] In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Table 3.1-3. San Diego Air Basin Attainment Status

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone (O_3)	1 Hour	**Nonattainment**	No Federal Standard
	8 Hour		**Nonattainment (Moderate)**
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	**Nonattainment**	No Federal Standard
	24 Hour		Unclassified[1]
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	**Nonattainment**	Attainment
	24 Hour	No State Standard	
Carbon Monoxide (CO)	8 Hour	Attainment	Maintenance
	1 Hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	1 Hour	Attainment	No Federal Standard
Lead	Calendar Quarter	No State Standard	Attainment
	30 Day Average	Attainment	No Federal Standard
	Rolling 3-Month Average	No State Standard	Attainment
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	No Federal Standard
Sulfates	24 Hour	Attainment	No Federal Standard
Hydrogen Sulfide	1 Hour	Unclassified	No Federal Standard
Visibility-Reducing Particulates	8 Hour (10:00 a.m. to 6:00 p.m., PST)	Unclassified	No Federal Standard

Sources: USEPA 2020; SDAPCD 2016a, 2016b.

Note:

[1] Unclassified; indicates data are not sufficient for determining attainment or nonattainment.

3.1.2.2 State

Air Quality and Land Use Handbook: A Community Health Perspective

The CARB has also developed the Air Quality and Land Use Handbook: A Community Health Perspective to provide guidance on land use compatibility with sources of TACs (CARB 2005). These sources include freeways and high-traffic roads, commercial distribution centers, rail yards, refineries, dry cleaners, gasoline stations, and industrial facilities. The handbook is not a law or

adopted policy but offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs. The handbook indicates that land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality-of-life issues.

California Ambient Air Quality Standards

The CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. The CAA allows states to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. California has adopted ambient standards (the California Ambient Air Quality Standards [CAAQS]) that are equal to or stricter than the federal standards for six criteria air pollutants. The CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations and provided in Table 3.1-2. Similar to the federal CAA, areas have been designated as attainment, nonattainment, or unclassified with respect to the state ambient air quality standards. The County is in nonattainment with the CAAQS for O_3, PM_{10}, and $PM_{2.5}$. The County is designated as an attainment area for the state CO, NO, SO_2, lead, and sulfates standards. Hydrogen sulfide and visibility-reducing particles are unclassified in the County.

Diesel Risk Reduction Plan

CARB adopted a Diesel Risk Reduction Plan, which recommends control measures to achieve a DPM reduction of 85 percent by 2020 from year 2000 levels. Recent regulations and programs include the low-sulfur diesel fuel requirement and more stringent emission standards for heavy-duty diesel trucks and off-road in-use diesel equipment. As emissions are reduced, it is expected that the risks associated with exposure to the emissions will also be reduced.

Toxic Air Contaminant Regulations

California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill 1807, Tanner Act) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (Assembly Bill 2588, Hot Spots Act). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB designates a substance as a TAC. The Hot Spots Act requires existing facilities that emit toxic substances above specified levels to (1) prepare a toxic emission inventory, (2) prepare a risk assessment if emissions are significant (i.e., 10 tons per year or on the air district's Hot Spots Risk Assessment list), (3) notify the public of significant risk levels, and (4) prepare and implement risk reduction measures.

3.1.2.3 Local

Port of San Diego

The Port Master Plan is the governing land use document for physical development in the San Diego Unified Port District (District); however, there are also other District programs that apply to air quality, and the District's Climate Action Plan has co-benefits to air quality. The District developed the Green Port Program to support the goals of the Green Port Policy, which was adopted in 2008. The Green Port Program supports resource conservation, waste reduction, and pollution prevention. The Clean Air Program is one key area of the Clean Port Program, with the primary goal of reducing air emissions from District operations at its three marine terminals. The Clean Air Program seeks to voluntarily reduce criteria pollutants and greenhouse gas emissions from current and future District operations through the identification and evaluation of feasible and effective control measures for each category of Port emissions. The District has developed various control measures geared toward reducing emissions from the greatest contributors of air pollution. The Clean Air Program will continue to be refined and be adapted to future changes in District operations. The District has also adopted a Clean Truck Program and vessel speed reduction program. Through efforts at the international, federal, state, and local levels, air emissions from goods movement sources at the District have been greatly reduced.

San Diego Air Pollution Control District

The SDAPCD has jurisdiction over air quality programs in the County. State and local government projects, as well as projects proposed by the private sector, are subject to SDAPCD requirements if the sources are regulated by the SDAPCD. Additionally, the SDAPCD, along with CARB, maintains and operates ambient air quality monitoring stations at numerous locations throughout the County. The stations are used to measure and monitor criteria and toxic air pollutant levels in the ambient air.

Under the requirements of the California Clean Air Act, each local air district is required to develop its own strategies to achieve both state and federal air quality standards for its air basin. The SDAPCD developed the 2016 Revision of the Regional Air Quality Strategy for San Diego County (RAQS). The RAQS was developed pursuant to the California Clean Air Act requirements and identifies feasible emission control measures to provide progress in the County toward attaining the state O_3 standard. The pollutants addressed are VOCs and NO_x, precursors to the photochemical formation of O_3 (the primary component of smog). The RAQS control measures focus on emission sources under the SDAPCD's authority, specifically stationary emission sources (such as power plants, manufacturing and industrial facilities) and some area-wide sources (such as water heaters, architectural coatings, and consumer products). However, the emission inventories and emission projections in the RAQS reflect the impact of all emission sources and all control measures, including those under the jurisdiction of CARB (on-road and off-road motor vehicles) and the USEPA (aircraft, ships, and trains). Thus, while

legal authority to control various pollution sources is divided among agencies, the SDAPCD is responsible for reflecting federal, state, and local measures in a single plan to achieve state O_3 standards in the County. The RAQS was initially adopted by the SDAPCD in 1992 and has generally been updated on a triennial basis, in accordance with state requirements. The latest version of the RAQS was adopted by the SDAPCD in 2016 (SDAPCD 2016c).

Additionally, as mentioned previously, because the County is currently designated as a nonattainment area for the 8-hour O_3 NAAQS, the SDAPCD must submit to USEPA, through CARB, an implementation plan as part of the California SIP identifying control measures and associated emission reductions as necessary to demonstrate attainment of the federal 8-hour O_3 standard within the County. SDAPCD adopted its 2008 Eight-Hour Ozone Attainment Plan for the County in December 2016.

Neither the RAQS nor the SIP addresses emissions of PM in the SDAB. The SDAPCD prepared the Measures to Reduce Particulate Matter in San Diego County in December 2005. This report identifies existing federal, state, and local measures to control particulates in the SDAB. This plan outlines potential measures for PM control that the SDAPCD may further evaluate for future rule adoption. It does not outline a plan for ambient air quality standards compliance that the project would need to implement or demonstrate compliance with. As such, this report is not discussed further in this analysis.

The SDAPCD is also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws. Development projects in the City may be subject to the following SDAPCD rules (as well as others):

- **Rule 51, Nuisance:** prohibits emissions that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health, or safety of any such persons or the public; or which cause injury or damage to business or property.
- **Rule 52, Particulate Matter:** establishes limits to the discharge of any PM from non-stationary sources.
- **Rule 54, Dust and Fumes:** establishes limits to the amount of dust or fume discharged into the atmosphere in any 1 hour.
- **Rule 55, Fugitive Dust Control:** sets restrictions on visible fugitive dust from construction and demolition projects.
- **Rule 67, Architectural Coatings:** establishes limits to the VOC content for coatings applied within the SDAPCD.

3.1.3 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a significant impact related to air quality would occur if the project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

3.1.4 Method of Analysis

Project construction emissions from sources other than harbor craft were estimated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. Model inputs were based on the information provided by the District. Emissions from the tugboat and scows were estimated based on the data, formulas, and emissions factors provided by the Port of San Diego 2016 Maritime Air Emissions Inventory (District 2018). Based on the descriptions of harbor craft in the emission inventories, average engine power, load factor, and emissions factors for tow boats and work boats are assumed for the tugboat and scows, respectively. Detailed assumptions and modeling data sheets are provided in Appendix F.

The analysis did not assume that standard dust and emission controls during grading operations to reduce potential nuisance impacts and to ensure compliance with SDAPCD Rule 55 (Fugitive Dust Control) would be implemented.

3.1.5 Project Impacts and Mitigation

The following sections address various potential impacts relating to air quality that could result due to the implementation of the proposed project.

3.1.5.1 Threshold 1: Consistence with Applicable Air Quality Plan

Would the project conflict with or obstruct implementation of the applicable air quality plan?

Impact Analysis

The SDAPCD is required, pursuant to the federal and state CAAs, to reduce emissions of criteria pollutants for which the County is in nonattainment (i.e., O_3, PM_{10}, and $PM_{2.5}$). To comply with these mandates, the SDAPCD's RAQS projects future emissions and determines the strategies necessary for the reduction of stationary-source emissions through regulatory controls to attain the CAAQS for O_3. The federal CAA also mandates that the SDAPCD, though CARB, submit and

implement an SIP for local areas not meeting NAAQS. San Diego is designated as moderate nonattainment for the 2008 8-hour O_3 NAAQS. On March 23, 2017, CARB adopted the Eight-Hour Ozone Attainment Plan for San Diego County. CARB's source emission projections and the San Diego Association of Governments growth projections are based on population and vehicle trends and land use plans developed by local agencies. The Port Master Plan serves as the relevant document for establishing growth projections within the District's jurisdiction.

The project would remediate the existing Marine Terminal Facilities and does not propose construction of any structures. There would be no operations following remediation activities. Therefore, the project would not conflict with the RAQS or the Eight-Hour Ozone Attainment Plan for San Diego County. In addition, the project would comply with existing rules and regulations regarding emissions generated during construction as implemented by the SDAPCD, CARB, and USEPA, including Rule 51, Nuisance; Rule 52, Particulate Matter; Rule 54, Dust and Fumes; Rule 55, Fugitive Dust Control; Rule 67, Architectural Coatings; the CAAQS; and the NAAQS..

Significance of Impact

Implementation of the proposed project would not conflict with implementation of applicable air quality plans and, therefore, would result in a less than significant impact to air quality.

Mitigation Measures

No mitigation measures are required.

3.1.5.2 Threshold 2: Cumulative Increase in Criteria Pollutant

Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Impact Analysis

The thresholds listed in Table 3.1-4, Screening Level Criteria Thresholds for Air Quality Impacts, represent screening level thresholds that can be used to evaluate whether project-related emissions could cause a significant impact on air quality.

Neither the City nor the District has developed CEQA thresholds of significance for air quality. The SDAPCD does not provide specific quantitative thresholds for determining the significance of air quality impacts under CEQA. However, the SDAPCD does specify Air Quality Impact Analysis (AQIA) trigger levels for new or modified stationary sources (SDAPCD Rules 20.2 and 20.3). If these incremental levels for stationary sources are exceeded, an AQIA must be performed for the source. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes, these levels may be used to evaluate increases in emissions.

SDAPCD Rule 20.2, which outlines these significance level thresholds, states that any project that results in an emissions increase equal to or greater than any of these levels must demonstrate through an AQIA that the project will not (SDAPCD 2018):

- Cause a violation of a state or national ambient air quality standard anywhere that does not already exceed such standard
- Cause additional violations of a national ambient air quality standard anywhere the standard is already being exceeded
- Cause additional violations of a state ambient air quality standard anywhere the standard is already being exceeded
- Prevent or interfere with the attainment or maintenance of any state or national ambient air quality standard

For projects whose stationary-source emissions are below these criteria, no AQIA is typically required, and project-level emissions are presumed to be less than significant. For CEQA purposes, these screening level thresholds can be used to demonstrate that a project's total emissions (e.g., stationary and fugitive emissions, as well as emissions from mobile sources) would not result in a significant impact to air quality.

SDAPCD Rules 20.2 and 20.3 do not have AQIA thresholds for emissions of VOCs and $PM_{2.5}$. The County notes that the use of the screening level for VOCs specified by the South Coast Air Quality Management District, which generally has stricter emissions thresholds than the SDAPCD, is recommended for evaluating projects in the County. For $PM_{2.5}$, the USEPA's "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005, which quantifies significant emissions as 10 tons per year, was identified by the County of San Diego as an appropriate screening threshold. If project emissions exceed these screening level thresholds, specific modeling will be required for NO_2, SO_2, CO, and lead to demonstrate that the project's ground-level concentrations, including appropriate background levels, do not exceed the NAAQS and CAAQS. For O_3 precursors, PM_{10} and $PM_{2.5}$, exceedances of the screening level thresholds results in a significant impact. The reason for this is that the SDAB is currently not in attainment for PM_{10}, $PM_{2.5}$, and O_3.

Table 3.1-4. Screening Level Criteria Thresholds for Air Quality Impacts

Pollutant	Emission Rate (pounds/day)
PM_{10}	100
$PM_{2.5}$	55
NO_X	250
SO_X	250
CO	550
Pb	3.2
VOC	75

Sources: SDAPCD 2018; County of San Diego 2007.

Notes: CO = carbon monoxide; NO_X = oxides of nitrogen; Pb = lead and lead compounds; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; SO_X = oxides of sulfur; VOC = volatile organic compound

The proposed project would result in temporary air pollutants associated with soil disturbance, dust emissions, employee and vendor vehicle exhaust, use of a tugboat and scows, and combustion pollutants from off-road construction equipment. Construction-related air pollution emissions can vary from day to day, depending on the level of activity, type of activity, and prevailing weather conditions. The primary air pollutants of concern from construction activities are particulate matter (including PM_{10} and $PM_{2.5}$), CO, and O_3 precursors (including VOCs) NO_x and sulfur (SO_x). Emissions levels associated with construction of the proposed project are shown in Table 3.1-5, Estimated Daily Maximum Air Pollutant Emissions.

Table 3.1-5. Estimated Daily Maximum Air Pollutant Emissions

Construction Phase	VOC	NO_x	CO	SO_X	PM_{10}	$PM_{2.5}$
			(pounds/day)			
1: Utility Removal and Site Preparation	1	12	10	<1	1	1
1: Demolition	1	20	10	<1	4	1
1: Grading	2	46	17	<1	4	2
2: Waterside Demolition	6	74	41	<1	4	3
2: Dredging and Export	18	183	114	<1	8	7
Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix F.

Notes: CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; SO_X = oxides of sulfur; VOC = volatile organic compound

Emission quantities are rounded to the nearest whole number. Exact values are provided in Appendix F.

Project remediation activities would be short term and temporary, and as shown in Table 3.1-5, emissions would be below the significance thresholds for all pollutants. Furthermore, the project would be required to comply with the SDAPCD Rule 55, which sets restrictions on visible fugitive dust from construction and demolition projects. These restrictions include construction or demolition activities beyond the property line of the proposed project, minimization of trackout of construction dust from the project site, and removal of construction dust from the project site. This

requirement was not accounted for in the air quality modeling, resulting in conservative emissions impact estimates.

Phase 3 activities would include minimal construction equipment required for grading and demolition to return the site to an undeveloped condition. No truck trips are anticipated. Although construction specifics are unknown, because construction activities would be less intense during this phase than the earlier phases, it can be assumed that maximum daily emissions would not exceed the significance thresholds.

Following remediation activities, the project site would remain vacant and would not generate new sources of operational emissions. Only occasional maintenance trips would be required, resulting in negligible criteria pollutant emissions.

Significance of Impact

Implementation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard, and a less than significant impact would occur.

Mitigation Measures

No mitigation measures are required.

3.1.5.3 Threshold 3: Sensitive Receptors

Would the project expose sensitive receptors to substantial pollutant concentrations?

Impact Analysis

Impacts to sensitive receptors are typically analyzed for CO hotspots, exposure to TACs, asbestos-containing materials, and lead-based paint. An analysis of the project's potential to expose sensitive receptors to these pollutants is provided.

Carbon Monoxide Hotspots

A CO hotspot is an area of localized CO pollution caused by high vehicle intensity, such as congested intersections and parking garages. If a project increases average delay at signalized intersections operating at level of service E or F or causes an intersection that would operate at level of service D or better without the project to operate at level of service E or F with the project, a quantitative screening is required.

During Phase 1, demolition of the facilities would require the removal of landside infrastructures. In total, 840 tons of demolition debris would be transported for disposal by haul-truck trips. After building demolition, the foundation would be removed, and any resulting depressions would be filled with 5,205 cubic yards of material. During Phase 2 waterside demolition activities, 1,040

tons of material would be exported. During dredging activities, approximately 3,500 cubic yards of contaminated sediments would be exported from the project site, and a total 4,500 cubic yards of clean sand would be imported. Dredged sediment would be loaded into lined haul trucks and transported to an off-site upland disposal location. The worst-case average number of daily truck trips for the proposed project would occur during Phase 1 during the filling operations following demolition. A total of 695 truck trips are anticipated over 5 working days, for an average of approximately 139 truck trips per day. In addition, the project would generate a worst-case average of 23 daily construction worker trips. The minimal amount of construction trips associated with the project would not add a significant amount of trips to the existing circulation system to include surrounding signalized intersections. In addition, following the completion of the project, the project site would remain vacant and would not generate new vehicle trips. Therefore, there would be no potential for a CO hotspot or exposure of sensitive receptors to substantial, project-generated, local CO emissions.

Toxic Air Contaminants

The closest land uses within the vicinity of the project site that have substantial public/human use are the Sheraton San Diego Hotel & Marina, approximately 0.1 mile west of the site across Harbor Drive, and Sunroad Resort Marina, directly southeast of the site, with stalls within 100 feet of the project construction area. Construction activities would be short term, occurring over an approximately 6-month period, which is much shorter than the assumed 9-, 30-, or 70-year exposure period typically used to estimate lifetime cancer risks. CARB identified DPM as a TAC in 1998. The dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer time period. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 30-year or 70-year exposure period; however, such assessments should be limited to the period or duration of activities associated with the project.

Receptors that access the Sheraton San Diego Hotel & Marina and Sunroad Resort Marina would have limited exposure to diesel exhaust, with exposure limited to visitation that coincides with weekday construction activities. DPM emitted by these sources can remain airborne for several days. However, given the prevailing winds and meteorological conditions at the project site during daytime construction hours, pollutant emission concentrations would be expected to be well dispersed. Construction activities would be sporadic, transitory, and short term in nature; once construction activities end, so too would the source of emissions.

In addition, Table 3.1-5 indicates that diesel exhaust (PM_{10} exhaust) associated with construction activities would be minimal (less than 9 pounds per day), and diesel-vehicle activity on public

roadways would be minimal, comprising delivery and material haul trips not in proximity of residential uses. Furthermore, diesel-equipment activity on site would be short term and transitory, result in minimal emissions, and occur at distances not expected to expose sensitive receptor locations to substantial pollutant concentrations.

In addition, there would be no operations following remediation activities. As such, the proposed project would not have the potential to expose sensitive receptors to TACs from mobile sources to an extent that health risks could result.

Asbestos-Containing Materials and Lead-Based Paint

Demolition of the Marine Terminal Building would result in fugitive dust and other particulates that may disperse to adjacent sensitive receptor locations. Due to the age of the existing building, the building has the potential to contain asbestos-containing materials. In addition, based on the age of the subject property building (pre-1978), there is a potential that lead-based paint is present. A discussion of asbestos-related and lead-based paint impacts is presented in Section 3.5, Hazards and Hazardous Materials. As discussed therein, the building is anticipated to contain asbestos-containing materials or lead-based paint. As a result, an accidental release of asbestos or lead would occur during construction of the proposed project. Asbestos-containing materials and lead-containing surfaces would be removed in accordance with federal, state, and local regulations, which would reduce the potential for an accidental release of hazardous materials into the environment to less than significant.

Significance of Impact

Implementation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations and less than significant impacts would occur.

Mitigation Measures

No mitigation measures are required.

3.1.5.4 Threshold 4: Odors

Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Impact Analysis

Typical odor sources are generally associated with municipal, industrial, or agricultural land uses, such as wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, the wind speed, and direction, and the sensitivity of receptors. The project would not involve land uses typically associated with odor

complaints. The project could produce odors during proposed construction activities resulting from construction equipment exhaust. However, standard construction practices would minimize the odor emissions and their associated impacts. Furthermore, odors emitted during construction would be temporary, short term, and intermittent in nature and would cease upon the completion of the respective phase of construction. In addition, there would be no operations following remediation activities.

Significance of Impact

Implementation of the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.1.6 Cumulative Impacts

The following sections address cumulative impacts relating to air quality that could result due to the implementation of the proposed project.

3.1.6.1 Cumulative Threshold 1: Consistence with Applicable Air Quality Plan

The geographic context for the analysis of cumulative impacts to consistencies with an applicable air quality plan is the SDAB. The RAQS and SIP are intended to address cumulative impacts in the SDAB based on future growth predicted by the San Diego Association of Governments. As described previously, implementation of the proposed project would be consistent with the growth projections in the RAQS and SIP. Cumulative development is not expected to result in a significant impact in terms of conflicting with the SDAPCD air quality management plans and the California SIP because the majority of cumulative projects would propose development that is consistent with the applicable growth projections incorporated into local air quality management plans. Implementation of the proposed project, in combination with other cumulative projects, would not conflict with or obstruct implementation of the RAQS or SIP air quality plans. A cumulative impact would not occur, and the project's contribution would not be cumulatively considerable.

3.1.6.2 Cumulative Threshold 2: Cumulative Increase in Criteria Pollutant

An existing cumulative impact related to PM_{10}, $PM_{2.5}$, and O_3 precursors (NO_x and VOC) exists in the basin. A project that is consistent with the thresholds in Table 3.1-4 is considered to result in less than cumulatively considerable emissions. As discussed in Section 3.1.5.2, emissions from the proposed project would not exceed the significance thresholds and would not result in a cumulatively considerable contribution.

3.1.6.3 Cumulative Threshold 3: Sensitive Receptors

Cumulative growth in the Port Master Planning Area would have the potential to increase congestion and potentially result in CO hot spots. However, as described above, construction trips associated with the project would not add a significant amount of trips to the existing circulation system to include surrounding signalized intersections. Therefore, a significant cumulative impact related to CO hot spots would not occur.

The cumulative projects would also have the potential to result in a significant cumulative impact associated with sensitive receptors if, in combination, they would expose sensitive receptors to a substantial concentration of TACs, including asbestos-containing materials and lead-based paint, that would significantly increase cancer risk. However as described previously, the project's construction diesel-equipment activity would be short term and transitory, result in minimal emissions, and occur at distances not expected to expose sensitive receptor locations to substantial pollutant concentrations. In addition, hazardous building materials would be removed in accordance with federal, state, and local regulations would reduce the potential for an accidental release of hazardous materials into the environment. Therefore, a cumulative impact would not occur and the project's contribution would not be cumulatively considerable.

3.1.6.4 Cumulative Threshold 4: Odors

The geographic context for the analysis of impacts relative to objectionable odors are limited to the area immediately surrounding the odor source and are not cumulative in nature because the air emissions that cause odors disperse beyond the sources of the odor. As the emissions disperse, the odor becomes decreasingly detectable. The cumulative projects identified in Table 3-1, Cumulative Projects, in Chapter 3, Environmental Analysis, are not expected to result in objectionable odors. In addition, implementation of the proposed project would not generate a new source of objectionable odors. Therefore, a cumulative impact would not occur and the project's contribution would not be cumulatively considerable.

3.1.7 Conclusion

The project would remediate the existing Lockheed Martin Marine Terminal Facilities and does not propose construction of any structures. There would be no operations following remediation activities. Therefore, the project would not conflict with the RAQS or the SIP and impacts would be less than significant.

The proposed project would result in temporary air pollutants associated with soil disturbance, dust emissions, employee and vendor vehicle exhaust, use of a tugboat and scows, and combustion pollutants from off-road construction equipment. However, it would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard. Therefore, impacts would be less than significant.

The minimal amount of construction trips associated with the project would not add a significant amount of trips to the existing circulation system to include surrounding signalized intersections. In addition, following remediation activities, the project site would remain vacant and would not generate new vehicle trips. Therefore, there would be no potential for a CO hotspot or exposure of sensitive receptors to substantial, project-generated, local CO emissions. Diesel-equipment construction activity on site would be short term and transitory, result in minimal emissions, and occur at distances not expected to expose sensitive receptor locations to substantial pollutant concentrations. In addition, there would be no operations following remediation activities. As such, the proposed project would not have the potential to expose sensitive receptors to TACs from mobile sources to an extent that health risks could result. In addition, due to the age of the existing building, it has the potential to contain asbestos-containing materials and lead-based paint. Asbestos-containing materials and lead-containing surfaces would be removed in accordance with federal, state, and local regulations and would reduce the potential for an accidental release of hazardous materials into the environment. Therefore, the proposed project would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

The project would not involve land uses typically associated with odor complaints. The project could produce odors during proposed construction activities, but they would be temporary, short term, and intermittent in nature and would cease upon the completion of the respective phase of construction. Therefore, the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people, and impacts would be less than significant.

3.2 Biological Resources

This section describes the existing conditions related to biological resources on the project site and evaluates the potential for impacts to biological resources due to implementation of the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project). The term "biological resources" refers to both terrestrial and marine plants, wildlife species, and vegetation communities at the project site. For the purposes of this document, "special-status" species include those species that have been recognized by either federal or state resource management agencies or conservation organizations as having special management needs due to limited distribution, limited numbers, or significant population declines associated with natural or human-made causes. Special-status species include those designated as endangered, threatened, rare, protected, sensitive, or species of special concern according to the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Department of Fish and Wildlife (CDFW), California Native Plant Society (CNPS), or applicable regional plans, policies, or regulations. The information in the following section is based on the Biological Technical Study and Essential Fish Habitat Assessment prepared for the project by Merkel and Associates in July 2020, which is included as Appendix C, Biological Technical Study and Essential Fish Habitat Assessment.

3.2.1 Environmental Setting

The following sections provide an overview of the biological survey methods used during the 2019 surveys for the proposed project, as well as the results of those surveys. The vegetation communities, jurisdictional areas, and sensitive plant and wildlife species are summarized in this section, with detail provided in Appendix C.

3.2.1.1 Biological Survey Methods

Biological information for the proposed project is based on existing biological information for San Diego Bay, including the San Diego Bay Integrated Natural Resources Management Plan (INRMP) (U.S. Navy 2013), and physical and biological surveys conducted for the proposed project in March 2019 by qualified biologists from Merkel and Associates.

The upland area of the project site was surveyed on foot documenting habitat types and representative species. The waterside survey was completed using interferometric sidescan sonar, which provided an image of seafloor backscatter within the in-water portion of the project site. The survey was conducted by running transects spaced to allow for overlap between adjoining sidescan swaths. Transect surveys were performed until the in-water portion of the project site was captured in the survey record. Following completion of the survey, the data were converted into a geographically registered mosaic through digital post-processing and plotted on a geo-rectified aerial image of the project site. Resources of interest were then digitized to show their distribution in the survey area.

3.2.1.2 Vegetation Communities

The INRMP differentiates habitats by depth, with upland and supratidal habitat encompassing the area above +7.8 feet mean lower low water (MLLW), intertidal habitat encompassing the area between +7.8 to -2.2 feet MLLW, shallow subtidal habitat between -2.2 and -12 feet MLLW, moderately deep subtidal habitat between -12 and -20 feet MLLW, and deep subtidal habitat deeper than -20 feet MLLW. Habitats on the project site were delineated into two categories: upland and in-water (or marine), with sub-categories classified if present. A summary of the various habitat types on the project site with a buffer around project elements is provided in Table 3.2-1, Habitat Summary, and depicted on Figure 3.2-1, Habitat Types.

Table 3.2-1. Habitat Summary

Category	Elevation	Bottom/Ground Habitat Type	Area (sq. feet)
Upland (Upland Transition and Upland Areas)	>+7.8 feet MLLW	Human-Made Structure (Pilings/Marine Rail/Pier/Outfall)	157
		Urban/Developed	39,562
Marine	Intertidal +7.8 to -2.2 feet MLLW	Riprap Revetment	77
		Human-Made Structure (Pilings/Marine Rail/Pier/Outfall)	4,056
		Unvegetated Soft Bottom	31,580
	Subtidal Below -2.2 feet MLLW	Riprap Revetment	5,433
		Human-Made Structure (Pilings/Marine Rail/Pier/Outfall)	898
		Unvegetated Soft Bottom	143,312
		Total	**225,075**
Surface Cover[1]		Pier and Docks	1,991

Source: Appendix C.
Notes: MLLW = mean lower low water; sq. feet = square feet
[1] Surface cover is a habitat layer and does not add to the total habitat area

Terrestrial

Upland Transition and Upland Areas

The upland transition and upland areas of the project site consist of the original landscaping and opportunistic weedy species that are completely surrounded by urban development, with vegetation being limited to ornamental and non-native, ruderal species. No special-status flora species are expected to occur in the upland areas due to the developed, urban nature of the landside project site. In addition, no rare plant surveys were conducted as no suitable habitat was found on site. Observed vegetation is limited to ornamental and landscaped species such as palm (*Phoenix* sp.), eucalyptus trees (*Eucalyptus* sp.), and non-native grasses and forbs common to developed areas, such as bromes (*Bromus* sp.) and sweetclover (*Melilotus* sp.).

Marine

Unvegetated Soft Bottom

The majority of the project site is considered to be shallow subtidal unvegetated soft bottom habitat consisting of sand, gravel, mud, and silt (Figure 3.2-1). Scattered in the soft bottom, particularly near the pier, are patches of isolated debris supporting macroalgae and sessile or sedentary invertebrates. Unvegetated soft bottom also occurs under the existing pier/rail structures, where shading prevents the growth of eelgrass.

Although primarily bare, soft bottom in the shallow water area contains occasional clumps of red algae (*Gracilaria* spp., *Ceramium* spp.), loose clumps of green algae (*Ulva* spp.) and commonly a film of benthic diatoms forming mats over a portion of the bottom. Patches of the invasive *Sargassum muticum* and *S. horneri* can also be found on debris, with *S. horneri* being found deeper and more scattered than *S. muticum*. Benthic algae, while providing little structure to the soft bottom habitat, provides a food source for many invertebrates, carbon enrichment for detritivores, and produces oxygen during daylight hours.

Fish species typically found in this habitat include Round Stingrays (*Urbatis halleri*), Barred Sand Bass (*Paralabrax nebulifer*), Spotted Sand Bass (*Paralabrax maculatorfasciatus*), Specklefin Midshipman (*Porichthys myriaster*), Black Croaker (*Cheilotrema sternum*), and gobies (Family *Gobiidae*). Invertebrates on the surface of this habitat are sparse, but evidence of burrowing invertebrate activity are apparent, likely from bivalves (*Chione* spp., *Macroma nasuta*), the aorid amphipod (*Grandidierella japonica*), bay ghost shrimp (*Neotrypaea* spp.), burrowing anemones (*Harenactis attenuate*), and tube-dwelling anemones (*Pachycerianthus* spp.). Other invertebrates commonly observed in the shallow waters of San Diego Bay include the opisthobranch (*Navanax inermis*) and slender sea pen (*Stylatula elongata*), as well as calcareous bryozoans and the soft bryozoan (*Zoobtryon verticillatum*). The occasional debris found on the bottom may support species more typical of hard substrates, including sponges (Phylum *Porifera*), scale worm (Family *Polynoidae*), golden gorgonian (*Muricea californica*), invasive non-native tunicates (*Styela plicata* and *Botrylloides* spp.), and California spiny lobster (*Panulirus interruptus*).

Riprap Revetment

The shoreline along the perimeter of the project site is armored with riprap revetment in the upper intertidal zone where it transitions to unvegetated intertidal and shallow subtidal habitat. The intertidal riprap was generally free of flora and fauna but likely supports arthropods, such as lined shore crab (*Pachygrapsus crassipes*). A narrow fringe of shallow subtidal revetment along the northern portion of the project site supports invertebrates, predominantly belonging to phylum Mollusca, as represented by the native Olympia oyster (*Ostrea lurida*) and non-native Pacific oyster (*Crassostrea gigas*).

Open Water

Open water/water column habitat, due to its three-dimensional component, is the largest habitat type on the project site and supports pelagic fishes and occasionally marine mammals. The most common schooling species known to occur on the project site is Topsmelt (*Atherinops affinis*), along with Northern Anchovy (*Engraulis mordax*) and Deepbody Anchovy (*Anchoa compressa*). The occurrence of these species in open water is important to several species of piscivorous birds including pelicans, terns, loons, grebes, cormorants, and mergansers. These fish also provide an important forage base for predatory fish species. Topsmelt are generally common around piers where they aggregate by the structures.

Human-Made Structures

Pier pilings provide habitat for an assemblage of organisms known as the fouling community. This community appears to attract schooling fish, which feed on the attached invertebrates and algae, and obtain refuge from predation (Glasby 1999). The species present and the overall complexity of the fouling community on pier pilings are dependent upon a number of factors including tidal elevation and inundation time, light availability, wave exposure, and size and shape of the pilings (Connell and Glasby 1999; Connell 2001). The piles on the project site are exposed to limited circulation given their location within the basin.

The pier piles on the project site support numerous species of sessile, or sedentary, invertebrates. At the highest tidal elevations, the pilings are dominated by barnacles (*Chthamalus* spp., *Balanus* spp.). At the lower tidal elevations, the native Olympia oyster and the Mediterranean mussel (*Mytilus galloprovincialis*) are dominant. Below the intertidal zone tunicates, sponges, and bryozoans dominate the pier piles. Dominant species include coralline and red algae, sponges (Phylum *Porifera*), and tunicates, including *Styela clava*, *Sylela plicata,* and *Botrylooides* spp.

3.2.1.3 Jurisdictional Areas

The non-wetland in-water sections of the project site are potentially subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act (CWA) (33 USC 1344), the San Diego Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA or the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), and the CDFW pursuant to Sections 1600 et seq. of the California Fish and Game (CFG) Code.

No jurisdictional wetlands occur on the project site. The nearest wetlands to the project site are on Delta Beach on the west side of San Diego Bay approximately 4.6 miles from the site and the marshes of the San Diego Bay Wildlife Refuge, approximately 7.2 miles south of the project site.

3.2.1.4 Wildlife Corridors

The project site does not provide any terrestrial movement corridors, and no marine mammal, reptile, or fish migratory corridors occur on the site. However, some marine fish species, such as anchovy, sardine, and Topsmelt, move into and out of San Diego Bay for spawning, nursery, and foraging. The southern portions of San Diego Bay, including the South San Diego Bay National Wildlife Refuge and South Bay Salt Ponds farther south, provide stopover habitat for migrating waterfowl and shorebirds. San Diego Bay, like all of California, is in the Pacific Flyway.

Several whale species migrate along the coast of California, including the California gray whale (*Eschrichtius robustus*). The peak northward migration of male gray whales occurs in mid-March, followed 2 months later by the second migration wave, which is composed of cows and calves. Whales typically do not occur in the waters of San Diego Bay, and their occurrence is generally a rarity.

3.2.1.5 Sensitive Plant and Wildlife

Federal listing of endangered and threatened wildlife and plants is administered by the USFWS under the federal Endangered Species Act (FESA). An "endangered" species is one that is in danger of extinction throughout all or a significant portion of its range. A "threatened" species is one that is likely to become endangered in the foreseeable future.

The CDFW's implementation of the California ESA (CESA) has created a program similar in structure to, but different in detail from, the USFWS program implementing the FESA. The CDFW maintains a list of designated endangered, threatened, and special-status plant and wildlife species. The CDFW also maintains a list of wildlife "species of special concern," most of which are species whose breeding populations in California may face extirpation (CDFW 2020). Although these species have no legal status, the CDFW recommends consideration of them during analysis of the impacts of proposed projects to protect declining populations and to avoid the need to list them as endangered in the future; therefore, they are included in this project. Species that have been labeled as "fully protected" are considered sensitive since they are protected by the CFG Code. Species that are considered "watch list" species by the CDFW are not considered sensitive species per the California Environmental Quality Act (CEQA) and therefore are not mentioned herein.

Under the provisions of Section 15380(d) of CEQA, the lead agency, in making a determination of significance, must treat rare non-listed plant and wildlife species as equivalent to listed species if such species satisfy the minimum biological criteria for listing. In general, the CDFW considers plant species with a California Rare Plant Rank 1A, 1B, 2A, or 2B of the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (CNPS 2017) as qualifying for consideration under this CEQA provision. Species on the California Native Plant Society California Rare Plant Rank List 3 or 4 may, but generally do not, qualify for protection under this provision.

Sensitive vegetation communities are defined by the CDFW as land that supports unique vegetation communities or the habitats of rare or endangered species or subspecies of animals or plants as defined by Section 15380 of the CEQA Guidelines (CDFW 2020).

Plant Species

No special-status plant species are expected to occur in the upland areas. In addition, no special-status species were detected during landside surveys.

Wildlife Species

Fourteen special-status wildlife species have the potential to occur on the project site. Table 2 in Appendix C presents the list of wildlife species and the likelihood of these species to occur at the project site.

Birds

Of the sensitive avian species with potential to occur on or adjacent to the project site, six are listed as federally or California state endangered or threatened or CDFW fully protected. These include California brown pelican (*Pelecanus occidentalis californicus*), American peregrine falcon (*Falco peregrinus anatum*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern (*Sternula antillarum browni*), and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*). Two of these species—light-footed Ridgway's rail and Belding's savannah sparrow—nest and forage in marshes, including the E Street Marsh in the San Diego Bay National Wildlife Refuge, 7.2 miles south of the project site.

California brown pelican is protected at nesting colonies and communal roosting areas. California brown pelicans roost in small groups throughout the bay, particularly along Zuniga jetty, riprap shorelines, and docks and piers in the bay; however, the species does not nest in the bay.

American peregrine falcon is also protected at nesting locations. Peregrine falcon has historically nested in Point Loma, on downtown San Diego buildings, and on the Coronado Bridge, but nesting sites near the project site are not documented.

Western snowy plover nest seasonally in San Diego Bay. In San Diego Bay, nesting for western snowy plover occurs from March through July along the beach at Naval Air Station (NAS) North Island (3 miles from the project site), at Naval Amphibious Base Coronado (5 miles from the project site), and farther south along the Silver Strand Training Complex and the beaches of the Tijuana River National Estuary Research Reserve (11 miles from the project site). This species has a low likelihood to occur based on limited foraging habitat and the distance of the project site from active nesting colonies.

California least tern is a federally and state endangered species that is known to forage on the project site or in the immediately surrounding area. The California least tern nests along the West

Coast of North America, from Baja California, Mexico, north to the San Francisco Bay Area. California least terns are seasonal residents of San Diego Bay, typically arriving in mid- to late-April to nest at several colonies adjacent to San Diego Bay, and are generally present through August, with September 15 marking the end of the nesting season. Along the shores of San Diego Bay, California least terns nest at multiple sites. The closest to the project site are Lindbergh Field, NAS North Island, and Delta Beach. These three sites are approximately 0.8 mile, 2.7 miles, and 4.8 miles from the project site, respectively.

Other sensitive avian species with low or moderate potential to occur in the vicinity of the project site include double crested cormorant (*Phalacrocorax auritus*), elegant tern (*Thalasseus elegans*), Caspian tern (*Hydroprogne caspia*), and black skimmer (*Rynchops niger*), all of which nest in San Diego Bay at the South Bay Salt Works. Sensitive raptors include osprey (*Pandion haliaetus*) and northern harrier (*Circus cyaneus*). Osprey is known to nest in San Diego Bay, with recent nests at NAS North Island, the National City shoreline, and at the Chula Vista Wildlife Reserve. Northern harrier nests on the ground in marshes and grasslands. This species has been known to nest in south San Diego Bay, the Tijuana River National Estuarine Research Reserve, and the Sweetwater Marsh National Wildlife Refuge (Unitt 2004). While all of these species may be occasional visitors to the project site, none nests on the project site.

Nesting Birds

The project site contains ornamental trees that could be nesting habitat for several bird species, including raptors, protected under the CFG Code and Migratory Bird Treaty Act (MBTA).

Reptiles

Green Sea Turtle (*Chelonia mydas*) is a federally threatened species known to move in and out of San Diego Bay. South San Diego Bay supports a population of eastern Pacific green sea turtles of between 16 and 61 individuals that primarily remain in the warm waters of south San Diego Bay, though some are known to leave to nest on the beaches of offshore islands of Mexico (Eguchi et al. 2010). Historically, this population resided primarily in the warm water discharge channel for the South Bay Power Plant. The closure of the plant in 2010 resulted in turtles using areas of the bay much farther north; however, tracking studies indicate that turtles still spend 95 percent of their time south of the Sweetwater River Channel (Bredvik et al. 2015).The green sea turtle has a low potential to occur on the project site; however, they may travel through the project site or, more likely, travel along the eelgrass vegetated western side of San Diego Bay.

Marine Mammals

Several species of marine mammals occur in San Diego Bay that are protected under the Marine Mammal Protection Act (MMPA). California sea lion (*Zalophus californianus*) and, to a lesser extent, Pacific harbor seal (*Phoca vitulina richardsi*) are the two most common species of marine

mammals that occur in San Diego Bay and adjacent coastal waters. Neither species breeds in San Diego Bay, but both are occasional visitors to north San Diego Bay. Harbor seals and California sea lions are observed commonly in northern San Diego Bay and less commonly in central and southern portions of the bay. There are no established haul-out, foraging, or breeding areas used by these or other marine mammals on the project site or within the vicinity, although they may make occasional transient use of the area. Dolphins and whales are rarely observed in San Diego Bay and are not anticipated to be present on the project site.

3.2.1.6 Essential Fish Habitat

Essential fish habitat (EFH) consist of those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity. A subset of EFH is habitat area of particular concern (HAPC). An area can be designated as an HAPC based on one or more of the following: (1) the importance of the ecological function provided by the habitat, (2) its sensitivity to human-induced environmental degradation, (3) the extent of threats posed by development to the habitat, or (4) the rarity of the habitat type. HAPCs considered potentially present on the project site include estuarine and seagrass habitat (NMFS 2000). Eelgrass is considered a Submerged Aquatic Vegetation, and a "special aquatic site" under the CWA. Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, eelgrass is designated as EFH for various federally managed fish species in the Pacific Coast Groundfish Fisheries Management Plan (FMP) (NMFS 2014). Eelgrass is a rooted aquatic plant that inhabits shallow soft bottom habitats in quiet waters of bays and estuaries, as well as sheltered coastal areas. It can form dense beds that provide substrate, food, and shelter for a variety of marine organisms. Eelgrass was not detected on the project site during surveys conducted in March 2019.

The NMFS currently manages pelagic and groundfish stock under FMPs, two of which—the Coastal Pelagics FMP and the Pacific Coast Groundfish FMP—specifically relate to species found in San Diego Bay (NMFS 2011, 2014). Multiple baywide fish surveys have been conducted using identical methods. To date, these studies have identified a minimum of 115 species of fish in the bay (U.S. Navy 2013; VRG 2006, 2009, 2012, 2015, 2016). Of the 115 fish species known to occur in San Diego Bay, six are managed under the Coastal Pelagics FMP, including Northern Anchovy, Pacific Sardine (*Sardinops sagax*), Pacific Mackerel (*Scomber japonicus*), Jack Mackerel (*Trachurus symmetricus*), Pacific Herring (*Clupea pallasii pallasii*), and Jacksmelt (*Atherinopsis californiensis*). All have the potential to occur in San Diego Bay. The Northern Anchovy and Pacific Sardine are the most abundant pelagics (Allen 1999). The Pacific Mackerel, Jack Mackerel, Pacific Herring, and Jacksmelt are much less abundant than the Northern Anchovy and Pacific Sardine in San Diego Bay.

Of the 89 species managed under the Pacific Coast Groundfish FMP (NMFS 2014), 9 have a record of occurrence in San Diego Bay including California Scorpionfish (*Scorpaena gutatta*), English Sole (*Parophrys vetulus*), Leopard Shark (*Triakis semifasciata*), Soupfin Shark (*Galeorhinus zyopterus*), Spiny Dogfish (*Squalus acanthias*), Cabezon (*Scorpaenichthys marmoratus*), Grass

Rockfish (*Sebastes rastrelliger*), Olive Rockfish (*Sebastes serranoides*), Curlfin Sole (*Pleuronichthys decurrens*). Two species, California Scorpionfish and English Sole, were captured in the 1999 baywide fish surveys (Allen 1999). Other rarely captured groundfish species include Grass Rockfish, Olive Rockfish, and Curlfin Sole.

3.2.2 Regulatory Setting

Biological resources on the project site are subject to regulatory administration by the federal government, State of California, and the San Diego Unified Port District (District). The federal government administers nonmarine plant and wildlife-related issues through the USFWS and marine species through the NMFS, while waters of the United States issues are administered by the USACE. California law relating to wetland, water-related, and wildlife issues is administered by the RWQCB and CDFW. Under CEQA, impacts associated with a proposed project or program are assessed with regard to significance criteria determined by the CEQA lead agency pursuant to CEQA Guidelines.

3.2.2.1 Federal

Clean Water Act

The federal Water Pollution Control Act Amendments of 1972 (33 USC 1251–1376), as amended by the Water Quality Act of 1987, and better known as the CWA, is the major federal legislation governing water quality. The purpose of the federal CWA is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Discharges into waters of the United States are regulated under CWA Section 404. Waters of the United States include (1) all navigable waters (including all waters subject to the ebb and flow of the tide); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, or natural ponds; (4) all impoundments of waters mentioned previously; (5) all tributaries to waters mentioned previously; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned previously. Important applicable sections of the CWA are discussed below:

- Section 401 requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the CWA. Certification is provided by the respective RWQCB. A Section 401 permit from the State Water Resources Control Board or RWQCB-San Diego Region would be required for issuance of a permit by the USACE.
- Section 404 regulates the discharge of dredged or fill materials to waters of the U.S. and provides for issuance of permits by the USACE.

Endangered Species Act

The FESA protects plants and wildlife that are listed as endangered or threatened by the USFWS and NMFS. FESA Section 9 prohibits the taking of endangered wildlife, where taking is defined

as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). The term "harm" is defined as an "act which actually kills or injures wildlife," including through "significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife." The term "harass" means an act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding or sheltering (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land, as well as removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law. Under FESA Section 7, lead federal agencies are required to consult with the USFWS or NMFS if the lead agency determines that its actions, including permit approvals or funding, may adversely affect an endangered species (including plants) or its critical habitat.

Through consultation and the issuance of a biological opinion, the USFWS or NMFS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity, provided the action will not jeopardize the continued existence of the species. In cases where the federal agency determines its action may affect, but would be unlikely to adversely affect, a federally listed species, the agency may choose to informally consult with the USFWS and/or NMFS. This informal consultation typically involves incorporating measures intended to ensure effects would not be adverse. Concurrence from the USFWS and/or NMFS concludes the informal process. Without such concurrence, the federal agency may formally consult to ensure full compliance with FESA.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 was established to promote domestic and commercial fishing under sound conservation and management principles. The NMFS, as a branch of the National Oceanic and Atmospheric Administration, implements the act via eight regional Fisheries Management Councils. The Fisheries Management Councils in turn prepare and implement FMPs in accordance with local conditions. The Pacific Fisheries Management Council is responsible for the Pacific region, in which the NMFS will provide EFH Conservation Recommendations to the lead agency detailing measures that may be taken by the agency to conserve EFH. Within 30 days of receipt of EFH Conservation Recommendation, the project lead agency must respond in writing, including a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. These measures would be incorporated into the final project.

Marine Mammal Protection Act

The MMPA of 1972 prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas and the importation of marine mammals and marine mammal

products into the United States. Under the MMPA, "take" is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal" (16 USC 1362) and further defined by regulation (50 CFR 216.3) as "to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal." The NMFS administers the MMPA. Under the 1994 Amendments to the MMPA, "harassment" is statutorily defined as any act of pursuit, torment, or annoyance which:

- Level A Harassment has the potential to injure a marine mammal or marine mammal stock in the wild.
- Level B Harassment has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild.

Migratory Bird Treaty Act

The MBTA was enacted in 1918 to prohibit the killing or transport of native migratory birds, or any part, nest, or egg of any such bird, unless allowed by another regulation adopted in accordance with the MBTA. A list of migratory bird species that are protected by the MBTA is maintained by the USFWS, which regulates most aspects of the taking, possession, transportation, sale, purchase, barter, exportation, and importation of migratory birds. Under the MBTA, take means to kill, directly harm, or destroy individuals, eggs, or nests or to otherwise cause failure of an ongoing nesting effort. Permits are available under the MBTA through the USFWS, and authorization for potential take under the MBTA is addressed as part of the FESA Section 7 consultation process. The proposed project must be analyzed to ensure consistency with the MBTA, including avoidance of take of nesting birds, their eggs, or activities that may cause nest failure. This applies for both terrestrial and marine migratory species protected under the MBTA that may be directly or indirectly affected by the proposed project. Any potential take must be either permitted through consultation with the USFWS or avoided and minimized through mitigation measures.

Rivers and Harbors Appropriations Act

The Rivers and Harbors Appropriation Act of 1899 (33 USC 403), commonly known as the Rivers and Harbors Act, prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without congressional approval. Under the Rivers and Harbors Act, Section 10, the USACE is authorized to permit structures in or over navigable waters. Building or modifying wharves, piers, jetties, and other structures in or over the waters of the San Diego coastline requires USACE approval through the Section 10 permit process.

3.2.2.2 State

California Coastal Act

The California Coastal Act (CCA) is intended to provide protection of the unique nature and public interest values of the state's coastal fringe. The CCA is implemented by the District for the land and water within its jurisdiction, subject to oversight by California Coastal Commission (CCC). The CCA recognizes California ports and harbors as primary economic elements of the national maritime industry. The District administers the CCA under an adopted Port Master Plan (PMP) and updates to the PMP that require concurrence from the CCC. Land and waters outside of the District's PMP are administered by the CCC or by local jurisdictions operating under adopted Local Coastal Programs that have been approved by the CCC.

California Endangered Species Act

The California Endangered Species Act (CESA) authorizes the CFG Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (CFG Code, Sections 2050–2098). The CESA defines endangered species as those whose continued existence in California is jeopardized. State-listed threatened species are those not presently facing extinction but that may become endangered in the foreseeable future.

CFG Code, Section 2080, prohibits the taking of state-listed plants and animals. Unlike FESA, CESA does not include harassment within its take definition and as such, has a statutorily higher threshold standard for take than does FESA. The CDFW also designates fully protected or protected species as those that may not be taken or possessed without a permit from the CFG Commission and/or CDFW. Species designated as fully protected or protected may or may not be listed as endangered or threatened.

When a species is both state- and federally listed, an expedited request for consistency with the USFWS biological opinion may be issued through a request for Section 2080.1 consistency determination if take authorization under the CESA is required.

California Fish and Game Code

The CFG Code is implemented by the CFG Commission as authorized by Article IV, Section 20, of the Constitution of the State of California. CFG Code, Sections 3503, 3503.5, 3505, 3800, and 3801.6, protect all native birds, birds of prey, and nongame birds, including their eggs and nests, that are not already listed as fully protected and that occur naturally in the state. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs. As defined in the CFG Code, "take" means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill (CFG Code Section 86). The CDFW is the state agency that manages native fish, wildlife, plant species, and natural communities for their ecological value and their benefits to people. The CDFW oversees

the management of marine species through several programs, some in coordination with the NMFS and other agencies.

Porter-Cologne Water Quality Control Act

The State Water Resources Control Board works in coordination with the nine RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region, and may approve, with or without conditions, or deny projects that could affect waters of the state. Their authority comes from the CWA and the state's Porter-Cologne Act, codified in Section 13000, et seq. of the California Water Code. The Porter-Cologne Act, in California Water Code, Section 13050, broadly defines waters of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state." Because the Porter-Cologne Act applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the United States. For example, Water Quality Order No. 2004-0004-DWQ states that "shallow" waters of the state include headwaters, wetlands, and riparian areas. Moreover, in practice the RWQCBs claim jurisdiction over riparian areas. Where riparian habitat is not present, such as may be the case at headwaters, jurisdiction is taken to the top of bank.

Under the Porter-Cologne Act, the State Water Resources Control Board and the nine regional boards also have the responsibility of granting CWA National Pollutant Discharge Elimination System permits and Waste Discharge Requirements for certain point-source and non-point discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

3.2.2.3 Local

San Diego Bay Integrated Natural Resources Management Plan

The District and U.S. Navy jointly implement the INRMP (U.S. Navy 2013). This long-term collaborative strategy for managing San Diego Bay's natural resources provides planning guidance for good stewardship of the natural resources in San Diego Bay. The INRMP does not carry regulatory authority, but rather establishes a bay wide plan for natural resource management that has been vetted by the regulatory agencies with land use authority over San Diego Bay and a broad spectrum of stakeholders. The plan provides valuable guidance on siting of facilities, managing resources, and consideration of natural resource enhancement opportunities in San Diego Bay.

San Diego Unified Port District Port Master Plan

Through implementation of the PMP, the District maintains authority over tidelands and submerged lands conveyed in trust to the District by the California legislature. Any amendments to the PMP must be reviewed and certified by the CCC. The PMP provides for protection of biological resources and states that the District will remain sensitive to the needs of, and will

cooperate with, other communities and other agencies in San Diego Bay and tideland development, including the City of San Diego's (City's) Multiple Species Conservation Program (MSCP) and Environmentally Sensitive Lands Ordinance. Under the certified PMP, the District has the authority to issue Coastal Development Permits for projects within its jurisdiction (District 2017).

3.2.3 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would be considered to have a significant impact on biological resources if it would (CEQA Guidelines, Section 15000 et seq.):

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
3. Have a substantial adverse effect on state or federally protected wetlands (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

3.2.4 Method of Analysis

Impacts to habitats and wildlife can be measured as direct or indirect. Direct impacts are those that have a direct impact on habitats or wildlife and occur contemporaneously with the action. Direct impacts of in-water construction to wildlife include immediate physical and physiological impacts such as abrupt changes in behavior, flight response, diving, evading, flushing, cessation of feeding, and physical impairment or mortality. Direct impacts to habitats can include damage from construction activities, as well as permanent habitat loss due to project construction. In contrast, indirect impacts are effects that are caused by or would result from the proposed action at a later time but are still reasonably certain to occur.

Project stressors (e.g., demolition and construction activities, dredge and fill activities, and pile removal) are similar in nature although the magnitude or duration may vary based on the project

element (e.g., Phase 2 requires both dredging and filling, and while the method and equipment are expected to be similar, the duration and impacts may be different due to volume and type of material). Since elements of the project would be phased over several months, the impacts are analyzed by habitat type and based on the potential stressor.

3.2.5 Project Impacts and Mitigation

The following sections describe impacts and mitigation from the proposed project.

3.2.5.1 Threshold 1: Candidate, Sensitive, or Special-Status Species

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Impact Analysis

Plant Species

Terrestrial

As discussed in Section 3.2.1, Environmental Setting, the terrestrial component is urban/developed and lacks any natural terrestrial habitat. As such, no sensitive plant species are likely to occur on the project site and were not observed on the project site. Therefore, construction of the proposed project would not affect any terrestrial candidate, sensitive, or special-status plant species.

Marine

Eelgrass, which is categorized as EFH and given further designation as a Habitat of Particular Concern, was not found during the March 2019 surveys. However, it has a high potential to occur on the project site because it has been identified adjacent to the project site. Impacts related to eelgrass are discussed in Threshold 2 because it is considered a sensitive natural community. There were no other marine-based candidate, sensitive, or special-status plant species present on or adjacent to the project site during the marine biological surveys performed in March 2019.

Wildlife Species

Terrestrial

Birds

Of the sensitive avian species with potential to occur on or adjacent to the project site, six are listed as federally or California endangered or threatened or CDFW fully protected. These include

California brown pelican, American peregrine falcon, light-footed Ridgway's rail, western snowy plover, California least tern, and Belding's savannah sparrow.

Two of these species—light-footed Ridgway's rail and Belding's savannah sparrow—nest and forage in marshes, including the E Street Marsh in the San Diego Bay National Wildlife Refuge. Neither of these two species is expected to occur on the project site because the project site contains no marshes, and impacts to these species from the proposed project are not anticipated.

California brown pelican is protected at nesting colonies and communal roosting areas. American peregrine falcon is also protected at nesting locations. These two species have a similarly low likelihood of occurrence on the project site. California brown pelicans roost in small groups throughout the bay, particularly along Zuniga jetty, riprap shorelines, and docks and piers in the bay; however, the species does not nest in the bay itself. Peregrine falcons have historically nested in Point Loma, on downtown San Diego buildings, and on the Coronado Bridge, but no nesting sites near the project site are documented. Based on the low likelihood of occurrence of these species on the project site, impacts are not anticipated.

Western snowy plover nesting along the beach at NAS North Island (3 miles from the project site), at Naval Amphibious Base Coronado (5 miles from the project site), and farther south along the Silver Strand Training Complex and the beaches of the Tijuana River National Estuarine Research Reserve (11 miles from the project site). This species has a low likelihood to occur based on limited foraging habitat and the distance of the project site from active nesting colonies, and impacts to this species are therefore not anticipated.

The California least tern has the potential to occur on or adjacent to the project site based on potential foraging opportunities. The California least tern is both a federally and state-listed endangered species under FESA and CESA. Water quality impairment associated with in-water construction activities could directly affect foraging opportunities for California least tern on and adjacent to the project site. Pile removal and dredging are sediment-disturbing activities, which can elevate turbidity levels. Equipment required to perform these activities also has potential to discharge pollutants while work is being performed, which can also impair water quality and affect foraging activities. The project has incorporated the following Water Quality (WQ) Project Design Features (PDF), which would serve to reduce sediment suspension during waterside remediation activities and must be sufficient to demonstrate that implementation of the selected remedial activities does not result in violations of water quality standards outside the construction area.

PDF-WQ-1: **Silt Curtains.** The proposed project shall require the deployment of a silt curtain around the pile removing, dredging, and clean sand placement areas, to contain suspended sediment in accordance with the Section 401 permit. Silt curtains would be weighted and positioned using anchors or marine structures or by being connected to shoreline locations. In addition,

a floating surface debris boom would be equipped with skirts and absorbent pads to capture floating surface debris and to control potential oil sheen movement.

PDF-WQ-2: **Water Monitoring.** The water's turbidity levels would be monitored during demolition, dredging, and sediment remediation activities. Manual water quality monitoring to include measurements for pH, dissolved oxygen, and turbidity would be conducted to confirm compliance with the San Diego Basin Plan and Clean Water Act Section 401 Water Quality Certification requirements. Dredging operations would be evaluated and modified as necessary in coordination with the RWQCB if water quality monitoring shows exceedance of predetermined numerical targets due to dredging operations.

PDF-WQ-3: **Bucket Movement Control.** The bucket would be positioned using Global Positioning System (GPS) software. The speed of bucket movement would be limited in the water column of dredging to minimize the disturbance of sediments and the resuspension of materials. In addition, the drag of the dredge bucket would be prohibited along the sediment surface.

In addition, the proposed project would be required to follow all regulatory requirements to minimize water quality impacts in San Diego Bay. Construction of the proposed project would include preparation and implementation of a stormwater pollution prevention plan (SWPPP). The SWPPP would identify short-term, project-specific best management practices (BMPs) that would minimize pollutants and sediments entering runoff during the proposed project. A full explanation of these requirements can be found in Section 3.6, Hydrology and Water Quality. Furthermore, waterside remediation activities would be limited to outside the California least tern nesting/foraging season, which extends from April 1 to mid-September. However, if dredging or in-water construction occurs during the nesting season, potential impacts to California least terns foraging opportunities would occur. Mitigation is incorporated below to ensure impacts are reduced to the extent possible.

Nesting Birds

The ornamental trees on the project site would not be removed as part of the proposed project. However, the demolition of the Marine Terminal Building, pier and marine railway would have the potential to impact nesting birds (including raptors) through disturbance to nesting birds from substantial sources of noise generated at the commencement of demolition during the breeding season. Demolition activities that commence during the raptor-breeding season of January 15 through August 31 and the general avian breeding season of February 15 through August 31 would have the potential to significantly impact nesting birds. Impacts to nesting birds protected under the MBTA and CFG Code would be considered significant.

Marine

Marine Mammals, Green Sea Turtles, and Managed Fish Species

Waterside portions of the proposed project would include in-water operations such as pile removal, vessel traffic, and bottom-disturbing activities. These activities would generate increased noise and ground-disturbing activities within the marine community. Temporary noise disturbances have the potential to affect marine mammals, green sea turtles, and federally managed fish species in the Pacific Coast Groundfish FMP. Any marine mammal would be expected to leave the site for adjacent waters if disturbed by project construction. However, the MMPA prohibits "take" of marine mammals and the definition of "take" under the act, like that of FESA, includes "harassment." For this reason, a potentially significant impact to marine mammals could occur if animals are disturbed during construction activities, even if they are not harmed by the activities. If marine mammals were to occur on the immediate project site, then they would be potentially exposed to a construction-related hydroacoustic impacts.

The project proposes to remove up to 100 concrete piles (24-inch octagonal), and it is assumed that these piles would be removed by vibratory driver/extractor hammer. Each pile type and driving method results in expected differing sound conditions in the water. These are also greatly influenced by the nature of the sediment into which the piles are driven, the depth of the water, the mass of material attached to the pile, the extent of pile embedment, and sound focusing or dissipation associated with the environment or surrounding media through which sound propagates. Table 3.2-2, Potential Noise Generation Levels for Impact Pile Driving, summarizes noise levels anticipated to be generated from the types of piles to be driven and the methods of pile driving to be implemented on the project site based on the Caltrans Technical Guidance Appendix 1 Noise Compendium (Caltrans 2015).

Table 3.2-2. Potential Noise Generation Levels for Impact Pile Driving

Piles And Driving Details				Sound Pressure Levels (dB) (Caltrans Compendium 2015) (Data from Oakland Berths 22 and 30 and Parson Slough Monterey)		
Project Piling Material	Size (Dia. or Depth)	Hammer Size	Project Water Depth	Peak (L_{peak}@10m)	Root Mean Square (rms@10m)	Sound Exposure Level (SEL@10m)
Square Pile (Concrete)	18"	Delmag D42-22	5m - 10m	185	166	154
Octagonal Pile (Concrete)	24"	Delmag D62-22	5m - 10m	187 (AVG)	175 (AVG)	165 (AVG)

Source: Appendix C.

Notes: Lpeak is the maximum sound pressure level reached from the passage of a single energy pulse. The RMS is the square root of the sum of squares of the pressure contained within the period of time containing 90 percent of the sound energy. The SEL is the constant sound level in one second that has the same amount of acoustic energy as the original time-varying sound (i.e., the total energy of an event).

Table 3.2-3, Thresholds of Hydroacoustic Sound Pressure Level Exposure, summarizes the noise exposure thresholds for impacts to various marine organisms of concern on the project site. Using these noise impact thresholds and anticipated noise levels, it was possible to determine at what distance impact thresholds would be exceeded for sensitive receptors of concern.

Table 3.2-3. Thresholds of Hydroacoustic Sound Pressure Level Exposure

Resource	Level of Effect	Impulsive Threshold Level[1]	Non-Impulsive Threshold Level[1]
Marine Mammal	Gray Whale – Low-frequency Cetacean (Level A – potential for injury) exposure	219 dB_{peak} 183 dB_{SELcum}	199 dB_{SELcum}
	Bottlenose Dolphin – Mid-frequency Cetacean (Level A – potential for injury) exposure	230 dB_{peak} 185 dB_{SELcum}	198 dB_{SELcum}
	Harbor Seal – Phocid Pinniped (Level A – potential for injury) exposure	218 dB_{peak} 185 dB_{SELcum}	201 dB_{SELcum}
	California Sea Lion – Otariid Pinniped (Level A – potential for injury) exposure	232 dB_{peak} 203 dB_{SELcum}	219 dB_{SELcum}
	Cetacean/Pinniped (Level B – behavioral) exposure	160dB_{rms}	120dB_{rms}[2]
Green Sea Turtle	Adaptive action trigger for impulsive noise exposure	160dB_{rms}	
	Potential harassment take from exposure	166dB_{rms}	
	Injury from sound exposures	190 dB_{rms}	190 dB_{rms}
Fish	Peak sound pressure levels at 10 m from source	206dB_{peak}	
	Daily accumulated sound exposure levels (fish ≥ 2 grams)	187dB_{SELcum}	
	Daily accumulated sound exposure levels (fish < 2 grams)	183dB_{SELcum}	

Source: Appendix C.

Notes:

[1] Peak re: 1μPa, SEL re: 1μPa2sec, SELcum (SEL_{cum}= SEL + 10*log(No. hammer strikes)

[2] The 120 dB threshold may be slightly adjusted if background noise levels are at or above this level

The outer limits at which noise impacts would occur is called the zone of influence (ZOI). Table 3.2-4, Noise Threshold Zones of Influence for Different Receptors, indicates a range of distances for differing species and types of pile driving/removal activities. The distances are provided in meters. For an impact to occur, the wildlife receptor must be present within the ZOI at the time of pile removal, and the pile removal noise must exceed the thresholds identified in Table 3.2-3.

Table 3.2-4. Noise Threshold Zones of Influence for Different Receptors

Vibratory Pile Extraction										
Pile Type	Nature of Impact (Behavioral or Injury; Marine Mammal Definition is Level A or B)	Gray Whale	Bottlenose Dolphin	Harbor Seal	California Sea Lion	Green Sea Turtle[1]	Green Sea Turtle[2]	All Fish	Fish ≥ 2 Grams	Fish < 2 Grams
18" Square Concrete Piles	Potential Behavioral Impacts (Marine Mammals -Level B)	25[3]	25	25	25	10	25	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	34.2	1.2	18.3	1.3	Lower	Lower	Lower	Lower	Lower
24" Octagonal Concrete Piles	Potential Behavioral Impacts (Marine Mammals -Level B)	100	100	100	100	40	100	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	185.2	6.6	99.1	7.2	Lower	Lower	Lower	100	184

Source: Appendix C.

Notes: Where noise levels at the source are expected to be lower than the threshold of impact, no impact is expected and the table reflects a value of LOWER. Where the nature of sound generated is not applicable to the threshold metric, the table reflects a value of NA

[1] As not regulated under the MMPA, this threshold represents the distance at which harassment take for green sea turtle may occur in response to the noise.

[2] As not regulated under the MMPA, this threshold represents the distance at which an adaptive action would be triggered in the green sea turtle in response to the noise.

[3] Distance from the noise source in meters.

Based on the distances provided in Table 3.2-4, the distance threshold for pile-removing activities for both 18-inch and 24-inch piles has the potential for Level B (behavioral disruptions) harassment of marine mammals and harassment take of green sea turtles that may be present within 10 meters of the 18-inch piles and 40 meters of the 24-inch piles and would result in a potentially significant impact.

The effects of intense sound from pile removal activities are expected to be species temporary behavioral avoidance of habitat. The extent and duration of avoidance would depend on many factors, including the intensity of sound energy, frequency of energy, duration of driving, and species of fish, among others. For species managed under the Coastal Pelagics FMP, it is anticipated that schooling Northern Anchovy and Pacific Sardine have a potential to be displaced from the area during pile removal. However, these fish in the Family Clupeidae are considered to have relatively poor sensitivity to sound (Mann et al. 2001). For species managed under the Pacific Groundfish FMP, species are expected to be uncommon to very rare in the area and would be expected to be similarly displaced if present. However, unlike the Coastal Pelagics that would be

more exposed to direct propagated noise, groundfish near the bottom may not be fully displaced from the area, but rather may seek refuge in acoustic shadows in the local area such as remaining below surrounding bottom terrain that blocks and absorbs sound. For cartilaginous fish, including the managed Spiny Dogfish that may occur in the area, the lack of a swim bladder and low sensitivity to sound makes these species less susceptible to noise impacts although very little else is known about noise impacts to elasmobranchs (Casper et al. 2003).

Exposure to excessive sound levels would be anticipated to be behaviorally mitigated by fish moving away from potentially damaging sound sources.

Significance of Impact

Implementation of the proposed project would have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW and USFWS. Pile removal and dredging activities could impact foraging opportunities of the California least terns. In addition, pile-removing activities could generate enough underwater noise to alter behavior (Level B Harassment) of both green sea turtles and marine mammals. This impact would be potentially significant.

Mitigation Measures

Impacts to sensitive wildlife species would be reduced to less than significant through implementation of Mitigation Measures BIO-1A, BIO-1B, BIO-1C, and BIO-1D.

BIO-1A: Preconstruction California Least Tern Surveys. The project proponent shall schedule and complete all in-water construction activity outside of the nesting season for California least tern (generally between April 1 and mid-September). Should in-water construction occur during the California least tern nesting season, the following construction measures shall be implemented:

1. Prior to the start of construction, the contractor, shall retain a qualified biologist approved by the District, that shall continually conduct monitoring of the San Diego Bay waters within 500 feet of construction activities to identify presence of terns displaying foraging behavior (e.g., searching and diving) and assess the potential for adverse impacts or adverse impacts, if any, on California least tern. If adverse impacts on terns occur (e.g., agitation or startling during foraging activities), construction may not commence, and in the event construction has commenced, construction shall cease until the biological monitor determines that no adverse impacts would occur or the California least tern has left the site for longer than 10 minutes.

BIO-1B: Marine Mammal and Sea Turtle Construction Monitoring. Prior to construction activities involving in-water vibratory or impact hammer pile removal activities, the project proponent shall implement a marine mammal and sea turtle monitoring program. The

monitoring program shall be approved by the San Diego Unified Port District and shall include the following components:

1. For a period of 15 minutes prior to the start of in-water construction, a qualified biologist who meets the minimum requirements as defined by the National Oceanic Atmospheric Administration's Guidance for Developing a Marine Mammal Monitoring Plan shall be retained by the project proponent and approved by the San Diego Unified Port District and shall continuously monitor the applicable zones of influence of any vibratory pile removal (does not include pile jetting). The contractor shall halt in-water pile removal work if any marine mammals or green sea turtles are observed within the defined zone of influence for the species encountered. Work shall not re-commence until it has been determined that the marine mammals and turtles have left the area or have not been seen on the surface within the zones of influence for a period of 15 minutes.
2. The construction contractor shall not start work if any observations of special-status species are made prior to starting pile removal until marine mammals and turtle(s) have not been seen on the surface within the zones of influence for a period of 15 minutes.
3. The qualified biologist shall continually monitor the zone of influence during pile removal activities to observe any marine mammals or sea turtles that approach or enter the zone of influence. The qualified biologist shall have authority to stop all work on site and shall do so if a marine mammal or green sea turtle enters the zone of influence or could otherwise be impacted by construction noise from vibratory or impact hammer pile removal operations.
4. When performing vibratory pile removal, the contractor shall commence work with a few short pulses followed by a 1-minute period of no activity prior to commencing full pile removal activities. The purpose of this activity is to encourage the marine mammals and green sea turtles in the area to leave the project site prior to commencement of work. The contractor, under the direction of a qualified biologist, shall then commence monitoring as described to determine if marine mammals or turtles are in the area. This process should be repeated if pile removal ceases for a period of greater than an hour.

BIO-1C: **Construction Vessels.** Construction vessel traffic shall not exceed existing ambient speed limits for the marina.

BIO-1D: **Preconstruction Raptor and General Avian Nest Surveys.** If project demolition activities are scheduled to commence during the raptor nesting season (generally January 15 through August 31), preconstruction surveys for raptor nests shall be performed by a qualified biologist within 500 feet of project construction activities no more than 7 days prior to the initiation of construction.

Demolition activities within 500 feet of an identified active raptor nest shall not commence during the breeding season until a qualified biologist determines that the nest is no longer active and any young birds in the area have adequately fledged and are no longer reliant on the nest. Trees with inactive nests can be removed outside the breeding season without causing an impact.

Significance After Mitigation

Implementation of Mitigation Measures BIO-1A would reduce impacts on California least terns that could occur during the nesting season during waterside in-water pile removal and dredging construction work to less than significant levels by requiring construction activities to occur outside of the California least tern nesting season or require a qualified biologist to monitor during construction during the nesting season. The project would also be required to adhere to the PDFs described in Section 3.2.5.1 and applicable regulations, such as the preparation of a SWPPP and adherence to required BMPs. Compliance with these requirements and measures and adherence to regulatory permit requirements from USACE and RWQCB would minimize indirect effects to foraging opportunities by minimizing the potential for water quality impairment associated with in-water construction activities that could impact California least tern foraging. Implementation of Mitigation Measures BIO-1B and BIO-1C would reduce impacts on marine mammals and green sea turtles to less than significant levels by identifying when the species are approaching or within the designated ZOI for Level B (harassment), and halting in-water vibratory or impact hammer pile-removing activities until the species has left the construction area. Implementation of Mitigation Measure BIO-1D would reduce potential impacts to nesting raptors and birds protected by the CFG Code and MBTA to less than significant by reducing the potential for disturbance to nesting birds from substantial sources of noise generated by demolition activities.

3.2.5.2 Threshold 2: Riparian Habitat or Other Sensitive Natural Communities

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Impact Analysis

Direct Impacts

Terrestrial

There are no sensitive terrestrial vegetation communities or riparian habitat within the landside component of the project site. Therefore, no impacts on sensitive terrestrial habitats would occur.

Marine

Project proposed dredging and filling would result in direct impacts to intertidal and subtidal unvegetated habitat including the associated benthic community. Permanent impacts to vegetation communities on the project site shown on Figure 3.2-2, Habitat Impact Areas, and described in Table 3.2-5, Impact Summary for Habitats.

Table 3.2-5. Impact Summary for Habitats

Project Element	Project Sub-Element	Category	Habitat Type	Impact Area (sq. feet)
Upland Demolition	Upland Demolition	Upland Habitat	Human-Made Structure (Pilings/Marine Rail/Pier)	157
			Urban/Developed	39,562
			Total	**39,719**
	Pier Removal (Decking and up to 100 concrete piles)		Surface Cover[1]	+1,991
Dredging (15,000 cy)	Removal 2 feet Material	Marine Habitat	Human-Made Structure (Pilings/Marine Rail/Pier)	185
			Unvegetated Soft Bottom	3,798
			Total	**3,983**
	Other Dredge Area	Marine Habitat	Human-Made Structure (Pilings/Marine Rail/Pier)	491
			Riprap Revetment	98
			Unvegetated Soft Bottom	18,002
			Total	**18,591**
Fill (4,500 cy)	Clean Sand	Marine Habitat	Human-Made Structure (Pilings/Marine Rail/Pier)	1,455
			Riprap Revetment	9,796
			Unvegetated Soft Bottom	88,091
			Total	**99,342**

Source: Appendix C.

Notes: cy = cubic yard; feet = feet; sq. feet = square feet

[1] Positive numbers indicate a reduction in bay coverage (or an increase in open water cover).

Unvegetated Soft Bottom

Dredging would disturb approximately 21,800 square feet of soft bottom habitat, while fill activities (i.e., placement of sand) would affect approximately 88,091 square feet of soft bottom habitat on the project site (Figure 3.2-2). However, the impact area is relatively small compared to the amount of similar habitat in San Diego Bay (approximately 4,713 acres or 205,298,280 square feet) (U.S. Navy 2013). There is considerable similar soft bottom habitat immediately adjacent to the project site, as well as throughout San Diego Bay. These comparable adjacent areas would be expected to provide alternative foraging habitat for opportunistic motile species during the period

immediately following bottom disturbance associated with dredging and filling, including removing piles. In addition, it is anticipated that, in the areas where the placement of clean sand would occur, the soft bottom habitat would be re-colonized immediately by adult migration from adjacent areas and colonization by larval recruitment. As a result, the impact of dredging and filling on the soft bottom habitat is considered temporary and less than significant.

Eelgrass

As discussed in Section 3.2.1.6, eelgrass is considered an HAPC and has been found in San Diego Bay. Although no eelgrass beds were found during the March 2019 survey within the project footprint, the potential is high for it to occur. Potentially significant impacts to eelgrass beds, should they be identified (through subsequent surveys required by the California Eelgrass Mitigation Policy and mitigation), could occur by direct physical disturbance from dredging activities or pile removal activities from the proposed project.

Open Water

The removal of the pier would also result in a 1,991-square-foot decrease of San Diego Bay surface area coverage, which would result in an increase in more open water habitat. This would increase the foraging habitat available for piscivorous avian species and would be considered a benefit from the project. Therefore, no impacts to open water habitat are expected to occur.

Riprap Revetment

Approximately 2,731 square feet of intertidal and subtidal riprap revetment on the project site may either be removed or buried (Figure 3.2-2) and would therefore result in permanent loss of riprap substrate to be replaced by soft bottom habitat. However, approximately 400 square feet of this loss may be offset by the installation of riprap as outfall erosion protection along the northern shoreline of the site. The riprap revetment within the northern portion of the project footprint appears to serve as a secondary shoreline stabilization structure and consists of small, low-relief rock that supports limited encrusting invertebrates or algae. Because of the relatively low-quality habitat function of the existing riprap as compared to soft bottom habitat, impacts to intertidal and subtidal riprap revetment would be less than significant.

Indirect Impacts

Project activities such as dredging, fill activities, and pile removal may result in temporary and localized increases in turbidity and sedimentation in the water column, along with lowered dissolved oxygen levels associated with disturbance of anoxic sulfidic sediments during dredging activities and pile removal. These activities are anticipated to affect a relatively small area of water through increased turbidity that would be localized and dissipate quickly following bottom disturbance (Appendix C). In addition, as described in Section 2.5.4.1, in Chapter 2, Project Description, silt curtains would be used to contain suspended sediment during dredging, filling,

and debris removal operations. Water quality (i.e., turbidity) would be monitored using both visual inspection and water quality monitoring stations placed around the construction site. Therefore, given the short-term nature of construction and the localized area of work, the inclusion of the PDFs detailed in Section 2.5.4.1, the temporary indirect impacts to open water would be less than significant.

Significance of Impact

Implementation of the proposed project would have a substantial adverse effect, either directly or through habitat modifications, on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW, NMFS, or USFWS. In-water construction activities have the potential to impact eelgrass beds on the project site, should they be identified in subsequent surveys. Impacts may include direct physical disturbance to beds from dredging activities, and from elevated turbidity levels from construction-related activities such as pile removing and dredging. The potential reduction in eelgrass habitat would be significant.

Mitigation Measures

Impacts to eelgrass beds would be reduced to less than significant through implementation of Mitigation Measures BIO-2A, BIO-2B, and BIO-2C.

BIO-2A: Eelgrass Surveys. Prior to the start of any waterside construction activities, a qualified marine biologist who would be retained by the project proponent and approved by the San Diego Unified Port District shall conduct a preconstruction eelgrass survey per the California Eelgrass Mitigation Policy 2014. Surveys for eelgrass shall be conducted during the active eelgrass growing season (March–October), and results shall be valid for 60 days, unless completed in September or October; if completed in September or October, results shall be valid until resumption of the next growing season. The qualified marine biologist shall submit the results of the preconstruction survey to the San Diego Unified Port District and resource agencies within 30 days. If preconstruction eelgrass surveys identify eelgrass, the qualified marine biologist shall demarcate the distribution of eelgrass to allow tug and barge operators to maintain a safe distance to avoid impacts to eelgrass during construction.

If eelgrass is found during the preconstruction survey, within 30 days of completion of in-water construction activities, a qualified marine biologist retained by the project proponent and approved by the San Diego Unified Port District shall conduct a post-construction eelgrass survey. The post-construction survey shall evaluate potential eelgrass impacts associated with construction. Upon completion of the post-construction survey, the qualified marine biologist shall submit the survey report to San Diego Unified Port District and resource agencies within 30 days.

BIO-2B: Eelgrass Mitigation. In the event that the post-construction survey identifies any impacts on eelgrass, the project proponent shall implement the following:

- A qualified marine biologist retained by the project proponent and approved by the San Diego Unified Port District shall develop a mitigation plan for in-kind mitigation. The qualified marine biologist shall submit the mitigation plan to the San Diego Unified Port District and resource agencies within 60 days following the post-construction survey.
- The Eelgrass Mitigation Plan shall specify that the contractor/entity harvesting eelgrass to implement the required mitigation would need to obtain a scientific collecting permit for eelgrass harvest and a letter of authorization at least 30–60 days prior to implementation.
- Mitigation for eelgrass impacts shall be at a ratio of no less than 1.2:1, as required by the California Eelgrass Mitigation Policy. Mitigation shall commence within 135 days of any noted impacts on eelgrass such that mitigation commences within the same eelgrass growing season that impacts occur.
- Upon completing mitigation, the qualified biologist shall conduct mitigation performance monitoring per the California Eelgrass Mitigation Policy, at performance milestones of 0, 12, 24, 36, 48, and 60 months. The qualified biologist shall conduct all mitigation monitoring during the active eelgrass growing season and shall avoid the low growth season (November–February). Performance standards shall be in accordance with those prescribed in the California Eelgrass Mitigation Policy.
- The qualified biologist shall submit the monitoring reports and spatial data to the San Diego Unified Port District and resource agencies within 30 days after the completion of each monitoring period. The monitoring reports shall include all the specific requirements identified in the California Eelgrass Mitigation Policy.

BIO-2C: Avoidance of Eelgrass Due to Anchored Barges, Boat Navigation, and Propeller Wash. If eelgrass is found during the preconstruction survey, tug and barge operators shall ensure that anchored construction barges are outside of eelgrass beds. Additionally, tugboat operators shall be instructed that propeller wash can damage eelgrass. No anchoring (and other bottom-disturbing activities) shall occur within eelgrass beds, and propeller wash shall not be directed toward eelgrass beds.

Significance After Mitigation

Implementation of Mitigation Measure BIO-2A, and adherence to regulatory permit requirements from USACE and RWQCB would reduce impacts on eelgrass during construction to less than significant levels by conducting requiring preconstruction surveys to identify any eelgrass bed and by clearly demarcating the extent of eelgrass on the project site to help construction operations

avoid anchoring and other bottom-disturbing activities within eelgrass beds. If impacts would occur, Mitigation Measure BIO-2B would mitigate any loss of eelgrass habitat at a ratio of 1.2:1 as prescribed in the California Eelgrass Mitigation Policy. Implementation of Mitigation Measure BIO-2C would reduce inadvertent impacts to eelgrass beds by requiring construction operations to avoid anchoring and other bottom-disturbing activities in the demarcated eelgrass beds.

3.2.5.3 Threshold 3: Wetlands

Would the project have a substantial adverse effect on state or federally protected wetlands (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact Analysis

The project site does not contain any state or federally protected wetlands. The proposed project would not alter water flow or water quality to marsh habitat and is not anticipated to degrade marshlands in any way. Therefore, no significant impacts to wetlands are anticipated to occur.

Significance of Impact

Implementation of the proposed project would not have a substantial adverse effect on state or federally protected wetlands. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.2.5.4 Threshold 4: Native Resident or Migratory Fish or Wildlife Species

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Impact Analysis

Native wildlife movement corridors have not been identified on the project site. In addition, the project site does not provide any specific terrestrial movement corridors or marine mammal, reptile, or fish migratory corridors**.** Impacts of the proposed project on wildlife corridors, movement of resident and migratory species, and use of nursery sites are considered to be less than significant.

Significance of Impact

Implementation of the proposed project would not substantially interfere with the movement of fish or other wildlife species. Moreover, it would not substantially impede the use of native wildlife nursery habitat. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.2.5.5 Threshold 5: Local Ordinances

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Impact Analysis

The applicable local land use plans, policies, ordinances, or regulations of the District, adopted for protecting biological resources, are the PMP and District Code. The District and the U.S. Navy Southwest Division maintain and implement the INRMP. The goal of the INRMP "is to provide direction for the good stewardship that natural resources require, while supporting the ability of the Navy and District to achieve their missions and continue functioning within San Diego Bay" (U.S. Navy 2013).

The project is not expected to change the ecosystem composition or result in a net loss of resources for birds, fish, or marine mammals. Additionally, Mitigation Measures BIO-1A, BIO-1B, and BIO-1C detailed under Threshold 1 would ensure impacts to the California least tern, marine mammals, and green sea turtles are avoided or minimized. Mitigation Measures BIO-2A, BIO-2B, and BIO-2C would ensure impacts to eelgrass beds would be avoided or minimized. Therefore, the proposed project is consistent with the INRMP and would not require additional mitigation for conservation plan conformance. Impacts would be less than significant.

In addition, there is no tree preservation policy or ordinance in effect for the project site. The PMP provides for the protection of biological resources and states that the District will remain sensitive to the needs of and cooperate with communities and other agencies in both San Diego Bay and tideline development. The ornamental trees on the project site would not be removed as part of the proposed project.

Significance of Impact

Implementation of the proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Impact would be less than significant impact.

Mitigation Measures

No mitigation measures are required.

3.2.5.6 Threshold 6: Habitat Conservation Plan

Would the project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

Impact Analysis

The City of San Diego has an adopted MSCP, which is implemented through the MSCP Subarea Plan (City of San Diego 1997). The project site is not subject to the MSCP and not inconsistent with that plan or other approved local, regional, or state habitat conservation plan. No impact would occur.

Significance of Impact

Implementation of the proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan, and no impact would occur.

Mitigation Measures

No mitigation measures are required.

3.2.6 Cumulative Impacts

A significant cumulative impact on biological resources would result if the proposed project would contribute to cumulative impacts related to sensitive habitat or species, sensitive habitat/natural communities, federally protected wetlands, or wildlife movement corridors.

3.2.6.1 Cumulative Threshold 1: Candidate, Sensitive, or Special-Status Species

The geographic area for terrestrial biological resources to which the proposed project may contribute includes the City and Harbor Island. The vast majority of the sensitive terrestrial habitat on Harbor Island and in the City is no longer present. Therefore, there is little to no potential for cumulative projects to degrade terrestrial habitat and impact sensitive species. Present and future projects would be required to be consistent with the INRMP, which identify important sensitive species and habitats in San Diego and in San Diego Bay. The landside component of the project would not affect any sensitive species.

The geographic area for marine biological resources is limited to areas adjacent to, or otherwise linked to, San Diego Bay. Cumulative projects listed in Table 3-1, Cumulative Projects, in Chapter 3, Environmental Analysis, would have potential to result in in-water quality impacts that would inhibit the California least tern's ability to identify prey for foraging and disturb marine mammals and sea turtles during in-water construction activities. Similar to the proposed project, cumulative projects would be required to mitigate for these impacts through avoidance of the California least

tern's foraging season and implementation of water quality BMPs and marine mammal and sea turtle construction monitoring. Therefore, the proposed project, in combination with other cumulative projects, would not result in a significant cumulative impact to sensitive species.

3.2.6.2 Cumulative Threshold 2: Riparian Habitat or Other Sensitive Natural Communities

The geographic area for terrestrial biological resources to which the proposed project may contribute includes Harbor Island. The vast majority of sensitive habitat on Harbor Island is no longer present. Therefore, there is little to no potential for cumulative projects to degrade terrestrial habitat. Present and future projects would be required to be consistent with the INRMP, which identifies important sensitive species and habitats in San Diego and in San Diego Bay. The landside component of the project would not affect any sensitive habitats.

Cumulative projects listed in Table 3-1 would have the potential to reduce eelgrass habitat if present, which is considered a HAPC. Similar to the proposed project, cumulative projects would be required to mitigate for these impacts through preconstruction eelgrass surveys and habitat mitigation if impacts occur. Therefore, the proposed project, in combination with other cumulative projects, would not result in a significant cumulative impact associated with sensitive habitats.

3.2.6.3 Cumulative Threshold 3: Wetlands

Cumulative projects, including those listed in Table 3-1, would not impact wetlands. No wetlands occur on the project site or in the surrounding area. Therefore, the proposed project, in combination with other cumulative projects, would not result in a significant cumulative impact associated with wetlands.

3.2.6.4 Cumulative Threshold 4: Native Resident or Migratory Fish or Wildlife Species

Implementation of the proposed project would not substantially interfere with the movement of fish or other wildlife species and would not impede the use of native wildlife nursery habitat. Therefore, the proposed project, in combination with other cumulative projects, would not result in a significant cumulative impact associated with the movement of fish or other wildlife species.

3.2.6.5 Cumulative Threshold 5: Local Ordinance

The geographic context for the analysis of cumulative impacts relative to local biological resources policies and ordinances is defined by the District. It is anticipated that cumulative projects would be consistent with the District's PMP, the San Diego Unified Port District Code, and the District's INRMP, or require mitigation measures or design review to ensure consistency, in order for project approvals to occur. Therefore, it is anticipated that cumulative development would be consistent with applicable plans or policies and would not result in a significant cumulative impact. With implementation of Mitigation Measures BIO-1A, BIO-1B, BIO-1C, BIO-2A, BIO-2B, and BIO-2C, the proposed project would comply with applicable local policies and ordinances. Therefore,

the proposed project, in combination with other cumulative projects, would not result in a significant cumulative impact associated with compliance with local policies or ordinances.

3.2.6.6 Cumulative Threshold 6: Habitat Conservation Plan

The geographic context for the analysis of cumulative impacts relative to habitat conservation plans is defined as the City's MSCP area. Similar to the proposed project, the cumulative projects identified in Table 3-1 are in the City but in the District's planning jurisdiction and would not be required to comply with the City's MSCP and Multi-Habitat Planning Area. Therefore, the proposed project, in combination with other cumulative projects, would not result in a significant cumulative impact associated with compliance with habitat conservation plans.

3.2.7 Conclusion

If dredging or in-water construction occurs during the California least tern nesting season, impacts to foraging opportunities may occur, resulting in a potentially significant impact. Implementation of Mitigation Measure BIO-1A would reduce impacts to less than significant levels by requiring construction activities to occur outside of the California least tern nesting season or requiring a qualified biologist to monitor if construction should occur during the nesting season. The project would also be required to adhere to the PDFs described in Section 3.2.5.1 (silt curtains, water monitoring, and bucket movement control) and applicable regulations, such as the preparation of a SWPPP and adherence to required BMPs. Compliance with these requirements and measures and adherence to regulatory permit requirements from USACE and RWQCB would minimize indirect effects to foraging opportunities by minimizing the potential for water quality impairment associated with in-water construction activities that could affect California least tern foraging. Hammer and vibratory pile removal activities could generate enough underwater noise to alter behavior (Level B Harassment) of both green sea turtles and marine mammals, which would result in a significant impact if the species are present during construction activities. Implementation of Mitigation Measures BIO-1B and BIO-1C would reduce impacts on marine mammals and green sea turtles to less than significant levels by identifying when the species are approaching or within the designated ZOI for Level B Harassment and by halting in-water pile removal activities until the species has left the construction area. Implementation of Mitigation Measure BIO-1D would reduce potential impacts to nesting raptors and birds protected by the CFG Code and MBTA to less than significant by reducing the potential for disturbance to nesting birds from substantial sources of noise generated by demolition activities.

Implementation of the proposed project would have a substantial adverse effect on eelgrass beds if present on the project site. Potentially significant impacts may include direct physical disturbance to the beds from dredging activities and from elevated turbidity levels from construction-related activities, such as pile removal and dredging. Implementation of Mitigation Measure BIO-2A would reduce impacts on eelgrass beds if present during construction to less than significant levels by conducting preconstruction surveys to identify any eelgrass bed and by clearly

demarcating the extent of eelgrass on the project site to help construction operations avoid anchoring and other bottom-disturbing activities in eelgrass beds if present. If impacts would occur, Mitigation Measure BIO-2B would mitigate any loss of eelgrass habitat at a ratio of 1.2:1 as prescribed in the California Eelgrass Mitigation Policy. Implementation of Mitigation Measure BIO-2C would reduce inadvertent impacts to eelgrass beds by requiring construction operations to avoid anchoring and other bottom-disturbing activities within the demarcated eelgrass beds.

Implementation of the proposed project would not result in significant impacts to wetlands, interfere with the movement of fish or other wildlife species, or impede the use of native wildlife nursery habitat, or conflict with any local policies or ordinances protecting biological resources or habitat conservation plans.

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Source: Merkel & Associates 2019.

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Figure 3.2-1

Habitat Types

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Source: Merkel & Associates 2019.

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Figure 3.2-2

Habitat Impact Areas

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3.3 Cultural Resources

This section describes the existing conditions related to cultural resources on the project site and evaluates the potential for impacts to cultural resources due to implementation of the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project). Information in this section is based on the Historic Resource Assessment Report prepared for the project by ASM Affiliates in June 2020, which is included as Appendix D.

3.3.1 Environmental Setting

3.3.1.1 Development of San Diego

The first intensive encounter of Spanish explorers and coastal villages of Native Americans was in 1769 with the establishment of Mission San Diego de Alcalá. The Mission San Juan Capistrano was subsequently established in 1776, followed by Mission San Luis Rey de Francia in 1798. The missions "recruited" Native Americans as laborers and converted them to Catholicism. Local Native Americans rebelled briefly against Spanish control in 1775. Most of the individuals who participated in the attack were from Tipai settlements south of the San Diego River Valley. The Ipai to the north did not participate in the rebellion, which reflected possible political affiliations at the time of the attack (Carrico 1981).

By the early 1820s, California came under Mexico's rule, and in 1834, the missions were secularized. This resulted in political imbalance and Native American uprisings against the Mexican rancheros. Many of the Kumeyaay left the missions and ranchos and returned to their original village settlements (Shipek 1991). When California became a sovereign state in 1850, the Kumeyaay were heavily recruited as laborers and experienced harsher treatment. Conflicts between Native Americans and encroaching Anglo-Victorians (Yankee) finally led to the establishment of reservations for some villages, such as Pala and Sycuan. Other mission groups were displaced from their homes, moving to nearby towns or ranches. The reservation system interrupted the social organization and settlement patterns, yet many aspects of the original culture still persist today.

The subsequent American period (1846 to present) witnessed the development of the region in various ways. This time period included the rapid dominance over Californio[1] culture by Yankee culture and the rise of urban centers and rural communities. A Frontier period from 1845 to 1870 saw the region's transformation from a feudal-like society to an aggressive capitalistic economy in which American entrepreneurs gained control of most large ranchos and transformed San Diego into a merchant dominated market town. Between 1870 and 1930, the City of San Diego (City) became firmly established.

[1] "Californio" refers to Hispanic people native to California.

Development stalled during the depression years of the 1930s, but World War II ushered in a period of growth based on expanding defense industries.

3.3.1.2 Lockheed Martin Marine Terminal Facilities History

In 1965, Lockheed Martin Corporation (Lockheed Martin) announced that it planned to expand into the field of oceanography. The first step of this plan was the lease of 2.7 acres from the San Diego Unified Port District (District). Lockheed Martin also planned to purchase a facility built as the San Diego office of the American Institute of Aeronautics and Astronautics in the same location. The organization remodeled the building for use as the ocean laboratory while it developed plans for a new structure to house Deep Quest, a submersible research vehicle. The site acreage included parcels on Harbor Island, a strip of land created by the U.S. Navy in 1961. When plans for the building were approved in March 1966, it was noted that this would be the first new building on the newly created island (San Diego Union 1966). The building was planned to provide space for a corporate office and operating bases for other Lockheed Martin divisions, but the most important purpose was to house Deep Quest, their new research submersible being built at their Sunnyvale plant (Valley News 1965).

The architectural plans for the building were prepared by Frank L. Hope & Associates and stamped and signed by architect Frank Hope Jr. According to the California license number, Frank Hope Jr. was the son of the founder of the firm, who also went by Frank Hope Jr. for most of his career but had retired in 1965 (Los Angeles Times 1992). The structural engineer for the building was Charles B. Hope, Frank Hope Jr.'s other son. The plans were prepared for Lockheed Missiles and Space Company and approved by the District on April 20, 1966.

Deep Quest

In May 1967, Deep Quest arrived at the Lockheed Martin Marine Terminal Facilities (MTF). It was delivered by barge from Redwood City and had its first launch in June 1967 (Figure 3.3-1, Deep Quest). The free-floating shark-shaped aluminum hull measured 39 feet and 10 inches long (Casper Star-Tribune 1967). The inner pressure hull consisted of two intersecting 7-foot spheres made of a special alloy maraging steel developed by the International Nickel Company for use in rockets. The steel was twice as strong as that used in any other submersible. The combination meant it could be strong without a significant increase in weight (San Bernardino County Sun 1968). The pressure hull could hold two pilots and two observers with 48 hours of life support. Battery operated propulsion was provided by two 7.5 horsepower motors that gave it a top speed of 4.5 knots. Deep Quest could "hover" in a 0.5-knot current with vertical motion provided by a pair of identical motors and water jet thrusters used to move the vessel laterally.

After the official launch, Lockheed Martin began an extensive testing phase. In October 1967, a 2-week series of trials took place in the open water off San Diego Bay. By January 1968, Deep Quest could reach a depth of 6,300 feet (Oakland Tribune 1968). In February 1968, a new device to

facilitate emergency surfacing was tested. A jettison system enabled Deep Quest to rise from a depth of 4,200 feet by dropping its forward battery, thereby losing 3,000 pounds (Baltimore Sun 1968).

In April of 1968, Deep Quest set a depth record of 8,310 feet. Pilots Glenn Minard and Don Saner, along with Larry Shumaker and Pete Summers, placed a flag on the ocean bottom 93 miles southwest of the City. They spent approximately 8 hours under water (Van Nuys News 1968). Because of this accomplishment, the U.S. Navy awarded Lockheed Martin a contract to build a prototype of a rescue submersible that could "piggy back" on a conventional submersible and then safely detach to explore deeper. There was considerable excitement around the new technology, and Shumaker envisioned a time when the bottom of the ocean would be the next frontier of claim jumping and cattle rustling (Anderson Daily Bulletin 1968).

The Deep Quest continued missions through the 1970s, mostly focused on research on sediments in collaboration with Lehigh University (The Morning Call 1973). Deep Quest remained active until 1980, conducting floor studies, inspections of underwater dump sites, and fuel cell research in its later years (Naval Undersea Museum 2014). In 1980, a replica of Deep Quest was built as a prop for the movie Raise the Titanic. This prop brought attention to Deep Quest once again when, in 2003, a collector purchased the vehicle believing it was the original. At that time, the original Deep Quest was on display at the U.S. Naval Undersea Museum in Keyport, Washington. Despite this fact, the collector turned the prop into a boat and docked it along the eastern seaboard, claiming it was the original Deep Quest (The Day 2010).

In November 2017, Deep Quest made its last journey from the U.S. Naval Undersea Museum to the Platypus Marine shipyard in Port Angeles, Washington, where it was dismantled and recycled.

3.3.1.3 Known Cultural Resources

Cultural resources are districts, buildings, sites, structures, areas of traditional use, or objects that represent the physical evidence of human activities. Cultural resources are divided into two categories: archaeological resources (prehistoric and historic), and built environment resources (architectural).

3.3.1.4 Archaeological Resources

The proposed project is on Harbor Island, which was created in 1961 from harbor dredging. There are no known archaeological sites within the project vicinity.

3.3.1.5 Built Environmental Resources

A built environment resource is any aboveground building, structure, object, or District resources that are listed in or eligible for the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) and are considered historic resources for the purposes of the California Environmental Quality Act (CEQA). Historic resources are, or may be, significant architecturally or

culturally in local, state, or national history. Historic resources may fall into three broad categories: individually eligible buildings, structures, and objects; historic districts; and historic landscapes.

ASM Affiliates conducted archival research for information on the history of the property. Plans for the original building and alterations were obtained through the District to determine the architect and original floorplan. ASM Affiliates reviewed the original building and alteration plans, consulted aerial photographs, and checked other sources to develop the appropriate site-specific history and architect biographies of the project site.

The Marine Terminal Building at the MTF consists of a central two-story block with one-story wings north and south. The building has a flat built-up roof with no overhanging eaves or fascia. Most of the building is clad in distinctive narrow redwood clapboards with narrow corner and edge boards. Figure 3.3-2, Lockheed Martin Marine Terminal Building Views, shows the different views of the building. The west facade of the building faces Harbor Island Drive and appears to have no doors or fenestration. The south facade also has little visible fenestration. Projecting louvered vents like those on the western facade line most of the first story and hide jalousie windows.

The eastern facade is dominated by a central steel roll-up door that provided access for vessels using the marine railway. A small one-story shed that was added in 1968 is attached to the southern end of the facade and has one wood door on its northern facade. An additional square utility shed with double steel doors is at the northern end of the building. There is another set of hidden double doors south of the central door. The north facade of the building has the most architectural detailing and has only visible fenestration on the building. A row of 18 fixed sash ribbon windows line the second story of the central block, illuminating the maintenance shop area. The first story is divided into 18 bays by wood beams with an entrance slightly off center with 9 windows to the east and 8 to the west. The entrance is a simple wood door, and the jalousie windows have been damaged in some locations.

There is a portable structure on the eastern side of the building that, based on historical photographs, was added after the initial construction. The pier extends from the site on this facade and is built of redwood supported by hexagonal cast concrete posts. The marine railway is constructed of concrete with metal rails supported by cast concrete posts.

3.3.2 Regulatory Setting

The treatment of cultural resources is governed by federal and state laws and guidelines. There are specific criteria for determining whether prehistoric and historic sites or objects are significant or protected by law. Federal and state significance criteria generally focus on the resource's integrity and uniqueness, its relationship to similar resources, and its potential to contribute important information to scholarly research. Some resources that do not meet federal significance criteria may be considered significant under state criteria. The federal and state laws and guidelines for protecting historic resources are summarized below.

3.3.2.1 Federal

National Historic Preservation Act of 1966

The National Historic Preservation Act of 1966 established the NRHP as the official federal list of cultural resources that have been nominated by state offices for their historic significance at the local, state, or national level. Listing in the NRHP provides recognition that a property is significant to the nation, the state, or the community and assumes that federal agencies consider historic value in the planning for federal and federally assisted projects. Properties listed in the NRHP or "determined eligible" for listing must meet certain criteria for historic significance and possess integrity of form, location, and setting. Structures and features must usually be at least 50 years old to be considered for listing in the NRHP, barring exceptional circumstances. Criteria for listing in the NRHP, which are set forth in Title 36, Part 63, of the Code of Federal Regulations, are significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association; and that are:

A. Associated with events that have made a significant contribution to the broad patterns of our history; or
B. Associated with the lives of persons significant in our past; or
C. Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; represent a significant and distinguishable entity whose components may lack individual distinction; or
D. Have yielded, or may be likely to yield, information important in prehistory or history.

Eligible properties must meet at least one of the criteria and exhibit integrity, which is measured by the degree to which the resource retains its historic properties and conveys its historic character, the degree to which the original fabric has been retained, and the reversibility of changes to the property. The fourth criterion is typically reserved for archaeological and paleontological resources. These criteria have largely been incorporated into CEQA Guidelines as well (see Section 3.3.5.2 in reference to CEQA Guidelines, Section 15064.5).

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) is a federal law passed in 1990. NAGPRA provides a process for museums and federal agencies to return certain Native American cultural items—human remains, funerary objects, sacred objects, or objects of cultural patrimony—to lineal descendants and culturally affiliated Indian tribes and Native Hawaiian organizations. NAGPRA includes provisions for unclaimed and culturally unidentifiable Native American cultural items, intentional and inadvertent discovery of Native American cultural items on

federal and tribal lands, and penalties for noncompliance and illegal trafficking. Implementation of the proposed project would be conducted in compliance with NAGPRA.

Federal curation regulations are also provided in Title 36, Part 79, of the Code of Federal Regulations and apply to collections that are excavated or removed under the authority of the Antiquities Act (16 USC 431–433), the Reservoir Salvage Act (16 USC 469–469c), Section 110 of the National Historic Preservation Act (16 USC 470h-2), or the Archaeological Resources Protection Act (16 USC 470aa–mm). Such collections generally include those that are the result of a prehistoric or historic resources survey, excavation, or other study conducted in connection with a federal action, assistance, license, or permit.

3.3.2.2 State

Assembly Bill 52

Assembly Bill 52 amends CEQA to require tribal cultural resources to be considered as potentially significant cultural resources. It requires that CEQA lead agencies consult with tribes that have requested consultation at initiation of the CEQA process to identify and evaluate the significance of these resources. Assembly Bill 52 applies to the CEQA environmental documents for which a Notice of Preparation was filed on or after July 1, 2015.

California Native American Graves Protection and Repatriation Act

The California NAGPRA, enacted in 2001, required the state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. California NAGPRA also provides a process for the identification and repatriation of these items to the appropriate tribes.

California Register of Historical Resources

The CRHR is a state government program for use by state and local agencies, private groups, and citizens to identify, evaluate, register, and protect California's historic resources. The CRHR is the authoritative guide to the state's significant historic and archaeological resources. The CRHR program encourages public recognition and protection of resources of architectural, historic, archaeological, and cultural significance; identifies historic resources for state and local planning purposes; determines eligibility for state historic preservation grant funding; and affords certain protections under CEQA.

The term "historical resource" includes but is not limited to any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political,

military, or cultural annals of California (California Public Resources Code, Section 5020.1[j]). Historic resources may be designated as such through three different processes:

1. Official designation or recognition by a local government pursuant to local ordinance or resolution (California Public Resources Code, Section 5020.1[k])
2. A local survey conducted pursuant to California Public Resources Code, Section 5024.1(g)
3. Listing in or eligibility for listing in the NRHP (California Public Resources Code, Section 5024.1[d][1])

To be eligible for listing in the CRHR, a building must satisfy at least one of the following four criteria:

- **Criterion 1.** It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
- **Criterion 2.** It is associated with the lives of persons important to local, California, or national history.
- **Criterion 3.** It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.
- **Criterion 4.** It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Native American Historic Cultural Sites (California Public Resources Code, Section 5097 et. seq.)

State law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the Native American Heritage Commission to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to one year in jail to deface or destroy a Native American historic or cultural site that is listed or may be eligible for listing in the CRHR.

3.3.2.3 Local

As a property under the jurisdiction of the District, the project site is not within the jurisdiction of the City. Therefore, the proposed project is not subject to review and approval by the City's Historical Resources Board. Consequently, the significance criteria outlined in the Historical Resources Guidelines of the City's Land Development Manual is not used to evaluate cultural resources within the study area for the proposed project.

3.3.3 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would be considered to have a significant historic and cultural resource impact if it would (CEQA Guidelines, Section 15000 et seq.):

1. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
3. Disturb any human remains, including those interred outside of formal cemeteries.

3.3.4 Method of Analysis

Based on Appendix G of the CEQA Guidelines, implementation of the proposed project may have a significant impact if it would cause a substantial adverse change in the significance of a historic resource pursuant to Section 15064.5 of the CEQA Guidelines. Under CEQA, built environment and archaeological resources (both historic and prehistoric) may qualify as historic resources under CEQA; however, for clarity of this discussion, built environment resources are addressed under Threshold 1, and archaeological resources are addressed under Threshold 2 in Section 3.3.5.2.

Generally, the term "historical resource" shall include the following:

- A resource listed in or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources (California Public Resources Code, Section 5024.1; CEQA Guidelines, Section 4850 et seq.).
- A resource included in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements in Section 5024.1(g) of the California Public Resources Code is presumed to be historically or culturally significant.
- Any object, building, or structure which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, if substantial evidence supports the lead agency's determination. A resource that meets the criteria for listing on the CRHR shall generally be considered historic.

The CEQA Guidelines state that a "substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired." A resource is considered "materially impaired" if it:

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR

- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources... or its identification in a historical resources survey... unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant
- Demolishes or materially impairs in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA

3.3.5 Project Impacts and Mitigation

The following sections address various potential impacts relating to historic and cultural resources that could result due to the implementation of the proposed project.

3.3.5.1 Threshold 1: Historic Resources

Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

Impact Analysis

Impacts to historic resources are evaluated by determining the potential for development to affect the integrity and character-defining features of historic resources. To be eligible for listing in the CRHR, a building must satisfy at least one of the following four criteria:

- **Criterion 1.** It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
- **Criterion 2.** It is associated with the lives of persons important to local, California, or national history.
- **Criterion 3.** It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.
- **Criterion 4.** It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

According to the Historic Resource Assessment Report (Appendix D), the MTF satisfy CRHR Criterion 1 under the theme of Industry: Maritime Research and Exploration. The MTF, which include the Marine Terminal Building, waterside pier, and marine railway, are closely associated with Deep Quest, a submersible research vehicle that set the depth record in 1968. The MTF were built specifically to house Deep Quest, its support vehicle TransQuest, and the oceanographic vessel Sea Quest. The Marine Terminal Building at the MTF served as the primary marine research headquarters and maintenance facility for Lockheed Martin during the years that Deep Quest was recognized as a nationally significant maritime program. It represents an era when the City was transitioning from the aircraft missile industry

to ocean research and exploration. The period of significance under Criterion 1 is 1966–1969, when interest in the program waned after the incident that left the crew trapped and after which Lockheed Martin had decided not to expand the Deep Quest program as originally intended.

In addition, the Historic Resource Assessment Report (Appendix D) determined that the Marine Terminal Building at the MTF satisfy CRHR Criterion 3 for having been designed by a master architect and for possessing high artistic value and distinctive characteristics of Contemporary style. The Marine Terminal Building was designed by Frank Hope Jr. of Frank L. Hope & Associates (Appendix D), who is included on the list of established masters created by the Historical Resources Board for the City (HRB San Diego 2011) and who is also listed as a contributing designer of Modern San Diego in the San Diego Modernism Historic Context Statement (Context Statement) (City of San Diego 2007). In addition to a number of residential projects, Frank L. Hope & Associates designed several well recognized Modern landmarks in the City, including San Diego Stadium (now San Diego County Credit Union Stadium), the Timken Museum of Art, the May Company in Mission Valley, and several buildings on the University of California, San Diego, campus.

Additionally, the Marine Terminal Building has a unique modernist style and character-defining features that indicate it possesses high artistic values and elements of multiple styles popular in the City in 1966, as outlined in the Context Statement (City of San Diego 2007). The Marine Terminal Building is best classified as Contemporary style because it displays characteristics of this style, including the strong roof form, large windows (on the north facade), and nontraditional exterior finish listed as the primary character-defining features of the Contemporary style. Under secondary features, the Context Statement notes that commercial buildings are horizontally oriented, and although this is an industrial building, the horizontal focus is clear on the north facade and in the louvers and cladding across the building. Additionally, although intended for houses, McAlester's Field Guide to American Houses indicates that broad expanse of uninterrupted wall surface built with natural material, in this case redwood, is a character-defining feature of the Contemporary style (McAlester 2013). Obscured entry doors and windows, like those found on the Marine Terminal Building, are also noted as an identifying feature of the style. The Context Statement (City of San Diego 2007) states that examples of this style that retain a high degree of integrity are rare, and it appears that industrial buildings with a Contemporary style were even rarer because they were not addressed in the Context Statement. The period of significance under Criterion 3 is 1966, the year of construction.

Therefore, the MTF are considered a historic resource for the purposes of CEQA. The project would result in the demolition of the Marine Terminal Building, waterside pier, and marine railway, which a considered a substantial adverse change to the historic resource pursuant to CEQA Guidelines, Section 21084.1.

Significance of Impact

The project proposes the demolition of the MTF, which include the Marine Terminal Building, waterside pier, and marine railway. The demolition of this eligible historic resource would cause a substantial adverse change in the significance of a historic resource as defined in Section 15064.5 of the CEQA Guidelines. According to CEQA Guidelines, Section 15064.5(2)(C), "the significance of a historic resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA." The proposed project would result in a substantial adverse change to the historic resource pursuant to CEQA Guidelines, Section 21084.1, and would result in a potentially significant impact.

Mitigation Measures

Mitigation Measures CUL-1 and CUL-2 would reduce the impacts to this historic resource; however, impacts would not be reduced to a less than significant level:

CUL-1: **Historic American Buildings Survey Level 2 Documentation.** Prior to demolition, the Marine Terminal Building, marine railway, and pier shall be documented to Historic American Buildings Survey Level 2 standards, according to the outline format described in the Historic American Building Survey Guidelines for Preparing Written Historical Descriptive Data, and be approved by the District. Photographic documentation shall follow the Photographic Specification – Historic American Building Survey, including 10–20 archival quality, large-format photographs of the exterior and interior of the building and its architectural elements. Construction techniques and architectural details shall be documented, especially noting the measurements, hardware, and other features that tie architectural elements to a specific date. If feasible, views of the pier and/or railway and their association with the building should be documented from the water with views to the west. The original architectural plans shall be archivally reproduced following Historic American Buildings Survey standards. Three copies of the Historic American Buildings Survey documentation package, with one copy including original photograph negatives, shall be produced, and at least one of these copies shall be placed in an archive or history collection accessible to the general public.

CUL-2: **Historical Interpretive Exhibit.** An interpretative opportunity that would communicate the significance of the Lockheed Martin Marine Terminal Facilities to the San Diego community would be developed. This opportunity shall consist of a permanent interpretive exhibit that shall incorporate information from historic photographs, Historic American Buildings Survey documentation, or other materials in a location accessible to the public. The minimum size of the exhibit should be 2 feet by 3 feet and could be mounted on a pedestal at an angle or mounted vertically on a building or structure. The interpretive exhibit shall be developed by a qualified team, including a historian and

graphic designer, and approved by the San Diego Unified Port District. If the exhibit could not be located at the current location, another appropriate venue on Harbor Island shall be considered by the San Diego Unified Port District during development and review of the interpretive exhibit.

Significance After Mitigation

The demolition of the MTF, which include the Marine Terminal Building, waterside pier, and marine railway, would result in a substantial change in a historic resource. The proposed documentation and interpretive exhibit (Mitigation Measures CUL-1 and CUL-2) would not adequately replace the demolished structure and would not reasonably mitigate the impacts of the demolition to less than significant. Therefore, impacts would remain significant and unavoidable.

3.3.5.2 Threshold 2: Archaeological Resources

Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Impact Analysis

The proposed project is on Harbor Island, which was created in 1961 from harbor dredging and was developed shortly thereafter. Although archaeological sites are known to exist in greater County of San Diego (County), no known archaeological resources exist on the project site, and because Harbor Island is human-made, the possibility that archaeological sites exist is alleviated. Because the project site is on dredged fill, there is very little to no potential for archaeological resources to be unearthed during construction activities. Therefore, impacts to archaeological resources would be less than significant.

Significance of Impact

Implementation of the proposed project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines. A less than significant impact would occur.

Mitigation Measures

No mitigation measures are required.

3.3.5.3 Threshold 3: Human Remains

Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Impact Analysis

The proposed project is on Harbor Island, which was created in 1961 from harbor dredging. Because the project site is on dredged fill, no human remains are anticipated to be discovered during construction activities. Therefore, no impact to human remains would occur. Pursuant to California Public Resources Code, Section 21080.3.1 (Assembly Bill 52), California Native American tribes traditionally and cultural affiliated with the project site can request notification of projects in their traditional cultural territory. At this time, no Native American tribes have requested consultation for projects within the District's jurisdiction that are subject to CEQA.

Significance of Impact

Implementation of the proposed project would not disturb any human remains, including those interred outside of dedicated cemeteries. No impact would occur.

Mitigation Measures

No mitigation measures are required.

3.3.6 Cumulative Impacts

3.3.6.1 Cumulative Threshold 1: Historic Resources

The geographic context for the analysis of cumulative impacts to historic resources is defined as the San Diego Bay waterfront due to the similar type of industry that would occur in this area. Cumulative impacts to historic resources would involve projects affecting local resources with the same level or type of designation or evaluation, projects affecting other structures in the same historic district, or projects that involve resources that are significant within the same context as resources associated with the proposed project. None of the projects listed in Table 3-1, Cumulative Projects, in Chapter 3, Environmental Analysis, would result in impacts to historic resources.

Implementation of the proposed project would include the demolition of the MTF, which include the Marine Terminal Building, waterside pier, and marine railway. The Historic Resource Assessment Report (Appendix D) determined that the MTF would satisfy CRHR Criteria 1 and 3 and is considered a historic resource. Compliance with Mitigation Measures CUL-1 and CUL-2 would reduce project-level impacts by requiring proper treatment and documentation of the affected resources, although not to a less than significant level. Since the historic building would be demolished as a result of the proposed project, it would no longer convey its historic significance. However, since none of the projects listed in Table 3-1 would result in impacts to historic resources,

no cumulative impact would occur, and the project's contribution would not be cumulatively considerable.

3.3.6.2 Cumulative Threshold 2: Archaeological Resources

The geographic context for the analysis of cumulative impacts to archaeological resources is considered to be the County. Evidence of human occupation on the project site is represented by numerous archaeological sites throughout the City and overall region. These sites contain artifacts and features of value in reconstructing cultural patterns of prehistoric life. Due to the potential for construction activities associated with future development projects in the San Diego region to impact archaeological resources, a significant cumulative impact to archaeological resources exists. Present and future projects would be required to be consistent with state and federal regulations to include tribal consultation processes.

No known archaeological resources exist at the project site. Because the project site is on dredged fill, there is very little to no potential for archaeological resources to be unearthed during construction activities. Therefore, the proposed project would not contribute to cumulatively significant impacts to archaeological resources.

3.3.6.3 Cumulative Threshold 3: Human Remains

The geographic context for the analysis of cumulative impacts to human remains is considered to be the County. The presence of numerous archaeological sites throughout the region indicates that prehistoric human occupation occurred throughout the region. Additionally, historic-era occupation of the area increases the possibility that humans were interred outside of a formal cemetery. Cumulative development projects in the region would have the potential to encounter unknown, interred human remains during construction activities, which would result in a significant cumulative impact. Present and future projects would be required to be consistent with state and federal regulations. Implementation of the proposed project would not disturb any human remains. Therefore, the proposed project would not contribute to cumulatively significant impacts to human remains.

3.3.7 Conclusion

The project proposes the demolition of the MTF and associated remediation. The Historic Resource Assessment Report (Appendix D) determined that the MTF satisfy CRHR Criteria 1 and 3. The demolition of this eligible historic resource would cause a substantial adverse change in the significance of a historic resource as defined in Section 15064.5 of the CEQA Guidelines and would be a potentially significant impact. The proposed documentation and interpretive signage (Mitigation Measures CUL-1 and CUL-2) cannot adequately replace the demolished structure and, therefore, do not mitigate the substantial adverse change to less than significant. Therefore, impacts would remain significant and unavoidable. In addition, because no identified cumulative

project would result in impacts to historic resources, no cumulative impact would occur, and the project's contribution would not be cumulatively considerable.

Because the project site is on dredged fill, there is very little to no potential for archaeological resources or human remains to be unearthed during construction activities. Therefore, a less than significant impact would occur to archaeological resources, and no impact would occur to human remains. In addition, the proposed project would not contribute to cumulatively significant impacts to archaeological resources and human remains.

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Photo 1. Photo of launch day of Deep Quest. June 4, 1967 from San Diego Historical Society Photograph Collection.

Photo 2. Photo of Building with Deep Quest on Railway Circa 1971.

Source: Merkel & Associates 2019.

Harris & Associates

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Figure 3.3-1

Deep Quest

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Photo 3. Oblique View of West Facade Showing Hidden Fenestration.

Photo 4. South Facade Looking Northeast.

Photo 5. East Facade with Open Hidden Door.

Photo 6. North Facade of Lockheed Martin Marine Terminal Building.

Source: ASM Facilities, Inc. 2019.

Harris & Associates

Figure 3.3-2

Lockheed Martin Marine Terminal Building Views

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3.4 Greenhouse Gas Emissions

The following analysis is based on the Greenhouse Gas Emissions Analysis prepared for the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project) by Harris and Associates in May 2020 and included in Appendix F, Air Quality Memorandum and Greenhouse Gas Emissions Analysis, to this Environmental Impact Report. This analysis presents an overview of climate change; a summary of global, national, state, and local greenhouse gas (GHG) inventories; regional adverse effects of climate change; federal, state, and local regulation relevant to the proposed project's GHG analysis; thresholds of significance; and potential impacts associated with the remediation and demolition of the project.

3.4.1 Environmental Setting

Global Climate Change Overview

Climate change refers to any substantial change in climate measurement characteristics (such as temperature, precipitation, or wind) lasting for decades or longer. Some GHGs, such as water vapor, occur naturally and are emitted to the atmosphere through natural processes, while others are emitted through human activities. Beginning in the late eighteenth century, human activities associated with the Industrial Revolution have also changed the composition of the atmosphere and, therefore, are very likely influencing Earth's climate. Over the past 200 years, the burning of fossil fuels, such as coal and oil, and deforestation has caused concentrations of heat-trapping GHG to increase substantially in the atmosphere.

The accumulation of GHGs in the atmosphere regulates Earth's temperature. Without the natural heat-trapping effects of GHGs, Earth's temperature would be approximately 34 degrees Celsius (°C) cooler (CCAT 2007). However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Greenhouse Gases

The following GHGs are widely accepted as the principal contributors to human-induced global climate change:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons
- Perfluorocarbons
- Sulfur hexafluoride (SF_6)
- Nitrogen trifluoride (NF_3)

CO_2 enters the atmosphere through the burning of fossil fuels, solid waste, and trees and wood products and as a result of other chemical reactions, such as through the manufacturing of cement. Globally, the largest source of CO_2 emissions is the combustion of fossil fuels in power plants, automobiles, industrial facilities, and other similar sources. CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle. As part of the carbon cycle, billions of tons of atmospheric CO_2 are removed from the atmosphere by oceans and growing plants, also known as "sinks," and are emitted back into the atmosphere annually through respiration, decay, and combustion, also known as "sources." When in balance, the total CO_2 emissions and removals from the entire carbon cycle are roughly equal. Since the Industrial Revolution in the 1700s, human activities, such as the burning of oil, coal, and gas and deforestation, have increased CO_2 concentrations in the atmosphere (USEPA 2018).

CH_4 is emitted from a variety of natural and human-related sources, including fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management (USEPA 2020). It is estimated that 60 percent of global CH_4 emissions are related to human activities. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and wildfires. Natural processes in soil and chemical reactions in the atmosphere help remove CH_4 from the atmosphere (USEPA 2018).

N_2O is emitted during agricultural and industrial activities and during combustion of fossil fuels and solid waste (USEPA 2020). N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. Globally, about 40 percent of total N_2O emissions come from human activities (USEPA 2018).

Hydrofluorocarbons, Perfluorocarbons, SF_6, and NF_3 are synthetic, powerful GHGs that are emitted from a variety of industrial processes and the production of chlorodifluoromethane (HCFC-22). The proposed project would not include any industrial processes, and HCFC-22 has been mostly phased out of use in the United States (UNEP 2012); therefore, these GHGs are not discussed further in this EIR.

Individual GHGs have varying heat-trapping properties and atmospheric lifetimes. Table 3.4-1, Global Warming Potentials and Atmospheric Lifetimes of Common GHGs, identifies the carbon dioxide equivalent (CO_2e) and atmospheric lifetimes of basic GHGs. The CO_2e is a consistent method for comparing GHG emissions because it normalizes various GHG emissions to a consistent measure. Each GHG is compared to CO_2 with respect to its ability to trap infrared radiation, its atmospheric lifetime, and its chemical structure. For example, CH_4 is a GHG that is 28 times more potent than CO_2; therefore, 1 metric ton (MT) of CH_4 is equal to 28 MT CO_2e.

Table 3.4-1. Global Warming Potentials and Atmospheric Lifetimes of Common GHGs

GHG	Formula	100-Year Global Warming Potential[1]	Atmospheric Lifetime
Carbon dioxide	CO_2	1	~100
Methane	CH_4	28	12
Nitrous oxide	N_2O	265	121

Source: CARB 2014. Consistent with CalEEMod, Version 2016.3.2.

Notes:

[1] The warming effects over a 100-year time frame relative to other GHG.

Greenhouse Gases Emissions Inventories

California

Total California GHG emissions in 2016 were 429 million metric tons (MMT) CO_2e, according to the California Greenhouse Gas Emissions Inventory for 2006 to 2016. During the 2000 to 2016 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14 tons per person to 10.8 tons per person in 2016, a 23 percent decrease. The transportation sector remains the largest source of GHG emissions in the state, accounting for 39 percent of the inventory, and shows a small increase in emissions in 2016. Emissions from the electricity sector (16 percent in 2016) continue to decline due to growing zero-GHG energy generation sources. Emissions from the industrial sector contributed 21 percent to total GHG emissions in 2015 and 2016, the commercial sector contributed 5 percent, residential sector contributed 7 percent, and agriculture contributed 8 percent (CARB 2018a).

City of San Diego

The most recent inventory completed by the City of San Diego (City) was published in 2018 for 2015–2017 emissions. The 2017 community-wide emissions were estimated to be approximately 10.2 MMT CO_2e, a 0.2 percent decrease from 2016 emissions (City of San Diego 2018). Transportation is the largest emissions sector, accounting for approximately 54 percent of the total emissions. Energy consumption, including electricity and natural gas use, is the next largest source of emissions, accounting for approximately 40 percent of the total.

County of San Diego

In February 2018, in conjunction with the County of San Diego's (County's) Climate Action Plan (CAP), the County published a GHG inventory for County operations and the activities occurring in the unincorporated communities of the County. The GHG inventory includes a discussion of the primary sources and annual levels of GHG emissions for 2014 (baseline year) and describes likely trends if emissions are not reduced for 2020, 2030, and 2050. Total GHG emissions in the County in 2014 were estimated to be 3.2 MMT CO_2e from the following sectors: transportation (on- and off-road), electricity, solid waste, natural gas, agriculture, water, wastewater, and propane (County of San Diego 2018). On-road transportation is the largest emissions sector, accounting for

approximately 1.5 MMT CO_2e, or 45 percent of total emissions. Energy consumption, including electricity and natural gas use, is the next largest source of emissions, accounting for approximately 1.1 MMT CO_2e, or 35 percent of the total.

Port of San Diego

The San Diego Unified Port District (District) prepared a GHG emissions inventory as part of the preparation of the Port of San Diego CAP (District 2013). The inventory included GHG emissions from electricity use; natural gas use; on-road and maritime transportation; water use; and waste generation from port activities, including lodging, ocean-going vessels, recreational boating, commercial development, and cargo and cruise activity. Total emissions in 2006 were 826,429 MT CO_2e. The largest contributing source was on-road transportation emissions (314,870 MT CO_2e). The largest contributing activity sectors were lodging (137,429 MT CO_2e) and industrial activities (137,429 MT CO_2e).

3.4.2 Regulatory Setting

Applicable federal, state, and local (non-regulatory) laws and regulations governing the generation of GHG emissions are described in the following sections.

3.4.2.1 Federal

Federal Clean Air Act

On April 2, 2007, the U.S. Supreme Court ruled in Massachusetts v. USEPA that CO_2 is an air pollutant, as defined under the Clean Air Act, and that the USEPA has the authority to regulate emissions of GHGs. The USEPA announced that GHGs (including CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6) threaten the public health and welfare of the American people. This action was a prerequisite to finalizing the USEPA's GHG emissions standards for light-duty vehicles, which were jointly proposed by the USEPA and the U.S. Department of Transportation's National Highway Traffic Safety Administration. The standards require compliance with progressively more stringent GHG emission standards for the 2012 through 2025 vehicle model years.

3.4.2.2 State

Assembly Bill 32

In September 2006, the California Legislature adopted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHG emissions in California. GHGs, as defined under AB 32, include CO_2, CH_4, N_2O, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, and SF_6. Under AB 32, the California Air Resources Board (CARB) has the primary responsibility for reducing GHG emissions and continues the California Climate Action Team (CCAT) to coordinate statewide efforts and promote strategies that can be undertaken by

many other California agencies. AB 32 required CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020.

In general, AB 32 directed CARB to perform the following:

- Prepare and approve a Scoping Plan for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020, and update the Scoping Plan every 5 years
- Maintain and continue reductions in emissions of GHG beyond 2020
- Identify the statewide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020
- Identify and adopt regulations for discrete early actions that could be enforceable on or before January 1, 2010
- Adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit GHG emissions
- Convene an Environmental Justice Advisory Committee to advise CARB in developing and updating the Scoping Plan and any other pertinent matter in implementing AB 32
- Appoint an Economic and Technology Advancement Advisory Committee to provide recommendations for technologies, research, and GHG emission reduction measures

Regarding the first bullet, the First Update to the Climate Change Scoping Plan (First Update) was adopted in May 2014. The First Update identifies opportunities for GHG reductions using existing and new funding sources, defines CARB's climate change priorities for the next 5 years, and establishes the plan for meeting the long-term goals of Executive Order (EO) S-3-05, described below. The First Update highlights California's progress toward meeting the 2020 GHG emission reduction goals defined in the initial Scoping Plan and evaluates how GHG reduction strategies may be aligned with other state priorities for water, waste, natural resources, clean energy, transportation, and land use. According to the First Update, California is on track to meet the 2020 GHG emission reduction goal. While the First Update discusses setting a mid-term target, the plan does not set a quantifiable target toward meeting the 2050 goal (CARB 2014).

The 2017 Climate Change Scoping Plan (2017 Scoping Plan) was finalized in November 2017 and adopted in December 2017. This plan outlines the framework for achieving the 2030 reductions as established in EO B-30-15 and Senate Bill (SB) 32, described below. The 2017 Scoping Plan identifies GHG reductions by emissions sector to achieve a statewide emissions level that is 40 percent below 1990 levels by 2030. CARB recommends statewide targets of no more than 6 MT CO_2e per capita by 2030 and no more than 2 MT CO_2e per capita by 2050. However, CARB specifically states that these goals are appropriate for the plan level (city, county, subregional, or regional level, as appropriate) but not for specific individual projects because the goals include the emissions sectors in the state.

The 2017 Scoping Plan also includes recommendations for local governments when considering discretionary approvals and entitlements of individual projects through the California Environmental Quality Act (CEQA). Specifically, CARB recommends that projects incorporate design features and GHG reduction measures, to the degree feasible, to minimize GHG emissions and that achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development. When designing mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from vehicle miles traveled, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits locally.

Assembly Bill 341

In 2011, the California Legislature enacted AB 341 (California Public Resource Code, Section 42649.2), increasing the diversion target to 75 percent statewide. AB 341 also requires the provision of a recycling service to commercial and residential facilities that generate 4 cubic yards or more of solid waste per week. AB 341 does not include a recycling target for local municipalities.

Assembly Bill 1493

AB 1493 (Pavley) requires that CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State." On September 24, 2009, CARB adopted amendments to the Pavley regulations that intend to reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments bind California's enforcement of AB 1493 (starting in 2009) while providing vehicle manufacturers with new compliance flexibility. In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single packet of standards called "Advanced Clean Cars" (CARB 2018b).

California Coastal Commission Sea Level Rise Policy Guidance

The original Sea Level Rise Policy Guidance was unanimously adopted for use by the California Coastal Commission (CCC) on August 12, 2015. It provides an overview of the best available science on sea-level rise for California and recommended methods for addressing sea-level rise in the CCC planning and regulatory actions. The guidance is intended to serve as a multipurpose resource for a variety of audiences and includes a high level of detail on many subjects. Since the guidance is not specific to a particular geographic location or development intensity, readers should view the content as a menu of options to use only if relevant, rather than a checklist of required actions. On November 7, 2018, the CCC unanimously adopted the Science Update to the Sea Level Rise Policy Guidance. The science-focused changes reflect recent scientific studies and

statewide guidance that updates the best available science on sea-level rise projections relevant to California. Other sections of the guidance remain unchanged (CCC 2018).

California Code of Regulations, Title 24, Part 6

California Code of Regulations, Title 24, Part 6, California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions. The Title 24 standards are updated periodically to allow the consideration and possible incorporation of new energy efficiency technologies and methods. The latest update to the Title 24 standards occurred in 2019 and went into effect January 1, 2020. The 2019 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential standards include improvements for attics, walls, water heating, and lighting. The standards are divided into three basic sets. The first set includes mandatory requirements that apply to all buildings. The second set is composed of performance standards—the energy budgets—that vary by climate zone (of which there are 16 in California) and building type; thus, the standards are tailored to local conditions. Finally, the third set is an alternative to the performance standards, which are a set of prescriptive packages that are a checklist compliance approach.

California Green Building Standards Code

The California Green Building Standards Code (24 CCR Part 11) is a code with mandatory requirements for new residential and nonresidential buildings throughout California. The code is Part 11 of the California Building Standards Code in Title 24 of the California Code of Regulations (CBSC 2020). The current 2019 standards for new construction of and additions and alterations to residential and nonresidential buildings went into effect on January 1, 2020.

The development of the California Green Building Standards Code is intended to (1) cause a reduction in GHG emissions from buildings, (2) promote environmentally responsible, cost-effective, healthier places to live and work, (3) reduce energy and water consumption, and (4) respond to the directives by the governor. In short, the code is established to reduce construction waste, make buildings more efficient in the use of materials and energy, and reduce environmental impact during and after construction.

The California Green Building Standards Code contains requirements for stormwater control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The code provides for design options that allow the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the

verification that all building systems, such as heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

Executive Order S-01-07

EO S-01-07 was enacted by Governor Arnold Schwarzenegger on January 18, 2007, and mandates that (1) a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020, and (2) a Low Carbon Fuel Standard for transportation fuels be established for California. According to the San Diego County Updated Greenhouse Gas Inventory (EPIC 2013), the effect of the Low Carbon Fuel Standard would be a 10 percent reduction in GHG emissions from fuel use by 2020. On April 23, 2009, CARB adopted regulations to implement the Low Carbon Fuel Standard.

Executive Order S-3-05

On June 1, 2005, through EO S-3-05, California Governor Arnold Schwarzenegger announced the following statewide GHG emission reduction targets:

- By 2010, California shall reduce GHG emissions to 2000 levels.
- By 2020, California shall reduce GHG emissions to 1990 levels.
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

The first CCAT Report to the Governor in 2006 contained recommendations and strategies to help ensure the targets in EO S-3-05 are met (CalEPA 2006). The latest CCAT Biennial Report was released in 2010. It expands on the policy-oriented 2006 assessment and provides updated information and scientific findings. The details in the CCAT Biennial Report include development of updated climate and sea-level projections using the latest information and tools available and evaluation of climate change in the context of broader social changes, such as land use changes and demographic shifts (CalEPA 2010).

Senate Bill 32

Effective January 1, 2017, SB 32 added Section 38566 to the California Health and Safety Code. SB 32 provides that "in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by [Division 25.5 of the California Health and Safety Code], [CARB] shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030." In other words, SB 32 requires California to reduce its statewide GHG emissions by the year 2030 so that emissions are 40 percent below those that occurred in 1990.

Senate Bill 350

California's Renewable Portfolio Standard was established in 2002 under SB 1078 and accelerated in 2006 under SB 107 by requiring that 20 percent of electricity retail sales be served by renewable

energy sources by 2010. Subsequent recommendations in California energy policy reports advocated a goal of 33 percent by 2020, and on November 17, 2008, Governor Arnold Schwarzenegger signed EO S-14-08, requiring retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020. In April 2011, SB X1-2 codified EO S-14-08, setting the new Renewable Portfolio Standard targets at 20 percent by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020 for electricity retailers. Most recently, Governor Edmund G. Brown Jr. signed SB 350 in October 2015, which extended the Renewable Portfolio Standard target by requiring retail sellers to procure 50 percent of their electricity from renewable energy resources by 2030.

3.4.2.3 Local

San Diego Unified Port District Climate Action Plan

In December 2013, the Board of Port Commissioners approved a CAP to reduce local GHG emissions. The CAP includes a variety of potential GHG reduction policies and measures selected to help meet the District's GHG reduction goals of 10 percent less than 2006 levels by 2020 and 25 percent less than 2006 levels by 2035. Reducing GHG emissions can slow the rate of climate change, reducing impacts. The District's reduction measures include those required by state and federal regulations, and District-specific policies and measures focus on the following:

- **Transportation Land Use Planning:** Support alternatively fueled technology and implement management systems that increase the efficiency of transportation and reduce energy consumption.
- **Energy Conservation and Efficiency:** Employ energy strategies in buildings and exterior spaces that save money on utility costs, reduce GHG emissions, and provide other community benefits.
- **Water Conservation and Recycling:** Conserve, treat, and reuse water to minimize GHG emissions and conserve a scarce resource.
- **Alternative Energy Generation:** Meet energy demands through renewable energy generation.
- **Waste Reduction and Recycling:** Promote behavioral changes that encourage conserving resources, reuse, and recycling.
- **Miscellaneous:** Support other programs and outreach to reduce GHG emissions.

3.4.3 Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, a significant impact related to GHG emissions would occur if the project would (CEQA Guidelines, Section 15000 et seq.):

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

3.4.4 Method of Analysis

The District prepared a GHG emissions inventory as part of the preparation of the Port of San Diego CAP (District 2013). The inventory included GHG emissions from electricity use, natural gas use, on-road and maritime transportation, water use, and waste generation from activities in the District, including lodging, ocean-going vessels, recreational boating, commercial development, and cargo and cruise activity. Total emissions in 2006 were 826,429 MT CO_2e. The largest contributing source was on-road transportation emissions (314,870 MT CO_2e). The largest contributing activity sectors were lodging (137,429 MT CO_2e) and industrial activities (137,429 MT CO_2e).

In December 2017, CARB adopted its 2017 Scoping Plan Update, which identifies GHG reductions by emissions sector to achieve a statewide emissions level consistent with AB 32 (CARB 2017). SB 32 extends the statewide emissions reductions goals of AB 32 by requiring the state to further reduce GHGs to 40 percent below 1990 levels by 2030.

The District's CAP is not a CAP meeting the requirements of Section 15183.5 of the CEQA Guidelines and, therefore, does not provide a threshold for project compliance. Numeric thresholds have been adopted by other agencies and were considered as an option, including the threshold of 900 MT CO_2e (annual emissions) recommended by the California Air Pollution Control Officers Association and referenced in the 2017 Scoping Plan (CARB 2017). Bright-line thresholds are typically intended to screen out smaller projects with relatively minimal emissions so that the vast majority (typically 90 percent) of total future development would be subject to mitigation or project features that would reduce GHG emissions compared to business-as-usual emissions and to be consistent with GHG reduction goals (CAPCOA 2008). In the absence of an adopted District threshold, this analysis incorporates the 900 MT CO_2e (annual emissions) recommended by the California Air Pollution Control Officers Association to determine the relative significance of project emissions. Per the South Coast Air Quality Management District guidance (SCAQMD 2009), due to the long-term nature of GHG emissions in the atmosphere, instead of determining significance of construction emissions alone, the total construction emissions are amortized over 30 years (an estimate of the life of the proposed project) and addressed part of annual operational emissions.

3.4.5 Project Impacts and Mitigation

The following sections address various potential impacts relating to GHG emissions that could result due to the implementation of the proposed project.

3.4.5.1 Threshold 1: Generate Greenhouse Gas Emissions

Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact Analysis

The proposed project GHG emissions would be associated with the use of heavy equipment, truck trips, harbor craft operation, and vehicle trips by the construction crew commuting to the project site. Emissions of GHGs related to the remediation activities would be temporary and cease following the 6-month construction period. Estimated project emissions by phase are provided in Table 3.4-2, Estimated Construction Emissions. As shown in Table 3.4-2, the proposed project's remediation activities would result in one-time emissions totaling approximately 364 MT CO_2e, or amortized emissions of 12.13 MT CO_2e per year.

Table 3.4-2. Estimated Construction Emissions

Construction Phase	CO_2e Emissions (MT)
1: Utility Removal and Site Preparation	4
1: Demolition	18
1: Grading	33
2: Waterside Demolition	39
2: Dredging and Export	96
2: Harbor Craft Operation	174
Total Construction Emissions	**364**

Source: Appendix F.
Notes: CO_2e = metric tons of carbon dioxide equivalent; MT = metric tons

Following remediation activities, the project site would not generate new sources of operational emissions. Only occasional maintenance trips would be required, resulting in negligible GHG emissions, similar to existing conditions. The addition of the project's amortized construction emissions of 12.13 MT CO_2e to the existing annual District emissions (826,429 MT CO_2e in 2006) during the remediation activities would result in a negligible contribution (0.0015 percent) to annual District GHG emissions. Additionally, emissions would also be well below the screening level of 900 MT CO_2e recommended by the California Air Pollution Control Officers Association at the state level for ongoing annual emissions. The project would result in a minimal one-time contribution of GHG emissions during an approximately 6-month period and would not result in an increase in ongoing annual GHG emissions compared to existing site conditions.

Significance of Impact

Implementation of the proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. GHG emissions from the project would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.4.5.2 Threshold 2: Conflict Applicable Plan

Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Impact Analysis

The plans, policies, or regulations adopted for the purpose of reducing GHG emissions that are applicable to the proposed project include the District CAP and the long-term statewide emissions reduction goals. The CCC's Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits (Sea Level Rise Policy Guidance) is also considered below.

San Diego Unified Port District Climate Action Plan

The District CAP is the applicable plan adopted for the purpose of reducing GHG emissions. The CAP focuses on reducing ongoing annual GHG emissions from activities within the District. The project site does not currently generate GHG emissions. The addition of the project's amortized construction emissions of 12.13 MT CO_2e to the existing annual District emissions (826,429 MT CO_2e in 2006) during the remediation activities would result in a negligible contribution (0.0015 percent) to annual District GHG emissions. Therefore, the project would not have an impact on the District's abilities to achieve emissions reduction goals. The CAP includes the recommended emissions reduction measures related to construction (District 2013). As shown in Table 3.4-3, Port of San Diego Climate Action Plan Construction Emissions Reduction Measures, the proposed project would be consistent with the construction emissions reduction measures. Therefore, the proposed project would be consistent with the District CAP and impacts would be less than significant.

Table 3.4-3. Port of San Diego Climate Action Plan Construction Emissions Reduction Measures

Measure	Project Compliance
TR3: Vehicle Idling. Enforce state idling laws for commercial vehicles, including delivery and construction vehicles.	**Consistent.** Remediation activities would be required by law to comply with state idling laws for construction vehicles.
SW1. Increase the diversion of solid waste from landfill disposal. Establish and enforce a construction waste-recycling program for all demolition and construction projects. Identify major waste generating uses, and provide technical and financial support to implement waste reduction strategies, and expand public outreach and education about waste management and recycling.	**Consistent.** Export from the project site would consist primarily of contaminated sediment that would not be eligible for recycling. Demolition debris would be transported for disposal by haul truck trips to an off-site disposal location. It is estimated that 700 tons of concrete from both landside and waterside facilities would be removed, and 100 percent would be recycled. In addition, an estimated 770 tons of asphalt would be removed, and 100 percent would be recycled. Demolition activities would also remove 35 tons of steel and other miscellaneous metal debris that would all be recycled. The remaining mixed construction debris created as a result of demolition would be approximately 115 tons, which would be 50 percent recycled.
SW2. Adopt a Construction and Demolition Recycling Ordinance.	**Consistent.** To date, the District has not adopted an ordinance for construction or demolition recycling. The proposed project would not interfere with the District's ability to establish a construction and demolition recycling ordinance. As discussed previously, the project would recycle a percentage of the demolition materials.

Sources: District 2013; Appendix F.

Notes: District = San Diego Unified Port District

Long-Term Statewide Emissions Reduction Goals

EO B-30-15 establishes a statewide emissions reduction target of 40 percent below 1990 levels by 2030, which is codified by SB 32, and a statewide emissions reduction target of 80 percent below 1990 levels by 2050. According to the most recent data in the 2017 Scoping Plan, the state is on track to achieve the 2020 target (CARB 2017). The proposed project would not result in a net increase in annual operational GHG emissions and would result in only a minor increase in construction emissions amortized over 30 years, which is consistent with the recommendations of the 2017 Scoping Plan. Similar to the District CAP, because the project site does not currently generate GHG emissions, and the proposed project would not result in a net increase in annual GHG impacts, the project would not have an impact on the state's abilities to achieve emissions reduction goals.

California Coastal Commission Sea-Level Rise Policy Guidance

The original Sea Level Rise Policy Guidance was unanimously adopted for use by the CCC on August 12, 2015. It provides an overview of the best available science on sea-level rise for California and recommended methods for addressing sea-level rise in the CCC planning and regulatory actions. The guidance is intended to serve as a multipurpose resource for a variety of audiences and includes a high level of detail on many subjects. Since the guidance is not specific to a particular geographic location or development intensity, readers should view the content as a

menu of options to use only if relevant, rather than a checklist of required actions. On November 7, 2018, the CCC unanimously adopted the Science Update to the Sea Level Rise Policy Guidance. The science-focused changes reflect recent scientific studies and statewide guidance that updates the best available science on sea-level rise projections relevant to California. Other sections of the guidance remain unchanged (CCC 2018).

The main concern of the CCC related to climate-related sea-level rise is threats to shoreline development, coastal beach access and recreation, habitats, agricultural lands, cultural resources, and scenic resources, all of which are subject to specific protections and regulations in the California Coastal Act. The proposed project would not exacerbate exposure of coastal resources to sea-level rise because the proposed project does not introduce any new coastal resources or propose significant changes to the project site that would exacerbate flooding of resources elsewhere in the District. The project site does not currently provide shoreline development, coastal beach access and recreation, agricultural lands, cultural resources, or scenic resources; therefore, no impact would occur to these resources. The Biological Technical Study and Essential Fish Habitat Assessment prepared for the project by Merkel & Associates in January 2020 (included as Appendix C, Biological Technical Study and Essential Fish Habitat Assessment) concludes that the proposed project would not result in permanent adverse impacts to biological resources. Therefore, the proposed project would not adversely impact the ability of species to adapt to sea-level rise and would not exacerbate the exposure of coastal resources to sea-level rise.

Significance of Impact

Implementation of the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG, and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.4.6 Cumulative Impacts

The geographic scope of consideration for GHG emissions is on a global scale because such emissions contribute, on a cumulative basis, to global climate change. Given the nature of environmental consequences from GHGs and global climate change, CEQA requires that lead agencies evaluate the cumulative impacts of GHGs, even relatively small additions, on a global basis. By nature, GHG evaluations are a cumulative study. As such, the analysis in Section 3.4.5, Project Impacts and Mitigation, considers the potential cumulative impacts of the proposed project related to GHG emissions. Implementation of the project would not result in an increase in annual GHG emissions. Temporary GHG emissions from remediation activities would be minimal.

Therefore, the project would not result in a cumulatively considerable contribution to a potentially significant cumulative impact with respect to GHG emissions.

3.4.7 Conclusion

The proposed project would result in one-time emissions totaling approximately 364 MT CO_2e, or amortized emissions of 12.13 MT CO_2e per year, which is below the screening level of 900 MT CO_2e recommended by the California Air Pollution Control Officers Association at the state level for ongoing annual emissions. Therefore, implementation of the proposed project would not generate GHG emissions that may have a significant impact on the environment.

The proposed project would be consistent with the construction emissions reduction measures in the District's CAP, would not have an impact on the state's abilities to achieve emissions reduction goals, would not adversely impact the ability of species to adapt to sea-level rise, and would not exacerbate the exposure of coastal resources to sea-level rise. Therefore, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would be less than significant.

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3.5 Hazards and Hazardous Materials

This section describes the existing hazards and hazardous materials conditions on the project site and evaluates the potential hazards and hazardous materials impacts resulting from implementation of the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project). Information in the following section is based on the Hazardous Building Materials Survey (HBMS) prepared by Ninyo & Moore in December 2019, which is included as Appendix E, Hazardous Building Materials Survey, to this Environmental Impact Report (EIR).

3.5.1 Environmental Setting

The project site is on Harbor Island, which is bisected by Harbor Island Drive, which delineates the West Basin and the East Basin. The project site is developed with a 5,500-square-foot building, a 165-foot pier, a 328-foot-long marine railway, concrete, asphalt paving, utilities, and support structures as shown on Figure 2-3, Project Site Features, in Chapter 2, Project Description. The building is unoccupied, and the marine terminal is not in use. The proposed project encompasses the area of the East Basin where sediment has been contaminated by discharges from the Former Tow Basin and Lockheed Marine Company Marine Terminal and Railway Facility Sites (i.e., the Marine Terminal Facilities [MTF]). The Former Tow Basin facility parcel is approximately 61,630 square feet in area and includes a 13,000-square-foot building. Historically, the area has been the site of a variety of industrial facilities. An open-top concrete water tank in the building was used to test various hull designs of boats, submersible vehicles, and seaplanes. A steep seawall is on the southern side of the parcel sloping southerly from the Former Tow Basin property to the East Basin. Discharges of polychlorinated biphenyls (PCBs), metals, and other pollutant wastes to San Diego Bay throughout the years have resulted in the accumulation of contaminants in marine sediments along the north shore of central San Diego Bay. The MTF consisted of a laboratory building (constructed 1965–1966) and a pier and railway that extended into the East Basin. The MTF was the site of a variety of maintenance and industrial activities. Historical use of mercury and other hazardous materials within the laboratory building could have resulted in a release of these materials to the drains within the building. A transformer existed adjacent to the laboratory building that could have leaked fluids containing PCBs. Various wastes (including mercury, waste and mixed oil, halogenated solvents, oxygenated solvents, and organic solids with halogens) were reported to be stored at several locations at the MTF including the main pier and the inside and outside of the laboratory building (SDRWQCB 2017).

The San Diego Unified Port District (District) and Lockheed Martin Corporation (Lockheed Martin) entered into a settlement agreement in March 2017 in response to the release or threatened release of hazardous substances at the MTF. Under the settlement agreement, Lockheed Martin is responsible for the implementation of site remediation pursuant to the San Diego Regional Water Quality Control Board's (RWQCB's) clean up and abatement order. Beyond the demolition of the

Marine Terminal Building, the landside portions of the project site do not require site remediation per the San Diego RWQCB (SWRCB 2019). A Draft Remedial Action Plan, prepared in March 2017, was developed and addresses contaminated sediments present in the East Basin of Harbor Island offshore from the Former Tow Basin and Lockheed Martin Company Marine Terminal and Railway Sites. The San Diego RWQCB will consider approval of a Final Remedial Action Plan following the completion of the California Environmental Quality Act (CEQA) process.

3.5.1.1 Definitions

Materials and waste are generally considered hazardous if they are poisonous (toxicity), can be ignited by open flame (ignitability), corrode other materials (corrosivity), or react violently, explode, or generate vapors when mixed with water (reactivity). The term "hazardous material" is defined in the California Health and Safety Code (Chapter 6.95, Section 25501[o]) as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment.

A hazardous waste, for the purpose of this EIR, is any hazardous material that is abandoned, discarded, or recycled, as defined in the California Health and Safety Code (Chapter 6.95, Section 25125). The transportation, use, and disposal of hazardous materials, as well as the potential releases of hazardous materials to the environment, are closely regulated through many state and federal laws.

Potential Receptors/Exposure

The sensitivity of potential receptors in the areas of known or potentially hazardous materials contamination is dependent on several factors, the primary factor being the potential pathway for human exposure. Exposure pathways include external exposure, inhalation, and ingestion of contaminated soil, air, water, or food. The magnitude, frequency, and duration of human exposure can cause a variety of health effects, from short-term acute symptoms to long-term chronic effects. Potential health effects from exposure can be evaluated in a health risk assessment.

3.5.1.2 Site Reconnaissance

Ninyo & Moore conducted visual reconnaissance of the project site buildings in April 2019 and assessed buildings for the presence of asbestos-containing materials (ACMs), lead-containing surfaces (LCSs), including lead-based paint (LBP), and other potentially hazardous building materials. The following includes a summary of the fieldwork performed by Ninyo & Moore during the visual reconnaissance:

- Conducted a visual reconnaissance of the subject buildings to document homogeneous areas and locate suspect ACM, LCS, building materials potentially falling under the Department of Toxic Substances Control (DTSC) Universal Waste Rule, and other potentially hazardous building materials.

- Collected 77 bulk samples of suspect ACM and submitted them to an independent laboratory for analysis of asbestos content. Samples were analyzed using the U.S. Environmental Protection Agency (USEPA) recommended method of polarized light microscopy in accordance with USEPA Method 600/R-93/116 July 93.
- Collected 93 X-ray fluorescence readings of potential LCS.
- Visually assessed building materials potentially falling under the Universal Waste Rule, including but not limited to non-incandescent light bulbs, mercury-containing thermostat triggers, batteries, and electronic devices. Other potentially hazardous building materials, including but not limited to potential PCB-containing light ballasts, potential tritium-containing exit signs, potential americium-containing smoke detectors, and potential Freon-containing air conditioning units and refrigerators, were noted if observed.
- Prepared sample location maps showing locations where suspect ACM were collected and locations of X-ray fluorescence readings of surfaces with lead concentrations in excess of 0.5 milligram per square centimeter (mg/cm^2) if encountered.
- Prepared a report presenting data and summarizing findings and recommendations for the subject buildings regarding ACM, LCS, and other potentially hazardous building materials.

Table 3.5-1, Assessed Structures, illustrates the structures assessed for the HBMS, which include the Marine Terminal and Railway Building (Building 921), on-site storage shed, and the main pier. The key findings of the HBMS, with respect to existing conditions on the project site, are summarized below.

Table 3.5-1. Assessed Structures

Building	Approx. Date of Construction	Approx. SF	Roof Construction	Foundation	Flooring Materials	Interior Framing	Ceiling Finishes	Wall Finishes
Marine Terminal and Railway (921)	1965/1966	6,500	BURM	C	C, CPT, L, TC, VFT, W	W, M	ACT, DW, W	DW, FB, W, WP
Storage Shed	Unknown	300	M	R	FB, VFT	W	DW, VP	DW, M, VP
Main Pier	1965/1966	1,650	NA	NA	W	NA	NA	NA

Source: Appendix E.

Notes: ACT = acoustic ceiling tile; BURM = built-up roofing membrane; C = concrete; CPT = carpet; DW = drywall; FB = fiberboard; L = linoleum; M = metal; NA = not applicable; R = raised; TC = texture coating; VFT = vinyl floor tile; VP = vinyl paneling; W = wood; WP = wood panel

Hazardous Building Materials

Development and redevelopment projects often involve the need to demolish existing older structures. Many older buildings contain building materials that consist of hazardous materials, which can be hazardous to people and the environment once disturbed. These materials include LBP, ACM, and PCBs. Prior to the USEPA ban in 1978, LBP was commonly used on interior and exterior surfaces of buildings. Through such disturbances as sanding and scraping activities, or renovation work, or gradual wear and tear, old peeling paint, or paint dust, particulates have been

found to contaminate surface soils or cause lead dust to migrate and affect indoor air quality. Exposure to residual lead can cause severe adverse health effects especially in children. Asbestos is a naturally occurring fibrous material that was extensively used as a fireproofing and insulating agent in building construction materials before such uses were banned by the USEPA in the 1970s.

Asbestos-Containing Materials

ACM were commonly used for insulation of heating ducts as well as ceiling and floor tiles to name a few typical types of materials. Similar to LBP, ACM contained within the building materials present no significant health risk because there is no exposure pathway. However, once these tiny fibers are disturbed, they can become airborne and become a respiratory hazard. The fibers are very small and cannot be seen with the naked eye. Once they are inhaled, they can become lodged into the lung potentially causing lung disease or other pulmonary complications.

An asbestos survey was performed by a State of California Certified Asbestos Consultant and Certified Site Surveillance Technician. Survey activities included a preliminary visual assessment and bulk sampling of suspect ACM. Representative samples of suspect ACM were collected after identification of homogeneous sampling areas (areas in which the materials are uniform in color, texture, construction or application date, and general appearance). Seventy-seven samples of suspect ACM were collected, using USEPA-recommended sampling procedures. Based on the analytical results from the asbestos survey, ACMs are located at the subject buildings. Table 3.5-2, Summary of Asbestos-Containing Materials, summarizes the locations of the ACMs.

Table 3.5-2. Summary of Asbestos-Containing Materials

Sample No.	ACM Location[1]	ACM Description	Approx. Quantity[2]	Friable Y/N	Condition	Asbestos Content
ASB-014, ASB-015, and ASB-016	Upper Windows - North side of building	Window caulking	150 LF	N	Fair	2–3% chrysotile
ASB-026A, ASB-028A, ASB-031A, and ASB-032A	Interior walls throughout	White joint compound associated with drywall	15,000 SF	N	Good	2% chrysotile
ASB-036A, ASB-037A, ASB-038A, ASB-039, ASB-040, ASB-041, ASB- 042, ASB-043, and ASB-044	Entry, Offices -1, 2, 3, 4, and 6, Hallway, Storage, Data, Custodial, Shop, and Bay (under northwest scaffolding) - floors throughout	9"x9" vinyl floor tile	3,000 SF	N	Good	2–6% chrysotile
ASB-036B, ASB-037B, ASB-038B,	Entry, Offices -1, 2, 3, 4, 5, and 6, Hallway, Storage,					

Table 3.5-2. Summary of Asbestos-Containing Materials

Sample No.	ACM Location[1]	ACM Description	Approx. Quantity[2]	Friable Y/N	Condition	Asbestos Content
ASB-039A, ASB-040A, ASB-045A, and ASB-046A	Water Heater Closet, Data, Custodial, Shop, and Bay (under northwest scaffolding) - floors throughout, under vinyl floor tile	Black mastic associated with vinyl floor tile	3,300 SF	N	Good	3–4% chrysotile
ASB-045, ASB-046, ASB- 047A, ASB-048A, and ASB-049A	Water Heater Closet and Office 5 - floors throughout	12"x12" vinyl floor tile	300 SF	N	Good	2% chrysotile
ASB-050, ASB-051, and ASB-052	Restroom, Restroom 2, and Shower - floors throughout	Linoleum and associated glue	175 SF	N	Good	2% chrysotile
ASB-054, ASB-055, and ASB-056	Bay floor throughout	Gray texture coating	2,225 SF	N	Good	2% chrysotile
ASB-060	Office 6 - pipe at northwest wall	Black pipe coating/insulation	5 LF	N	Good	3% chrysotile
ASB-064	Water Heater Closet - southwest pipe	White thermal system insulation pipe elbow	1 EA	Y	Good	10% chrysotile

Source: Appendix E.

Notes: EA = each; LF = linear feet SF = square feet

[1] ACM locations are based upon Ninyo & Moore's visual observations during survey activities. Materials that are uniform in color, texture, construction or application date, or general appearance to materials found to be asbestos-containing, should be presumed to be asbestos-containing.

[2] Material quantities are approximate and are not intended to be used or interpreted as actual quantities. It is the contractor's responsibility to confirm material quantities prior to bid submittals and initiating renovation or demolition activities at the site.

Lead-Containing Surfaces

Lead is a highly toxic metal that was used until the late 1970s in a number of products, most notably paint. Primary sources of lead exposure are deteriorating LBP, lead-contaminated dust, and lead-contaminated soil. Lead contamination can also come from cars built prior to the early 1980s. Lead may cause a range of health effects and can affect almost every organ and system in your body.

The objective was to test suspect LCSs observed in the subject buildings and to assess the condition of surfaces found to be lead-containing. For the purposes of this assessment, LCSs refers to both LBP and other potential lead-containing materials, including but not limited to ceramic tile and porcelain bathroom fixtures. According to the HBMS, surfaces containing concentrations of lead greater than regulatory thresholds are found in the landside component of the proposed project. Table 3.5-3, Summary of Lead-Containing Surfaces, summarizes the LCSs and their locations on the project site.

Table 3.5-3. Summary of Lead-Containing Surfaces

Reading No.	Room/Area[1]	Source/ Component	Substrate	Condition	Color(s)	Lead Reading(s) (mg/cm^2)	Approx. Quantity[2]
28	Exterior	Striping	Black Top	Intact	Yellow	1.50	50 SF
53 and 66	Bay Area and Custodian Room	Sink	Porcelain	Intact	White	9.10	2 EA
71 and 72	Bay Area Mezzanine	Beam	Metal	Intact	Yellow	2.00-2.40	1 x 40 LF
73	Bay Area Mezzanine	Beam	Metal	Intact	Orange	0.70	2 x 65 LF
77	Bay Area Mezzanine	Door	Wood	Intact	Blue	0.50	2 EA

Source: Appendix E.

Notes: EA = each; LF = linear feet mg/cm^2 = milligrams per square centimeter; SF = square feet

Note that the LCS in this table are materials that meet or exceed the criteria of CDPH. LCS in this table does not necessarily identify all materials that could contain lead at concentrations less than 1.0 mg/cm^2 or 5,000 milligrams per kilogram (mg/kg), which could trigger the Cal-OSHA lead in construction standard.

[1] LCS locations are based upon Ninyo & Moore's visual observations during survey activities.

[2] Surface quantities are approximate and are not intended to be used or interpreted as actual quantities. It is the contractor's responsibility to confirm material quantities prior to bid submittals and initiating renovation or demolition activities at the site.

Other Potentially Hazardous Building Materials

The HBMS includes a visual assessment of building materials potentially falling under the California DTSC Universal Waste Rule, including but not limited to non-incandescent light bulbs, mercury-containing thermostat triggers, batteries, and electronic devices. Other potentially hazardous building materials, including, but not limited to, potential PCB-containing light ballasts, potential tritium-containing exit signs, potential americium-containing smoke detectors, and potential Freon-containing air conditioning units and refrigerators. Table 3.5-4, Summary of Other Potentially Hazardous Building Materials, summarizes other potentially hazardous building materials.

Table 3.5-4. Summary of Other Potentially Hazardous Building Materials

Building	Fluorescent Light Tubes	Fluorescent Light Ballasts	Non-Incandescent Lights	Mercury Thermostats and Switches	A/C Units	Other
Marine Terminal and Railway (921)	190	95	24	4	4	2 fire hoses 1 winch 1 hoist 2 compressors
Storage Shed	10	10	--	--	1	--
Main Pier	--	--	4	--	--	--

Source: Appendix E.

Notes: A/C = air conditioning

Material quantities are approximate and are not intended to be used or interpreted as actual quantities. It is the contractor's responsibility to confirm material quantities prior to bid submittals and initiating renovation or demolition activities at subject site.

Polychlorinated biphenyl (PCBs) are organic oils that were formerly used primarily as insulators in many types of electrical equipment including transformers and capacitors. After PCBs were determined to be a carcinogen in the mid to late 1970s, the USEPA banned PCB use in most new equipment and began a program to phase out certain existing PCB-containing equipment. Fluorescent lighting ballasts manufactured after January 1, 1978, do not contain PCBs and are required to have a label clearly stating that PCBs are not present in the unit. As shown in Table 3.5-4, the HBMS documented fluorescent light tubes and light ballasts, which could contain PCBs.

Mercury is a naturally occurring chemical element found in rock in Earth's crust, including in deposits of coal. It exists in several forms: elemental (metallic) mercury, inorganic compound, and methylmercury (USEPA 2019):

- **Elemental (Metallic) Mercury.** Elemental mercury is an element that has not reacted with another substance. When mercury reacts with another substance, it forms a compound, such as inorganic mercury salts or methylmercury.
- **Inorganic Compound Mercury.** In its inorganic form, mercury occurs abundantly in the environment, primarily as the minerals cinnabar and metacinnabar, and as impurities in other minerals. Mercury can readily combine with chlorine, sulfur, and other elements, and subsequently weather to form inorganic salts. Inorganic mercury salts can be transported in water and occur in soil. Dust containing these salts can enter the air from mining deposits of ores that contain mercury. Emissions of both elemental or inorganic mercury can occur from coal-fired power plants, burning of municipal and medical waste, and from factories that use mercury.
- **Methylmercury.** Inorganic mercury salts can become attached to airborne particles. Rain and snow deposit these particles on land. Even after mercury gets deposited on land, it often returns to the atmosphere, as a gas or associated with particles, and then redeposits elsewhere. As it cycles between the atmosphere, land, and water, mercury undergoes a series of complex chemical and physical transformations, many of which are not completely understood. Microscopic organisms can combine mercury with carbon, thus converting it from an inorganic to organic form. Methylmercury is the most common organic mercury compound found in the environment, and is highly toxic. Some products that traditionally contain mercury include batteries, fluorescent light bulbs, thermometers, and thermostats. According to the HBMS, and as shown in Table 3.5-4, the project site has mercury thermostats and switches and fluorescent light bulbs.

Freon. In the United States, ozone-depleting substances are regulated as Class I or Class II controlled substances. Class I substances have a higher ozone depletion potential and have been completely phased out in the United States; with a few exceptions, this means no one can produce or import Class I substances. Class II substances are all hydrochlorofluorocarbons (HCFCs), which are transitional substitutes for many Class I substances. New production and import of most

HCFCs will be phased out by 2020. The most common HCFC in use today is HCFC-22, or R-22, a refrigerant still used in existing air conditioners and refrigeration equipment. Freon is a brand name for refrigerants used in air conditioners and refrigeration equipment. By 2030, all HCFCs will be phased out from production and import in the United States (USEPA 2020). As shown in Table 3.5-4, the HBMS documented five air conditioning units that may contain Freon.

Hazardous Waste Site Database Results

Land uses on the project site or in the vicinity of the project site may handle or have previously handled or generated hazards or hazardous wastes. The following section discusses the known presence of hazards or hazardous materials for the project site and surrounding properties, as appropriate, that may represent the potential to result in an adverse effect on the environment or human health or well-being.

Cortese List

The California Hazardous Waste and Substances Site List (also known as the Cortese List) is a planning document used by state and local agencies and by private developers to comply with CEQA requirements in providing information about the location of hazardous materials sites. California Government Code, Section 65962.5, requires the California Environmental Protection Agency to annually update the Cortese List. The DTSC is responsible for preparing a portion of the information that comprises the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information that is part of the complete list.

The EnviroStor database provides the DTSC's component of Cortese List data by identifying state response sites, federal Superfund sites, school cleanup sites, and voluntary cleanup sites. The EnviroStor database identifies sites that have known contamination or sites for which further investigation is warranted. It also identifies facilities that are authorized to treat, store, dispose, or transfer hazardous waste (DTSC 2020). Data presented in the Cortese List and Environmental Data Resources, Inc., environmental agency database search report were assessed to evaluate the potential for nearby hazardous site conditions. No evidence of on-site hazardous materials on land areas affected by the proposed project was identified through review of the EnviroStor database. However, it should be noted that any known hazardous conditions previously identified on lands in the vicinity of the project site (e.g., surrounding residential neighborhoods) would have required cleanup in conformance with local, state, or federal regulations, as applicable, to remove or avoid such conditions, prior to development.

Nearby Hazardous Sites The EnviroStor database does not include any hazardous materials sites within the boundaries of the project site. However, according to the EnviroStor database, there are two facilities within a quarter of a mile from the project site. Former Tow Basin Facility (No. 37870001) is at 3380 North Harbor Drive, San Diego, California, covers 1.41 acres. This facility includes a building that was used to conduct tests on hydrodynamic designs of boats, ships, submersible vehicles,

and seaplanes. The Basin is a concrete tub measuring about 300 feet long X 12 feet wide X 6 feet deep and contaminated with PCBs. The source of PCB contamination in the building was found to be the paint covering all building surfaces. Additional sources have not been verified. In November 2004, DTSC approved the Final Implementation Report, which addressed the remedial action related to the demolition of the Former Tow Basin and excavation of contaminated soil. The entire building was demolished and approximately 24 tons of soft demolition debris from the building and 142,477 pounds of PCB contaminated solids were removed and transported off site for disposal. DTSC received and reviewed the Draft Groundwater Workplan in May 2005 and the Bay Sediment Workplan in June 2005. In 2009, this facility was transferred over to the State Water Resources Control Board (SWRCB) as the new administering agency for environmental restoration (DTSC 2020).

The other site, within a quarter mile northeast of the project site is Searchlight Battery (No. 80000474). DTSC lists this site as "Inactive – Needs Evaluation" as of July 1, 2005.

Cleanup Program Sites

The Site Cleanup Program (SCP) regulates and oversees the investigation and cleanup of "non-federally owned" sites where recent or historical unauthorized releases of pollutants to the environment, including soil, groundwater, surface water, and sediment, have occurred. A more robust discussion about the SCP is found in Section 3.5.2.2. The GeoTracker database is the storehouse of site information for sites that the Regional Water Boards oversee; the database also stores information for cleanup sites that are overseen by cities, counties, and health agencies in the state. The project site was issued Cleanup and Abatement Order (CAO) No. R9-2017-0021, to cleanup and abate the effects of waste discharged from the project site. As part of the CAO, the proposed project includes cleaning up and abating the effects of PCB and mercury discharges, which are present in site sediments.

In addition to the project site, the GeoTracker database identified two underground storage tank (UST) sites within a quarter mile of the project site (Table 3.5-5, Geotracker Cleanup Program Sites).

Table 3.5-5. Geotracker Cleanup Program Sites

Site/Facility Name	Address	Cleanup Status
Project Site		
Lockheed Martin Railway (East Harbor Basin Sediment Assessment) (T10000002642)	1160 Harbor Island Drive	Site Assessment as of 11/16/2010
Former Tow Basin Facility (East Harbor Basin Sediment Assessment) (T10000002323)	3380 North Harbor Drive	Site Assessment as of 07/21/2010
Facilities within a Quarter Mile		
Sunroad Resort Marina (East Harbor Basin Sediment Assessment) (T10000002921)	955 Harbor Island Drive	Site Assessment as of 03/18/2011
General Dynamics Convair (T0607300717)	2980 Harbor Drive	Completed – Case Closed as of 08/20/1996

Source: SWRCB 2019.

As shown in Table 3.5-5, the project site and one other site within a quarter mile of the project site are open cleanup sites, and one other site is within a quarter mile of the project and a closed case. Sunroad Resort Marina (T10000002921) is listed as part of the collective East Harbor Basin Sediment Assessment. The presence of copper and zinc in the bay sediments adjacent to the Sunroad Resort Marina indicate that an unauthorized discharge of copper and zinc has occurred as a result of current or historical activities at the site in the East Basin of Harbor Island. Copper (historically used in hull paint) and zinc (used as sacrificial anodes attached to boat hulls) are common pollutants associated with boat maintenance. This site is undergoing regulatory cleanup oversight and coordinating oversight activities with the San Diego RWQCB.

General Dynamics Convair (T0607300717) site was investigated for USTs. Remediation included vapor extraction combined with air sparging to enhance biodegradation. Post remediation follow up determined below regulatory levels of contaminants resulting in a closed case in August 1999.

Additionally, as a component of the Cortese List, the SWRCB is required to submit at least annually a list of all cease and desist orders and all CAOs issued after January 1, 1986, that concern the discharge of wastes that are hazardous materials. As a component of compliance, the SWRCB publicizes available active CAOs and cease and desist orders. The proposed project would remediate the project site in compliance with enforced CAO No. R9-2017-0021.

3.5.1.3 Transportation of Hazardous Materials

Hazardous materials transported through the County of San Diego (County) are carried by truck on the interstate highway system. With the exception of State Route 75 (Coronado Toll Bridge), registered hazardous waste haulers may use all roadways in the County to transport hazardous materials. To date, regulators have not placed restrictions on roadways available for the transportation of hazardous waste to the project site (FMCSA 2020).

3.5.1.4 Airport Operations Hazards

The closest airport is the San Diego International Airport (SDIA), which is 0.2 mile north of the project site. The project site is not within the SDIA Airport Safety Compatibility Zones; however, it is within the Airport Influence Area (AIA) Review Area 1 or Review Area 2 (SDCRAA 2014). However, the EIR uses the stricter of the two designations for analysis.

Airport Land Use Commission (ALUC) review is required for land use plans and regulations within Review Area 1. ALUC staff may make a consistency determination for any land use plan, regulation or project that:

1. Is compatible with Airport Land Use Compatibility Plan (ALUCP) noise and safety compatibility policies
2. Does not require Federal Aviation Administration review or is determined by the Federal Aviation Administration not to be a hazard or obstruction to air navigation

The County's Regional Airport Authority is preparing the ALUCP for Naval Air Station North Island. The County's Regional Airport Authority recently prepared and released an EIR for the Naval Air Station North Island proposed ALUCP. The project site is in the proposed AIA for the draft Naval Air Station North Island ALUCP. If required, the project would be reviewed by the ALUC for consistency with the Naval Air Station North Island. As discussed previously, local agencies must submit an application for consistency determination to the ALUC for its review prior to construction (SDCRAA 2014). The ALUC must respond to a local agency's request for consistency determination within 60 calendar days after the application is deemed complete by ALUC staff (Orozco, pers. comm. 2020).

3.5.2 Regulatory Setting

The federal and state laws and guidelines applicable to hazards and hazardous materials are summarized below.

3.5.2.1 Federal

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund, was enacted in 1980 to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The Comprehensive Environmental Response, Compensation, and Liability Act established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. The corresponding regulation in Code of Federal Regulations, Title, Section 103, provides the general framework for response actions and managing hazardous waste.

Department of Transportation Hazardous Materials Regulations (49 CFR 100–185)

U.S. Department of Transportation (DOT) Hazardous Materials Regulations (Code of Federal Regulations, Title 49, Parts 100–185) cover all aspects of hazardous materials packaging, handling, and transportation. Parts 107 (Hazard Materials Program), 130 (Oil Spill Prevention and Response), 172 (Emergency Response), 173 (Packaging Requirements), 177 (Highway Transportation), 178 (Packaging Specifications), and 180 (Packaging Maintenance) would all apply to goods movement to and from the proposed project and surrounding uses.

Enforcement of these aforementioned DOT regulations is shared by each of the following administrations under delegations from the Secretary of the DOT:

- Research and Special Programs Administration is responsible for container manufacturers, reconditioners, and retesters and shares authority over shippers of hazardous materials.
- Federal Highway Administration enforces all regulations pertaining to motor carriers.

- Federal Railroad Administration enforces all regulations pertaining to rail carriers.
- Federal Aviation Administration enforces all regulations pertaining to air carriers.
- U.S. Coast Guard enforces all regulations pertaining to shipments by water.

Federal Toxic Substances Control Act/Resource Conservation and Recovery Act/Hazardous and Solid Waste Act

The Federal Toxic Substances Control Act of 1976 and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program, which is administered by the USEPA, to regulate the generation, transport, treatment, storage, and disposal of hazardous waste. Under RCRA regulations, hazardous wastes must be tracked from the time of generation to the point of disposal. The RCRA program also establishes standards for hazardous waste treatment, storage, and disposal units, which are intended to have hazardous wastes managed in a manner that minimizes present and future threats to the environment and human health. At a minimum, each generator of hazardous waste must register and obtain a hazardous waste activity identification number. If hazardous wastes are stored for more than 90 days or treated or disposed of at a facility, any treatment, storage, or disposal unit must be permitted under the RCRA. The RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle-to-grave" system of regulating hazardous materials.

Spill Prevention Control and Countermeasure Plans (40 CFR 112.7)

Spill prevention control and countermeasure (SPCC) plans are required for facilities in which construction and removal operations involve oil in the vicinity of navigable waters or shorelines. SPCC plans ensure that facilities implement containment and other countermeasures that would prevent oil spills from reaching navigable waters. SPCC plans are regulations administered by the USEPA. Preparation of an SPCC plan is required for projects that meet three criteria: (1) the facility must be non-transportation-related, or for construction, the construction operations involve storing, using, transferring, or otherwise handling oil; (2) the project must have an aggregate aboveground storage capacity greater than 1,320 gallons or completely buried storage capacity greater than 42,000 gallons; and (3) there must be a reasonable expectation of a discharge into or upon navigable waters of the United States or adjoining shorelines. For construction projects, for Criterion 1, Code of Federal Regulations, Title 40, Section 112, describes the requirements for implementing SPCC plans. The following three areas should clearly be addressed in a SPCC plan:

- Operating procedures that prevent oil spills
- Control measures installed to prevent a spill from reaching navigable waters
- Countermeasures to contain, clean up, and mitigate the effects of an oil spill that reaches navigable waters

United States Coast Guard (33 CFR and 46 CFR)

The U.S. Coast Guard, through Title 33 (Navigation and Navigable Waters) and Title 46 (Shipping) of the Code of Federal Regulations, is the federal agency responsible for vessel inspection, marine terminal operations safety, coordination of federal responses to marine emergencies, enforcement of marine pollution statutes, marine safety (such as navigation aids), and operation of the National Response Center for spill response, and is the lead agency for offshore spill response. The U.S. Coast Guard implemented a revised vessel-boarding program in 1994 designed to identify and eliminate substandard ships from U.S. waters. The program pursues this goal by systematically targeting the relative risk of vessels and increasing the boarding frequency on high-risk (potentially substandard) vessels. The relative risk of each vessel is determined using a matrix that factors the flag of the vessel, owner, operator, classification society, vessel particulars, and violation history. Vessels are assigned a boarding priority from I to IV, with priority I vessels being the potentially highest risk and priority IV having relatively low risk.

3.5.2.2 State

California Code of Regulations, Title 8, Industrial Relations

Title 8 of the California Code of Regulations, Section 1532.1, is a rule developed by the federal Occupational Safety and Health Administration in 1993 and adopted by the State of California. This rule is comparable to the federal standards described above. Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The federal Occupational Safety and Health Administration and the California Division of Occupational Safety and Health are responsible for ensuring worker safety in the workplace. The California Division of Occupational Safety and Health assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices. These standards would be applicable to both construction and operation of the proposed project. Title 8 includes regulations pertaining to hazard control (including administrative and engineering controls), hazardous chemical labeling and training requirements, hazardous exposure prevention, hazardous material management, and hazardous waste operations.

Title 8 also specifies requirements for the removal and disposal of ACMs. In addition to providing information regarding how to remove ACMs, specific regulations limit the time of exposure, regulate access to work areas, require demarcation of work areas, prohibit certain activities in the presence of ACM removal activities, require the use of respirators, require monitoring of work conditions, require appropriate ventilation, and require qualified persons for ACM removal.

Title 8 also covers the removal of LBP. Specific regulations cover the demolition of structures that contain LBP, the process associated with its removal or encapsulation, remediation of lead contamination, the transportation/disposal/storage/containment of lead or materials containing lead, and maintenance operations associated with construction activities involving lead, such as

LBP. Similar to ACM removal, LBP removal requires proper ventilation, respiratory protection, and qualified personnel.

California Health and Safety Code (Hazardous Waste Control Act)

DTSC, a department of the California Environmental Protection Agency, is the primary agency in California for regulating hazardous waste, cleaning up existing contamination, and finding ways to reduce the amount of hazardous waste produced in California. DTSC regulates hazardous waste primarily under the authority of the federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Division 20, Chapter 6.5, of the California Health and Safety Code identifies hazardous waste control regulations pertaining to transportation, treatment, recycling, disposal, enforcement, and the permitting of hazardous waste. Division 20, Chapter 6.10, identifies regulations applicable to the cleanup of hazardous materials releases. Title 22, Division 4.5, contains environmental health standards for the management of hazardous waste, as well as standards for the identification of hazardous waste (Chapter 11), and standards that are applicable to transporters of hazardous waste (Chapter 13). The Hazardous Waste Control Act requires a hazardous waste generator that stores or accumulates hazardous waste for periods greater than 90 days at an on-site facility or for periods greater than 144 hours at an off-site or transfer facility, which treats or transports hazardous waste, to obtain a permit to conduct such activities. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA for a cradle-to-grave waste management system in California. It also provides for the designation of California-only hazardous waste and development of standards that are equal to or, in some cases, more stringent than federal requirements, such as mandating source-reduction planning and regulating the number of types of waste and waste management activities that are not covered by federal law with the RCRA.

California Labor Code (Division 5, Parts 1 and 7)

California Labor Code regulations ensure appropriate training regarding the use and handling of hazardous materials and the operation of equipment and machines that use, store, transport, or dispose of hazardous materials. Division 5, Part 1, Chapter 2.5, ensures that employees who handle hazardous materials are appropriately trained and informed about the materials. Division 5, Part 7, ensures that employees who work with volatile flammable liquids are outfitted with appropriate safety gear and clothing.

Cortese List

California Government Code 65962.5 (commonly referred to as the Cortese List) includes hazardous waste facilities and sites listed by DTSC, Department of Health Services lists of contaminated drinking water wells, sites listed by the SWRCB as having UST leaks or a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites with a known migration of hazardous waste/material.

Environmental Health Standards for the Management of Hazardous Waste

These standards (California Code of Regulations, Title 22 [CA Title 22], Division 4.5, Section 66001 et seq.) establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the state Hazardous Waste Control Act and federal RCRA.

State Water Resources Control Board

Construction General Permit (2009-0009-DWQ)

Construction activities that disturb 1 acre or more of land must obtain coverage under the SWRCB Construction General Permit (Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ, and Order 2012-006-DWQ). Under the terms of the permit, applicants must file a complete and accurate Notice of Intent and Permit Registration Documents with the SWRCB. Applicants must also demonstrate conformance with applicable construction best management practices (BMPs) and prepare a construction stormwater pollution prevention plan containing a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project site.

Site Cleanup Program

The SCP regulates and oversees the investigation and cleanup of "non-federally owned" sites where recent or historical unauthorized releases of pollutants to the environment, including soil, groundwater, surface water, and sediment, have occurred. Sites in the program are varied and include but are not limited to pesticide and fertilizer facilities, rail yards, ports, equipment supply facilities, metals facilities, industrial manufacturing and maintenance sites, dry cleaners, bulk transfer facilities, refineries, and some brownfields. These releases are generally not from strictly petroleum USTs. The types of pollutants encountered at the sites are plentiful and diverse and include solvents, pesticides, heavy metals, and fuel constituents to name a few.

The SWRCB and RWQCBs have legal authority to regulate site cleanup via Division 7 of the California Water Code, SWRCB plans and policies, and the regional water quality control plans (basin plans). The RWQCBs oversee the dischargers' (i.e., responsible parties') activities pertaining to the cleanup of pollution at sites to ensure that the dischargers clean up and abate the effects of discharges in a manner that promotes attainment of either background water quality, or the best water quality that is reasonable if background levels of water quality cannot be restored, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, and tangible and intangible. The SWRCB manages the program on a state-wide basis by overseeing the SCP budget, maximizing the collection of debt owed to the state, establishing contracts for special projects, and conducting SCP roundtables with the RWQCBs on a quarterly basis to share information; discusses ways to

facilitate procedures and improve the program; and updates the regions on any changes or additions to existing procedures. The SWRCB is also at times involved with petitions that are filed by an aggrieved person to review an action or failure to act by a RWQCB, as described in California Water Code, Section 13320. Currently, the RWQCBs actively oversee 3,452 cleanup sites, and an additional 1,616 sites in backlog are awaiting RWQCB regulatory oversight.

There are five main types of funding mechanisms for sites in the SCP: (1) voluntary cleanups executed and funded by the discharger; (2) CAO cleanups executed and funded by the discharger; (3) cleanups executed by the RWQCB or another public agency, county, municipality, or city and funded by the state via the Cleanup and Abatement Account (CAA); (4) Site Cleanup Subaccount Program; and (5) brownfield cleanup using available grants and loans.

Voluntary Cleanup and Funding. The majority of SCP sites are voluntary cleanups where the responsible party voluntarily performs the investigation and cleanup by entering into the SWRCB cost recovery program. Via the authority provided in the California Water Code, Sections 13267, 13304, and 13365, the SWRCB set up the cost recovery program so that reasonable expenses incurred by the SWRCB and RWQCBs in overseeing water quality matters can be recovered from the responsible party. For a site to be placed in the cost recovery program, a responsible party must first be identified. The responsible party agrees to and signs an acknowledgment form stating their intent to pay oversight bills; in return, they receive help from RWQCB staff in cleaning up the site to regulatory standards. An account is set up for water board staff charges, cost recovery invoices are issued quarterly to the responsible parties, and responsible party payments are returned to the CAA.

Obligatory Cleanup and Funding via the Issuance of a CAO. Sometimes, a cleanup and abatement action is taken by the RWQCB to bind the responsible party to clean up the release. California Water Code, Section 13304, authorizes the SWRCB to issue a CAO requiring a discharger to cleanup and abate waste "where the discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance." In cases where a CAO is issued, the Order provides the basis for reimbursement of SWRCB and RWQCB oversight costs.

Funding of Cleanup using the CAA. There is a third type of cleanup site overseen by the SCP where funding for site cleanup and oversight is obtained from the CAA. The CAA is funded by monies (a) appropriated by the Legislature, (b) contributed to the CAA by any person and accepted by the SWRCB, (c) collected as part of criminal penalties and all moneys collected civilly under any proceeding brought pursuant to any provision of Division 7 of the California Water Code, and (d) recovered pursuant to California Water Code, Section 13304. The SWRCB, the RWQCBs, and any public agency with the authority to clean up waste or abate the effects of a waste on waters of the state may use the account. Generally, CAA funds are provided for the emergency cleanup or

abatement of a condition of pollution where there are no viable responsible parties available to undertake the work.

Site Cleanup Subaccount Program. The Site Cleanup Subaccount Program is a relatively new funding program established in 2014 by SB 445. It allows the SWRCB to issue grants for projects that address the harm or threat of harm to human health, safety, or the environment from polluted surface water or groundwater.

Funding using Grants and Loans for Brownfield Sites. Brownfields are underused properties where reuse is hindered by the actual or suspected presence of pollution or contamination. Cleanup and redevelopment of these sites benefits the environment and communities by eliminating pollution and contamination problems, allowing economic growth, and revitalizing neighborhoods. Refer to the SWRCB Brownfields Website for the various grant and loan programs that are available to help assess and cleanup brownfield sites in California.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (California Health and Safety Code, Chapter 6.11, Sections 25404–25404.9)

This program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the environmental and emergency response programs and provides authority to the Certified Unified Program Agency. The Certified Unified Program Agency for the County is the County's Department of Environmental Health's Hazardous Materials Division (HMD), which has the responsibility and authority for implementing and enforcing the requirements listed in Chapter 6.5 (commencing with Section 25100), Chapter 6.67 (commencing with Section 25270), Chapter 6.7 (commencing with Section 25280), Chapter 6.95 (commencing with Section 25500), and Sections 25404.1 and 25404.2, including the following:

- **Aboveground Petroleum Storage Act Requirements for SPCC Plans**. Facilities with a single tank or cumulative aboveground storage capacities of 1,320 gallons or greater of petroleum-based liquid product (e.g., gasoline, diesel, lubricants) must develop an SPCC plan. An SPCC plan must be prepared in accordance with the oil pollution prevention guidelines in Code of Federal Regulations, Title 40, Section 112. This plan must describe the procedures, methods, and equipment needed at the facility to prevent discharges of petroleum from reaching navigable waters. A registered professional engineer must certify the SPCC plan, and a complete copy of the plan must be maintained on site.
- **California Accidental Release Prevention Program**. This program requires any business that handles more than threshold quantities of an extremely hazardous substance to develop a risk management plan. The risk management plan is implemented by the business to prevent or mitigate releases of regulated substances that could have off-site

consequences through hazard identification, planning, source reduction, maintenance, training, and engineering controls.

- **Hazardous Materials Business Plan/Hazardous Materials Inventory Statements**. Hazardous materials business plans contain basic information regarding the location, type, quantity, and health risks of hazardous materials or waste. Each business must prepare a hazardous material business plan if that business uses, handles, or stores a hazardous material or waste or an extremely hazardous material in quantities greater than or equal to the following:
  - 55 gallons for a liquid
  - 500 pounds for a solid
  - 200 cubic feet for any compressed gas
  - Threshold planning quantities of an extremely hazardous substance
- **Hazardous Waste Generator Program**. This program regulates businesses that generate any amount of a hazardous waste. Proper handling, recycling, treating, storing, and disposing of hazardous waste are key elements to this program.
- **Tiered Permitting Program**. This program regulates the on-site treatment of hazardous waste.
- **UST Program**. This program regulates the construction, operation, repair, and removal of USTs that store hazardous materials or waste.

3.5.2.3 Regional

Operational Area Emergency Plan

The County's operational area was formed to help the County and its cities develop emergency plans, implement such plans, develop mutual aid capabilities between jurisdictions, and improve communications between jurisdictions and agencies. The County's operational area consists of the County and all jurisdictions within the County. The Operational Area Emergency Plan is for use by the County and all of the cities in the County to respond to major emergencies and disasters. It defines roles and responsibilities of all County departments and many City of San Diego (City) departments.

Cities in the County are encouraged to adopt the Operational Area Emergency Plan, with modifications that would be applicable to each city. The plan is updated once every 4 years by the Office of Emergency Services and the Unified Disaster Council of the Unified San Diego County Emergency Services Organization.

San Diego Air Pollution Control District

The San Diego Air Pollution Control District (SDAPCD) has jurisdiction over air quality programs in the County. State and local government projects, as well as projects proposed by the private sector, are subject to SDAPCD requirements if the sources are regulated by the SDAPCD. The SDAPCD is also responsible for establishing and enforcing local air quality rules and regulations

that address the requirements of federal and state air quality laws. All development projects in the City may be subject to the following SDAPCD rules (as well as others):

- **Rule 1206 Asbestos Removal, Renovation, and Demolition**. Requires the proper identification, removal, handling, and disposal of asbestos for any construction project.

San Diego County Code, Title 6, Division 8

The County Code of Regulatory Ordinances under Title 6, Division 8, Chapters 8 through 11, establish the HMD as the local Certified Unified Program Agency. The HMD is responsible for the protection of public health, safety, and the environment and inspects businesses or facilities that handle or store hazardous materials, generate hazardous waste, generate medical waste, and own or operate USTs. HMD also administers the California Accidental Release Prevention Program and the Aboveground Petroleum Storage Act Program and provides specialized instruction to small businesses through its pollution prevention specialist. HMD has the authority under state law to inspect facilities with hazardous materials or hazardous waste and, in cases where a facility is in non-compliance with the applicable state law or regulations, take enforcement action.

Projects are required to notify HMD regarding the use, handling, release (spills), storage, or disposal of hazardous materials and hazardous waste in accordance with existing state law and County ordinance. The notification is the initial step in the HMD permitting process, which requires businesses that handle or store hazardous materials, are part of the California Accidental Release Prevention Program, generate or treat hazardous wastes, generate or treat medical waste, store at least 1,320 gallons of aboveground petroleum, or own or operate USTs to obtain and maintain a Unified Program Facility Permit. The online notification must be done using the State of California Environmental Reporting System by the applicant/permittee requesting a permit and submitted within 30 days.

If a building permit is required, Section 65850.2 of the California Government Code prohibits building departments from issuing a final Certificate of Occupancy unless a business or facility that handles hazardous materials has submitted and met the requirements of a hazardous materials business plan. The hazardous materials business plan contains detailed information on the storage of hazardous materials at regulated facilities and serves to prevent or minimize damage to public health, safety, and the environment from a release or threatened release of a hazardous material.

The hazardous materials business plan also provides emergency response personnel with adequate information to help them better prepare and respond to chemical-related incidents at regulated facilities.

3.5.2.4 Local

City of San Diego Solid Waste Local Enforcement Agency

The City's Solid Waste Local Enforcement Agency is responsible for enforcing federal and state laws and regulations for the safe and proper handling of solid waste. State law (California Public Resources Code) requires that every local jurisdiction designate a solid waste local enforcement agency that is certified by the California Department of Resources Recycling and Recovery to enforce federal and state laws and regulations for the safe and proper handling of solid waste.

Any development plan proposing to handle, process, transport, store, or dispose of solid wastes including household trash and garbage, construction debris, commercial refuse, sludge, ash, discarded appliances and vehicles, manure, landscape clippings, and other discarded wastes will contact the Solid Waste Local Enforcement Agency for determination of the need for a solid waste facility permit.

Jurisdictional Runoff Management Plan

Under RWQCB Order No. R9-2013-0001, National Pollutant Discharge Elimination System Permit No. CAS0109266, the 18 cities in the County, along with the District, are required to prepare jurisdictional runoff management plans (JRMPs). Each JRMP must contain a component that addresses issues related to construction activities and a component that addresses issues related to existing development. As the principal permittee, the County prepares and submits an annual report on the unified JRMP that describes the progress of the programs and the strategies to reduce the discharge of pollutants of concern to the MS4 and receiving waters to the maximum extent practicable. Enforcement of the JRMP assists with preventing release of pollutants into the local storm drains and ultimately San Diego Bay. The District has developed a list of pollution prevention BMPs applicable to industrial and commercial facilities on District tidelands as required by the Municipal Permit. Because pollution prevention BMPs eliminate pollutants at their source, they are a preferred means of preventing discharge of priority pollutants into the receiving waters. The list of pollution prevention BMPs includes the following:

- Keep waste containers covered or lids closed (trash)
- Minimize outdoor storage (trash, metals)
- Capture, contain, or treat wash water (bacteria, metals)
- Conduct employee training (bacteria, trash, metals)

In addition, the JRMP provides an extensive list of minimum BMPs for commercial and industrial facilities. Categories of BMPs include general operations and housekeeping, non-stormwater management, waste handling and recycling, outdoor material storage, outdoor drainage from indoor activity, outdoor parking, vehicles and equipment, education and training, overwater activity, and outdoor activity and operation.

RWQCB Municipal Permit (Order No. R9-2013-0001)

The Municipal Stormwater Permit (Order No. R9-2013-0001 as amended by Order Nos. R9-2015-001 and R9-2015-0100) is a National Pollutant Discharge Elimination System permit issued that requires the owners and operators of Municipal Separate Storm Sewer Systems (MS4s) in the San Diego region to implement management programs to limit discharges of pollutants and non-stormwater discharges to and from their MS4 from all phases of development. The Municipal Stormwater Permit requires the District and other "co-permittees" to develop watershed-based water quality improvement plans. The Municipal Stormwater Permit emphasizes watershed program planning and program outcomes. The intent of the permit is to enable each jurisdiction to focus its resources and efforts to:

- Reduce pollutants in stormwater discharges from its MS4
- Effectively prohibit non-stormwater discharges to its MS4
- Achieve the interim and final (water quality improvement plan) numeric goals

The proposed project would be required to comply with the National Pollutant Discharge Elimination System permit requirements.

San Diego Unified Port District, Article 10

The District's Article 10, the Port Stormwater Management and Discharge Control Ordinance, prohibits the deposit or discharge of any chemicals or waste to the tidelands or San Diego Bay and makes it unlawful to discharge pollutants directly into non-stormwater or indirectly into the stormwater conveyance system. The proposed project would be obligated to abide by Article 10.

San Diego Unified Port District's BMP Design Manual

In June 2015, the District adopted a jurisdiction-specific local BMP Design Manual to address the requirement of the Municipal Permit. This BMP Design Manual is applicable to projects carried out on District-managed tidelands. Pursuant to the Municipal Permit, the District began implementing the BMP Design Manual on February 16, 2016. The District's BMP Design Manual identifies updated post-construction stormwater requirements for both tenant- and District-sponsored major maintenance or capital improvement projects as required by the Municipal Permit. The BMP Design Manual identifies BMP requirements for both standard projects and priority development projects as outlined in the permit. New development and redevelopment projects are required to implement standard source control and site design BMPs to eliminate or reduce stormwater runoff pollutants. For priority development projects, the BMP Design Manual also describes structural treatment controls that must be incorporated into the site design and, where applicable, addresses potential hydromodification impacts from changes in flow and sediment supply. Project applicants must submit a stormwater quality management plan (SWQMP) accurately describing how the project will meet source control site design and pollutant control BMP requirements. District staff provide

technical review of and approve SWQMP documents and drainage design plans to ensure that pollutant control BMP requirements are met. The SWQMP is evaluated for compliance with the Municipal Permit and with design criteria outlined in the District's BMP Design Manual. Once the approval process is complete, the project is able to commence and routine inspections are conducted throughout the duration of the project construction. The proposed project is a Standard Project (not a priority development project). The SWQMP (included in Appendix G, Drainage Study and Stormwater Quality Management Plan) includes site design BMPs that the project is required to incorporate into site design. Section 3.6.3.2 in Section 3.6, Hydrology and Water Quality, discusses site design BMPs specific to the proposed project.

Temporary Groundwater Extractions Permit (Order No. R9-2007-0034)

Order No. R9-2007-0034 is intended to cover temporary discharges of groundwater extraction wastes to the bay, and its tributaries under tidal influence, from groundwater extraction due to construction and other groundwater extraction activities. Dischargers must meet the applicable criteria listed in the permit to be subject to waste discharge requirements under this permit. Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of the permit. The discharge of groundwater extraction waste from any site cannot, separately or jointly with any other discharge, cause violations of certain water quality objectives in the bay.

The proposed project would be required to comply with Order No. R9-2007-0034 requirements if dewatering is required during construction.

3.5.3 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would be considered to have a significant impact on hazards and hazardous materials if it would (CEQA Guidelines, Section 15000 et seq.)[1]:

2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
4. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code, Section 65962.5, and as a result, would create a significant hazard to the public or the environment.
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.

[1] For consistency with Appendix G of the CEQA Guidelines, the numbering in this section reflects how the thresholds of significance are numbered in Appendix G of the CEQA Guidelines.

The Initial Study (included in Appendix A, Notice of Preparation and Initial Study) for the proposed project determined that several thresholds related to hazards and hazardous materials would result in a No Impact or a Less than Significant Impact determination and were found not to be significant. In accordance with CEQA Guidelines, Section 15128, a brief justification regarding the effects found not to be significant (e.g., the resource topics not analyzed in Chapter 3, Environmental Analysis) is provided in Chapter 4, Additional Consequences of Project Implementation and Effects Found Not to Be Significant, for the following thresholds:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; and,
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

3.5.4 Method of Analysis

The following impact analysis focuses on potential impacts of the project related to hazards and hazardous materials. The evaluation considered project plans, current conditions at the project site, and applicable regulations and guidelines. In addition, the HBMS, prepared by Ninyo & Moore (Appendix E), also helped to inform project related impacts. The following sections describe impacts and mitigation from the proposed project.

3.5.5 Project Impacts and Mitigation

The following sections address various potential impacts relating to hazards and hazardous materials that could result due to the implementation of the proposed project.

3.5.5.1 Threshold 2: Accidental Releases

Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Impact Analysis

The proposed project would demolish the landside and waterside components of the existing MTF over three phases. Construction equipment that would be used has the potential to release oils, greases, solvents, and other finishing materials through accidental spills. Spill or upset of these materials could have the potential to impact surrounding land uses; however, federal, state, and local controls have been enacted to reduce the effects of such potentially hazardous materials spills. Compliance with these

requirements is mandatory as standard permitting conditions and would minimize the potential for the accidental release or upset of hazardous materials, ensuring public safety.

Based on the results of the HBMS, the buildings in the landside portion of the project site and the railway in the waterside portion of the project contain (see Tables 3.5-2 and 3.5-3) hazardous building materials, including ACM and LCS and other potentially hazardous building materials, such as PCBs, mercury, and HCFCs (Freon). Therefore, demolition of the buildings could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, and impacts would be considered potentially significant. ACM would be properly handled and disposed of in accordance with SDAPCD Rule 1206, which includes asbestos emission control and disposal requirements. Lead-contaminated waste must be picked up and hauled away by a hauler registered with the DTSC. As such, the project applicant would be required to contact a licensed abatement contractor and a licensed contractor to coordinate the proper removal and disposal of ACM and LCS. Additionally, PCBs and HCFCs would require handling and disposal pursuant to California Public Resources Code, Section 42167, and mercury would be handled and disposed of in compliance with California Code of Regulations, Section 66273.4.

According to the visual reconnaissance conducted and bulk samples collected by Ninyo & Moore (Appendix E), no asbestos was detected in the pier samples. Additionally, the only other potentially hazardous building material associated with the pier includes non-incandescent lights. However, California state regulations prohibit certain lights (fluorescent tubes, compact fluorescent lamps, metal halide lamps, and sodium vapor lamps) from being thrown in the trash. According to Title 22, Division 4.5, Chapter 23, Section 66273.8, of the California Code of Regulations, all light fixtures containing mercury must be properly disposed of and taken to a hazardous waste disposal facility, a universal waste handler, or an authorized recycling facility. Because compliance with existing hazardous materials regulations is mandatory, the proposed demolition of the Marine Terminal Building and waterside pier is not expected to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. No hazardous building materials were found in the waterside marine railway.

Significance of Impact

Implementation of the proposed project is not expected to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.5.5.2 Threshold 4: Hazardous Materials Sites

Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code, Section 65962.5, and as a result, would create a significant hazard to the public or the environment?

Impact Analysis

As discussed in Chapter 2, the project site was leased by various Lockheed Martin entities since 1966 and was used to service and maintain research submarines. Various chemicals were discharged into San Diego Bay throughout the years and have resulted in the accumulation of contaminants in marine sediments along the northern shore of central San Diego Bay. This accumulation has resulted in conditions identified by the San Diego RWQCB as potentially impacting beneficial uses (aquatic life, aquatic-dependent wildlife, and human health).

A Feasibility Study and Post-Remedial Monitoring Plan was prepared to address requirements in CAO No. R9-2017-0021 and was submitted to the San Diego RWQCB in June 2017 by Lockheed Martin. According to the San Diego RWQCB, a revised Feasibility Study and Post-Remedial Monitoring Plan was submitted on August 9, 2019, by Lockheed Martin. The San Diego RWQCB provided a comment letter to which Lockheed Martin had until December 9, 2019, to reply to and address San Diego RWQCB comments. The proposed project constitutes the remedial action required by the San Diego RWQCB in response to CAO R9-2017-0021 for the site. Therefore, performing Phase 2 would help bring the project site in compliance with the requirements to address CAO No. R9-2017-0021. However, there is a potential that demolition staff would be exposed to hazardous materials during the demolition and remediation process. However, the proposed project would be required to comply with federal, state, and local regulations for the routine transport, use, and disposal of any hazardous materials. These regulations include the RCRA, U.S. DOT Hazardous Materials Regulations (Code of Federal Regulations, Title 49), California Health and Safety Code, and the County Code, Title 6, Division 8, in combination with construction BMPs that would be implemented during project demolition. Adherence to federal, state, and local requirements during the remediation process would reduce potential impacts associated with hazardous materials sites. Additionally, during Phase 3, the project would be restored back to a vacant, undeveloped site and no further operations following the completion of Phase 3 would occur. Therefore, because the goal of the project is to remediate existing hazards, the project is beneficial rather than impactful.

Significance of Impact

Implementation of the proposed project would not create a significant hazard to the public or the environment. Impacts would be considered less than significant.

Mitigation Measures

No mitigation measures are required.

3.5.5.3 Threshold 5: Airport Safety Hazards

For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Impact Analysis

The MTF are within 2 miles of the SDIA. The project site is not in the SDIA Airport Safety Compatibility Zones; however, the project is in the AIA Review Area 1 or Review Area 2. The project site is within the 60-decibel noise contour area and is not in the safety compatibility zone (SDCRAA 2014). The project site is also approximately 2 miles from Naval Air Station North Island, though final airport influence and safety data are not available because the County's Regional Airport Authority is currently preparing the ALUCP for this airport. The County's Regional Airport Authority recently prepared and released an EIR for the Naval Air Station North Island proposed ALUCP. The project site is in the proposed AIA for the draft Naval Air Station North Island ALUCP. If required, the project would be reviewed by the ALUC for consistency with the Naval Air Station North Island.

The project site is in AIA Review Area 1 or Review Area 2. Using the stricter of the two designations (AIA Review Area 1), ALUC review would be required as part of the planning process. Based on a recent coordination meeting between the District and County's Regional Airport Authority, it was determined that due to the location and the type and height of the project, no application is required to be submitted from the District to the County's Regional Airport Authority for review (Orozco, pers. comm. 2020). However, the applicant would still have to submit an application subject to Federal Aviation Administration review.

Additionally, pursuant to CEQA Guidelines, Section 15126.2 (a), impact analysis is not required on how the existing environmental conditions would affect a project's future residents or users. However, analysis should be included for projects that risk exacerbating those environmental hazards or conditions that already exist and analysis must include the potential impact of such hazards on future residents or users unless the project would not exacerbate those conditions. During landside demolition and waterside dredging and remediation activities, construction workers would be exposed to noise levels above 60 dB CNEL from SDIA. However, implementation of the proposed project would not change the daily operations (e.g., the number or timing of takeoffs and landings, type of aircraft) at SDIA. Therefore, the project would not exacerbate any existing airport-related noise conditions, and no impacts would occur during landside demolition and waterside dredging and remediation activities.

After Phase 3, upon completion of landside demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state and would not result in a safety hazard or expose people to excessive noise.

Significance of Impact

Implementation of the proposed project would not result in a safety hazard or excessive noise for people residing or working on the project site. Impacts would be considered less than significant.

Mitigation Measures

No mitigation measures are required.

3.5.6 Cumulative Impacts

3.5.6.1 Cumulative Threshold 2: Accidental Releases

The geographic context for the analysis of cumulative impacts relative to the accidental releases encompasses nearby facilities that regularly require the use or disposal of hazardous materials and the roadways and freeways used by vehicles transporting hazardous materials to and from the project site.

During Phase 1, the proposed project would demolish buildings and the railway, which contain asbestos and lead and could contain other potentially hazardous building materials, including PCBs, mercury, and Freon. Accidental release of these hazardous building materials could result during demolition activities. However, the project would be required to comply with applicable state regulations for the proper disposal of ACMs, LCS, and other hazardous building materials, including PCBs, mercury, and Freon. Similarly, cumulative projects would be subject to applicable federal, state, and local regulations that govern the transport, storage, use, and disposal of hazardous substances. This would reduce the risks associated with an accidental release of hazardous materials from cumulative projects, and a potentially significant cumulative impact would not occur. Further, after demolition, dredging, and remediation, the project site would be returned to a vacant, undeveloped site and would not result in the accidental release of hazardous materials. Therefore, implementation of the proposed project would not contribute to a significant cumulative impact.

3.5.6.2 Cumulative Threshold 4: Hazardous Materials Sites

As discussed in Section 3.5.5.2, the project site is in compliance with CAO No. R9-2017-0021. The proposed project constitutes the remedial action required by the SWRCB in response to CAO R9-2017-0021 for the site. Therefore, performing Phase 2, would help bring the project site in compliance with the requirements of CAO No. R9-2017-0021. However, there is a potential that demolition staff during Phases 1 and 2 would be exposed to hazardous materials during the remediation process. However, as discussed in Section 3.5.5.1, the proposed project would be required to comply with federal, state, and local regulations for the routine transport, use, and

disposal of any hazardous materials. These regulations include the RCRA, U.S. DOT Hazardous Materials Regulations (Code of Federal Regulations, Title 49), California Health and Safety Code, and County Code, Title 6, Division 8, in combination with construction BMPs that would be implemented during project demolition. Similarly, during construction and operation, other cumulative projects would be required to comply with federal, state, and local regulations for the routine transport, use, and disposal of any hazardous materials. Additionally, after the demolition, dredging, and remediation, the project site would be returned to a vacant, undeveloped site, and there would be no hazardous materials associated with the project site. Because the goal of the project is to remediate existing site hazards, the project would be beneficial rather than impactful. Therefore, the project would result in less than significant cumulatively considerable impacts.

3.5.6.3 Cumulative Threshold 5: Airport Safety Hazards

The cumulative projects listed in Table 3-1, Cumulative Projects, in Chapter 3 are generally in the vicinity (less than 2 miles) of SDIA. Potential risks associated with development in the vicinity of SDIA would be a factor in any decision to approve or deny future development proposals. Land uses that may be impacted by the airport are reviewed and regulated through the ALUCP, City, District, and County's Regional Airport Authority. As a result, cumulative risks to future development associated with the proximity to the SDIA would not result in a significant impact. The proposed project's contribution would not be cumulatively considerable.

3.5.7 Conclusion

The proposed project could accidentally release hazardous materials into the environment when demolishing the existing buildings and railway, exposing demolition staff and workers to asbestos, lead, and other potentially hazardous building materials, including PCBs, mercury, and HCFCs (Freon). However, because compliance with existing hazardous materials regulations is mandatory, the proposed project is not expected to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, impacts are less than significant.

The proposed project constitutes the remedial action required by the San Diego RWQCB in response to CAO R9-2017-0021 for the site. Therefore, the project would help bring the site into compliance with the requirements to address CAO No. R9-2017-0021. However, there is a potential that demolition staff would be exposed to hazardous materials during the remediation process. However, as discussed in Section 3.5.5.2, the proposed project would be required to comply with federal, state, and local regulations for the routine transport, use, and disposal of any hazardous materials. These regulations include the RCRA, U.S. DOT Hazardous Materials Regulations (Code of Federal Regulations, Title 49), California Health and Safety Code, and County Code, Title 6, Division 8, in combination with construction BMPs that would be implemented during project demolition. However, implementation of the proposed project would

not change the daily operations (e.g., the number or timing of takeoffs and landings, type of aircraft) at the SDIA. Therefore, the project would not exacerbate any existing airport-related noise conditions, and no impacts would occur during landside demolition and waterside dredging and remediation activities. Therefore, both direct and cumulative impacts associated with the removal of the hazardous materials being remediated would be less than significant. Once complete, the proposed project would be beneficial because it complies with required remediation and returns the project site to pre-development conditions.

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3.6 Hydrology and Water Quality

This section addresses potential hydrology and water quality on the project site and evaluates the impacts that may result from the implementation of the Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project). The following analysis is based on the Drainage Study and the Stormwater Quality Management Plan for Standard (Minor) Development Project prepared for the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project by Harris and Associates in March 2020 and included in Appendix G, Drainage Study and Stormwater Quality Management Plan, to this Environmental Impact Report.

3.6.1 Environmental Setting

3.6.1.1 Hydrology

The proposed project is in the San Diego Bay watershed, which is in the Pueblo San Diego hydrologic unit. The Pueblo San Diego hydrologic unit is the smallest hydrologic unit in the County of San Diego (County) and covers approximately 60 square miles of predominantly urban landscape in the Cities of San Diego, La Mesa, Lemon Grove, and National City. Most of the water from the Pueblo San Diego hydrologic unit drains to San Diego Bay, although a portion of the Point Loma hydrologic area drains directly to the Pacific Ocean. The watershed drainage is mainly composed of a group of small local creeks and pipe conveyances, many of which are concrete lined and drain directly into San Diego Bay. The Pueblo San Diego hydrologic unit contains three hydrologic areas: Point Loma (908.1), San Diego Mesa (908.2), and National City (908.3). The project site is in the San Diego Mesa hydrologic area and the Lindbergh hydrologic subarea. Major water features are Chollas Creek, Paleta Creek, and San Diego Bay (SDRWQCB 2016).

3.6.1.2 Surface Water Quality

Receiving Waters

Receiving waters is a general term typically used to describe any water body, such as a creek, river, lake, bay, or ocean that receives runoff. In the context of the proposed project, it refers to those water bodies that would receive runoff from the project site. As discussed previously, the project site is in the San Diego Mesa hydrologic area of the Pueblo San Diego hydrologic unit. Under existing conditions, runoff from the project site enters San Diego Bay. Therefore, San Diego Bay is the receiving water body for the project site. San Diego Bay is on the Clean Water Act (CWA) Section 303(d) list for mercury, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls. The designated beneficial uses of San Diego Bay are Industrial Service Supply (IND); Navigation (NAV); Contact Water Recreation (REC-1); Non-Contact Water Recreation (REC-2); Commercial and Sport Fishing (COMM); Preservation of Biological Habitats of Special Significance (BIOL); Estuarine Habitat (EST); Wildlife Habitat (WILD); Rare, Threatened, or Endangered Species (RARE); Marine Habitat (MAR); Migration of Aquatic Organisms (MIGR);

Spawning, Reproduction, and/or Early Development (SPWN); and Shellfish Harvesting (SHELL). Table 3.6-1, Beneficial Use Designations, defines each of the beneficial use designation.

Table 3.6-1. Beneficial Use Designations

Designation	Abbreviation	Definition
Industrial Service Supply	IND	Includes uses of water for industrial activities that do not depend primarily on water quality including but not limited to mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
Estuarine Habitat	EST	Includes uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).
Navigation	NAV	Includes uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.
Contact Water Recreation	REC-1	Includes uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include but are not limited to swimming, wading, water-skiing, skin and SCUBA diving, surfing, white water activities, fishing, or use of natural hot springs.
Non-contact Water Recreation	REC-2	Includes the uses of water for recreational activities involving proximity to water but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include but are not limited to picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Commercial and Sport Fishing	COMM	Includes the uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.
Marine Habitat	MAR	Includes uses of water that support marine ecosystems including but not limited to preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).
Wildlife Habitat	WILD	Includes uses of water that support terrestrial ecosystems including but not limited to preservation and enhancement of terrestrial habitats, vegetation, wildlife, or wildlife water and food sources.
Preservation of Biological Habitats of Special Significance	BIOL	Includes uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or areas of special biological significance, where the preservation or enhancement of natural resources requires special protection.
Rare, Threatened, or Endangered Species	RARE	Includes uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or wildlife species established under state or federal law as rare, threatened, or endangered.
Migration of Aquatic Organisms	MIGR	Includes uses of water that support habitats necessary for migration, acclimatization between fresh and saltwater, or other temporary activities by aquatic organisms, such as anadromous fish.
Spawning, Reproduction, and/or Early Development	SPWN	Includes uses of water that support high-quality habitats suitable for reproduction, early development, and sustenance of marine fish or cold freshwater fish.
Shellfish Harvesting	SHELL	Includes uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sport purposes.

Source: SDRWQCB 2016.

3.6.1.3 Groundwater Quality

The project site is in the San Diego Formation Aquifer, which is a large aquifer under Imperial Beach, Chula Vista, National City, and southern portions of the City of San Diego (City). The groundwater in the San Diego Formation is brackish, and its quality is considered fair to poor. Due to its proximity to the ocean, the risk of seawater intrusion is a primary concern regarding water quality (Metropolitan Water District of Southern California 2007).

3.6.2 Regulatory Setting

3.6.2.1 Federal

Clean Water Act

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The key sections pertaining to water quality regulation are Sections 303, 401, 402, and 404. Under the CWA, Congress recognized the primary responsibility and rights of states to prevent, reduce, and eliminate pollution to plan the development and use (including restoration, preservation, and enhancement) of land and water resources. The U.S. Environmental Protection Agency (USEPA) has initial authority to administer a permitting program in a state but must suspend the federal program when a state presents "the program it proposes to establish and administer under state law" and demonstrates that "the laws of such State . . . provide adequate authority to carry out the described program." (33 USC 1342[b], [c][1]; 40 CFR 123.1[d][1]). The State Water Resources Control Board (SWRCB) and its Regional Water Quality Control Boards (RWQCBs) have been authorized to implement a permitting program consistent with CWA Sections 303, 401, and 402 at the state level.

Section 303(d)

Under Section 303(d), states are required to identify "impaired water bodies" (those not meeting established water quality standards), identify the pollutants causing the impairment, establish priority rankings for waters on the list, and develop a schedule for development of control plans to improve water quality. The USEPA then approves the state's recommended list of impaired waters or adds to or removes water bodies from the list. Each RWQCB must update the Section 303(d) list every 2 years, with the most recent update in 2016. The Section 303(d) list identifies priorities for development of pollution control plans for each listed water body and pollutant. The pollution control plans triggered by the CWA Section 303(d) list are called total maximum daily loads (TMDLs). The TMDL is a "pollution budget" designed to restore the health of a polluted body of water and ensure the protection of beneficial uses. The TMDL also contains the target reductions needed to meet water quality standards and allocates those reductions among the pollutant sources in the watershed (point sources, nonpoint sources, and natural sources) (40 CFR 130.2).

Section 401

Section 401 of the CWA allows for evaluation of water quality when a proposed activity requiring a federal license or permit could result in a discharge to waters of the United States. In California, the SWRCB and its nine RWQCBs issue water quality certifications (Section 401 permits). Each RWQCB is responsible for implementing Section 401 in compliance with the CWA and its water quality control plan (also known as a basin plan). Applicants for a federal license or that wish to conduct activities that may result in the discharge to waters of the United States (including wetlands) must also obtain a Section 401 permit to ensure that any such discharge will comply with the applicable provisions of the CWA. Compliance with Section 401 is required for all projects that have a federal component and may affect state water quality.

Section 402

Section 402 of the CWA regulates point-source discharges to surface waters (other than dredge or fill material) through the National Pollutant Discharge Elimination System (NPDES) program, administered by the USEPA or by an authorized state. The NPDES program provides general permits (those that cover a number of similar or related activities) and individual permits for discharges to waters of the United States. California is an authorized state and issues NPDES permits as described further below.

Section 404

Section 404 of the CWA regulates the discharge of dredged and fill materials into waters of the United States, which include all navigable waters, their tributaries, and some isolated waters, as well as some wetlands adjacent to the aforementioned waters (33 CFR Part 328.3). Areas typically not considered jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions (33 CFR Part 328). Areas meeting the regulatory definition of waters of the United States are subject to the jurisdiction of the U.S. Army Corps of Engineers under provisions of the CWA Section 404. Construction activities involving placement of fill into jurisdictional waters of the United States are regulated by the U.S. Army Corps of Engineers through permit requirements. No U.S. Army Corps of Engineers permit is effective in the absence of the Section 401 permit.

3.6.2.2 State

Construction General Permit

Stormwater runoff from construction activity that results in soil disturbances of at least 1 acre of total land area (and projects that meet other specific criteria) is governed by the SWRCB under Water Quality Order 2009-0009-DWQ (as amended by 2010-0014-DWQ and 2012-0006-DWQ), NPDES Permit No. CAS000002. These regulations prohibit discharges of polluted stormwater

from construction projects that disturb 1 or more acres of soil unless the discharge is in compliance with the general NPDES permit requirements. The nine RWQCBs enforce the General Construction Stormwater Permit for projects in their respective regions.

It is the responsibility of the construction site operator or landowner to obtain coverage under this General Permit prior to the start of construction activities. To obtain coverage, the operator or landowner must file a Notice of Intent with a vicinity map and the appropriate fee with the SWRCB. The General Permit outlines the requirements for preparation of a stormwater pollution prevention plan (SWPPP). The SWPPP is a temporary document that is created to define and control the handling of stormwater runoff from a construction site. The SWPPP identifies construction best management practices (BMPs), which are implemented during the construction phase of development. The area that would be disturbed with the proposed project exceeds 1 acre. Therefore, the proposed project would be required to comply with the General Permit.

National Pollutant Discharge Elimination System Permit Program – Phase I

In November 1990, under Phase I of the urban runoff management strategy, the USEPA published NPDES permit application requirements for municipal, industrial, and construction stormwater discharges. The application requirements were directed at municipalities that own and operate separate storm drain systems serving populations of 100,000 or more or that contribute significant pollutants to waters of the United States, and required such agencies to obtain coverage under municipal stormwater NPDES permits.

Municipalities are required to develop and implement a jurisdictional runoff management program (JRMP) to address activities to reduce pollutants in urban runoff and stormwater discharges that were contributing a substantial pollutant load to their systems. Rather than establishing numeric effluent, or discharge, limits, the USEPA established narrative effluent limits for urban runoff, including the requirement to implement appropriate BMPs.

The Phase I regulations were also directed at certain facilities that discharged stormwater associated with industrial activity, and construction activities that disturb 1 or more acres. The industrial and construction activity components of the Phase I program, as well as the municipal regulations, are applicable to the proposed project.

Municipal Separate Storm Sewer System Permits

The San Diego RWQCB regulates discharges from Phase I municipal separate storm sewer systems (MS4s) in the San Diego region under the Regional MS4 Permit. The Regional MS4 Permit covers 39 municipal, county government, and special district entities (referred to jointly as "co-permittees") in the County of San Diego, southern County of Orange, and southwestern County of Riverside who own and operate large MS4s that discharge stormwater (wet weather) runoff and non-stormwater (dry weather) runoff to surface waters throughout the San Diego

region. The Regional MS4 Permit, Order No. R9-2013-0001, was adopted on May 8, 2013, and initially covered the County of San Diego co-permittees. Order No. R9-2015-0001 was adopted on February 11, 2015, amending the Regional MS4 Permit to extend coverage to the County of Orange co-permittees. Finally, Order No. R9-2015-0100 was adopted on November 18, 2015, amending the Regional MS4 Permit to extend coverage to the County of Riverside co-permittees. The City is 1 of 18 municipalities in the County of San Diego that is a co-permittee. Therefore, projects in the City jurisdiction are subject to waste discharge requirements (WDRs) set forth in the MS4 Permit.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act), codified in Division 7 of the California Water Code, is California's primary statutory authority for the protection of water quality. Under the Porter-Cologne Act, the state must adopt water quality policies, plans, and objectives that protect the state's waters beneficial uses. State law defines beneficial uses as "domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves" (California Water Code, Section 13050[f]). The Porter-Cologne Act sets forth the obligations of the SWRCB and RWQCBs pertaining to the adoption of water quality control plans and establishment of water quality objectives. Unlike the federal CWA, which regulates only surface water, the Porter-Cologne Act regulates both surface water and groundwater. The SWRCB and RWQCBs establish water quality objectives for surface waters and groundwater and have permitting and enforcement authority to prevent and control waste discharges that could affect waters of the state through the issuance of NPDES permits and WDRs. The San Diego RWQCB also develops TMDLs for the San Diego region. Load reduction efforts for sediment, bacteria, and other constituents within the planning area are ongoing and implemented through water quality improvement plans (WQIPs), municipal NPDES stormwater permits, and individual NPDES permits (e.g., NPDES permit for water treatment plant discharges).

San Diego Basin Plan

The Water Quality Control Plan for the San Diego Basin (Basin Plan) sets forth water quality objectives for constituents that could potentially cause an adverse effect or impact on the beneficial uses of water. The beneficial uses of the receiving waters relevant to San Diego River watershed are listed in Table 3.6-1. Specifically, the Basin Plan is designed to accomplish the following:

- Designate beneficial uses for surface and groundwater
- Set the narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy

- Describe implementation programs to protect the beneficial uses of all waters in the region
- Describe surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan

The Basin Plan also identifies specific narrative and numeric water quality objectives for a number of physical properties (e.g., temperature, turbidity, and suspended solids), biological constituents (e.g., coliform bacteria), and chemical conditions of concern, including inorganic parameters, trace metals, and organic compounds. Water quality objectives for toxic priority pollutants (i.e., select trace metals and synthetic organic compounds) are also identified in the Basin Plan.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014 provides a framework to regulate groundwater for the first time in California's history. The intent of the law is to strengthen local groundwater management of basins most critical to the state's water needs with an understanding that groundwater is most effectively managed at the local level. The act requires basins to be sustainably managed by local public agencies (e.g., counties, cities, and water agencies) that become groundwater sustainability agencies (GSAs). The primary purpose of the GSAs is to develop and implement a groundwater sustainability plan to achieve long-term groundwater sustainability. The state has designated the following four County basins as medium priority and subject to the act: Borrego Valley, San Diego River Valley, San Luis Rey Valley, and San Pasqual Valley. Groundwater sustainability management plans for these basins are in preparation.

3.6.2.3 Local

San Diego Unified Port District's BMP Design Manual

In June 2015, the San Diego Unified Port District (District) adopted a jurisdiction-specific local BMP Design Manual to address the requirement of the Municipal Permit. This BMP Design Manual is applicable to projects carried out on District-managed tidelands. Pursuant to the Municipal Permit, the District began implementing the BMP Design Manual on February 16, 2016. The District's BMP Design Manual identifies updated post-construction stormwater requirements for both tenant- and District-sponsored major maintenance or capital improvement projects as required by the Municipal Permit. The BMP Design Manual identifies BMP requirements for both standard projects and priority development projects (PDPs) as outlined in the permit. New development and redevelopment projects are required to implement standard source control and site design BMPs to eliminate or reduce stormwater runoff pollutants. For PDPs, the BMP Design Manual also describes structural treatment controls that must be incorporated into the site design and, where applicable, addresses potential hydromodification impacts from changes in flow and sediment supply. Project applicants must submit a stormwater quality management plan (SWQMP) accurately describing how the project will meet source control site design and pollutant

control BMP requirements. District staff provide technical review of and approve SWQMP documents and drainage design plans to ensure that pollutant control BMP requirements are met. The SWQMP is evaluated for compliance with the Municipal Permit and with design criteria outlined in the District's BMP Design Manual. Once the approval process is complete, the project is able to commence and routine inspections are conducted throughout the duration of the project construction. The proposed project is a Standard Project (not a PDP). The SWQMP includes site design BMPs that the project is required to incorporate into site design. Section 3.6.3.2 discusses site design BMPs specific to the proposed project.

Jurisdictional Runoff Management Plan

Under Regional Water Quality Control Board Order No. R9-2013-0001, NPDES Permit No. CAS0109266, the 18 cities in the County, along with the District, are required to prepare JRMPs. Each JRMP must contain a component that addresses issues related to construction activities and a component that addresses issues related to existing development. As principal permittee, the County prepares and submits an annual report on the unified JRMP that describes the progress of the programs and the strategies to reduce the discharge of pollutants of concern to the MS4 and receiving waters to the maximum extent practicable. Enforcement of the JRMP assists with preventing release of pollutants into the local storm drains and ultimately San Diego Bay. The District has developed a list of pollution prevention BMPs applicable to industrial and commercial facilities on District tidelands as required by the Municipal Permit. Because pollution prevention BMPs eliminate pollutants at their source, they are a preferred means of preventing discharge of priority pollutants into the receiving waters. The list of pollution prevention BMPs includes the following:

- Keep waste containers covered or lids closed (trash)
- Minimize outdoor storage (trash, metals)
- Capture, contain, or treat wash water (bacteria, metals)
- Conduct employee training (bacteria, trash, metals)

In addition, the JRMP provides an extensive list of minimum BMPs for commercial and industrial facilities. Categories of BMPs include general operations and housekeeping, non-stormwater management, waste handling and recycling, outdoor material storage, outdoor drainage from indoor activity, outdoor parking, vehicles and equipment, education and training, overwater activity, and outdoor activity and operation.

RWQCB Municipal Permit (Order No. R9-2013-0001)

The Municipal Stormwater Permit (Order No. R9-2013-0001 as amended by Order Nos. R9-2015-001 and R9-2015-0100) is an NPDES permit issued that requires the landowners and operators of Municipal Separate Storm Sewer Systems (MS4s) in the San Diego region to implement management programs to limit discharges of pollutants and non-stormwater discharges to and from

their MS4 from all phases of development. The Municipal Stormwater Permit requires the District and other "co-permittees" to develop watershed-based WQIPs. The Municipal Stormwater Permit emphasizes watershed program planning and program outcomes. The intent of the permit is to enable each jurisdiction to focus its resources and efforts to:

- Reduce pollutants in stormwater discharges from its MS4
- Effectively prohibit non-stormwater discharges to its MS4
- Achieve the interim and final [Water Quality Improvement Plan) numeric goals

The proposed project would be required to comply with the NPDES permit requirements.

San Diego Unified Port District, Article 10

The District's Article 10, the Port Stormwater Management and Discharge Control Ordinance, prohibits the deposit or discharge of any chemicals or waste to the tidelands or San Diego Bay and makes it unlawful to discharge pollutants directly into non-stormwater or indirectly into the stormwater conveyance system. The proposed project would be obligated to abide by Article 10.

Temporary Groundwater Extractions Permit (Order No. R9-2007-0034)

Order No. R9-2007-0034 is intended to cover temporary discharges of groundwater extraction wastes to the bay and its tributaries under tidal influence from groundwater extraction due to construction and other groundwater extraction activities. Dischargers must meet the applicable criteria listed in the permit to be subject to WDRs under this permit. Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of the permit. The discharge of groundwater extraction waste from any site cannot, separately or jointly with any other discharge, cause violations of certain water quality objectives in the bay.

The proposed project would be required to comply with Order No. R9-2007-0034 requirements if dewatering is required during construction.

3.6.3 Thresholds of Significance

A significant impact related to hydrology and water quality would occur if the project would (CEQA Guidelines, Section 15000 et seq.):

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   a. Result in substantial erosion or siltation on- or off-site.

4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

The Initial Study (included in Appendix A, Notice of Preparation and Initial Study) for the proposed project determined that several thresholds related to hydrology and water quality would result in a "No Impact" or a "Less than Significant Impact" determination and were found not to be significant. In accordance with the California Environmental Quality Act (CEQA) Guidelines, Section 15128, a brief justification regarding the effects found not to be significant (e.g., the resource topics not analyzed in Chapter 3, Environmental Analysis) is provided in Chapter 4, Additional Consequences of Project Implementation and Effects Found Not to Be Significant, for the following thresholds:

2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
    c. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    d. Impede or redirect flood flows?

3.6.4 Method of Analysis

The following impact analysis focuses on potential impacts of the project related to hydrology and water quality. The evaluation considered project plans, current conditions at the project site, and applicable regulations and guidelines. In addition, the Drainage Study and SWQMP (Appendix G) helped inform project related impacts. The following sections describe impacts and mitigation from the proposed project.

3.6.5 Project Impacts and Mitigation

The following sections address various potential impacts relating to hydrology and water quality that could result due to the implementation of the proposed project.

3.6.5.1 Threshold 1: Water Quality Standards

Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Impact Analysis

The project proposes the demolition and waterside dredging and remediation at the Marine Terminal Facilities. Activities would be broken down into landside demolition,[1] waterside demolition, dredging and sediment remediation, and post-remediation activities. The in-water demolition activities require specific types of equipment including a floating crane barge used to remove concrete piles, dredging, and sand placement; deck barges for delivery and storage of materials or debris; jet pumps, vibratory hammer, and clamshell bucket; and tugboats for moving equipment. The landside demolition activities would require the use of equipment such as a land-based mobile crane, trucks for delivery and removal of construction materials, heavy equipment (e.g., loader, bulldozer, forklift, and scraper) to remove asphalt and concrete and to grade the site, and on-site water treatment system. These activities could result in temporary, short-term water quality impacts and degrade water quality by increasing project related polluted stormwater runoff through project activities such as demolition, clearing and grading, dredging, and stockpiling of soils and materials.

Pollutants associated with landside demolition activities that could result in water quality impacts include soils and sediment, debris, fuels and other fluids associated with the equipment used for demolition. In case of heavy rain or wind conditions, when the project site is disturbed by demolition activities, the potential for erosion and sediment transport from the project site could increase. Stormwater runoff (or wind) could carry the exposed or eroded sediments to the storm drain system or directly into San Diego Bay. Erosion and sedimentation affects water quality through interference with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Additionally, other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported in the receiving water body, which could contribute to degradation of water quality.

These pollutants could impact water quality if they are washed off site by stormwater or non-stormwater, or are blown or tracked off site to areas susceptible to wash off by stormwater or non-stormwater. Depending on the location of the construction site at its discharges, pollutants are likely to drain into San Diego Bay, which is impaired by mercury, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls (Project Clean Water 2020). Under these impairments, the receiving water cannot assimilate or accommodate additional loading of pollutants, and any increases would contribute to the impairment.

[1] Landside demolition activities would occur only at the Lockheed Martin Marin Terminal Facilities. Landside remediation at the former Tow Basin site is not required.

Dischargers whose projects disturb 1 or more acres of soil or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres are required to obtain coverage under the General Permit for Discharges of Stormwater Associated with Construction Activity known as the Construction General Permit Order 2009-0009-DWQ (2009-0009-DWQ Construction General Permit). Construction activity subject to the 2009-0009-DWQ Construction General Permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The project would disturb more than 1 acre of soil and would involve, grading and stockpiling. Therefore, the proposed project would require compliance with the 2009-0009-DWQ Construction General Permit, which requires the development and implementation of a SWPPP by a qualified SWPPP developer. The SWPPP would identify which BMPs during demolition would be implemented to protect stormwater runoff and include a monitoring plan for measuring BMP effectiveness. BMPs are required to be inspected regularly by a qualified SWPPP practitioner. The qualified SWPPP practitioner monitors the construction activities to ensure the BMPs listed in the SWPPP are implemented and performing as anticipated.

A variety of landside BMPs would be required to protect water quality. At a minimum, BMPs would include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The construction SWPPP would specify properly designed, centralized storage areas that keep these materials out of the rain. When grading is conducted during the rainy season, the primary BMPs selected would focus on erosion control (i.e., keeping sediment in place) and then on sediment control (i.e., keeping sediment on site).

During waterside remediation, the project proposes the use of an upland sediment management area (SMA) to allow for the storage of dredged materials (Appendix G). The SMA would be confined with an impermeable barrier (potentially an asphalt berm or K-rails sealed at the base with an impervious fabric) to prevent discharge into San Diego Bay or into underlying soils. Topsoil and backfill would be stockpiled, protected, and replaced at the conclusion of construction activities. Disturbed soil would be revegetated as soon as possible with the appropriate selection and schedule for turf, plants, and other landscaping vegetation.

In addition to the SWPPP, the project applicant would be required to implement the construction BMPs identified in the District's JRMP. The SWPPP would specify construction BMPs to ensure that water quality standards or WDRs are not violated. BMPs selected would be designed to ensure compliance with the requirements of the District's JRMP and the Construction General Permit and would be subject to review and approval by the District.

The District also limits grading to a maximum disturbed area of 5 acres during the rainy season (October 1–April 30) and 17 acres during the non-rainy season to prevent discharges of sediment. Such measures are routinely developed for construction sites and are proven to be effective in reducing pollutant discharges from construction activities. Implementation of the SWPPP during construction would minimize the potential for water quality objectives, standards, and wastewater discharge thresholds to be violated. With implementation of construction BMPs, as required by the Construction General Permit and District's JRMP, the proposed project's potential to affect water quality would be reduced. Compliance with existing regulatory requirements, such as implementation of erosion control, sediment control, non-stormwater management, and waste management construction BMPs as required by the Construction General Permit and District's JRMP, would reduce impacts of the proposed project in regard to violation of a water quality standard or waste discharge requirement to less than significant levels. Therefore, the project would not violate any water quality standards or WDRs or otherwise substantially degrade surface or groundwater quality during landside demolition.

Waterside demolition, dredging, and clean sand placement could result in significant short-term impacts to water quality from uncontrolled sediment from construction. This disruption of sediments could adversely affect water quality by temporarily resuspending sediments, thereby increasing turbidity. Chemicals that are present in the sediments could be released to the water column during resuspension, which could temporarily degrade water quality. Suspended sediments in the water column can lower levels of dissolved oxygen, increase salinity, increase concentrations of suspended solids, and possibly release chemicals present in sediments into the water. Additionally, high concentrations of particulate matter in areas with high turbidity, affect light penetration and ecological productivity, recreational values, and habitat quality (USGS 2020). Effects from dredging, fill activities, and pile removal include temporary and localized increases in turbidity and sedimentation within the water column, along with lowered dissolved oxygen levels associated with disturbance of anoxic sulfidic sediments during dredging activities and pile removal. These activities are anticipated to affect a relatively small area of water through increased turbidity, which would be localized and dissipate quickly following bottom disturbance (Appendix B, March 2017 Remedial Action Plan).

The proposed project would be required to comply with several permit requirements to limit discharges of pollutants and non-stormwater discharges. The proposed project would be required to obtain a Rivers and Harbors Act Section 10 permit from the U.S. Army Corps of Engineers (USACE) for the construction associated with waterside demolition and a CWA Section 404 permit for dredging. Section 404 of the CWA requires authorization from the USACE for the dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable water of the United States.

Section 10 and 404 permits would be required to be obtained prior to initiating construction activities for the proposed project. The USACE may issue a public notice to interested parties to solicit comments on the project, and after evaluating the comments and information received, the USACE would make a decision to issue or deny a permit based on compliance with its regulations and other laws. In addition, the proposed project would be required to obtain a corresponding Section 401 permit from the RWQCB for the federal permits from the USACE. A Section 401 permit is required by the USACE for Section 10 and 404 permit issuance. Once the RWQCB deems a Section 401 permit application is complete, a public notice and 21-day comment period will follow. Following the public comment period, additional information may be required or a public hearing with the RWQCB may be scheduled. The RWQCB-issued Section 401 permit would specify additional methods for ensuring the protection of water quality during construction activities in the bay, including water quality monitoring requirements to meet the Basin Plan water quality objectives. Also, beneficial uses may require mitigation for impacts to waters of the United States. In addition, the Section 401 permit would list specific conditions for in-water construction BMPs to minimize the discharge of construction materials from construction activities, control floating debris, and provide spill containment and cleanup equipment to control potential accidental spills to meet the Basin Plan water quality objectives and beneficial uses.

Additionally, the following project design features (PDFs) would limit the spread of the turbidity plume outside the specific work area and minimize potential impact. The Cleanup and Abatement Order issued by the San Diego RWQCB requires the preparation of a remedial action plan that includes a remediation monitoring plan. The Remediation Monitoring Plan consists of water quality monitoring, sediment monitoring, silt curtain monitoring by a qualified biologist, and disposal monitoring. The water quality monitoring must be sufficient to demonstrate that implementation of the selected remedial activities does not result in violations of water quality standards outside the construction area. Therefore, only temporary water quality impacts related to suspended solids and depressed oxygen levels in the water column of the specific work area would be expected. As such, it is anticipated that the effects of these construction-related turbidity impacts on fish would be temporary and minor. The following water quality PDFs would minimize effects of turbidity:

PDF-WQ-1: **Silt Curtains.** The proposed project shall require the deployment of a silt curtain around the pile removing, dredging, and clean sand placement areas, to contain suspended sediment in accordance with the 401 Water Quality Certification. Silt curtains would be weighted and positioned using anchors or marine structures or by being connected to shoreline locations. In addition, a floating surface debris boom would be equipped with skirts and absorbent pads to capture floating surface debris and to control potential oil sheen movement.

PDF-WQ-2: **Water Monitoring.** The water's turbidity levels would be monitored during demolition, dredging, and sediment remediation activities. Manual water quality monitoring to include measurements for pH, dissolved oxygen, and turbidity would be conducted to confirm compliance with the San Diego Basin Plan and Clean Water Act Section 401 Water Quality Certification requirements. Dredging operations would be evaluated and modified as necessary in coordination with the San Diego RWQCB if water quality monitoring shows exceedance of predetermined numerical targets due to dredging operations.

PDF-WQ-3: **Bucket Movement Control.** The bucket would be positioned using Global Positioning System (GPS) software. The speed of bucket movement would be limited in the water column to minimize the disturbance of sediments and the resuspension of materials. In addition, the drag of the dredge bucket would be prohibited along the sediment surface.

PDF-WQ-4: **Spill Apron**. A spill apron, consisting of steel plates, plywood platforms, or a similar assembly with secondary containment, would be placed between the barge and shore to collect drippings or spillage and direct it back into the barge or collection point.

PDF-WQ-5: **Truck Wash.** Prior to leaving the sediment management area, haul trucks would be washed at an on-site truck wash to prevent sediment trackout.

Upon completion of demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state and would not involve the use of hazardous materials. The SWQMP (Appendix G) identifies a number of site design BMPs to ensure that water quality is maintained after demolition and waterside dredging and remediation activities. After demolition, the post-construction conditions would implement site design BMPs that would consist of a natural pervious surface covered in drought-tolerant vegetation, such as grass. This site would be re-graded to promote infiltration and minimize stormwater discharge into San Diego Bay. No new impervious surfaces would be added.

Significance of Impact

Implementation of the proposed project would not violate any water quality standards or WDRs or otherwise substantially degrade surface or groundwater quality. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.6.5.2 Threshold 3: Site Drainage and Hydrology

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

a. Result in substantial erosion or siltation on- or off-site?

Impact Analysis

The project's potential to substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site during landside demolition activities is discussed below. The site does not include and is not adjacent to a stream or river. Thus, impacts related to alteration of the course of a stream or river would not occur.

The existing site is an inactive site that is approximately 90 percent impervious and consists of a 5,500-square-foot building with two 280-square-foot sheds and small landscaped areas, all of which drain into San Diego Bay. There are four drainage management areas (DMAs) on the project site's landside. They have been delineated and identified as DMAs A, B, C, and D. DMAs A, B, and D flow overland into San Diego Bay, while DMA C is directed off site into an adjacent parking structure and captured by an existing conveyance system. These flow patterns are shown on Figure 3.6-1, Existing Drainage Management Areas:

- **DMA A (pink):** Stormwater sheet flows into the bay at Outlet A. This area is approximately 10 percent pervious due to landscaped areas and 90 percent impervious because of the existing paved parking lot.
- **DMA B (green):** Stormwater is generated from a portion of the existing building's roof, which is collected in a roof drain and directed into the bay by Outlet B. This DMA is completely impervious.
- **DMA C (blue):** Stormwater sheet flows off site into an adjacent parking structure. This DMA consists of an existing landscaped area that is completely pervious.
- **DMA D (purple):** Stormwater that is generated from the eastern half of the building roof is collected in a roof drain on the eastern side of the building. Stormwater flows underneath the mobile structures/sheds and flows into a natural channel that sheet flows the bay. An adjacent channel sheet flows along the south side of this DMA and directly sheet flows into the bay. This DMA is approximately 98 percent impervious.

The overall project goal is to restore the site back to its original grade and conditions. To do so there are some considerations to be made with concerns for on-site hydrology and drainage prior to the post-project conditions. The construction activities for the project would take place as follows:

- **Phase 1:** The components of Phase 1 consist of, but are not limited to, the removal and disconnection of existing utilities, demolition of landside structures, removal of the

building foundation, and fill of any depressions resulting from the demolition activities. A portion of the existing pavement to the northwest would remain an SMA for storage of dredged material.

- **Phase 2:** Phase 2 construction activities consist of in-water demolition, dredging in the bay, placement of clean sand and activated carbon cover, sediment management and disposal, and outfall protection.

Land-disturbing activities associated with the proposed project, such as vegetation clearing, grading, and demolition, could result in localized alteration of drainage patterns and temporarily increase erosion and sedimentation in the construction area. Alterations may temporarily result in increased erosion and siltation if flows were substantially increased or routed to facilities or channels without capacity to carry the additional flow. During landside demolition activities, the project would implement BMPs that reduce the potential for erosion or siltation to occur. Construction activities require the preparation of a SWPPP in compliance with 2009-0009-DWQ Construction General Permit to address stormwater runoff and potential pollutants during construction.

DMAs were analyzed to determine the runoff that would be generated from the project site. As shown in Table 3.6-2, Flow Determination Calculations, under existing conditions, the project site's runoff is 2.41 cubic feet per second.

Table 3.6-2. Flow Determination Calculations

DMA ID	Area (acres)	Flow (cfs)
	A	Q
Existing Conditions		
DMA A	0.501	1.38
DMA B	0.092	0.37
DMA C	0.023	0.03
DMA D	0.159	0.63
Total	**0.775**	**2.41**
Proposed Conditions		
DMA E	0.775	**0.68**

Source: Appendix G.
Notes: cfs = cubic feet per second; DMA = drainage management area

During landside construction activities, the project site would have three delineated DMAs (F, G, and H). The construction DMAs were delineated into three areas to control the discharge of sediment and other pollutants from entering the bay. Construction activities would be monitored, and runoff would route through the construction BMPs prior to leaving the site. Additionally, during construction, it would be the responsibility of the on-site contractor to reduce any potential for negative impacts and prepare for rain events accordingly. Figure 3.6-2, Demolition Conditions DMA and BMP, shows the delineated DMAs during construction as follows:

- **DMA F (orange):** This DMA would convert the existing paved parking area to an SMA for stockpile of dredged material. Perimeter control measures such as gravel or sand bags should be considered to prevent sediments from leaving the project site.
- **DMA G (indigo):** This DMA would function as a buffer from DMA F and San Diego Bay. Perimeter control measures such as gravel or sand bags should be considered to prevent sediments from leaving the project site.
- **DMA H (red):** This DMA, which would be the construction staging area, would be restored to an unpaved surface during the construction phase and would be roughly graded in order to minimize direct drainage into the bay. Perimeter control would be used to prevent sediments from discharging off site.

As shown in Table 3.6-2, upon completion of the proposed landside construction activities, the project's existing runoff of 2.41 cubic feet per second would be reduced to 0.68 cubic feet per second, resulting in a decrease of runoff. Therefore, with the implementation of construction BMPs and the preparation of a SWPPP, the proposed project would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site during demolition.

After demolition, dredging, and remediation, the project site would be returned to an unoccupied, undeveloped site. Once the sediment has been dredged and disposed of, the SMA would be removed. The asphalt and concrete paving areas would be demolished, with the exception of a retaining wall above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to promote infiltration, minimize erosion, and minimize stormwater discharge into San Diego Bay. Erosion control measures would be implemented to minimize potential erosion, sedimentation, and runoff from the site. After demolition, the post-construction conditions would implement site design BMPs that would consist of a natural pervious surface covered in drought-tolerant vegetation, such as grass. This site would be re-graded to promote infiltration and minimize stormwater discharge into San Diego Bay (Figure 3.6-3, Post-Project DMA and BMP). No new impervious surfaces would be added. As such, the proposed project would not result in substantial erosion or siltation on or off site during proposed conditions.

Significance of Impact

Implementation of the proposed project would not result in substantial erosion or siltation on or off site during proposed conditions. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.6.5.3 Threshold 4: Activities in a Flood Hazard, Tsunami, or Seiche Zone

Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Impact Analysis

Tsunamis are seismic sea waves generated by sudden movements of the sea floor caused by submarine earthquakes, landslides, or volcanic activity. The project site is within a tsunami inundation zone mapped by the Tsunami Inundation Map for Emergency Planning for the Point Loma Quadrangle (Cal EMA 2009). Therefore, the potential for tsunami to occur at the project site exists. Therefore, during construction, if the site were hit by a tsunami there would be risk for the release of pollutants from the project site.

The most significant remote tsunami to hit Southern California was in 1960, when an 8.6 magnitude earthquake off the coast of Chile generated a tsunami resulting in 4-foot waves at Santa Monica and Port Hueneme and caused major damage to the Los Angeles and Long Beach harbors. Local tsunamis are generated off the coast of Southern California; however, since 1800, only four locally generated tsunamis have been observed. The most significant was in 1812 in the Counties of Santa Barbara and Ventura. Waves were reported at 6 to 10 feet high, several small buildings were damaged, and many ships were destroyed (County of San Diego 2020).

Although the project site is in a tsunami inundation zone, the likelihood of such an event occurring during the construction period is considered low. If such an event were to occur during landside or waterside demolition, the project site's distance from the open ocean and the buffering provided by Coronado would mean flood flows would be assimilated within the bay, likely only resulting in sheet flow around the project site (District 2017). In addition, there would be notice to evacuate people from the project site from the West Coast and Alaska Tsunami Warning Center and the Pacific Tsunami Warning Center, which monitor earthquakes and issue tsunami warnings when a tsunami is forecasted. The West Coast and Alaska Tsunami Warning Center and the Pacific Tsunami Warning Center may issue the following bulletins:

- **Warning:** A tsunami was or may have been generated, which could cause damage; therefore, people in the warned area are strongly advised to evacuate.
- **Watch:** A tsunami was or may have been generated, but is at least 2 hours travel time to the area in watch status. Local officials should prepare for possible evacuation if their area is upgraded to a warning.
- **Advisory:** An earthquake has occurred in the Pacific basin, which might generate a tsunami. West Coast and Alaska Tsunami Warning Center and Pacific Tsunami Warning Center will issue hourly bulletins advising of the situation.
- **Information:** A message with information about an earthquake that is not expected to generate a tsunami. Usually only one bulletin is issued.

Additionally, the County's Office of Emergency Services also issues tsunami warnings and provides guidelines for what to do during and after a tsunami warning. The County's early inundation system and close proximity to evacuation routes via downtown San Diego streets would reduce risk for fatalities and injuries. Further, the implementation of construction BMPs, such as hazardous waste management, contaminated soil management, and concrete waste management, would reduce the risk for the release of pollutants from the project site during construction. Therefore, although inundation from a tsunami is possible, it is unlikely. Consequently, impacts would be less than significant. After demolition, the post-construction conditions would implement site design BMPs that would consist of a natural pervious surface covered in drought-tolerant vegetation, such as grass. This site would be re-graded to promote infiltration and minimize stormwater discharge into San Diego Bay. No new impervious surfaces would be added. Instead, impervious areas would be reduced. Therefore, once remediated, the project site would include natural features that are not sources of pollutants.

A seiche is a wave on the surface of a lake or partially enclosed body of water that is caused by atmospheric or seismic disturbances. Seiches are typically caused when strong winds and rapid changes in atmospheric pressure push water from one end of a body of water to the other. When the wind stops, the water rebounds to the other side of the enclosed area. The water then continues to oscillate back and forth (NOAA 2018). The project would not be at risk of inundation by seiche because seiches are typically associated with confined bodies of water, which the project site is not near. Regardless, construction and post-construction BMPs would reduce the risks of the release of pollutants during seiches if a seiche were to affect the project site.

Significance of Impact

Implementation of the proposed project would not risk release of pollutants due to project inundation from flood hazard, seiche zones, or tsunami after post-construction conditions. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.6.5.4 Threshold 5: Water Quality Control Plan or Sustainable Groundwater Management Plan

Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Impact Analysis

The project site is in the San Diego Bay watershed management area. Specifically, the project is in the Pueblo San Diego hydrologic unit and is further in the San Diego Mesa hydrologic area (SDRWQCB 2016). The major receiving water for the project site is San Diego Bay. As previously

discussed, the designated beneficial uses for San Diego Bay include Industrial Service Supply (IND); Navigation (NAV); Contact Water Recreation (REC1); Non-Contact Water Recreation (REC2); Commercial and Sport Fishing (COMM); Preservation of Biological Habitats of Special Significance (BIOL); Estuarine Habitat (EST); Wildlife Habitat (WILD); Rare, Threatened, or Endangered Species (RARE); Marine Habitat (MAR); Migration of Aquatic Organisms (MIGR); Spawning, Reproduction, and/or Early Development (SPWN); and Shellfish Harvesting (SHELL). Additionally, San Diego Bay is on the CWA Section 303(d) list for mercury, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls.

The proposed activities would involve various types of equipment such as bulldozers, scrapers, backhoes, and other earthmoving equipment; haul trucks; barge-mounted Derrick crane; and generators. Pollutants associated with these construction activities that could result in water quality impacts, including soils and sediments, debris, fuels, and other fluids associated with the equipment used for construction.

However, as previously discussed, the project would comply with General Construction Stormwater Permit requirements, including the development and implementation of a SWPPP. The SWPPP must identify BMPs that the discharger would use to protect stormwater runoff from pollutants and the placement of those BMPs. Therefore, with the implementation of policies and regulatory requirements, which include the implementation of construction-period BMPs to address potential discharges of pollutants to stormwater, any short-term water quality impacts during construction of the proposed project would be minimized and would not cause a conflict with or obstruct implementation of the Basin Plan.

After demolition, the post-construction conditions would implement site design BMPs that would consist of a natural pervious surface covered in drought-tolerant vegetation, such as grass. This site would be re-graded to promote infiltration and minimize stormwater discharge into San Diego Bay. No new impervious surfaces would be added. Instead, impervious areas would be reduced.

The proposed project is not within a groundwater sustainability agency boundary, and therefore, no sustainable groundwater management plan has been prepared for the project site. In addition, no groundwater would be withdrawn as part of the proposed project. Upon completion of demolition, dredging, and remediation activities, the site would be returned to its original undeveloped state and would not interfere with groundwater recharge.

Significance of Impact

Implementation of the proposed project would not conflict with or obstruct implementation of the Basin Plan nor would it cause a conflict with or obstruct a sustainable groundwater management plan. Impacts are less than significant.

Mitigation Measures

No mitigation measures are required.

3.6.6 Cumulative Impacts

3.6.6.1 Cumulative Threshold 1: Water Quality Standards

The geographic context for the cumulative impact analysis concerning hydrology and water quality is the San Diego Mesa hydrologic area and the Lindbergh hydrologic subarea. Urban development from cumulative projects in the San Diego Mesa hydrologic area and in the Lindbergh hydrologic subarea would increase impervious areas and activities that generate pollutants, and consequently could result in additional water quality impacts from stormwater runoff to receiving waters in the hydrologic unit. Existing water quality impairments or problems within receiving waters in San Diego Bay includes mercury, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls. Most future development projects in the San Diego region would be subject to regulation during construction by the Construction General Permit and during design and operation by NPDES Phase I or II post-construction regulations, which would require that low-impact development measures be implemented and source control and nonpoint source BMPs be employed to control potential effects on water quality and that stormwater quality control devices be incorporated into stormwater collection systems to collect sediment and other pollutants. The WQIP for the San Diego Bay watershed management area identifies highest priority water quality conditions, strategies to address them, and monitoring plans. The goal of the WQIP is to further the CWA's objective to protect, preserve, enhance, and restore water quality of the San Diego River watershed. Present and reasonably foreseeable future projects would be subject to regulations that require compliance with water quality standards, including state and local water quality regulations and the District's JRMP and local BMP Design Manual (for projects within the District's jurisdiction) and the City's Stormwater Management and Discharge Control Ordinance, which identifies water quality BMP requirements (for projects within the City's jurisdiction). For projects in the City, the Stormwater Management and Discharge Control Ordinance requires implementation of measures to reduce the risk of non-stormwater discharges and pollutant discharges through the use of BMPs. However, because San Diego Bay is currently an impaired water body and has been for some time, and while these efforts are helping to remedy the problem, a significant cumulative water quality impact exists without implementation of the proposed project and is being addressed through existing regulations and programs.

Direct water quality impacts from the implementation of the proposed project would be less than significant because the proposed project is designed to comply with regulations protecting water quality and would not violate any water quality standards or otherwise substantially degrade water quality. Further, other projects in the region are subject to similar regulatory requirements associated

with stormwater runoff and there are several ongoing efforts to remedy water quality issues in receiving waters. Thus, the proposed project's contribution would not be cumulatively considerable.

3.6.6.2 Cumulative Threshold 3: Site Drainage and Hydrology

The geographic context for the cumulative impact analysis concerning hydrology and water quality is the San Diego Mesa hydrologic area and the Lindbergh hydrologic subarea. Construction of cumulative projects would involve grading and other earthmoving activities that could result in temporary localized soil erosion. However, these site-specific impacts are not expected to combine with the effects of other regional activities because federal, state and local regulations, including the Construction General Permit and MS4 Permit, govern project design and construction so that projects are designed to reduce stormwater runoff from project sites by promoting infiltration, minimizing impervious surfaces, requiring no net increase in flows, and controlling erosion and construction-related contaminants at each construction site. All cumulative projects that disturb more than 1 acre of soil are required to prepare a SWPPP, in compliance with the 2009-0009-DWQ Construction General Permit. The SWPPP would include a series of specific BMPs to be implemented during construction to address erosion, accidental spills, and the quality of stormwater runoff and have been developed in part to reduce the potential adverse effects associated with site-specific construction activities. Construction-related impacts from cumulative projects would be temporary and short-term, and each project's construction activities would be localized. Therefore, a cumulatively considerable impact associated with site drainage and hydrology would not occur. During landside demolition activities, the project would implement BMPs that reduce the potential for erosion or siltation to occur. Construction activities require the preparation of a SWPPP to address stormwater runoff and potential pollutants during construction.

After demolition, the post-project condition would consist of a natural pervious surface covered in drought-tolerant vegetation, such as grass. This site would be re-graded to promote infiltration and minimize stormwater discharge into San Diego Bay. The existing mature trees would be left undisturbed. Non-invasive drought-tolerant vegetation would be planted. In addition to the site improvements, BMPs would capture potential contamination prior to discharging water back into the bay. No new impervious surfaces would be added. Instead, impervious areas would be reduced. As such, the proposed project would not result in substantial erosion or siltation on or off site during proposed conditions. Therefore, the project's contribution would not be cumulatively considerable.

3.6.6.3 Cumulative Threshold 4: Activities in a Flood Hazard, Tsunami, or Seiche Zone

The geographic context for the cumulative impact analysis concerning hydrology and water quality is the San Diego Mesa hydrologic area and the Lindbergh hydrologic subarea. The geographic context for cumulative projects resulting in activities that would have a flood hazard, tsunami, or seiche risk are projects within the City and general vicinity of the project site. Similar to the proposed project,

cumulative projects in the City and within the vicinity of the project site would be in the same proximity to San Diego Bay and would require the implementation of project specific construction and operation phase BMPs to reduce the risk for the release of pollutants from the project site during construction. Further, cumulative projects located in a flood hazard area would have restrictions on development based on state and City regulations. Therefore, cumulative projects would not result in a significant cumulative impact associated with activities in flood hazard, tsunami, or seiche areas. The proposed project would have no impact with regard to flood hazards, tsunami, and seiche hazards. Therefore, the proposed project's contribution would not be cumulatively considerable.

3.6.6.4 Cumulative Threshold 5: Water Quality Control Plan or Sustainable Groundwater Management Plan

The geographic context for the cumulative impact analysis concerning hydrology and water quality is the San Diego Mesa hydrologic area and the Lindbergh hydrologic subarea. Urban development associated with cumulative projects within the San Diego Mesa hydrologic unit would increase impervious areas and activities that generate pollutants, and consequently could result in additional impacts to receiving waters in the hydrologic unit. Most development projects in the San Diego region would be subject to NPDES regulations, which would require site design and source control BMPs to control potential effects on water quality, and the incorporation of stormwater quality control devices into stormwater collection systems to collect sediment and other pollutants. These requirements are uniformly applicable throughout the San Diego region. Therefore, cumulative projects would not result in a significant cumulative impact associated with the Basin Plan.

The proposed project is not within a groundwater sustainability agency boundary, and therefore, no sustainable groundwater management plan has been prepared for the project site. In addition, no groundwater would be withdrawn as part of the proposed project. Upon completion of demolition, dredging, and remediation activities, the site would be returned to its original undeveloped state and would not interfere with groundwater recharge. Therefore, the project would not cause a conflict with or obstruct a sustainable groundwater management plan. As such, the proposed project's contribution would not be cumulatively considerable.

3.6.7 Conclusion

Pollutants associated with demolition activities that could result in water quality impacts include soils/sediment, debris, fuels and other fluids associated with the equipment used for demolition. These pollutants could impact water quality if they are washed off site by stormwater or non-stormwater, or are blown or tracked off site to areas susceptible to wash off by stormwater or non-stormwater. Therefore, the proposed project would require compliance with the 2009-0009-DWQ Construction General Permit and would require development and implementation of a SWPPP that would identify which BMPs during demolition would be implemented to protect stormwater runoff and include a monitoring plan for measuring BMP effectiveness. A variety of demolition BMPs would be required to be implemented throughout the various construction phases to protect water

quality. At a minimum, BMPs would include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The construction SWPPP would specify properly designed, centralized storage areas that keep these materials out of the rain. When grading is conducted during the rainy season, the primary BMPs selected would focus on erosion control (i.e., keeping sediment in place) and then on sediment control (i.e., keeping sediment on site). In addition to the SWPPP, the project proponent would be required to implement the construction BMPs identified in the District's JRMP.

Additionally, waterside demolition and dredging could result in significant short-term impacts to water quality from uncontrolled sediment from construction. This disruption of sediments could adversely affect water quality by temporarily resuspending sediments, thereby increasing turbidity. Chemicals that are present in the sediments could be released to the water column during resuspension, which could temporarily degrade water quality. However, the project includes PDFs to reduce any construction-related turbidity. The proposed project would also be required to obtain a Rivers and Harbors Act Section 10 permit from the USACE for the construction associated with waterside demolition and a Section 404 CWA permit for dredging. Section 404 of the CWA requires authorization from the USACE for the dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable water of the United States. The proposed project would be required to obtain a corresponding Section 401 permit from the RWQCB for the federal permits from the USACE.

Upon completion of demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state and would not involve the use of hazardous materials. The SWQMP (Appendix G) identifies a number of site design BMPs to ensure that water quality is maintained after demolition and waterside dredging and remediation activities. The post-project condition would consist of a natural pervious surface covered in non-invasive drought-tolerant vegetation, such as grass. Existing mature trees would be left undisturbed. With the proposed demolition, regrade of the site, and removal of all pavement, the project's existing runoff of 2.41 cubic feet per second would be reduced to 0.68 cubic feet per second, resulting in a decrease of runoff.

The project site is within a tsunami inundation zone mapped by the Tsunami Inundation Map for Emergency Planning for the Point Loma Quadrangle (Cal EMA 2009). Therefore, the potential for tsunami to occur at the project site exists. Therefore, during construction, if the site were hit by a tsunami there would be risk for the release of pollutants from the project site. The County's Office of Emergency Services also issues tsunami warnings and provides guidelines for what to do during and after a tsunami warning. The County's early inundation system and close proximity to evacuation routes via downtown San Diego streets would reduce risk for fatalities and injuries. Further, the implementation of construction BMPs, such as hazardous waste management, contaminated soil management, and concrete waste management, would reduce the risk for the

release of pollutants from the project site during construction. After demolition, the post-construction conditions would implement site design BMPs that would consist of a natural pervious surface covered in drought-tolerant vegetation, such as grass. The project would not be at risk of inundation by seiche because seiches are typically associated with confined bodies of water, which the project site is not near. Regardless, construction and post-construction BMPs would reduce the risks of the release of pollutants during seiches if a seiche were to affect the project site. Therefore, once remediated, the project site would include natural features that are not sources of pollutants.

The proposed project is not within a groundwater sustainability agency boundary, and therefore, no sustainable groundwater management plan has been prepared for the project site. In addition, no groundwater would be withdrawn as part of the proposed project. Upon completion of demolition, dredging, and remediation activities, the site would be returned to its original undeveloped state and would not interfere with groundwater recharge.

Direct water quality impacts from the implementation of the proposed project would be less than significant because the proposed project is designed to comply with regulations protecting water quality and would not violate any water quality standards or otherwise substantially degrade water quality. Further, other projects in the region are subject to similar regulatory requirements associated with stormwater runoff and there are several ongoing efforts to remedy water quality issues in receiving waters. Thus, the proposed project's contribution would not be cumulatively considerable.

During landside demolition activities, the project would implement BMPs that reduce the potential for erosion or siltation to occur. Construction activities require the preparation of a SWPPP to address stormwater runoff and potential pollutants during construction. After demolition, the post-project condition would consist of a natural pervious surface covered in drought-tolerant vegetation, such as grass. This site would be re-graded to promote infiltration and minimize stormwater discharge into San Diego Bay. The existing mature trees would be left undisturbed. Non-invasive drought-tolerant vegetation would be planted. In addition to the site improvements, BMPs would capture potential contamination prior to discharging water back into the bay. No new impervious surfaces would be added. Instead, impervious areas would be reduced. As such, the proposed project would not result in substantial erosion or siltation on or off site during proposed conditions. Therefore, the project's contribution would not be cumulatively considerable.

Cumulative projects in a flood hazard area would have restrictions on development based on state and City regulations. Therefore, cumulative projects would not result in a significant cumulative impact associated with activities in flood hazard, tsunami, or seiche areas. The proposed project would have no impact with regard to flood hazards, tsunami, and seiche hazards. Therefore, the proposed project's contribution would not be cumulatively considerable.

Most development projects in the San Diego region would be subject to NPDES regulations, which would require site design and source control BMPs to control potential effects on water quality and the incorporation of stormwater quality control devices into stormwater collection systems to collect sediment and other pollutants. These requirements are uniformly applicable throughout the San Diego region. Therefore, cumulative projects would not result in a significant cumulative impact associate with the Basin Plan.

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AREA CALCULATIONS:

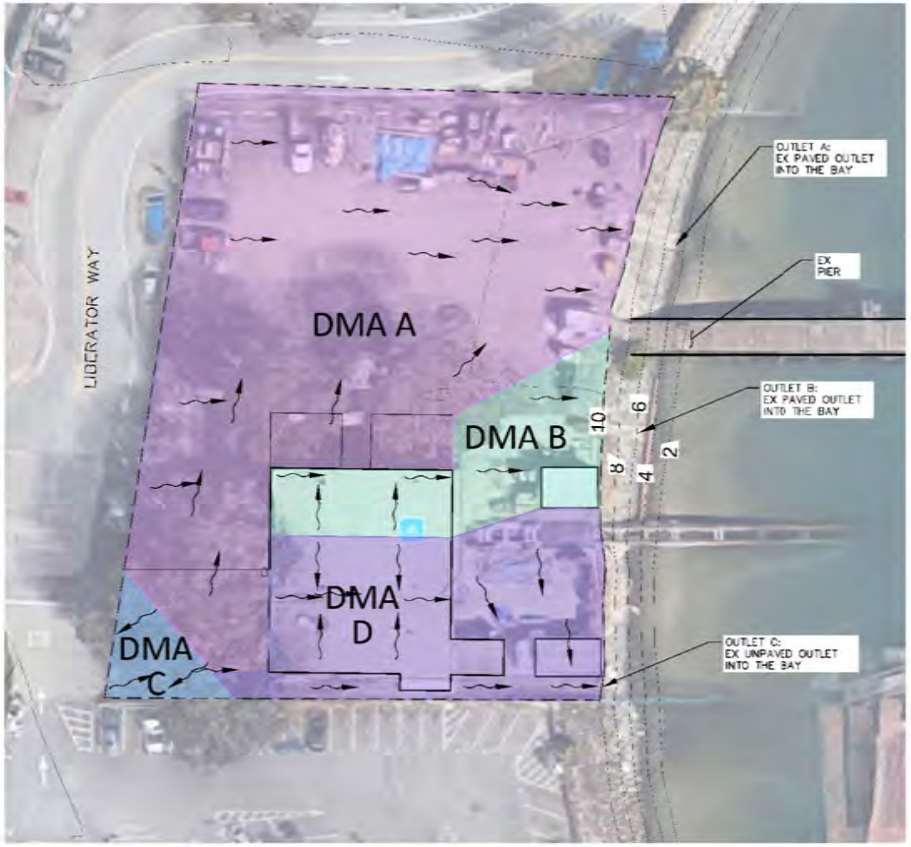
TOTAL PROJECT AREA: 0.775 ACRES

DMA A = 0.501 ACRES
PERVIOJS: 0.051 ACRES
IMPERVIOUS: 0.449 ACRES

DMA B = 0.092 ACRES
PERVIOJS: N/A
IMPERVIOUS: 0.092 ACRES

DMA C = 0.023 ACRES
PERVIOJS: 0.023 ACRES
IMPERVIOUS: N/A

DMA D = 0.159ACRES
PERVIOJS: 0.003 ACRES
IMPERVIOUS: 0.156 ACRES



LEGEND:

EXIST. CONTOUR 2

FLOW DIRECTION

LANDSCAPING

Harris & Associates

N

0 20 40
Feet

Figure 3.6-1

Existing Drainage Management Areas

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LEGEND:

- FLOATING SILT CURTAINS WITH OIL BOOM
- LIMIT OF WORK
- SE-1 SILT FENCE
- TC-1 CONSTRUCTION ENTRANCE
- GRAVEL OR SAND BAGS
- FLOW PATH
- CONTRACTOR ACTIVITY AREA

CASQA BMPS TO BE CONSIDERED

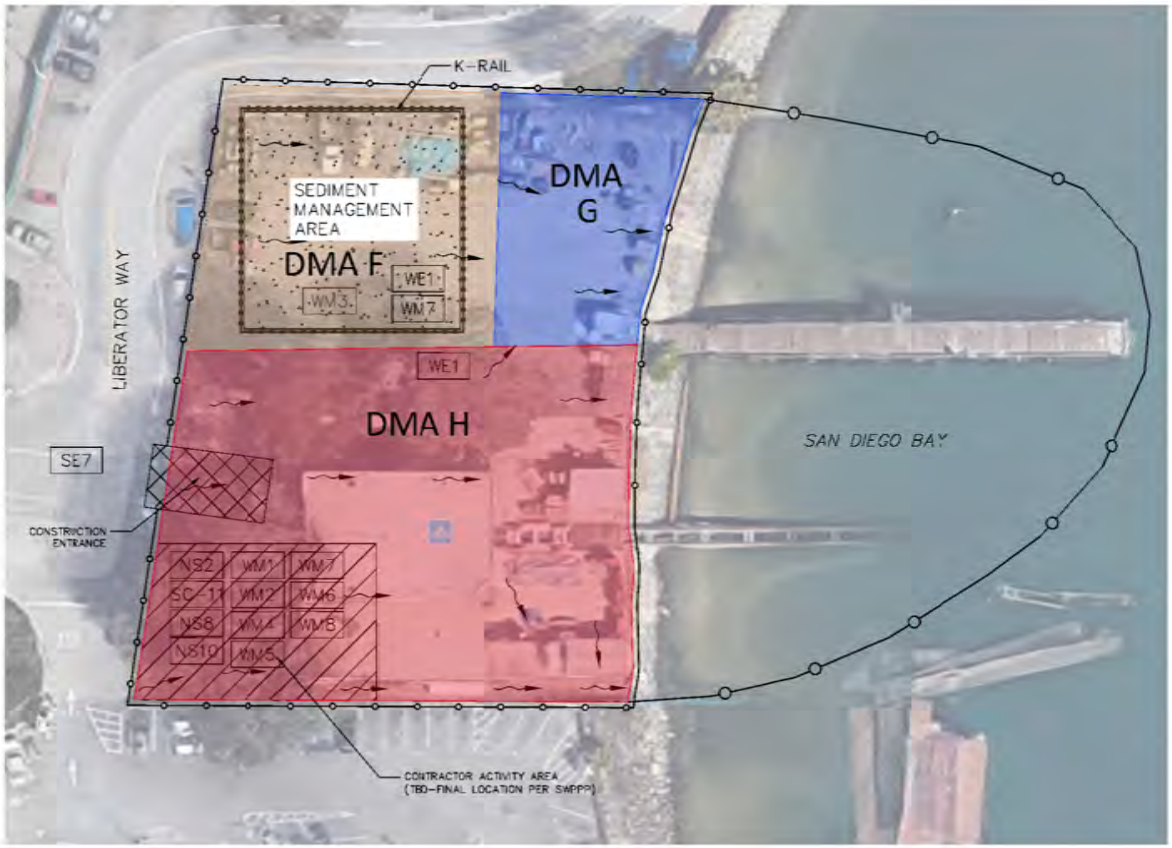
SE7	STREET SWEEPING AND VACUUMING
WE1	WIND EROSION CONTROL
NS8	VEHICLE AND EQUIPMENT CLEANING
NS10	VEHICLE AND EQUIPMENT MAINTENANCE
WM1	MATERIAL DELIVERY AND STORAGE
WM2	MATERIAL USE
WM3	STOCKPILE MANAGEMENT
WM4	SPILL PREVENTION AND CONTROL
WM5	SOLID WASTE MANAGEMENT
WM6	HAZARDOUS WASTE MANAGEMENT
WM7	CONTAMINATED SOIL MANAGEMENT
WM8	CONCRETE WASTE MANAGEMENT
NS2	DEWATERING OPERATIONS
SC-11	SPILL, PREVENTION, CONTROL AND CLEANUP

AREA CALCULATIONS:

DMA F = 0.2 ACRES
(100% IMPERVIOUS)

DMA G = 0.12 ACRES
(100% IMPERVIOUS)

DMA H = 0.45 ACRES
(100% PERVIOUS)



NOTES

1. BMPS SHOWN ARE RECOMMENDED. THE PROJECT SWPPP WILL TAKE PRECEDENCE.
2. STABILIZED CONSTRUCTION ENTRANCE IS SHOWN FOR REFERENCE ONLY.
3. CONTRACTOR TO MAINTAIN/REVISE EROSION CONTROL MEASURES AS NEEDED TO PROTECT AND PREVENT SEDIMENT FROM LEAVING THE SITE DURING VARIOUS STAGES/PHASES OF REMOVAL NOT SHOWN ON THE EROSION CONTROL PLAN. CONTRACTOR TO COMPLY WITH SWPPP AT ALL TIMES.
4. CONTRACTOR SHALL SWEEP THE PUBLIC ROAD IN THE VICINITY OF THE ENTRANCE AS OFTEN AS NECESSARY THROUGHOUT THE WORK DAY TO COMPLETE REMOVE ALL DEBRIS ASSOCIATED WITH PROJECT ACTIVITIES.
5. SEDIMENT MANAGEMENT AREA IS FOR PLACEMENT OF DREDGED MATERIAL.

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Figure 3.6-2

Demolition Conditions DMA and BMP

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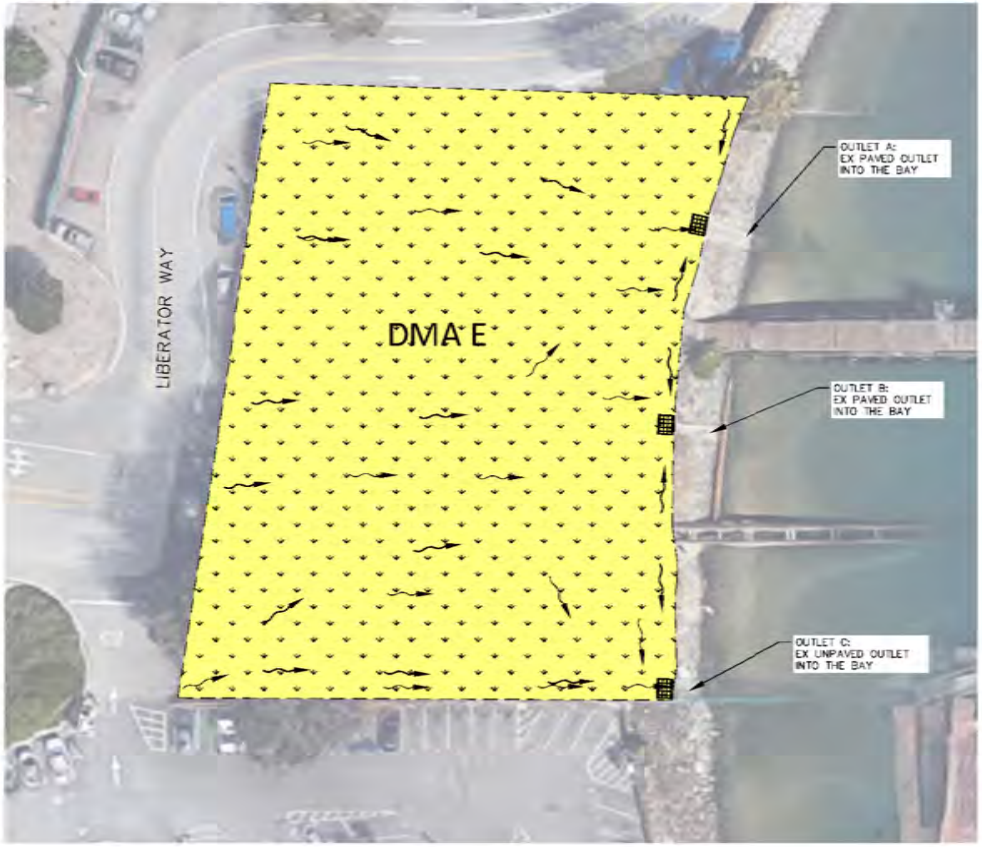
AREA CALCULATIONS:

DMA E = 0.775 ACRES
(100% PERVIOUS)



LEGEND:

FLOW DIRECTION

SEDIMENT TRAP

LANDSCAPED DROUGHT TOLERANT GRASS

Harris & Associates

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Feet

Figure 3.6-3

Post-Project DMA and BMP

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3.7 Noise

The following analysis is based on the Noise Technical Report prepared for the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project) by Harris and Associates in May 2020 and included as Appendix H, Noise Technical Report, to this Environmental Impact Report.

3.7.1 Environmental Setting

The California Department of Transportation defines "noise" as sound that is loud, unpleasant, unexpected, or undesired. Further, for the purposes of the following discussions, noise only exists if a source, path, and receiver are present. Sound pressure waves must be produced by a source and transmitted through a medium, such as air. The sound must be perceived by, registered by, or affect a receptor, such as an ear or noise-monitoring device (Caltrans 2013a).

3.7.1.1 Noise Basics

Quantification of Noise

Noise is commonly defined as unwanted sound. Sound pressure magnitude is measured and quantified using a logarithmic ratio of pressures, the scale of which gives the level of sound in decibels (dB). Sound pressures in the environment have a range of values, and the sound pressure level was developed to describe this range as a logarithm of sound pressure. The sound pressure level is the logarithm of the ratio of the unknown sound pressure to a reference quantity of the same kind. To account for the pitch of sounds and the corresponding sensitivity of human hearing to them, the raw sound pressure level is adjusted with an A-weighting scheme based on frequency that is stated in units of decibels (dBA). Typical A-weighted noise levels are listed in Table 3.7-1, Typical A-Weighted Noise Levels.

Table 3.7-1. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office

Table 3.7-1. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013a.
Note: dBA = A-weighted decibel

A given level of noise may be more or less tolerable depending on the sound level, duration of exposure, character of the noise sources, time of day when the noise is experienced, and activity affected by the noise. For example, noise that occurs at night tends to be more disturbing than that which occurs during the day because sleep may be disturbed. Additionally, rest at night is a critical requirement in the recovery from exposure to high noise levels during the day. In consideration of these factors, different measures of noise exposure have been developed to quantify the extent of the effects anticipated from these activities. For example, some indices consider the 24-hour noise environment of a location by using a weighted average to estimate its habitability on a long-term basis. Other measures consider portions of the day and evaluate the nearby activities affected by it as well as the noise sources. The most commonly used indices for measuring community noise levels are the equivalent energy level (Leq) and the community noise equivalent level (CNEL):

- **L_{eq}**, the equivalent energy level, is the average acoustical or sound energy content of noise, measured during a prescribed period, such as 1 minute, 15 minutes, 1 hour, or 8 hours. It is the decibel sound level that contains an equal amount of energy as a fluctuating sound level over a given period of time.
- **CNEL**, community noise equivalent level, is the average equivalent A-weighted sound level over a 24-hour period. This measurement applies weights to noise levels during evening and nighttime hours to compensate for the increased disturbance response of people at those times. CNEL is the equivalent sound level for a 24-hour period with a +5 dBA weighting applied to all sound occurring between 7:00 p.m. and 10:00 p.m. and a +10 dBA weighting applied to all sound occurring between 10:00 p.m. and 7:00 a.m. Similar to the CNEL, L_{dn}, the day-night average noise level, is a 24-hour average L_{eq} with a +10 dBA weighting applied to noise during the hours of 10:00 p.m. to 7:00

a.m. L_{dn} and CNEL are typically within one dBA of each other and, for most intents and purposes, are interchangeable.

The dB level of a sound decreases (or attenuates) exponentially as the distance from the source of that sound increases. For a single point source, such as a piece of mechanical equipment, the sound level normally decreases by approximately 6 dBA for each doubling of distance from the source. Sound that originates from a linear, or "line," source, such as a heavily traveled traffic corridor, attenuates by approximately 3 dBA per doubling of distance, provided that the surrounding site conditions lack ground effects or obstacles that either scatter or reflect noise. Noise from roadways in environments with major ground effects due to vegetation and loose soils may either absorb or scatter the sound yielding attenuation rates as high as 4.5 dBA for each doubling of distance. Other contributing factors that affect sound reception include meteorological conditions and the presence of human-made obstacles such as buildings and sound barriers.

Noise Effects

Noise has a significant effect on the quality of life. An individual's reaction to a particular noise depends on many factors such as the source of the noise, its loudness relative to the background noise level, and the time of day. The reaction to noise can also be highly subjective; the perceived effect of a particular noise can vary widely among individuals in a community. Because of the nature of the human ear, a sound must be approximately 10 dBA greater than the reference sound to be judged as twice as loud. In general, a 5 dBA change in community noise levels is clearly noticeable, and a 3 dBA change is the smallest increment that is perceivable by most receivers. Generally, 1 to 2 dBA changes are not detectable. Although the reaction to noise may vary, it is clear that noise is a significant component of the environment, and excessively noisy conditions can affect an individual's health and well-being. The effects of noise are often only transitory, but adverse effects can be cumulative with prolonged or repeated exposure. The effects of noise on a community can be organized into six broad categories: sleep disturbance, permanent hearing loss, human performance and behavior, social interaction or communication, extra-auditory health effects, and general annoyance.

Noise can also effect the behaviors of wildlife living under water. Ensonification can result in temporary and or permanent impacts to wildlife in the water and may result in impacts to marine organisms where sound pressure levels are elevated either acutely or repetitively. The potential impacts to marine life from noise impacts is discussed in Section 3.2, Biological Resources.

3.7.1.2 Environmental Vibration Basics

Vibration is defined as dynamic excitation of an elastic system, such as the ground or a structure, which results in oscillatory movement of the system (Caltrans 2013b). Typical human-made causes of earthborne vibration include trains and construction activities such as blasting, pile driving, and operation of heavy earthmoving equipment (FTA 2006). The resulting waves transmitted through

solid material are referred to as structure-borne or groundborne vibration. Vibration energy spreads out as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. The vibration levels inside a building depend on the vibration energy that reaches the building foundation and the characteristics of the building that affect propagation of the vibration through the building. A heavier building will typically experience lower vibration levels. The most common impact associated with vibration is annoyance resulting from the effects of vibration such as building movement, rattling of windows, shaking of items on shelves or walls, and rumbling sounds. In more extreme cases, building damage may occur. Because the effects of vibration elicit a greater response than the vibration itself, vibration is typically only perceptible to people inside buildings (FTA 2006).

Vibration levels are typically expressed in terms of the peak particle velocity (PPV) and root mean square amplitude, both in inches per second. PPV is most appropriate for evaluating building damage potential. Caltrans estimates that continuous vibration levels of less than 0.08 PPV and single-event vibration levels of less than 0.12 PPV do not result in damage to even the most fragile historic buildings (Caltrans 2013b). PPV does not account for human response to vibration. The root mean square amplitude is used to represent average vibration amplitude, which accounts for the time it takes for the human body to respond to vibration signals. The root mean square amplitude is also given in dB notation, referenced as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration relative to human response (FTA 2006).

The rumbling sound caused by the vibration of room surfaces is called groundborne noise. Like broadband noise, groundborne noise is measured in dBA. The sound level accompanying vibration is generally 25 to 40 dBA lower than the vibration velocity level in VdB. Due to the low-frequency components of groundborne noise, it sounds louder than broadband noise with the same noise level (FTA 2006). The background vibration velocity level in residential areas is usually around 50 VdB, which is below the 65 VdB threshold of human perception (FTA 2006).

3.7.1.3 Existing Noise Levels

The project site currently consists of a 5,500-square-foot building, a 165-foot pier, a 328-foot-long marine railway, concrete, asphalt paving, utilities, and support structures. Currently, the building is unoccupied, and the marine terminal is not in use. The project site does not contain significant noise-generating sources. The primary existing sources of noise in the vicinity of the project site are boat activity in the adjacent marina, vehicular traffic on local roads, and aircraft traffic associated with the San Diego International Airport (SDIA).

Transportation Noise Sources

Aviation

The nearest airport to the project site is the SDIA, approximately 0.2 mile north of the site. The SDIA is owned and operated by the San Diego County Regional Airport Authority. The SDIA served approximately 225,058 annual operations in 2018 (SDCRAA 2018). The project site is within the SDIA Airport Influence Area and Overflight Area and is within the 60–65 dBA CNEL noise contour (SDCRAA 2014).

Roadways

Vehicular traffic along roadways in the vicinity of the project site contributes to the overall noise environment on the project site. Major roadways that bound the proposed project include Harbor Island Drive, which runs in a north–south direction directly west of the project, and North Harbor Drive, which runs in an east–west direction approximately 0.1 mile north. Interstate 5 is the nearest major freeway, approximately 1.5 miles east of the project site (City of San Diego 2015). Noise levels from major streets, such as North Harbor Drive, typically range from 65 to 75 dBA CNEL at an adjacent receptor (City of San Diego 2007).

3.7.1.4 Noise-Sensitive Land Uses

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress or interference from excessive noise. These uses typically include residences, transient (hotel or motel) lodging, dormitories, hospitals, educational facilities, and libraries. Industrial and commercial land uses, including the project site, are generally not considered sensitive to noise. There is no residential development or zoned residential development in the vicinity of the project site. The closest NSLU to the project site is the Sheraton San Diego Hotel & Marina, approximately 0.1 mile west of the site. The hotel is considered noise sensitive during nighttime hours only because it provides facilities where people normally sleep (FTA 2018).

3.7.1.5 Vibration-Sensitive Land Uses

Land uses in which groundborne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations, are considered vibration sensitive (FTA 2018). The degree of sensitivity depends on the specific equipment that would be affected by the groundborne vibration. Excessive levels of groundborne vibration of either a regular or an intermittent nature can result in annoyance to residential uses, including hotels. There is no zoned residential development within the vicinity of the project site; however, the Sheraton San Diego Hotel & Marina is approximately 0.1 mile west of the site. The hotel is considered a vibration-sensitive use during nighttime hours only. Normal operations are not vibration sensitive, but excessive vibration would have the potential to

interfere with sleep. Rental car and public parking lots surround the project site directly north and south and are not considered vibration sensitive.

3.7.2 Regulatory Setting

Applicable federal and state regulations and local plans pertaining to noise are discussed below.

3.7.2.1 Federal

Federal Aviation Administration Standards

Enforced by the Federal Aviation Administration, Code of Federal Regulations, Title 14, Part 150, prescribes the procedures, standards, and method governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. Title 14 also identifies those land uses that are normally compatible with various levels of exposure to noise by individuals. The Federal Aviation Administration considers residential land uses to be compatible with exterior noise levels at or less than 65 dBA L_{dn}.

Federal Transit Administration Standards

Although the Federal Transit Administration (FTA) standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included in the FTA Transit Noise and Vibration Impact Assessment Manual (2018) are routinely used for projects proposed by local jurisdictions. The manual includes guideline criteria for assessing the impacts of groundborne vibration, as presented in Table 3.7-2, Federal Transit Administration Groundborne Vibration Impact Criteria.

Table 3.7-2. Federal Transit Administration Groundborne Vibration Impact Criteria

Land Use Category	Impact Levels (VdB)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
1: Buildings where vibration would interfere with interior operations	65	65	65
2: Residences and buildings where people normally sleep	72	75	80
3: Institutional land uses with primarily daytime uses	75	78	83

Source: FTA 2018.

Note: VdB = vibration decibel

Vibration levels are measured in or near the vibration-sensitive use.

[1] "Frequent Events" are defined as more than 70 vibration events of the same source per day.

[2] "Occasional Events" are defined as between 30 and 70 vibration events of the same source per day.

[3] "Infrequent Events" are defined as fewer than 30 vibration events of the same source per day.

Noise Control Act

The Noise Control Act of 1972 identifies uncontrolled noise as a danger to health and welfare, particularly for people in urban areas. Responsibility for noise control remains primarily a state

and local issue; however, the act established a means for effective coordination of federal research and noise control activities (USEPA 2019). The act includes a directive that the U.S. Environmental Protection Agency develops and publishes information on noise levels to protect public health and welfare with an adequate margin of safety. In 1974, the U.S. Environmental Protection Agency published the Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. The document identifies an interior noise level of 45 dBA L_{dn} in indoor residential areas to be adequate to protect indoor activity from interference and annoyance. An exterior noise level of 55 dBA L_{dn} was identified as the maximum noise level to avoid interference and annoyance in residential areas and other areas in which quiet is a basis for use. A maximum 24-hour average outdoor noise level of 70 dBA L_{eq} is recommended to prevent hearing loss (USEPA 1974).

3.7.2.2 Local

City of San Diego Noise Ordinance

The City's regulations with respect to noise are included in Chapter 5, Article 9.5, Noise Abatement and Control, of the City's Municipal Code. This chapter is referred to as the City's Noise Ordinance in this analysis. The purpose of the City's Noise Ordinance is to secure and promote the public health, comfort, convenience, safety, welfare, prosperity, peace, and quiet of the City and its inhabitants. Restrictions on operational noise and construction-related noise are discussed below. Generally, ordinances of the City and other municipalities do not apply to the District, which is an independent entity. However, for the purposes of CEQA noise analyses, the District uses applicable municipality noise ordinances to assess potentially significant impacts.

Operational Noise. Section 59.5.0401 of the City's Noise Ordinance establishes the exterior noise standards for various land uses. Noise may not exceed the applicable standard at any location in the City on or beyond the boundaries of the property on which the noise is produced. The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts. The City's exterior noise level limits are presented in Table 3.7-3, Exterior and Interior Noise Limits.

Table 3.7-3. Exterior and Interior Noise Limits

Land Use	Time of Day	1-Hour Average Sound Level
Single-Family Residential	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	50 45 40
Multi-Family Residential (up to a maximum density of 1/2000)	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	55 50 45
All Other Residential	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 55 50
Commercial	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 60 60
Industrial or Agricultural	Anytime	75

Source: City of San Diego 2020.

Construction Noise. Section 59.5.0404 of the City's Noise Ordinance regulates construction noise. The City's Noise Ordinance prohibits noise generated by construction activities between the hours of 7:00 p.m. and 7:00 a.m. of any day and on Sundays and holidays. However, the City's Noise Abatement and Control Administrator could permit construction at night where noise levels could be in excess of 75 dBA on limited basis where nighttime construction is deemed necessary and the construction is found to be in the public interest. Additionally, construction noise levels at or beyond the property lines of any property zoned residential are not permitted to exceed an average sound level greater than 75 dB during the 12-hour period from 7:00 a.m. to 7:00 p.m., Monday through Saturday.

3.7.3 Thresholds of Significance

According to Appendix G, a significant impact related to noise would occur if the project would (CEQA Guidelines, Section 15000 et seq.):

1. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Generate excessive groundborne vibration or groundborne noise levels.
3. For a project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

3.7.4 Method of Analysis

Impacts related to temporary increases in ambient noise levels from landside project remediation activities are assessed using estimates of sound levels from typical construction equipment

provided by the Federal Highway Administration in the Roadway Construction Noise Model (FHWA 2008). Noise levels from waterside activities are estimated based on noise level estimates for the Draft Environmental Impact Statement/Environmental Impact Report for the Berth 136-147 [TraPac] Container Terminal Project at the Port of Los Angeles (Port of Los Angeles 2007). The analysis assumes an attenuation rate of 6 dBA per doubling of distance from the source.

Groundborne vibration impacts are assessed based on the vibration impact criteria published by the FTA (2018) and use of typical vibration source levels provided by the FTA.

The potential for the proposed project to expose sensitive receptors to excessive noise levels from the SDIA was assessed by reviewing the SDIA's land use compatibility planning documents (SDCRAA 2014).

3.7.5 Project Impacts and Mitigation

The following sections address various potential impacts relating to noise that could result due to the implementation of the proposed project.

3.7.5.1 Threshold 1: Excessive Noise Levels

Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Impact Analysis

Landside Demolition

The first phase would include the demolition of the landside improvements. Site preparation, demolition, fill, and grading activities would require the use of an excavator, a backhoe, a loader, and a dozer. Noise levels from operation of this fleet were determined based on typical equipment noise levels established by the Roadway Construction Noise Model (FHWA 2008). The Roadway Construction Noise Model estimates that the average noise level on the project site during Phase 1 demolition activities would be approximately 82 A-weighted decibel (dBA) equivalent continuous sound level (L_{eq}) at 50 feet. Demolition activities would have the potential to exceed 75 dBA L_{eq} up to 115 feet from the construction area.

As discussed previously, Section 59.5.0404 of the City's Municipal Code prohibits noise generated by construction activities between the hours of 7:00 p.m. and 7:00 a.m. of any day and on Sundays and holidays. Additionally, construction noise levels at or beyond the property lines of any property zoned residential are not permitted to exceed an average sound level greater than 75 dB during the 12-hour period from 7:00 a.m. to 7:00 p.m. Monday through Saturday. There are no land uses zoned for residential use within 115 feet of the project site. The Sheraton San Diego Hotel & Marina, which the San Diego Unified Port District considers to be sensitive during

nighttime hours, would be more than 200 feet from landside activities and would not be exposed to noise levels in excess of 75 dBA L_{eq}. Additionally, construction would only occur during the allowable hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. Further, the project would include the following project design feature (PDF):

PDF-NO-1: **Nighttime Construction**. Nighttime construction would be prohibited. In addition, no lights would be used to illuminate the project site at night.

Waterside Demolition and Dredging

Construction activities on land during Phase 2 associated with the waterside demolition and dredging phase (such as sediment drying and removal via trucks) would be completed in approximately 4 months (October 2020 to January 2021) and would include the use of pumps, a loader, a dozer, and trucks. The Roadway Construction Noise Model estimates that average noise level on the project site from operation of this fleet would be approximately 82 dBA L_{eq} at 50 feet. Similar to Phase 1, impacts during landside activities during Phase 2 would be less than significant because noise levels at nearby receptors and construction hours would comply with the City's Noise Ordinance.

Noise levels from Phase 2 waterside activities are estimated based on the construction activity noise levels calculated for the Berth 136-147 [TraPac] Container Terminal Project in the Port of Los Angeles (Port of Los Angeles 2007). This project proposed similar construction activities, including the use of a barge and tugboat for waterside demolition and dredging. Similar to the proposed project, waterside demolition for the Berth 136-147 [TraPac] Container Terminal Project would involve the use of a crane, a barge, an excavator, a tugboat, and a vibratory hammer. Demolition noise levels were estimated to be 92 dBA L_{eq} at 100 feet. Dredging activities would involve a dredge, a barge, and a tugboat, similar to the proposed project, and generate noise levels up to 88 dBA L_{eq} at 100 feet.

Worst-case noise levels from waterside demolition activities would have the potential to exceed 75 dBA L_{eq} up to 750 feet from the project site. Dredging activities would have the potential to exceed 75 dBA L_{eq} up to 450 feet from the project site. There is no land zoned for residential use within 750 feet of the project site. The Sheraton San Diego Hotel & Marina would have the potential to be exposed to noise levels in excess of 75 dBA L_{eq} during waterside demolition and dredging activities. Construction would only occur during the allowable hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. In addition, the hotel is not on property designated as residential. Thus, the City's 75 dB 12-hour daytime construction noise standard is inapplicable to the project, and the City's Noise Ordinance would not be violated. Therefore, although construction may be an intermittent nuisance, it would not disturb sleep and would not violate the City's Noise Ordinance.

Phase 3 would require minimal construction equipment for grading and demolition to return the site to an undeveloped condition. Once the remediation is complete, no further operations would

occur on the site, other than occasional maintenance trips for monitoring activities. Although construction specifics are unknown, because construction activities would be less intense during this phase than the earlier phases, it can be assumed that construction would not violate the City's Noise Ordinance.

Traffic Noise

Construction activity traffic volumes were calculated as part of the air quality analysis for the proposed project (included in Appendix F, Air Quality Memorandum and Greenhouse Gas Emissions Analysis). Construction is anticipated to generate a worst-case maximum of 23 daily worker vehicle trips and a worst-case average of up to 139 truck trips per day during the 6-month project timeline. Construction traffic would exit the site onto Harbor Island Drive and proceed to North Harbor Drive, a major thoroughfare serving the Port of San Diego and the SDIA, related industrial uses, and downtown San Diego. In 2015, average daily trips on Harbor Island Drive from the traffic circle to North Harbor Drive was 17,800. The average daily trips on North Harbor Drive both east and west of Harbor Island Drive was more than 29,000 (SANDAG 2020). Vehicle traffic is the dominant noise source in the traffic area. The addition of approximately 100 vehicles daily intermittently over several months would have a negligible impact on ambient traffic noise levels since the roadways surrounding the project site are already highly traveled. Additionally, the project includes a noise project design feature (PDF-NO-1) requiring that construction take place during the day and would have no impact on nighttime noise levels.

Significance of Impact

Implementation of the project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies. As such, impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.7.5.2 Threshold 2: Excessive Groundborne Vibration

Would the project generate excessive groundborne vibration or groundborne noise levels?

Impact Analysis

The main concern associated with groundborne vibration from this type of project to the surrounding area is annoyance from operation of heavy construction equipment. There are no vibration-sensitive land uses in the vicinity of the project site. Similar to existing conditions, following construction, the uses proposed under the project would not generate groundborne

vibration. Typical vibration levels for construction equipment required for project construction are provided in Table 3.7-4, Vibration Source Levels for Construction Equipment. The nearest receptor that would potentially experience groundborne vibration is the Sheraton San Diego Hotel & Marina, which is a place where people normally sleep. Therefore, the Federal Transportation Administration threshold of 72 VdB is applicable. As shown in Table 3.7-4, vibration levels would be reduced to 72 VdB or below beyond 295 feet of landside construction activities. There are no vibration-sensitive receptors within 295 feet of the construction area. Additionally, the hotel would only be vibration-sensitive during nighttime hours. Construction would take place during the day and would not interfere with sleep. Therefore, the project would not generate excessive groundborne vibration or groundborne noise.

Table 3.7-4. Vibration Source Levels for Construction Equipment

Equipment	Approx. VdB at 25 Feet	Approx. VdB at 295 Feet[1]
Pile Driver	104	72
Large Bulldozer	87	55
Loaded Trucks	86	54
Small Bulldozer	58	26
Clam Shovel Drop	94	62

Source: FTA 2018.

Notes: VdB = vibration decibel

[1] Based on the formula VdB = VdB(25 feet) – 30log(d/25) provided by the FTA (2018).

Significance of Impact

Implementation of the proposed project would not generate excessive groundborne vibration or groundborne noise levels, and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.7.5.3 Threshold 3: Aircraft Noise

For a project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Impact Analysis

The project site is within the SDIA Influence Area and Overflight Area and is within the 60–65 dBA CNEL noise contour (SDCRAA 2014). However, the proposed project does not propose any structures for permanent or temporary human occupancy. Additionally, the project does not include any components that would interfere with air traffic patterns. Exposure of workers to

overflight noise would occur during construction activities; however, exposure would be intermittent and limited to a few months or weeks. Workers would also likely be wearing ear protection required for equipment operation.

Significance of Impact

The proposed project is within the SDIA Influence Area. However, the project would not expose people residing or working in the project vicinity to excessive noise levels. As such, impacts related to aircraft noise would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.7.6 Cumulative Impacts

3.7.6.1 Cumulative Threshold 1: Excessive Noise Levels

Construction noise impacts are localized in nature because they are limited to the construction site where construction equipment is operating. A cumulative impact would only occur if construction of multiple cumulative projects would occur simultaneously. Following remediation activities, the project site would be passive and would not contribute to ambient noise levels. Remediation activities would have the potential to exceed 75 dBA L_{eq} up to 750 feet from remediation activities. The nearest cumulative project described in Table 3-1, Cumulative Projects, in Chapter 3, Environmental Analysis, is 0.2 mile from the site. Due to distance, construction associated with the proposed project would not result in noise levels that would combine with construction noise levels from cumulative development to exceed noise standards at the same receptors at the same time. Additionally, there are no properties zoned for residential use in the area surrounding the project site, and construction would take place during the hours allowed under the City's Noise Ordinance. A significant cumulative impact would not occur. Therefore, implementation of the proposed project would not result in a cumulatively considerable contribution to a significant cumulative impact.

3.7.6.2 Cumulative Threshold 2: Excessive Groundborne Vibration

Similar to noise effects, vibration is a localized phenomenon and is progressively reduced as the distance from the source increases. Therefore, the area of projects that would be considered for the vibration cumulative analysis would only be those projects in proximity to the project site. The closest cumulative project to the site is approximately 0.2 mile from the site. The proposed project would result in vibration levels that would not be a nuisance beyond 295 feet of remediation activities. Therefore, vibration generated by the proposed remediation activities and construction at other project sites would not be expected to combine to generate cumulative vibration impacts.

Following remediation, the project site would not be a source of vibration. Therefore, a significant cumulative vibration impact would not occur.

3.7.6.3 Cumulative Threshold 3: Aircraft Noise

No sensitive receptors would be exposed to excessive noise levels from aviation as a result of the proposed project. Impacts related to nuisance noise from overflights are site specific and are not cumulative in nature. Therefore, a cumulative impact related to aviation noise would not occur.

3.7.7 Conclusion

Noise levels generated at nearby receptors during daytime construction hours during Phase 1, Phase 2, and Phase 3 would comply with the City's Noise Ordinance. In addition, the addition of approximately 100 vehicles daily intermittently during the 6-month construction timeline would have a negligible impact on ambient traffic noise levels. Additionally, the project includes PDF-NO-1, requiring that construction take place during the day, and would have no impact on nighttime noise levels. Therefore, implementation of the project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies. Impacts would be less than significant. In addition, due to distance, construction associated with the proposed project would not result in noise levels that would combine with construction noise levels from cumulative development to exceed noise standards at the same receptors at the same time and a significant cumulative impact would not occur. Therefore, implementation of the proposed project would not result in a cumulatively considerable contribution to a significant cumulative impact.

Groundborne vibration could result from landside demolition activities. However, construction equipment would not result in vibration levels that would exceed the FTA thresholds. Therefore, implementation of the proposed project would not generate excessive groundborne vibration or groundborne noise levels and would not expose people residing or working in the project vicinity to excessive noise levels. Impacts would be less than significant. In addition, vibration generated by the proposed remediation activities and construction of cumulative projects would not be expected to combine to generate cumulative vibration impacts. Following remediation, the project site would not be a source of vibration. Therefore, a significant cumulative vibration impact would not occur.

The proposed project is within the SDIA Influence Area. However, the project would not expose people residing or working in the project vicinity to excessive noise levels. Impacts would be less than significant. In addition, impacts related to nuisance noise from overflights are site specific and are not cumulative in nature. Therefore, a cumulative impact related to aviation noise would not occur.

3.8 Tribal Cultural Resources

This section describes the existing conditions related to tribal cultural resources (TCRs) on the project site and evaluates the potential for impacts to TCRs due to implementation of the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project). TCRs are defined as "sites, features, places, cultural landscapes, sacred places, and objects" that are of cultural value to a California Native American tribe and that are either on or determined eligible for inclusion on the California Register of Historical Resources or a local register of historic resources. In addition, a resource determined by a lead agency, at its discretion and supported by substantial evidence, to be significant under the criteria set forth in subdivision (c) of the California Public Resource Code, Section 5024.1, is a TCR under the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21074).

3.8.1 Environmental Setting

The proposed project is on Harbor Island, which was created in 1961 from dredge materials from the San Diego Bay harbor dredging. Harbor Island was developed shortly thereafter. No known archaeological resources exist on the project site.

3.8.2 Regulatory Setting

The treatment of TCRs is governed by state laws and guidelines. There are specific criteria for determining whether prehistoric and historic sites or objects are significant or protected by law. The state laws and guidelines for protecting TCRs are summarized below.

3.8.2.1 State

Assembly Bill 52

Assembly Bill (AB) 52 (Chapter 532, Statutes of 2014) establishes a formal consultation process for California Native American tribes as part of CEQA and equates significant impacts on TCRs with significant environmental impacts (California Public Resources Code, Section 21084.2). California Public Resources Code, Section 21074, defines TCRs as follows:

- Sites, features, places, sacred places, and objects with cultural value to descendant communities or cultural landscapes defined in size and scope that are:
  - Included in or eligible for listing in the California Register of Historical Resources
  - Included in a local register of historic resources
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of California Public Resources Code, Section 5024.1

Sacred places can include Native American sanctified cemeteries, places of worship, religious or ceremonial sites, and sacred shrines. In addition, both unique and non-unique archaeological resources, as defined in California Public Resources Code, Section 21083.2, can be TCRs if they meet the criteria detailed above. The lead agency relies on substantial evidence to make the determination that a resource qualifies as a TCR when it is not already listed in the California Register of Historical Resources or a local register.

AB 52 defines a "California Native American tribe" as a Native American tribe in California that is on the contact list maintained by the Native American Heritage Commission (California Public Resources Code, Section 21073). Under AB 52, formal consultation with tribes is required prior to determining the level of environmental document if a tribe has requested to be informed by the lead agency of proposed projects and if the tribe, upon receiving notice of the project, accepts the opportunity to consult within 30 days of receipt of the notice. AB 52 also requires that consultation, if initiated, address project alternatives and mitigation measures for significant effects if specifically requested by the tribe. AB 52 states that consultation is considered concluded when the parties agree to measures to mitigate or avoid a significant effect on TCRs or when either the tribe or the agency concludes that mutual agreement cannot be reached after making a reasonable, good-faith effort. Under AB 52, any mitigation measures recommended by the agency or agreed on with the tribe may be included in the final environmental document and in the adopted mitigation monitoring program if the mitigation measures were determined to avoid or lessen a significant impact on a TCR.

If the recommended measures are not included in the final environmental document, then the lead agency must consider the four mitigation methods described in California Public Resources Code, Section 21084.3(e). Any information submitted by a tribe during the consultation process is considered confidential and is not subject to public review or disclosure. It will be published in a confidential appendix to the environmental document unless the tribe consents to disclosure of all or some of the information to the public.

California Health and Safety Code, Section 7050.5, and California Public Resources Code, Section 5097.9

California Health and Safety Code, Section 7050.5, addresses the protection of human remains discovered in any location other than a dedicated cemetery and makes it a misdemeanor for any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law, except as provided in California Public Resources Code, Section 5097.99. It further states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains will occur until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to the provisions concerning investigation of the circumstances, manner, and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person

responsible for the excavation, or to their authorized representative, in the manner provided in California Public Resources Code, Section 5097.98. If the county coroner determines that the remains are not subject to their authority and if the county coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, they shall contact, by telephone and within 24 hours, the Native American Heritage Commission. Whenever the Native American Heritage Commission receives notification of a discovery of Native American human remains from the county coroner, the agency shall immediately notify the most likely decadents if it believes them to be the most likely descendants of the deceased Native American. The most likely descendants may inspect the site of the discovery and make recommendations on the removal or reburial of the remains.

California Government Code, Sections 6254(r) and 6254.10

Sections 6254(r), and 6254.10 of the California Government Code were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

California Register of Historical Resources

CEQA requires public agencies to evaluate the implications of their projects on the environment and includes significant historic resources as part of the environment. According to CEQA, a project that causes a substantial adverse change in the significance of a historic resource or a unique archaeological resource has a significant effect on the environment (CEQA Guidelines 15064.5; California Public Resources Code, Section 21083.2). The term "historic resource" includes but is not limited to any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California (California Public Resources Code, Section 5020.1[j]). Historic resources may be designated as such through three different processes:

1. Official designation or recognition by a local government pursuant to local ordinance or resolution (California Public Resources Code, Section 5020.1[k])
2. A local survey conducted pursuant to California Public Resources Code, Section 5024.1(g)
3. Listing in or eligibility for listing in the National Register of Historic Places (California Public Resources Code, Section 5024.1[d][1])

To be eligible for listing in the California Register of Historical Resources, a building must satisfy at least one of the following four criteria:

- **Criterion 1.** It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States
- **Criterion 2.** It is associated with the lives of persons important to local, California, or national history
- **Criterion 3.** It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values
- **Criterion 4.** It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation

3.8.3 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would be considered to have a significant impact related to TCRs if the project would (CEQA Guidelines, Section 15000 et seq.):

1. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code, Section 21074, as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
    a. Listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code, Section 5020.1(k), or
    b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of the Public Resources Code, Section 5024.1. In applying the criteria set forth in subdivision (c) of the Public Resources Code, Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

3.8.4 Method of Analysis

Pursuant to California Public Resources Code, Section 21080.3.1 (AB 52), California Native American tribes traditionally and culturally affiliated with the project site can request notification of projects in their traditional cultural territory. The San Diego Unified Port District's (District) has not received a request for project notification from any local Native American tribes. Additionally, the District has not received a specific request from a tribe to be notified on the project.

3.8.5 Project Impacts and Mitigation

The following sections address potential impacts relating to TCRs that could result due to the implementation of the proposed project.

3.8.5.1 Threshold 1: Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code, Section 21074, as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a. Listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code, Section 5020.1(k)?

Phase 1 involves the demolition of the existing landside structure. There are no historic resources on site that have cultural value to a California Native American tribe or contribute to a TCR.

b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of the Public Resources Code, Section 5024.1. In applying the criteria set forth in subdivision (c) of the Public Resources Code, Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Impact Analysis

The proposed project is on Harbor Island, which was created in 1961 from harbor dredging and was developed shortly thereafter. Although archaeological sites are known to exist in greater County of San Diego, no known archaeological resources exist on the project site, and the fact that Harbor Island is human-made alleviates the possibility that archaeological sites exist. Because the project site is on dredged fill, there is very little to no potential for archaeological resources or TCRs to be unearthed during construction activities.

Pursuant to California Public Resources Code, Section 21080.3.1 (AB 52), California Native American tribes traditionally and cultural affiliated with a project site can request notification of projects in their traditional cultural territory. At this time, no California Native American tribes have requested consultation for projects subject to CEQA within the District jurisdiction. The District has determined that no impacts would occur on TCRs because of the lack of substantial evidence of meeting the criteria set forth in subdivision (c) of California Public Resources Code, Section 5024.1.

Significance of Impact

Implementation of the proposed project would not cause a substantial adverse change in the significance of a TCR and less than significant impact would occur.

Mitigation Measures

No mitigation measures are required.

3.8.6 Cumulative Impacts

The following sections address cumulative impacts relating to TCRs that could result due to the implementation of the proposed project.

3.8.6.1 Cumulative Threshold 1: Tribal Cultural Resources

Cumulative projects in the San Diego region have the potential to result in a cumulative impact associated with the loss of TCRs through development activities that could cause a substantial adverse change in the significance of a TCR. These sites may contain artifacts and resources associated with tribal cultural values and religious beliefs. Any cumulative projects that involve ground-disturbing activities have the potential to result in significant impacts on TCRs. Therefore, the cumulative destruction of significant TCRs from planned construction and development projects in the San Diego region would be cumulatively significant. Present and future projects would be required to be consistent with state and federal regulations to include tribal consultation processes.

No known TCRs exist at the project site. Because the project site is on dredged fill, there is very little to no potential for TCRs to be unearthed during construction activities. Therefore, the proposed project would not contribute to cumulatively significant impacts to TCRs.

3.8.7 Conclusion

The project proposes the demolition of the Marine Terminal Facilities and associated remediation, which includes the demolition of the existing structures. There are no known TCRs on the project site. In addition, the project site is on dredged fill taken from San Diego Bay, which limits its ability to contain TCRs. Furthermore, no substantial subsurface grading would occur during the landside portion of the project. Therefore, there is very little to no potential for TCRs to be unearthed during construction activities, resulting in a less than significant impact to TCRs. In addition, the proposed project would not result in a cumulative impact or contribute to cumulatively significant impacts to TCRs.

Chapter 4 Additional Consequences of Project Implementation and Effects Found Not to Be Significant

4.1 Introduction

This chapter addresses the potential for additional consequences related to the implementation of the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project), pursuant to California Environmental Quality Act (CEQA) Guidelines, Sections 15128 and 15126.2(e). Specifically, this chapter (1) discusses growth-inducing impacts of the proposed project, which pertain to ways in which the proposed project could promote either direct or indirect growth, and (2) summarizes the environmental effects of the project that were determined not to be significant during the initial environmental review process.

4.2 Growth-Inducing Impacts

CEQA Guidelines, Section 15126.2(e), requires that an environmental impact report discuss the ways in which a proposed project could directly or indirectly foster economic development, population growth, or additional housing and how that growth would affect the surrounding environment. Direct growth inducement would result if a project, for example, involved construction of new housing. Indirect growth might occur if a project were to establish substantial new permanent employment opportunities that would stimulate the need for additional housing, utilities, and public services. Similarly, a project would indirectly induce growth if it would remove an obstacle to additional development, such as removing a constraint on a required public service or utility. A project proposing to expand water supply capabilities in an area where limited water supply has historically restrained growth would be considered growth inducing.

This section discusses the characteristics and consequences of the proposed project that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. However, the following analysis does not assume that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment (CEQA Guidelines, Section 15126.2[d]).

4.2.1 Economic Growth

One criterion by which growth inducement can be measured involves economic growth. Economic growth considerations range from a demand for temporary and permanent employees to an increase in the overall revenue base for an area to a new demand for supporting services such as retail, restaurant, and entertainment uses. The project would not have the potential to foster growth through the creation of new jobs.

In the short term, the proposed project would induce economic growth by introducing temporary employment opportunities associated with demolition of the project. In addition to the direct short-term employment, these workers would likely patronize businesses in the project vicinity and the larger San Diego region, resulting in indirect economic benefits as well.

4.2.2 Population Growth

Population growth is typically attributable to the development of housing, which would increase the City of San Diego's permanent population. The project would not involve the development of housing. The project would include phased demolition to remove existing structures and to return the project site to a vacant, undeveloped site. The project would result in the creation of temporary employment during the 6-month project timeline. Construction personnel is anticipated to be sourced locally from the County of San Diego. Thus, the proposed project would not cause significant numbers of people to relocate to the area solely for the purpose of being close to the project site for employment purposes. As such, additional indirect growth beyond what the proposed project would yield as a result of the proposed project.

4.3 Effects Found Not to Be Significant

An Initial Study (included in Appendix A, Notice of Preparation and Initial Study) was prepared in accordance with CEQA Guidelines, Section 15063(c), during the environmental scoping process. The Initial Study determined that no impacts or less than significant impacts would lead to the environmental effects listed in Appendix G of the CEQA Guidelines associated with the following resources:

- Aesthetics
- Agriculture and Forestry Resources
- Energy
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Transportation
- Utilities and Service Systems
- Wildfire

In accordance with CEQA Guidelines, Section 15128, a brief justification regarding the effects found not to be significant (e.g., the resource topics not analyzed in Chapter 3, Environmental Analysis) is provided under each subheading below.

4.3.1 Aesthetics

Scenic Vistas

The project proposes landside demolition and waterside remediation of the Marine Terminal Facilities (MTF). Upon completion of the project, no new structures would remain on the project site; therefore, the project would have no permanent adverse effects on an existing scenic vista.

Scenic Quality

In addition, the project is approximately 3.5 miles from the San Diego–Coronado Bay Bridge (State Route 75), which is a state-designated scenic highway. Upon completion of the remediation activities, the site would be returned to its original undeveloped state. The site would be revegetated with noninvasive, drought-tolerant vegetation, and no new structures would be constructed. Therefore, the project would not result in any permanent damages to scenic resources or conflict with any regulations governing scenic quality.

Light and Glare

No nighttime construction activities are proposed. The existing light sources that currently illuminate the project site at night would be removed, and once construction is completed, no permanent light sources would remain on the project site. Therefore, the project would not create a new substantial light or glare that would adversely affect daytime or nighttime views in the area.

4.3.2 Agriculture and Forestry Resources

Important Farmland

The project site is entirely in the San Diego Unified Port District (District), which is classified as Urban and Built-Up Land and Other Land according to the California Department of Conservation's San Diego County Important Farmland 2016 Map (DOC 2016). These classifications do not contain agricultural uses or areas designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, there would be no impact to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, and there is no potential for actions to convert Farmland resources to non-agricultural uses.

Williamson Act Contracts

The project site is not zoned for agricultural use, and no Williamson Act contract exists for the site. Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and no impacts related to agricultural resources would occur.

Conflict with Forest Land Zoning

In addition, the project site is classified as Urban and Built-Up Land and Other Land and is not zoned for forest use, timberlands, or timberland zoned Timberland Production (DOC 2016). Therefore, the proposed project would not conflict with existing zoning as defined as forest land, timberlands, or timberland zoned Timberland Production because no land zoned as forest land or timberland exists within the boundaries of the project site.

Conversion of Forest Land

Implementation of any of the project elements would not result in a loss of forest land or involve the conversion of forest land to any other uses.

Conversion of Agricultural Use to Non-Agricultural Use

The project would not involve any changes to the existing environment that, because of their location or nature, could result in the conversion of Farmland to non-agricultural use or forest land to non-forest use. Therefore, no impact would occur.

4.3.3 Energy

Wasteful, Inefficient, or Unnecessary Consumption of Energy Resource

The proposed project involves landside demolition and waterside remediation of MTF. Project construction would primarily consume diesel fuel through the operation of heavy-duty construction equipment, dredging activities, and debris hauling; gasoline associated with worker commutes; and minor amounts of electricity associated with the operation of electrically powered construction equipment. Construction-related energy use would represent a small demand on local and regional fuel and electricity supplies that could be easily accommodated by fuel suppliers. This demand for fuel would have no noticeable effect on peak or baseline demands for energy. Therefore, construction or operation of the proposed project would not result in a wasteful, inefficient, and unnecessary use of direct or indirect energy, and there would be no impact.

Conflict with Applicable Plan

After the demolition, the project site would remain vacant, and no additional structures would be constructed on site that would require a further demand for energy. Therefore, construction or

operation of the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and there would be no impact.

4.3.4 Geology and Soils

Risk of Loss, Injury, or Death

The project site is in a seismically active region of Southern California. The project does not propose any new structures and would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving fault rupture, or result in any impacts from seismic ground shaking. As such, impacts would be less than significant.

The project site has a high potential for liquefaction. However, the proposed project does not propose the construction of any structures and would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic-related ground failure including liquefaction, and impacts would be less than significant.

Geologic mapping does not indicate the presence of mapped landslides on the project site. Additionally, landslides were not observed on or adjacent to the project. Therefore, the project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides, and impacts would be less than significant.

Soil Erosion or Loss of Topsoil

The surface deposits and near-surface deposits on the project site are mapped as fill, bay deposits, and old paralic deposits. Alterations may temporarily result in increased erosion and siltation if flows are substantially increased or routed to facilities or channels without the capacity to carry the additional flow. During landside demolition activities, the project would implement best management practices that reduce the potential for soil erosion to occur.

Once the sediment has been dredged and disposed of, the sediment management area would be removed. The asphalt and concrete paving areas would be demolished with the exception of a retaining wall above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to allow stormwater infiltration to minimize erosion. The existing shoreline riprap and concrete spillways would remain, and the site would be graded so that excess water from storm events would be directed to the spillways. Existing mature trees would be left undisturbed, and noninvasive, drought-tolerant vegetation would be planted. No new impervious surfaces would be added. Therefore, the project would be not result in substantial soil erosion or loss of topsoil, and impacts would be less than significant.

Unstable Soils

Landslides are not anticipated to impact the project site. In addition, upon completion of the project, no new structures would be constructed. No adverse risks to life or property associated with the potential for seismic settlement or liquefaction would occur, and impacts would be less than significant.

Expansive Soils

The surface and near-surface deposits on the project site have moderate potential for expansion as defined in Table 18-1-B of the Uniform Building Code (1994). However, the project is a remediation project and would not result in substantial direct or indirect risks to life or property. No impact would occur.

Septic Tanks

The proposed project would not entail the use of septic tanks or alternative disposal systems, and no proposed septic tanks or alternative wastewater disposal systems are planned for the project site. No impact would occur.

Paleontological Resources

The project site is underlain by the Bay Point Formation, which is a near-shore marine sedimentary deposit. However, the project does not propose any grading that would approach 1,000 cubic yards of cut or 10 feet of depth. Therefore, impacts to paleontological resources or unique geologic features would be less than significant.

4.3.5 Hazards and Hazardous Materials

Routine Transport, Use, or Disposal of Hazardous Materials

The proposed project would use heavy equipment for demolition and dredging activities. Construction-related hazardous materials, including fuel, solvents, paints, oils, and grease, would be used during project construction. Any accidental release of these materials due to spills or leaks would be cleaned up in the normal course of business, which would be consistent with the Resource Conservation and Recovery Act; U.S. Department of Transportation Hazardous Materials Regulations (Code of Federal Regulations, Title 49); California Health and Safety Code; and San Diego County Code, Title 6, Division 8. Upon completion of remediation activities, the project site would be returned to its original undeveloped state and would not involve the use of hazardous materials. Therefore, impacts associated with the potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials would be less than significant.

Emit Hazardous Emissions

No existing public schools have been identified within 0.25 mile of the project site. As such, the project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. Therefore, impacts would be less than significant.

Emergency Response Plan

The project proposes remediation of the MTF. Upon completion of the remediation, the project site would be returned to its original undeveloped state. No building or uses would remain on the property. No change to emergency access to the project site would occur, and the project would not impair an adopted emergency response plan or emergency evacuation plan. Therefore, no impact would occur.

Wildland Fire

The proposed project is in a local responsibility non-Very High Fire Hazard Severity Zone according to the California Department of Forestry and Fire Protection's Very High Fire Hazard Severity Zones Map of San Diego County (CAL FIRE 2009). In addition, no building or uses that would expose the project or structures to risk of loss, injury, or death involving wildland fires would remain on the property. Therefore, no impact would occur.

4.3.6 Hydrology and Water Quality

Groundwater

No groundwater would be withdrawn as part of the project. The proposed project would demolish existing structures on the site. No new impervious surfaces would be added. The project would not interfere with groundwater recharge. Therefore, the project would not deplete groundwater supplies, and no impact would occur.

Substantially Alter Existing Drainage Pattern

Land-disturbing activities associated with the proposed project, such as vegetation clearing, grading, and demolition, could result in the localized alteration of drainage patterns and temporarily increase runoff rates in the construction area. The proposed demolition of the landside facilities would reduce the amount of impervious surface currently existing on the project site and would not create an increase in runoff. Once sediment has been dredged and disposed of, the sediment management area would be removed. The asphalt and concrete paving areas would be demolished with the exception of a retaining wall above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to allow stormwater to be absorbed and to minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain, and the site would be graded so that excess water from storm events is directed to those spillways and the

spillways have the capacity to accommodate the existing runoff. Therefore, impacts would be less than significant.

4.3.7 Land Use and Planning

Physically Divide Community

The project site is in the East Basin Industrial Subarea of the certified Port Master Plan Planning District 2 (Harbor Island/Lindbergh Field), which is adjacent to San Diego Bay (District 2017). Project landside and waterside demolition and waterside remediation would occur within the existing project boundaries. No component of the project would introduce a barrier or division to, or otherwise result in a conflict with, the surrounding commercial or industrial development or any other established community. As such, the project would not physically divide an established community, and no impact would occur.

Conflict with Land Use Plan

According to the Port Master Plan, the project site is designated as Industrial Business Park, which allows for a wide range of industrial and business uses sited in development (District 2017).

Upon completion of remediation, the site would return to an undeveloped state. Therefore, the project would not conflict with the certified Port Master Plan or California Coastal Act, and no impacts would occur.

4.3.8 Mineral Resources

Known Mineral Resource

The project site is not known to contain mineral resources that would be of value to the region or state, and is not considered to have locally important mineral resources. Implementation of the proposed project would not result in a loss of availability of locally important minerals or minerals that would be of value to the region or state. Therefore, no impact would occur.

4.3.9 Population and Housing

Induce Population Growth

The project proposes remediation of MTF and would not involve the development of new homes or businesses that would directly or indirectly induce substantial population growth. Therefore, no impact would occur.

Displace People

The project does not include the extension of roads or other infrastructure that would indirectly induce substantial population growth. Further, the project is on an industrial waterfront. There are

no homes within the vicinity of the project that would be displaced. As such, the project would not induce substantial unplanned population growth or displace substantial numbers of existing people or housing, and no impact would occur.

4.3.10 Public Services

Government Facilities

The proposed project includes the demolition and remediation of the MTF and would not result in an increase in operational capacity or number of employees for fire or police protection services, and is in proximity of reasonable response times for emergency services. As such, the project would not result in substantial adverse physical impacts associated with fire and police protection.

The proposed project does not involve the construction of housing units or other employment-generating development that would create the demand for new school facilities, parks, or other public facilities. Therefore, the project would not result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, and no impact would occur.

4.3.11 Recreation

Increase the Use of Existing Park or Construction of New Parks

The proposed project does not involve the construction of housing units or other employment-generating development that would increase the use or deterioration of existing public parks or recreational facilities, or include recreational facilities or require the expansion of recreational facilities. The project proposes the demolition and remediation of the existing MTF in an industrial waterfront area and would not impact public parks and recreational facilities. Therefore, no impact would occur.

4.3.12 Transportation

Conflict with Plan or Program

The project proposes the landside and waterside demolition and waterside remediation of the existing MTF. Demolition debris would be transported via haul truck trips, which would not have a significant impact to the capacity of the existing circulation system. There would be minimal project construction traffic, which would not interfere with or decrease the performance of public transit, bicycle, or pedestrian facilitates in the area surrounding the project site. Therefore, the project does not conflict with an applicable circulation system plan, ordinance, or policy, and impacts to transportation would be less than significant.

Vehicle Miles Traveled

Further, the project would not result in an increase in operational capacity or number of employees or vehicle miles traveled and would be consistent with CEQA Guidelines, Section 16064.3(b). Therefore, impacts would be less than significant.

Hazards and Emergency Access

In addition, the proposed project does not have the potential to increase traffic hazards to motorists or create incompatible traffic related use and would allow for adequate emergency access. Therefore, the project would not substantially increase hazards or result in inadequate emergency access onto or within the site, and no impact would occur.

4.3.13 Utilities and Service Systems

New or Expanded Utilities

The project proposes the demolition and remediation of the existing MTF. Upon completion of remediation activities, the site would be returned to its original undeveloped state, which would include revegetation with noninvasive, drought-tolerant vegetation. Further, the project does not require or result in the relocation or construction of new or expanded water, wastewater treatment, electric power, natural gas, or telecommunication facilities, and no impact would occur.

The project proposes the demolition of the existing Marine Terminal Building, waterside pier, and marine railway. Demolition debris would be transported for disposal via haul truck trips to an off-site disposal location. It is estimated that 100 percent of the removed asphalt and steel would be recycled, and 50 percent of the mixed construction debris would be recycled.

Generate Solid Waste

The waterside remediation includes the dredging of approximately 3,599 cubic yards of contaminated sediments. Dredged materials would be disposed of at an approved Class III (or Class II) landfill. The nearest landfill is the Otay Landfill, which has a maximum throughput of 6,700 tons of solid waste per day and has a remaining capacity of 21,194,008 cubic yards. Due to the remaining capacity, the Otay Landfill would be able to accommodate the project's solid waste disposal needs, and impacts would be less than significant.

4.3.14 Wildfires

Impair Emergency Response

Emergency access to the project site would remain the same through the duration of the project, and the site would remain accessible by water from San Diego Bay and Harbor Island Drive. Implementation of the project would not impair an adopted emergency response plan or emergency

evacuation plan. Furthermore, the project would not result in the temporary or permanent closures of public roadways or driveways within City or District jurisdiction.

Expose People to Risk

The proposed project site is in an area of local responsibility non-Very High Fire Hazard Severity Zone according to the California Department of Forestry and Fire Protection's Very High Fire Hazard Severity Zones Map of San Diego County (CAL FIRE 2009). Upon completion of the project, the site would be returned to its original undeveloped state, and no buildings or uses would remain on site. Therefore, the proposed project would not expose project occupants to wildfire pollutants or require the installation or maintenance of any associated infrastructure that may exacerbate fire risks. In addition, the proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Therefore, no impact would occur.

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Chapter 5 Alternatives to the Proposed Project

5.1 Introduction

In accordance with California Environmental Quality Act (CEQA) Guidelines, Section 15126.6(c), this chapter describes a range of reasonable alternatives that could feasibly attain the majority of the project objectives while avoiding or substantially reducing one or more of the project's significant impacts. The primary purpose of this chapter is to inform decision makers and the general public of potential alternatives to implementing the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project) and to analyze these alternatives to determine the environmentally superior alternative.

Three alternatives to the project are analyzed in this chapter:

- Alternative 1: No Project/No Remediation
- Alternative 2: Remediation of Waterside Portions of Project Site Only
- Alternative 3: Reuse of Marine Terminal Building

5.2 Requirements for Alternatives Analysis

The CEQA Guidelines require an environmental impact report (EIR) to analyze potential alternatives to the project or alternative locations for the project that could feasibly accomplish most of the basic project objectives and could avoid or substantially lessen one or more significant effects. The alternatives must include a No Project Alternative, along with a range of alternatives governed by a "rule of reason," meaning only those alternatives necessary to permit a reasoned choice. Following an analysis of alternatives, an EIR must identify the environmentally superior alternative, which cannot be the No Project Alternative (CEQA Guidelines, Section 15126.6).

5.3 Selection of Alternatives

The CEQA Guidelines do not require an EIR to consider every plausible alternative to a project. An EIR must examine in detail only a reasonable range of alternatives that the lead agency determines could feasibly attain most of the basic project objectives while also reducing impacts. An EIR does not need to consider alternatives with effects that cannot be reasonably ascertained and that implementation is remote and speculative. Feasibility factors include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, and jurisdictional boundaries and whether the proponent can reasonably acquire, control, or otherwise have access to an alternative site. The CEQA Guidelines define the term "feasible" to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (California Public Resources Code, Section 21061.1; CEQA Guidelines, Section 15364). Also, as stated in CEQA Guidelines, Section 15126.6(f)(1), "among the factors

that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries . . . and whether the proponent can reasonably acquire control or otherwise have access to the alternative site."

Alternatives to the project were developed based on the requirements of CEQA Guidelines, Section 15126.6. Therefore, the alternatives were developed based on the project objectives, which are described in Chapter 2, Project Description. The project objectives include the following:

1. Remediate the project site through implementation and completion of the Remedial Action Plan as required under the San Diego Regional Water Quality Control Board (RWQCB) Draft Cleanup and Abatement Order No. R9-2017-0021.
2. Restore the project site by removing the installations and improvements from the Marine Terminal Facilities (MTF) premises in accordance with the Lockheed Martin Marine Terminal Demolition Draft Work Plan (Exhibit D of the 2017 Settlement Agreement).
3. Prevent the further release or threatened release of hazardous substances from historical uses on the project site.
4. Fulfill and implement the end of the lease terms of the original lease agreement between the San Diego Unified Port District (District) and Lockheed Martin Corporation (Lockheed Martin) by remediating the project site, including the removal of the installations and improvements.
5. Reduce public safety hazards by eliminating risk of fire, personal injury to trespassers, vandalism, and crime associated with an abandoned facility.
6. Further the District's responsibility and fiduciary duty for administering its public trust lands consistent with the Public Trust and the Port Act, including promoting water-oriented uses that benefit the public.

Additionally, only alternatives that would avoid or substantially lessen one or more significant environmental impacts of the project were carried forward for analysis. Table 5-1, Summary of Impacts of the Proposed Project, provides a summary of the project's significant impacts identified in Chapter 3, Environmental Analysis, to focus the evaluation of the alternatives in Section 5.5, Analysis of Alternatives. Refer to each individual issue area for a description of the mitigation measures identified to reduce potentially significant impacts to less than significant levels.

Table 5-1. Summary of Impacts of the Proposed Project

Issue Area	Without Mitigation	With Mitigation
3.1, Air Quality		
Consistency with Applicable Air Quality Plan	LS	LS
Cumulative Increase in Criteria Pollutant Emissions	LS	LS

Table 5-1. Summary of Impacts of the Proposed Project

Issue Area	Without Mitigation	With Mitigation
Sensitive Receptors	LS	LS
Odors	LS	LS
3.2, Biological Resources		
Candidate, Sensitive, or Special-Status Species	PS	LS
Riparian Habitat and Other Sensitive Natural Communities	PS	LS
Wetlands	LS	LS
Native Resident or Migratory Fish or Wildlife Species	LS	LS
Local Ordinances	LS	LS
Habitat Conservation Plan	NI	NI
3.3, Cultural Resources		
Historic Resources	PS	SU
Archaeological Resources	LS	LS
Human Remains	NI	NI
3.4, GHG Emissions		
Generate GHG Emissions	LS	LS
Conflict with an Applicable Plan	LS	LS
3.5, Hazards and Hazardous Materials		
Accidental Releases	LS	LS
Hazardous Materials Sites	LS	LS
Airport Safety Hazards	LS	LS
3.6, Hydrology and Water Quality		
Water Quality Standards	LS	LS
Site Drainage and Hydrology	LS	LS
Activities in a Flood Hazard, Tsunami, or Seiche Zone	LS	LS
Water Quality Control Plan or Sustainable Groundwater Management Plan	LS	LS
3.7, Noise		
Exceed Noise Levels	LS	LS
Excessive Groundborne Vibration	LS	LS
Aircraft Noise	LS	LS
3.8, Tribal Cultural Resources		
Tribal Cultural Resources	LS	LS

Notes: GHG = greenhouse gas; NI= No Impact, LS = Less than Significant; PS = Potentially Significant; SU = Significant and Unavoidable

5.4 Alternatives Considered

Four alternatives were initially considered for evaluation in this EIR. Based on criteria described in Section 5.3, Selection of Alternatives, three alternatives, including the No Project/No Remediation Alternative, were carried forward. These alternatives are described in Section 5.4.2, Alternatives Selected for Analysis. Section 5.4.1, Alternatives Considered but Rejected, describes the alternatives that were considered but rejected and provides reasoning for not carrying these alternatives forward for evaluation in this EIR.

5.4.1 Alternatives Considered but Rejected

Section 15126.6(c) of the CEQA Guidelines states that an EIR should identify alternatives that were considered by the lead agency but rejected as infeasible during the scoping process. An EIR should also describe the reasons for the lead agency's decision to eliminate alternatives from detailed consideration, which may include the following:

- Failure to meet most of the basic project objectives
- Infeasibility
- Inability to avoid significant environmental impacts

5.4.1.1 Off-Site Relocation of Historic Structure Alternative

The Off-Site Relocation of Historic Structure Alternative would be similar to the proposed project. However, Phase 1 would involve the relocation of the Marine Terminal Building to an off-site location. This alternative would not demolish the structure. Under this alternative, the waterside component of the proposed project, including the demolition of the pier and marine railway structure, dredging of waterside contaminated sediment, and placement of clean sand, would still occur. In addition, this alternative would include Phase 3 post-remediation activities, which would restore the site to its original state. Under this alternative, the District, not Lockheed Martin, would be solely responsible for the relocation of the Marine Terminal Building. The relocation of the structure is not part of the lease obligation between the District and Lockheed Martin. Therefore, operation and financial responsibility for the relocation portion of this alternative would be that of the District and not of Lockheed Martin.

This alternative was rejected from further analysis because it would be a logistical challenge to relocate the building to an alternate site. An Assessment for Relocation prepared for the proposed project in June 2020 (Appendix I) concluded that the Marine Terminal Building's structural elements are in very good condition and that the structural integrity of the building would remain if the marine railway and pier were demolished. However, due to the size and design of the building, it could be not be moved in one piece but would have to be dismantled in portions above the foundation. Additional support beams would need to be used during relocation to provide support. Due to the size of the structure, the relocation would likely require utility accommodations

of overhead lines by AT&T Communications, Cox Communications, San Diego Metropolitan Transit System, and San Diego Gas & Electric. Signal lights and streetlights along the route would need to be turned or temporarily moved to accommodate the move. In addition, bridges and underpasses may need to be avoided.

In addition, there is lack of vacant District-owned land that would be able to reasonably accommodate the building. The site would need to have a similar relationship to San Diego Bay and be compatible with the original character and use of the Marine Terminal Building. As noted in the Assessment for Relocation, it would "be nearly impossible" to find a new site with a similar relationship to San Diego Bay or any body of water. The Assessment for Relocation notes that a new site, if available, that recreates the building's historic context as much as possible should be selected. However, because the Assessment for Relocation concludes that it would be nearly impossible to find a new site with a similar relationship to San Diego Bay and that conveys the MTF's historic context, an off-site location would not necessarily eliminate cultural resource impacts (Appendix I). The District is a public agency with a finite amount of property, the vast majority of which is developed with existing uses. A significant portion of the District's Tidelands property is developed with heavy maritime industrial and commercial uses, including ship building and maintenance and cruise terminals. Even if not already leased to existing tenants and available for relocation, these sites would not be appropriate relocation sites because of their existing and projected long-term uses. It is infeasible to relocate the MTF to an alternative site outside the District, even if available, because such sites would not meet the site needs to maintain the cultural context of the MTF and the connection to San Diego Bay. The District also lacks control of any off-site parcels. In addition, as a public agency regulated by the Public Trust and the Port Act, the District is also statutorily limited in its ability to spend money off District Tidelands.

Costs associated with the relocation of the Marine Terminal Building could be upward of $1 million to $2 million. These figures are based on the recent relocation of the historic "Top Gun House" in the City of Oceanside (Roadtrippers 2019). Similar to the proposed project, this relocation required complete restoration. There would likely be additional costs for moving the MTF that did not exist for moving the Top Gun House. These costs would be associated with the required dismantling of the MTF for movement that would further limit the District's financial ability to pursue the relocation of the MTF. Further, as described previously and in the Assessment for Relocation (Appendix I), there are also extensive logistical requirements to relocate the building.

The costs associated with the relocation would be cost prohibitive for the District. Currently, the District is facing financial hardship and has lost and continues to lose significant revenue. The District does not collect tax revenues and relies on concession and rent revenue from hotels, restaurants, marine recreational, such as harbor tours and vessel charter operations, and parking and maritime operations. These revenue sources have dropped drastically over the last six months due to the COVID-19 pandemic. For instance, the District's Board of Port Commissioners,

acknowledging the hardship faced by many tenants, recently approved a tenant rent deferral program that delays some District revenue until a future date. Furthermore, as noted by District staff in its public presentations to the Board of Port Commissioners, the COVID-19 pandemic has created a fiscal emergency, and staff estimates a significant loss in revenue across almost every major revenue category through 2021. An off-site relocation alternative would also require the District to undertake ongoing maintenance and safety responsibilities with respect to the building, including providing fire protection, security, and other costs. In addition to the construction and operation costs for relocating the building, a long-term cost for the District would occur because of the District's inability to lease the relocation parcel for another use. Because the District has no plans or needs for occupancy of the building, the District would be forced to incur these additional costs on an ongoing and long-term basis. Even with such actions, public safety concerns, including vandalism and trespassing, all of which have occurred at the existing site, would still persist.

5.4.2 Alternatives Selected for Analysis

A description of the three alternatives carried forward for analysis is provided in the following subsections.

5.4.2.1 Alternative 1: No Project/No Remediation

The No Project/No Remediation Alternative is required by CEQA to discuss and analyze potential impacts that would occur if the proposed project was not implemented. Under the No Project/No Remediation Alternative, the proposed remediation of the MTF and completion of the Remedial Action Plan as required under the San Diego RWQCB Draft Cleanup and Abatement Order No. R9-2017-0021 would not be implemented. In addition, the end of lease terms of the original lease agreement between the District and Lockheed Martin would not be honored. The installations, including the significant historical structure, and associated improvements would remain on site.

5.4.2.2 Alternative 2: Remediation of Waterside Portions of Project Site Only

The Remediation of Waterside Portions of Project Site Only Alternative would be similar to the proposed project, but it would not include the Phase 1 landside demolition of the Marine Terminal Building and associated utilities or the Phase 3 post-remediation activities. This alternative would only proceed with Phase 2, the waterside demolition and remediation activities. This alternative would include the demolition of the pier and marine railway, dredging of waterside contaminated sediment, and the placement of clean sand. The Marine Terminal Building would remain in its current state on the project site. The District would not undertake any remediation of the Marine Terminal Building, although a future lessee, if found, could undertake required remediation to meet their needs. Future remediation, if done by a lessee, would have to adhere to the Secretary of the Interior's Standards for the Treatment of Historic Properties and the Secretary of the Interior's Standards for Rehabilitation. The pier and marine railway constitute two of the three contributing elements to the MTF. Although the pier and marine railway are important components of the

MTF's eligibility under Criterion 1, the Marine Terminal Building would retain eligibility under Criterion 3 even if the waterside components are removed as required by the San Diego RWQCB's Cleanup and Abatement Order. Thus, the Marine Terminal Building would remain eligible after the demolition of these contributing resources. In addition, although the removal of the pier and marine railway constitutes a significant adverse impact to contributing historic resources under Criterion 1, the Remediation of Waterside Portions of the Project Site Only Alternative would result in a less than significant impact with respect to the Marine Terminal Building under Criterion 3. However, unless the building is rehabilitated and reused, this alternative has the potential to result in continued dilapidation, resulting in the inability to document and photograph them in the Historic American Building Survey documentation. Therefore, the Remediation of Waterside Portions of Project Site Only Alternative is intended to reduce the project's significant and unavoidable impact to historic resources related to the landside demolition of the MTF.

5.4.2.3 Alternative 3: Reuse of Marine Terminal Building

The Reuse of Marine Terminal Building Alternative would be similar to the proposed project, except that it would not include the Phase 1 landside demolition of the Marine Terminal Building and associated utilities and the Phase 3 post-remediation activities. This alternative would include the waterside component of the proposed project, including the demolition of the pier and marine railway, dredging of waterside contaminated sediment, and placement of clean sand. Instead of demolishing the Marine Terminal Building, this alternative would restore and renovate the Marine Terminal Building to be available for use. Renovation activities would include the removal of asbestos-containing material, lead-containing surfaces, and other potentially hazardous building materials. It is assumed that renovation work would follow the Secretary of the Interior's Standards and that identified character-defining features of the Marine Terminal Building would be repaired and maintained to the highest degree feasible. Furthermore, work would be completed under the review of an architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualifications Standards. Renovation activities would also be required to upgrade the building to make it consistent with applicable California Building Code standards.

The proposed use would be consistent with the Port Master Plan. The project site is in Port Master Plan Planning District 2 (Harbor Island/Lindbergh Field) and is designated as Industrial Business Park. Based on the current land use designation, there are a number of uses that could be established, provided that the District is able to secure a tenant to use the space. As noted below, reuse of the building would result in operational features not present for the proposed project, including generating vehicle trips and air emissions and introducing noise-generating facilities. The District has not been presented with any proposal for reuse of the Marine Terminal Building, and it would be speculative to assume a specific future use. Therefore, the discussion of potential impacts associated with this alternative is qualitative.

The pier and marine railway constitute two of the three contributing elements of the MTF. Although the pier and marine railway are important components of the MTF's eligibility under Criterion 1, the Marine Terminal Building would retain eligibility under Criterion 3 even if the waterside components are removed as required by the San Diego RWQCB's Cleanup and Abatement Order. Therefore, the Marine Terminal Building would remain eligible for listing. The renovation of the building and the proposed Mitigation Measures CUL-1 and CUL-2 would result in a less than significant impact to the MTF under Criterion 3. Therefore, the Reuse of Marine Terminal Building Alternative is intended to reduce the project's significant and unavoidable impact to historic resources related to the landside demolition of the MTF.

5.5 Analysis of Alternatives

The following subsections present the analysis of each alternative compared to the project by issue area.

5.5.1 Analysis of Alternative 1: No Project/No Remediation

5.5.1.1 Air Quality

Under the No Project/No Remediation Alternative, no demolition, pile removal, dredging, or clean sand placement activities that would result in additional air pollutant emissions would occur. Therefore, compared to the air quality impacts under the proposed project, under the No Project/No Remediation Alternative, the air quality impacts would be reduced.

5.5.1.2 Biological Resources

Under the No Project/No Remediation Alternative, no pile removal or dredging activities would occur. The proposed project would result in pile removal and dredging activities, which could impact foraging opportunities for the California least tern (*Sternula antillarum browni*) and generate enough underwater noise to alter behavior (Level B harassment) of both green sea turtle (*Chelonia mydas*) and marine mammals. These project impacts would be reduced to less than significant with mitigation. Under the No Project/No Remediation Alternative, the accumulation of contaminants in marine sediment would not be remediated and would continue to impact the beneficial uses of the San Diego Bay (aquatic life, aquatic-dependent wildlife, and human health). Therefore, compared to the proposed project, the No Project/No Remediation Alternative would avoid the project's less than significant impacts to sensitive species and sensitive habitats from project construction. However, without the remediation proposed by the project, contaminated sediment would remain, which would impact biological resources, and structures that could impede the growth of eelgrass and the establishment of biological communities would not be removed. This could be a greater long-term impact.

5.5.1.3 Cultural Resources

The No Project/No Remediation Alternative would not demolish the Marine Terminal Building or remove the eligible historic resource. Compared to the proposed project, the No Project/No Remediation Alternative would avoid the significant impacts to historic resources. Therefore, compared to the project, the No Project/No Remediation Alternative would avoid demolishing a historic resource, and impacts related to cultural resources would be reduced.

5.5.1.4 Greenhouse Gas Emissions

The No Project/No Remediation Alternative would not include any construction activities that would result in greenhouse gas (GHG) emissions. Therefore, GHG emissions under the No Project/No Remediation Alternative would be reduced compared to the GHG emissions under the proposed project.

5.5.1.5 Hazards and Hazardous Materials

The No Project/No Remediation Alternative would not include the demolition of the Marine Terminal Building, pier, and marine railway; dredging; and waterside sediment remediation. The potential asbestos-containing materials, lead-containing surfaces, and other potentially hazardous building materials in the existing structures would not be released. However, because compliance with existing hazardous materials regulations is mandatory, the proposed project is not expected to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The No Project/No Remediation Alternative would not implement the Remedial Action Plan consistent with the Cleanup and Abatement Order from the San Diego RWQCB. Without implementation of the Remedial Action Plan, existing contaminated soils would remain and could be disturbed by tidal flows and boat operations associated with nearby marinas. Therefore, compared to the proposed project, the No Project/No Remediation Alternative would result in reduced hazards and hazardous materials in the short term but would not remediate existing soils and would leave contamination in place and exposed for the long term.

5.5.1.6 Hydrology and Water Quality

Under the No Project/No Remediation Alternative, no landside or waterside changes would occur on the existing project site over existing conditions. No construction activities under the No Project/No Remediation Alternative that could violate water quality standards or waste discharge requirements would occur. Additionally, the waterside improvements would not have the potential to provide additional sources of polluted runoff. However, without the remediation proposed by the project, contaminated sediment would remain, which would impact water quality. Therefore, compared the proposed project, the No Project/No Remediation Alternative would result in

reduced hydrology and water quality impacts in the short term but would not remediate existing soils and would leave contamination in place and exposed for the long term.

5.5.1.7 Noise

The No Project/No Remediation Alternative would not result in excessive noise or vibration generated from construction activities; therefore, compared to the proposed project, the No Project/No Remediation Alternative would result in reduced noise impacts.

5.5.1.8 Tribal Cultural Resources

The No Project/No Remediation Alternative would not result in construction ground-disturbing activities. However, no tribal cultural resources have been identified on the project site. Therefore, impacts on tribal cultural resources under the No Project/No Remediation Alternative would be similar to those of the proposed project.

5.5.1.9 Relationship to Project Objectives

The No Project/No Remediation Alternative would avoid impacts related to air quality, cultural resources, GHG emissions, noise, and tribal cultural resources but would result in impacts to biological resources, hazards and hazardous materials, and hydrology and water quality. However, the No Project/No Remediation Alternative would not meet any of the project objectives (1, 2, 3, 4, 5, or 6) because no demolition or remediation activities of the MTF would occur. The existing facilities would remain unoccupied and subject to future dilapidation and pose public safety concerns as a target for trespassing and vandalism. This alternative would not be legally feasible because it would not comply with the San Diego RWQCB Draft Cleanup and Abatement Order No. R9-2017-0021, the Lockheed Martin Marine Terminal Demolition Draft Work Plan (Exhibit D of the 2017 Settlement Agreement), or the end of the lease terms of the original lease agreement.

5.5.2 Analysis of Alternative 2: Remediation of Waterside Portions of Project Site Only

5.5.2.1 Air Quality

The Remediation of Waterside Portions of Project Site Only Alternative would include waterside remediation activities similar to those under the proposed project. However, this alternative would not demolish the Marine Terminal Building, and the Marine Terminal Building would remain in its current state on the project site. Under this alternative, the District would not undertake remediation of the Marine Terminal Building. Similar to the proposed project, this alternative would be consistent with the Port Master Plan and would not conflict with the Regional Air Quality Strategy or the State Implementation Plan. Under the Remediation of Waterside Portions of Project Site Only Alternative, air pollutant emissions would occur as a result of the demolition of the pier and marine railway, dredging, and clean sand placement activities. The vacant Marine Terminal

Building would not result in demolition emissions from the proposed project. Further, under this alternative, the Marine Terminal Building would remain vacant and would not result in new operational air emissions. Therefore, the Remediation of Waterside Portions of Project Site Only Alternative would result in reduced less than significant impacts to air quality.

5.5.2.2 Biological Resources

The Remediation of Waterside Portions of Project Site Only Alternative would include waterside remediation activities similar to those under the proposed project. Similar to the proposed project, this alternative would result in pile removal and dredging activities, which could impact foraging opportunities of the California least tern and generate enough underwater noise to alter behavior (Level B harassment) of both green sea turtle and marine mammals. In addition, this alternative would result in construction activities and would have the potential to impact eelgrass beds on the project site. Similar to the proposed project, impacts would be reduced to less than significant with the implementation of Mitigation Measures BIO-1A through BIO-1D and BIO-2A through BIO-2C. Therefore, the Remediation of Waterside Portions of Project Site Only Alternative would result in similar less than significant impacts after mitigation regarding candidate, sensitive, or special-status wildlife species; riparian habitat; and other sensitive natural communities.

5.5.2.3 Cultural Resources

Compared to the proposed project, the Remediation of Waterside Portions of Project Site Only Alternative would include similar waterside remediation activities. However, under this alternative, the Marine Terminal Building would remain in its current state on the project site. Although the waterside demolition constitutes an adverse impact to contributing resource under Criterion 1, Mitigation Measures CUL-1 and CUL-2 would reduce the impact to less than significant. Unless the building is rehabilitated and reused, however, this alternative has the potential to result in continued dilapidation, resulting in the inability to document and photograph them in the Historic American Building Survey documentation. Therefore, compared to the proposed project, the Remediation of Waterside Portions of Project Site Only Alternative would reduce the significant impact to a historic resource.

5.5.2.4 Greenhouse Gases Emissions

The Remediation of Waterside Portions of Project Site Only Alternative would include waterside remediation activities similar to those under the proposed project. However, under this alternative, the Marine Terminal Building would remain in its current state on the project site. The Remediation of Waterside Portions of Project Site Only would result in GHG emissions resulting from the proposed waterside demolition, dredging, and clean sand placement activities. Similar to the GHG emissions from the proposed project, these GHG emissions would be below the threshold of 900 metric tons of carbon dioxide equivalent (MT CO_2e) (annual emissions) and would be consistent with the District's Climate Action Plan. Therefore, the Remediation of Waterside

Portions of Project Site Only Alternative would result in reduced less than significant impacts to GHG emissions than those under the proposed project.

5.5.2.5 Hazards and Hazardous Materials

The Remediation of Waterside Portions of Project Site Only Alternative would not demolish the Marine Terminal Building. The building would remain in its current state on the project site and would not result in the exposure to hazardous materials from the accidental release. Under the proposed project, potential exposure to hazardous materials from accidental release would be less than significant. Therefore, compared to the proposed project, the Remediation of Waterside Portions of Project Site Only Alternative would result in reduced impacts from hazards and hazardous materials.

5.5.2.6 Hydrology and Water Quality

The Remediation of Waterside Portions of Project Site Only Alternative would include waterside remediation activities similar to those under the proposed project. Similar to the proposed project, under the Remediation of Waterside Portions of Project Site Only Alternative, waterside demolition and dredging could result in significant short-term impacts to water quality from uncontrolled sediment from construction, and project design features would be implemented to minimize impacts. However, under this alternative, the Marine Terminal Building would remain in its current state on the project site, and localized alteration of drainage patterns and temporary increases in erosion and sedimentation would not occur. Similar to the proposed project, under the Remediation of Waterside Portions of Project Site Only Alternative, the implementation of policies and regulatory requirements, which include the application of construction-period best management practices to address potential discharges of pollutants to stormwater, would reduce short-term water quality impacts from the alternative and would not cause a conflict with or obstruct the implementation of the San Diego Basin Plan. The potential for tsunami to occur on the project site exists. The Remediation of Waterside Portions of Project Site Only Alternative proposes no landside activities, and there would be no risk of the release of pollutants from the project site. Therefore, the Remediation of Waterside Portions of Project Site Only Alternative would result in reduced less than significant impacts to hydrology and water quality.

5.5.2.7 Noise

The Remediation of Waterside Portions of Project Site Only Alternative would include waterside remediation activities similar to those under the proposed project. Similar to the proposed project, under the Remediation of Waterside Portions of Project Site Only Alternative, noise levels generated during waterside demolition and dredging would comply with the City of San Diego's Noise Ordinance. However, under this alternative, the Marine Terminal Building would not be demolished and would not generate groundborne vibration. Similar to the proposed project, the Remediation of Waterside Portion of Project Site Only Alternative would be within the San Diego International Airport Influence Area but would not expose people residing or working in the

project vicinity to excessive noise levels. Therefore, the Remediation of Waterside Portions of Project Site Only Alternative would result in reduced less than significant impacts to noise.

5.5.2.8 Tribal Cultural Resources

The Remediation of Waterside Portions of Project Site Only Alternative would include waterside remediation activities similar to those under the proposed project but would not include the demolition of the Marine Terminal Building. Similar to the proposed project, the Remediation of Waterside Portions of Project Site Only Alternative would not result in impacts to tribal cultural resources because no tribal cultural resources have been identified on the project site. Therefore, impacts on tribal cultural resources under the Remediation of Waterside Portions of Project Site Only Alternative would be similar to those under the proposed project.

5.5.2.9 Relationship to Project Objectives

The Remediation of Waterside Portions of Project Site Only Alternative would reduce significant impacts related to historic resources. This alternative would meet Project Objective 1 by remediating the project site through implementation and completion of the Remedial Action Plan. However, the Remediation of Waterside Portions of Project Site Only Alternative would not meet Project Objectives 2 and 3 because it would not remove all installations and improvements on the project site and would not prevent the further release or threatened release of hazardous substances on the project site. In addition, this alternative would not meet Project Objective 4 because it would not fulfill and implement the end of the lease terms of the original lease agreement between the District and Lockheed Martin, which require the site to be returned to its original state. This alternative would not meet Project Objective 5 because it would permit the existing Marine Terminal Building to remain vacant and unoccupied, which poses a potential public safety hazard due to the high potential for trespassing and vandalism (based on previous instances). Finally, a vacant building would not meet Project Objective 6 and the District's statutory and common law responsibilities with respect to the Public Trust.

5.5.3 Analysis of Alternative 3: Reuse of Marine Terminal Building

5.5.3.1 Air Quality

The Reuse of Marine Terminal Building Alternative would include waterside remediation activities similar to those under the proposed project. However, this alternative would not demolish the Marine Terminal Building, and the building would remain on site. The District would restore and renovate the building to accommodate it for future use by a yet-unknown tenant. Although a future use is not known, the Port Master Plan designates the project site as Industrial Business Park, which would permit a variety of coastal-dependent industrial or commercial uses. Because the use would be consistent with the Port Master Plan, this alternative would not conflict with the Regional Air Quality Strategy or the State Implementation Plan. Similar to the proposed project, this alternative would result in less than significant air pollutant emissions during remediation

activities. However, in contrast to the proposed project, the Reuse of Marine Terminal Building Alternative would result in operational air pollutant emissions from future uses. Because future uses are not known, future air emissions were not quantified. It is known, however, that future uses would generate vehicular trips and other emissions sources that would result in emissions above existing operations or proposed project operations (a vacant site). Given the square footage of the building, it is not anticipated that future reuse would result in operational emissions that would exceed applicable thresholds and result in a significant impact. In addition, the proposed reuse option would result in operational annual vehicle miles traveled (VMT), which could result in the exposure of sensitive receptors to substantial pollutant concentrations, including carbon monoxide hotspots. Therefore, compared to the proposed project, the Reuse of Marine Terminal Building Alternative would result in increased less than significant air quality impacts.

5.5.3.2 Biological Resources

The Reuse of Marine Terminal Building Alternative would include waterside remediation activities similar to those under the proposed project. However, this alternative would not demolish the Marine Terminal Building, and it would remain on site. The District would restore and renovate the building to accommodate it for future use by a yet-unknown tenant. Although a future use is not known, the Port Master Plan designates the project site as Industrial Business Park, which would permit a variety of coastal-dependent industrial or commercial uses. Similar to the proposed project, this alternative would result in pile removal and dredging activities, which could impact foraging opportunities for the California least tern and generate enough underwater noise to alter behavior (Level B harassment) of both green sea turtle and marine mammals. In addition, this alternative would result in construction activities that would have the potential to impact eelgrass beds on the project site. Similar to the proposed project, impacts would be reduced to less than significant with the implementation of Mitigation Measures BIO-1A through BIO-1D and BIO-2A through BIO-2C. Therefore, the Reuse of Marine Terminal Building Alternative would result in similar less than significant impacts after mitigation regarding candidate, sensitive, or special-status wildlife species; riparian habitat; and other sensitive natural communities.

5.5.3.3 Cultural Resources

The Reuse of Marine Terminal Building Alternative would include waterside remediation activities similar to those under the proposed project. However, the alternative would not demolish the Marine Terminal Building, and the building would remain on site. The District would restore and renovate the building to accommodate it for future use by a yet-unknown tenant. Although a future use is not known, the Port Master Plan designates the project site as Industrial Business Park, which would permit a variety of coastal-dependent industrial or commercial uses. It is assumed that any renovation work would follow the Secretary of the Interior's Standards and that all identified character-defining features of the Marine Terminal Building would be repaired and maintained to the highest degree feasible. Furthermore, work would be completed under the review of an

architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualifications Standards. The pier and marine railway constitute two of the three contributing elements of the MTF. Although the pier and marine railway are important components of the MTF's eligibility under Criterion 1, the Marine Terminal Building retains eligibility under Criterion 3 even if the waterside components are removed, as required by the San Diego RWQCB's Cleanup and Abatement Order. Therefore, the Marine Terminal Building would remain eligible for listing. The renovation of the building and the proposed Mitigation Measures CUL-1 and CUL-2 would result in a less than significant impact to the Marine Terminal Building under Criterion 3. Therefore, compared to the proposed project, the Reuse of Marine Terminal Building Alternative would reduce the significant impact to a historic resource.

5.5.3.4 Greenhouse Gas Emissions

The Reuse of Marine Terminal Building Alternative would include waterside remediation activities similar to those under the proposed project. However, this alternative would not demolish the Marine Terminal Building, and the building would remain on site. The District would restore and renovate the building to accommodate it for future use by a yet-unknown tenant. Although a future use is not known, the Port Master Plan designates the project site as Industrial Business Park, which would permit a variety of coastal-dependent industrial or commercial uses. As future uses are not known, future GHG emissions were not quantified. It is known, however, that future uses would generate vehicular trips and other emissions sources that would result in emissions above existing operations. Given the square footage of the building, it is anticipated that future reuse would result in operational emissions that would not exceed the GHG threshold of 900 MT CO_2e and would not result in a significant impact. Therefore, compared to the proposed project, the Reuse of Marine Terminal Building Alternative would result in increased less than significant GHG impacts.

5.5.3.5 Hazards and Hazardous Materials

The Reuse of Marine Terminal Building Alternative would include waterside remediation activities similar to those under the proposed project. However, this alternative would not demolish the Marine Terminal Building, and the building would remain on site. The District would restore and renovate the building to accommodate it for future use by a yet-unknown tenant. Although a future use is not known, the Port Master Plan designates the project site as Industrial Business Park, which would permit a variety of coastal-dependent industrial or commercial uses. Under this alternative, remediation activities would include removing hazardous materials from the building. Similar to the proposed project, remediation of the existing structure under this alternative would result in less than significant impacts from the accidental release of hazardous materials due to compliance with applicable regulations, including the San Diego Air Pollution Control District Rule 1206; California Public Resources Code, Section 42167; California Code of Regulations, Section 66273.4; and Title 22, Division 4.5, Chapter 23, Section 66273.8, of the California Code

of Regulations. Potential coastal-dependent industrial or commercial uses would involve the use of potentially hazardous materials and would be required to implement existing health and safety practices and comply with federal, state, and local regulations related to the use, transport, and disposal of hazardous materials. In addition, similar to the proposed project, the Reuse of Marine Terminal Building Alternative would be within 2 miles of the San Diego International Airport and would be within the Airport Influence Area. Under this alternative, during operation, people would be present on the site and could be exposed to excessive noise levels. Therefore, compared to the proposed project, the Reuse of Marine Terminal Building Alternative would result in increased less than significant hazards impacts.

5.5.3.6 Hydrology and Water Quality

The Reuse of Marine Terminal Building Alternative would include waterside remediation activities similar to those under the proposed project. However, this alternative would not demolish the Marine Terminal Building, and the building would remain on site. The District would restore and renovate the building to accommodate it for future use by a yet-unknown tenant. Although a future use is not known, the Port Master Plan designates the project site as Industrial Business Park, which would permit a variety of coastal-dependent industrial or commercial uses. Similar to the proposed project, under the Reuse of Marine Terminal Building Alternative, waterside demolition and dredging could result in significant short-term impacts to water quality from uncontrolled sediment from construction. The implementation of policies and regulatory requirements, which include the implementation of construction-period best management practices to address potential discharges of pollutants to stormwater, would reduce any short-term water quality impacts. However, under this alternative, the Marine Terminal Building would not be demolished and would be renovated for future use. In contrast to the proposed project, the Reuse of Marine Terminal Building Alternative could result in a potential increase in the release of stormwater pollutants due to the proposed commercial and industrial reuse options. Thus, compared to the proposed project, the Reuse of Marine Terminal Building Alternative would result in increased less than significant impacts to hydrology and water quality.

5.5.3.7 Noise

The Reuse of Marine Terminal Building Alternative would include waterside remediation activities similar to those under the proposed project. However, this alternative would not demolish the Marine Terminal Building, and the building would remain on site. The District would restore and renovate the building to accommodate it for future use by a yet-unknown tenant. Although a future use is not known, the Port Master Plan designates the project site as Industrial Business Park, which would permit a variety of coastal-dependent industrial or commercial uses. Similar to the proposed project, under the Reuse of Marine Terminal Building Alternative, construction noise impacts for waterside remediation would be less than significant because the City's Noise Ordinance would not be violated. However, this alternative would result in operational impacts.

Under the Reuse of Marine Terminal Building Alternative, the heating, ventilation, and air conditioning for the building and equipment required for future reuse would result in potential noise sources that would not occur under the proposed project.

Further, under this alternative, the Marine Terminal Building would not be demolished; therefore, this alternative would not generate groundborne vibration from demolition activities. In addition, similar to the proposed project, this alternative is within the San Diego International Airport Influence Area 60- to 65-decibel noise contour area. Workers associated with the two reuse options could be exposed to excessive noise limits resulting from aircraft noise, which would not occur under the proposed project. Therefore, compared to the proposed project, the Reuse of Marine Terminal Building Alternative would result in increased less than significant impacts to noise.

5.5.3.8 Transportation

The Reuse of Marine Terminal Building Alternative would include waterside remediation activities similar to those under the proposed project. However, this alternative would not demolish the Marine Terminal Building, and the building would remain on site. The District would restore and renovate the building to accommodate it for future use by a yet-unknown tenant. Although a future use is not known, the Port Master Plan designates the project site as Industrial Business Park, which would permit a variety of coastal-dependent industrial or commercial uses. Under the proposed project, no increase in operational capacity or number of employees would occur. The project would not result in VMT. Under this alternative, the proposed reuse option would result in operational annual VMT that has the potential to exceed the VMT threshold depending on the specific future use, which is unknown at this time. Therefore, compared to the proposed project, the Reuse of Marine Terminal Building Alternative would result in a potentially significant impact to transportation.

5.5.3.9 Tribal Cultural Resources

The Reuse of Marine Terminal Building Alternative would include waterside remediation activities similar to those under the proposed project. However, this alternative would not demolish the Marine Terminal Building, and the building would remain on site. The District would restore and renovate the building to accommodate it for future use by a yet-unknown tenant. Although a future use is not known, the Port Master Plan designates the project site as Industrial Business Park, which would permit a variety of coastal-dependent industrial or commercial uses. Similar to the proposed project the Marine Terminal Building Alternative would not result in impacts to tribal cultural resources because no resources have been identified on site. Therefore, impacts to tribal cultural resources under the Reuse of Marine Terminal Building Alternative would be the same as those under the proposed project.

5.5.3.10 Relationship to Project Objectives

The Reuse of Marine Terminal Building Alternative would reduce significant impacts related to historic resources. This alternative would involve the reuse of the Marine Terminal Building for an alternative use, which could result in additional operational impacts to air quality, GHG emissions, noise, and transportation that would not occur under the proposed project. This alternative would meet Project Objectives 1 and 3 by remediating the project site through implementation and completion of the Remedial Action Plan and preventing the further release or threatened release of hazardous materials. This alternative could meet Project Objective 5 if, after remediation by the District, a tenant leased the project site and occupied the remediated Marine Terminal Building. Occupancy by a lessee would reduce public safety hazards by eliminating risk of fire, personal injury to trespassers, vandalism, and crime associated with an abandoned facility. Because a future use is assumed to be consistent with the existing Port Master Plan designation, this alternative would also meet Project Objective 6 by promoting a water-oriented use that benefits the public consistent with current zoning, the Public Trust, and the Port Act. However, the Reuse of Marine Terminal Building Alternative would not meet Project Objectives 2 and 4 because it would not remove all installations and improvements on the project site and would not fulfill and implement the end of the lease terms of the original lease agreement between the District and Lockheed Martin, which require the site to be returned to its original state.

5.6 Environmentally Superior Alternative

An EIR is required to identify the environmentally superior alternative, the alternative with the potential for fewest environmental impacts, from among the range of reasonable alternatives evaluated. Table 5-2, Comparison of Impacts of Alternatives and the Proposed Project, provides a summary comparison of the alternatives with the proposed project with the purpose of highlighting whether each alternative would result in a similar, greater, or lesser impact than the proposed project with regard to potentially significant impacts. In addition, Table 5-3, Ability of Project Alternative to Meet Proposed Project Objectives, provides a summary comparison of the alternatives to the proposed project to determine whether each alternative would meet the project objectives.

Table 5-2. Comparison of Impacts of Alternatives and the Proposed Project

Issue Area	Proposed Project		Impact Significance of Alternatives		
	Without Mitigation	With Mitigation	No Project/ No Remediation	Remediation of Waterside Portions of Project Site Only	Reuse of Marine Terminal Building
3.1, Air Quality					
Consistency with Applicable Air Quality Plan	LS	LS	Similar	Similar	Similar
Cumulative Increase in Criteria Pollutant Emissions	LS	LS	Reduced	Reduced	Increased
Sensitive Receptors	LS	LS	Reduced	Reduced	Increased
Odors	LS	LS	Reduced	Reduced	Similar

Table 5-2. Comparison of Impacts of Alternatives and the Proposed Project

Issue Area	Proposed Project		Impact Significance of Alternatives		
	Without Mitigation	With Mitigation	No Project/ No Remediation	Remediation of Waterside Portions of Project Site Only	Reuse of Marine Terminal Building
3.2, Biological Resources					
Candidate, Sensitive, or Special-Status Species	PS	LS	Increased	Similar	Similar
Riparian Habitat and Other Sensitive Natural Communities	PS	LS	Increased	Similar	Similar
Wetlands	LS	LS	Similar	Similar	Similar
Native Resident or Migratory Fish or Wildlife Species	LS	LS	Similar	Similar	Similar
Local Ordinances	LS	LS	Similar	Similar	Similar
Habitat Conservation Plan	NI	NI	Similar	Similar	Similar
3.3, Cultural Resources					
Historic Resources	PS	SU	Reduced	Reduced	Reduced
Archaeological Resources	LS	LS	Similar	Similar	Similar
Human Remains	NI	NI	Similar	Similar	Similar
3.4, GHG Emissions					
Generate GHG Emissions	LS	LS	Reduced	Reduced	Increased
Conflict with an Applicable Plan	LS	LS	Reduced	Similar	Increased
3.5, Hazards and Hazardous Materials					
Accidental Releases	LS	LS	Increased	Reduced	Similar
Hazardous Materials Sites	LS	LS	Increased	Similar	Similar
Airport Safety Hazards	LS	LS	Reduced	Similar	Increased
3.6, Hydrology and Water Quality					
Water Quality Standards	LS	LS	Increased	Similar	Increased
Site Drainage and Hydrology	LS	LS	Reduced	Reduced	Reduced
Activities in a Flood Hazard, Tsunami, or Seiche Zone	LS	LS	Reduced	Similar	Similar
Water Quality Control Plan or Sustainable Groundwater Management Plan	LS	LS	Reduced	Similar	Increased
3.7, Noise					
Exceed Noise Levels	LS	LS	Reduced	Reduced	Increased
Excessive Groundborne Vibration	LS	LS	Reduced	Reduced	Reduced
Aircraft Noise	LS	LS	Reduced	Similar	Increased
3.8, Tribal Cultural Resources					
Tribal Cultural Resources	LS	LS	Similar	Similar	Similar

Notes: GHG = greenhouse gas; LS = Less than Significant; PS = Potentially Significant; SU = Significant and Unavoidable

Table 5-3. Ability of Project Alternative to Meet Proposed Project Objectives

Proposed Project Objectives	Ability of Alternatives to Meet the Proposed Project Objectives		
	No Project/ No Remediation	Remediation of Waterside Portions of Project Site Only	Reuse of Marine Terminal Building
1. Remediate the project site through implementation and completion of the Remedial Action Plan as required under the San Diego RWQCB Draft Cleanup and Abatement Order No. R9-2017-0021	No	Yes	Yes
2. Restore the project site by removing the installations and improvements from the MTF premises in accordance with the Lockheed Martin Marine Terminal Demolition Draft Work Plan (Exhibit D of the 2017 Settlement Agreement).	No	No	No
3. Prevent the further release or threatened release of hazardous substances from historical uses on the project site.	No	No	Yes
4. Fulfill and implement the end of the lease terms of the original lease agreement between the District and Lockheed Martin by remediating the project site, including the removal of the installations and improvements.	No	No	No
5. Reduce public safety hazards by eliminating risk of fire, personal injury to trespassers, vandalism, and crime associated with an abandoned facility.	No	No	Yes
6. Further the District's responsibility and fiduciary duty for administering its public trust lands consistent with the Public Trust and the Port Act, including promoting water-oriented uses that benefit the public.	No	No	Yes

Notes: LS = Less than Significant; MTF = Marine Terminal Facilities; PS = Potentially Significant; RWQCB = Regional Water Quality Control Board; SU = Significant and Unavoidable

As shown in Table 5-2, the level of environmental impacts associated with the Remediation of Waterside Portions of Project Site Only Alternative is overall less than the proposed project. This alternative would not result in any greater impacts than the proposed project would and would avoid the potentially significant impact to historic resources. Therefore, the Remediation of Waterside Portions of Project Site Only Alternative would be considered the environmentally superior alternative, although it would only meet one of the six project objectives.

Chapter 6 List of Preparers and Agencies Consulted

6.1 Lead Agency – San Diego Unified Port District

3165 Pacific Highway
San Diego, California 92101

Juliette Orozco, Associate Planner/Port Project Manager
Eileen Maher, Director, Environmental Conservation
Heather Kramp, Assistant Planner, Environmental Conservation
Wileen Manaois, Director, Development Services
Paul Brown, Program Manager, Planning and Green Port
Christian Braun, Senior Environmental Specialist, Environmental Protection
James Hammel, Program Manager, Real Estate
Christopher Burt, Deputy General Counsel, Office of the General Counsel
John Carter, Deputy General Counsel, Office of the General Counsel
Peter Eichar, Senior Planner, Development Services

6.2 EIR Preparation

6.2.1 Harris & Associates

600 B Street, Suite 2000
San Diego, California 92101

Ryan Binns, PMP, ENV SP, QA/QC
Kristin Blackson, Project Manager
Esther Daigneault, Senior Environmental Analyst
Sharon Toland, Air Quality, Greenhouse Gas, and Noise Specialist
Randy Deodat, GIS Analyst
Lindsey Messner, Technical Editor

6.3 Technical Reports

6.3.1 Air Quality Memorandum – Harris & Associates

Sharon Toland, Air Quality Specialist

6.3.2 Biological Technical Study and Essential Fish Habitat Assessment – Merkel & Associates, Inc.

5434 Ruffin Road
San Diego, California 92123

Keith Merkel, QA/QC
Lawrence Honma, Marine Biologist/Lead Author

6.3.3 Drainage Study and Stormwater Quality Management Plan – Harris & Associates

Frank Lopez, PE, QSD, CFM, Senior Director, Engineering Services
Karina Guevara, EIT, Design Engineer

6.3.4 Geology and Soils Evaluation – Ninyo & Moore

5710 Ruffin Road
San Diego, California 92123

Christina Tretinjak, PG, CEG, Senior Project Geologist
Ronald S. Halbert, PE, Principal Engineer

6.3.5 Greenhouse Gas Emissions Analysis – Harris & Associates

Sharon Toland, Air Quality and Greenhouse Gas Specialist

6.3.6 Hazardous Building Materials Survey – Ninyo & Moore

Nicolas J. Carpenter, CAC No. 12-4867, Senior Project Environmental Scientist
Stephen J. Waide, CIH, CSP, Principal Environmental Scientist

6.3.7 Historic Resource Assessment Report – ASM Associates

20 North Raymond Avenue, Suite 220
Pasadena, California 91103

Laura Taylor Kung, MA, Architectural Historian
Shannon Davis, MA, Director, Architectural History

6.3.8 Noise Technical Report – Harris & Associates

Sharon Toland, Noise Specialist

6.3.9 Assessment for Relocation – Heritage Architecture & Planning and Critical Structures, Inc.

Heritage Architecture & Planning

832 Fifth Avenue
San Diego, California 92123

David Marshall, AIA, NCARB, President, Architect and Architectural Historian, California License No. C24785

Critical Structures, Inc.

1350 Coronado Avenue
Long Beach, California 90804

Eric Stovner, PE, SE, LEED AP O+M, Expert Structural Engineer
Rosa Ocegueda, EIT, Structural Designer

6.4 Agencies, Organizations, and Persons Consulted

The following agencies and individuals provided information used in the preparation of this Environmental Impact Report.

6.4.1 Peer Review – HDR, Inc.

591 Camino De La Reina
San Diego, California 92108

Jenny Vick, Environmental Deputy Project Manager
Nina Delu, RPA, Environmental Deputy Project Manager
Gary Goldman, PE, GE, Geotechnical Section Manager
Mahdi Khalilzad-Sharghi, PhD, PE, Senior Engineer
Andrew Cherene, PG, CHG, Senior Geologist
Keith Lay, Senior Air Quality Specialist

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None.

Appendix A. Notice of Preparation and Initial Study

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NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT TITLE: **LOCKHEED MARTIN HARBOR ISLAND FACILITIES DEMOLITION AND SEDIMENT REMEDIATION PROJECT**
APPLICANT: Lockheed Martin Corporation
LOCATION: 1160 Harbor Island Drive, City of San Diego, 92101, County of San Diego
REFERENCE: California Code of Regulations, Title 14, Sections 15082(a), 15103, 15375

The San Diego Unified Port District (District) will be the lead agency in preparing an Environmental Impact Report (EIR) for the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project). The District is soliciting input and feedback from various agencies, stakeholders, and the public pertaining to the scope and content of the environmental information that will be included in the EIR. For certain agencies, this may be relevant to the statutory responsibilities in connection with the project. An agency may need to use the project's EIR when considering permits or other approvals for the project. The project description, location, and possible environmental effects of the project are contained in the attached materials.

Due to the time limits mandated by state law, comments must be sent at the earliest possible date but no later than 30 days after the issuance of this notice. **Comments regarding environmental concerns will be accepted until 5:00 p.m. on December 2, 2019**, and should be mailed to San Diego Unified Port District, Development Services Department, Attn: Juliette Orozco, Associate Planner, 3165 Pacific Highway, San Diego, California 92101 or emailed to jorozco@portofsandiego.org.

A public scoping meeting regarding the proposed EIR will be held on November 13, 2019, beginning at 5:00 p.m. at the San Diego Unified Port District Administration Building, Training Room, 3165 Pacific Highway, San Diego California 92101.

For questions regarding this Notice of Preparation, please contact Juliette Orozco, Associate Planner, at (619) 686-6237.

Wileen C. Manaois

Signature
Wileen C. Manaois
Director, Development Services

10/25/19
Date

Issuance Date: October 31, 2019

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San Diego Unified Port District
3165 Pacific Highway
San Diego, California 92101

NOTICE OF PREPARATION
of a
DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE LOCKHEED MARTIN HARBOR ISLAND FACILITIES DEMOLITION AND SEDIMENT REMEDIATION PROJECT (UPD #EIR-2018-033)

Publication of this Notice of Preparation (NOP) initiates the San Diego Unified Port District's (District's) compliance with the California Environmental Quality Act (CEQA) for the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project). The NOP is the first step in the Environmental Impact Report (EIR) process. It describes the project and is distributed to responsible agencies, trustee agencies, cooperating federal agencies, and the general public. As stated in CEQA Guidelines, Section 15375, the purpose of the NOP is "to solicit guidance from those agencies as to the scope and content of the environmental information to be included in the EIR." The District is the CEQA lead agency, and Lockheed Martin Corporation is the applicant/proponent.

Project Location

The project site is located at 1160 Harbor Island Drive in the City of San Diego (City) adjacent to the northern and western banks of the East Basin of San Diego Bay (Figure 1, Regional Location). The East Basin is a relatively shallow (−15 to −10 mean lower low water) artificial embayment of San Diego Bay that is enclosed on three sides. The East Basin was formed by dredging in the early 1960s, with the dredge spoil used to create Harbor Island). The project site is approximately 64,000 square feet, with the landside comprising approximately 32,000 square feet and the waterside comprising approximately 32,000 square feet.

Project Background

The Lockheed Martin Harbor Island Facilities discussed in this document are referred to as the Lockheed Martin Marine Terminal Facilities (MTF) because of their combination of landside and waterside infrastructure. The MTF are located on land that is owned by the District and have been leased by various Lockheed Martin Corporation entities since 1966. Lockheed Aircraft Company began leasing the Lockheed MTF site from the District in April 1966. At that time, the Lockheed

site included a recently constructed (between 1965 and 1966) building and a pier and railway that extended into the San Diego Bay's East Basin. The Deep Quest, a deep submergence vehicle owned by the Lockheed Missiles and Space Company, began operating from the Lockheed Marine Terminal and Railway Facility in 1969. In 1971, the Lockheed site lease was assigned to Lockheed Missiles and Space Company. From 1971 through 2009, as part of the U.S. Navy's Deep Submergence Systems Program, deep submergence vehicle and deep submergence rescue vehicle maintenance operations were conducted at the Lockheed site. At the termination of the lease, Lockheed Martin Corporation is required to remove installations and improvements on the MTF. The MTF are currently vacant.

Polychlorinated biphenyls, metals, and other pollutant wastes were discharged to San Diego Bay throughout the years and have resulted in the accumulation of contaminants in marine sediments along the northern shore of central San Diego Bay. This accumulation has resulted in conditions identified by the San Diego Regional Water Quality Control Board as potentially impacting beneficial uses (aquatic life, aquatic-dependent wildlife, and human health). A Clean Up and Abatement Order was issued for the site on January 2017.

The District and the Lockheed Martin Corporation entered into a settlement agreement in March 2017 in response to the release or threatened release of hazardous substances at the MTF. Under the settlement agreement, the Lockheed Martin Corporation is responsible for the implementation of site remediation pursuant to the San Diego Regional Water Quality Control Board's Clean Up and Abatement Order. A Draft Remedial Action Plan was developed and addresses contaminated sediments present in the East Basin of Harbor Island offshore from the Former Tow Basin and Lockheed Martin Company Marine Terminal and Railway Facility Sites. The San Diego Regional Water Quality Control Board will consider approval of a Final Remedial Action Plan following the completion of the CEQA process.

Project Description

The project proposes demolition landside and waterside components of the existing MTF located at 1160 Harbor Island Drive (Figure 2, Project Site) and remediation of the waterside sediment in the surrounding basin.

Activities would be broken down into three phases: (1) landside demolition; (2) waterside demolition, dredging, and sediment remediation; and (3) post-remediation activities. Phase 1 would include demolition of the existing building; Phase 2 would include demolition of the existing pier, marine railway dredging, and waterside remediation; and Phase 3 would include post-remediation activities, including demolition of paved areas. It is anticipated that the project would be completed in approximately 6 months, with the projected schedule for Phase 1 being from September 2020 to October 2020, Phase 2 from October 2020 to January 2021, and Phase 3 in February 2021.

Phase 1

Landside Demolition

The first phase would include the demolition of the MTF. Existing utilities within the existing two-story 5,500-square-foot marine terminal building would be disconnected and removed. This would include removing power to the San Diego Gas & Electric transformer vault, removing the gas lines to the nearest valve box, capping the fire sprinkler lines 6 inches above grade, removing the sewage tank and associated pipes, capping the outlets to the sewage tank, and removing the water to the backflow preventer on site. Then, the existing building would be demolished.

After building demolition, the foundation would be removed, and any resulting depressions would be filled with compactable, clean fill. The site would then be graded to match the existing elevation. The existing concrete and asphalt parking areas would remain and be used as part of the sediment management area (SMA) during the offshore remediation component. The SMA would be confined with an impermeable barrier (potentially an asphalt berm or K-rails sealed at the base with an impervious fabric) to prevent discharge into San Diego Bay or into underlying soils.

Phase 2

Waterside Demolition

Phase 2 would include the offshore component of the project, beginning with the waterside demolition. The project would include demolition of the in-water 165-foot pier and the 328-foot-long marine railway structure and support structures extending into the bay. The piles from the pier would be removed using equipment staged on a barge and/or on the landside. The barge would be the storage area for the removed piles and debris. Outfall erosion protection would be constructed along the northern shoreline using 400 square feet of riprap and gravelly sand. Silt curtains would be used as necessary to minimize the transport of suspended solids. In addition, a floating surface debris boom would be deployed equipped with skirts and absorbent pads to capture floating surface debris and to control potential oil sheen movement. The water's turbidity levels would be monitored during demolition activities. Debris would be removed from the water by a heavy clamshell bucket. Removed piles and debris would be brought ashore and sorted according to its general classification. The debris would then be transported for disposal by haul truck trips.

Dredging

Once the existing waterside facilities are demolished, offshore contaminated sediments with elevated mercury levels, would be dredged within an approximately 22,676-square-foot area, as shown on Figure 3, Project Components. The sediments would be removed using mechanical dredging means, such as a barge-mounted derrick crane, an enclosed clamshell bucket, or a standard clamshell bucket.

Throughout dredging operations, silt curtains would be used to contain suspended sediment during dredging and debris removal operations. Each silt curtain would include an oil boom component contained within the silt curtain, which would float on the water surface. Silt curtains would be weighted and positioned using anchors or marine structures or by being connected to shoreline locations.

Dredged material would then be placed in water-tight scows, large, flat-bottomed boats with square ends used for transporting bulk materials, that would be transported to the upland SMA for processing. Prior to offloading sediments, dewatering would occur, where any ponded water would be pumped within the scow into a water treatment system. The on-site water treatment system would consist of a series of holding and weir tanks and would be sufficient to meet the discharge requirements into the City's sewer system (through an Individual User Discharge Permit [IUDP]). Prior to discharge, water samples would be collected and analyzed in accordance with the IUDP. If the effluent contains analytical concentrations that exceed IUDP standards, the water would then be treated on site using options such as the addition of chemicals to reduce analytical concentrations to levels acceptable within IUDP standards or removal from the site by a licensed waste hauler and disposal in accordance with local, state, and federal requirements.

At the SMA, dredged sediment would be stabilized with Portland cement (as necessary to pass the paint filter test) to accelerate the drying process. The paint filter test is a test to determine the presence of free liquids in a representative sample of waste before the waste can be disposed of in a landfill. The dredged sediment would be tested based on the selected upland disposal landfill's profile requirements and then loaded into lined haul trucks and transported to an upland disposal location. Dredged materials would be disposed of at an approved Class III or Class II landfill, depending on the level of contamination. The nearest available landfill would be the Otay Landfill, which is designated as Class III, located in Chula Vista, California.

The following best management practices would be used during dredging activities and would be required through the Coastal Development Permit proposed for the project:

- The speed of bucket movement would be limited in the water column of dredging to minimize the disturbance of sediments and the resuspension of materials.
- The drag of the dredge bucket would be prohibited along the sediment surface.
- The stockpiling of sediments underwater would be prohibited.
- Manual water quality monitoring to include measurements for pH, dissolved oxygen, and turbidity would be conducted to confirm compliance with the San Diego Basin Plan and Section 401 Water Quality Certification requirements.
- Dredging operations would be evaluated and modified as necessary if water quality monitoring shows exceedance of predetermined numerical targets due to dredging operations.

- A spill apron, consisting of steel plates, plywood platforms, or a similar assembly with secondary containment, would be placed between the barge and shore to collect drippings or spillage and direct it back into the barge or collection point.
- Prior to removal from the SMA, haul trucks would be washed at an on-site truck wash to prevent track out of sediment.

Sediment Remediation

Once dredging is complete, the project would place clean sand cover on up to 92,170 square feet of the site (see Figure 3). Sand cover may be amended with granular activated carbon, as determined in the Final Remedial Action Plan to be approved by the San Diego Regional Water Quality Control Board. The granular activated carbon would be obtained from a local supplier. The clean sand cover would be placed on areas targeted for remediation on approximately 7,878 square feet of the clean sand cover area (see Figure 3). As time passes, the clean cover would mix into the underlying sediment through benthic interactions, such as organism burrowing. Equipment required for placement would be similar to the equipment used during dredging but would be supplemented with a conveyor. The clean sand would be transported to the project site by haul truck or barge. If the material arrives by truck, the material would be loaded onto barges and transported to the placement area. A silt curtain would be placed around the sand placement area to reduce turbidity caused by placement operations.

Phase 3 Activities

Post-Remediation Activities

After demolition, dredging, and remediation, the project site would be returned to a vacant, undeveloped site. Once the sediment has been dredged and disposed of, the asphalt and concrete paving areas associated with the SMA would be demolished. The retaining wall above the shore protection would remain and allow the site to be graded such that slopes would be shallow and allow stormwater to be absorbed and minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain, and the site would be graded so that the excess water from storm events would be directed to those spillways.

The existing mature trees would be left undisturbed. Drought-tolerant vegetation would be planted, and an irrigation system would be installed. The irrigation system would be connected to the existing backflow flow protector on site and would have manual valves due to the lack of on-site power. There would be no further operations following remediation activities.

Environmental Considerations

The Draft EIR will address the following potential project-related and cumulative environmental effects of the proposed project: air quality, biological resources, cultural resources, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, and tribal cultural

resources. The Draft EIR will also address other potential impacts identified during the NOP process, identify feasible mitigation measures and a reasonable range of alternatives, and include the other additional mandatory sections required by CEQA. A proposed Mitigation Monitoring and Reporting Program to address the potentially significant adverse impacts of the project will also be presented to the Board of Port Commissioners for consideration. The Environmental Initial Study Checklist is attached.

Comments

This NOP is available for a 30-day public review period that starts on October 31, 2019, and ends at 5:00 p.m. on December 2, 2019. Written comments regarding the scope and content of the environmental information that should be included in the Draft EIR and other environmental concerns should be mailed to:

San Diego Unified Port District
Development Services Department
Attn: Juliette Orozco, Associate Planner
3165 Pacific Highway
San Diego, California 92101

Or emailed to: jorozco@portofsandiego.org

Public Scoping Meeting

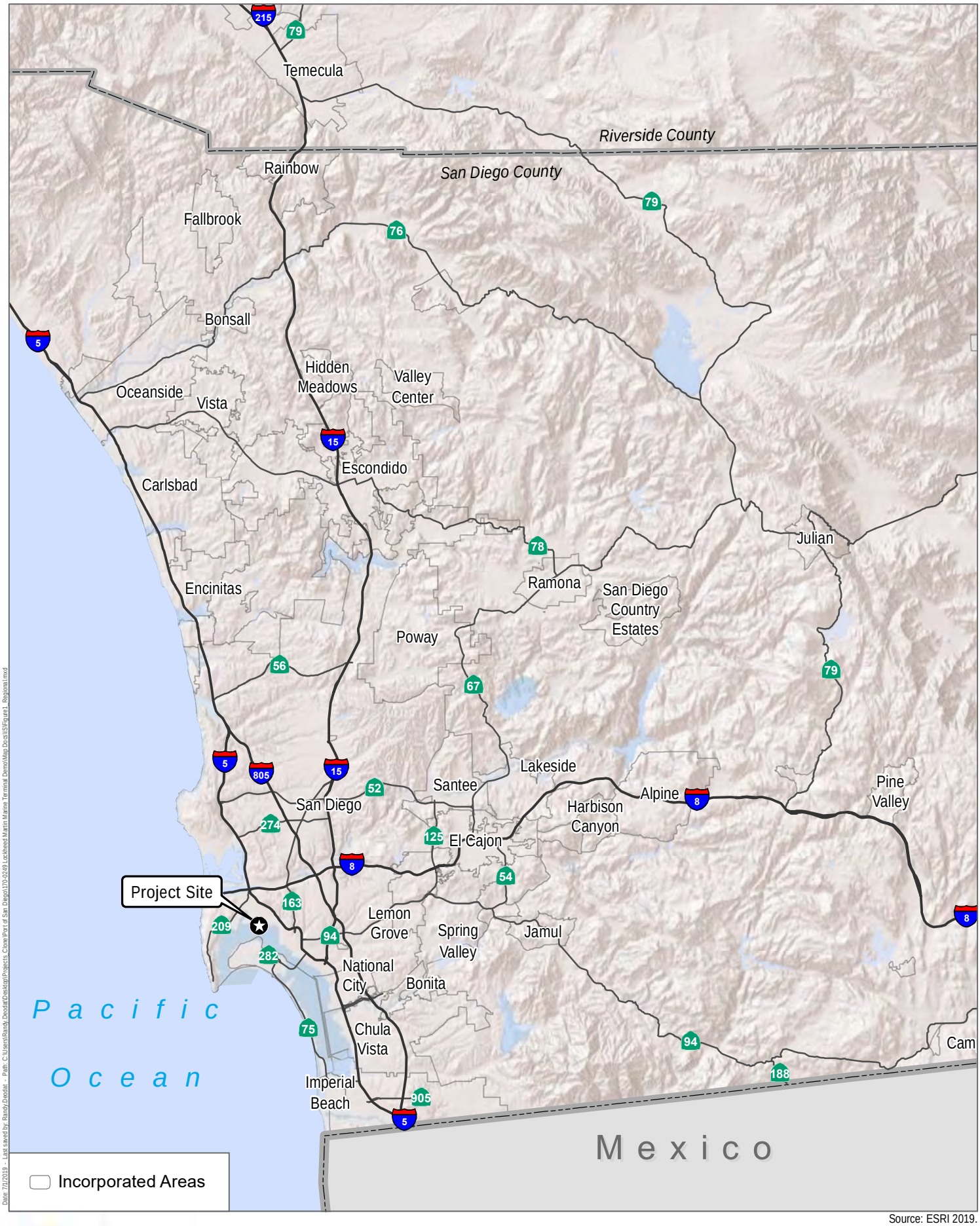
A public scoping meeting to solicit comments on the scope and content of the EIR for the project will be held on November 13, 2019, beginning at 5:00 p.m. at the San Diego Unified Port District Administration Building, Training Room, 3165 Pacific Highway, San Diego California 92101. The District, as the CEQA lead agency, will review the public comments received during the scoping period to determine what issues should be addressed in the EIR. Other opportunities for the public to comment on the potential environmental effects of the project are as follows:

- A minimum 45-day public review and comment period for the Draft EIR
- A public hearing for the Board of Port Commissioners to consider certification of the Draft EIR

For questions regarding this NOP, please contact Juliette Orozco, Associate Planner, at (619) 686-6237.

Attachments

Figure 1: Regional Location
Figure 2: Project Site
Figure 3: Project Components
Environmental Initial Study Checklist



Source: ESRI 2019.

Harris & Associates

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Figure 1

Regional Location

Date: 7/1/2019 - Last saved by: Randy.Dedat - Path: C:\Users\Randy.Dedat\Desktop\Projects_Clone\Port of San Diego\170-02491 Lockheed Martin Marine Terminal Demo\Map Docs\SI\Figure1_Regional.mxd

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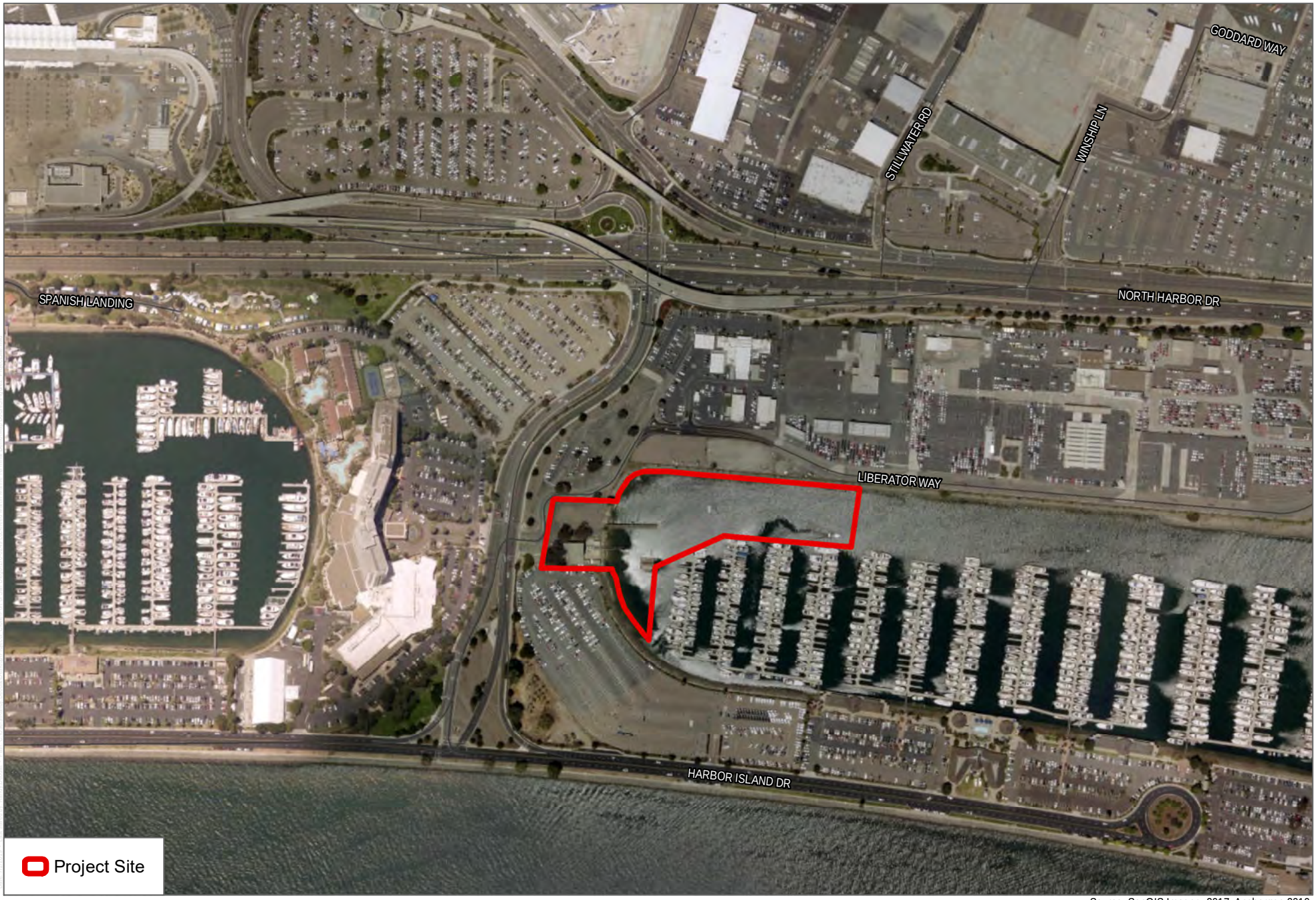

Source: SanGIS Imagery 2017; Anchorqea 2019.

Harris & Associates

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Figure 2

Project Site

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Source: SanGIS Imagery 2017; Anchorqea 2019.

Harris & Associates

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Figure 3

Project Components

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DRAFT

Environmental Initial Study Checklist

Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project

October 2019

Prepared for:

San Diego Unified Port District
3165 Pacific Highway
San Diego, California 92101
Juliette Orozco

Prepared by:

600 B Street, Suite 2000
San Diego, California 92101
(619) 236-1778
Ryan Binns, ENV SP

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Acronyms and Abbreviations

ACM	Asbestos Containing Materials
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CRHR	California Register for Historic Resources
CWA	Clean Water Act
District	San Diego Unified Port District
DOT	California Department of Transportation
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
FHSZ	Fire Hazard Safety Zones
FMP	Fisheries Management Plan
GHG	greenhouse gas
INRMP	Integrated National Resources Management Plan
LCS	Lead Containing Surfaces
NMFS	National Marine Fisheries Service
MHPA	Multi-Habitat Planning Area
MSCP	Multiple Species Conservation Program
MTF	Lockheed Martin Marine Terminal Facilities
PM_{10}	Particulate matter of 10 microns in diameter or smaller
$PM_{2.5}$	Particulate matter of 2.5 microns in diameter or smaller
PMP	Port Master Plan
project	Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project
RAQS	Regional Air Quality Strategy
RCRA	Resource Conservation and Recovery Act
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SIP	State Implementation Plan
SMA	Sediment Management Area
SWRCB	State Water Resources Control Board
TCR	Tribal Cultural Resource
USFWS	U.S. Fish and Wildlife Service
WMA	Watershed Management Area

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Section 1 Introduction

The following Environmental Initial Study Checklist addresses the environmental impacts associated with the implementation of the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project). This Environmental Initial Study Checklist has been prepared in accordance with the California Environmental Quality Act of 1970 (CEQA), as amended, the CEQA Guidelines and the San Diego Unified Port District's (District's) CEQA Guidelines.

1.1 Initial Study Information Sheet

1. Project title:

Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project

2. Lead agency name and address:

San Diego Unified Port District
3165 Pacific Highway
San Diego, California 92101

3. Contact person and phone number:

Juliette Orozco
Associate Planner, Development Services Department
(619) 686-6237

4. Project location:

Lockheed Martin Marine Terminal Facilities
1160 Harbor Island Drive
San Diego, California 92101

5. Project Applicant's and Proponent's name and address:

Brian Thorne
Lockheed Martin Corporation
2550 North Hollywood Way, Suite 406
Burbank, California 91505-5047

6. Port Master Plan designations:

Water Uses: Recreational Boat Berthing, Specialized Berthing, and Boat Navigation Corridor
Land Use: Industrial Business Park

7. Zoning designation:

Pursuant to Section 19 of the Port Act, zoning does not apply within the District's jurisdiction.

8. Description of project:

Please see Section 2, Project Description, for a detailed description of the project.

9. Surrounding Land Uses and Setting:

The project site is located in a marine- and airport-related industrial park. It is bounded to the north by the human-made, riprapped shoreline of the San Diego waterfront and to the west and south by the human-made peninsula known as Harbor Island, and it has a narrow opening to the bay on the east side. Approximately two-thirds of the East Basin is presently occupied by the Sunroad Resort Marina, a 550-slip floating pier.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement:

U.S. Army Corps of Engineers
National Marine Fisheries Service (NMFS)
State Water Resources Control Board (SWRCB)
San Diego Regional Water Quality Control Board
California Department of Fish and Wildlife (CDFW)
U.S. Fish and Wildlife Service (USFWS)
City of San Diego

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has this consultation begun?

Pursuant to California Public Resources Code, Section 21080.3.1 (Assembly Bill 52), California Native American tribes traditionally and cultural affiliated with the project area can request notification of projects in their traditional cultural territory. At this time, no Native American tribes have requested consultation for projects subject to CEQA within the District's jurisdiction. The District has determined that no impacts would occur on tribal cultural resources (TCRs) given the lack of substantial evidence and criteria set forth in subdivision (c) of California Public Resources Code, Section 5024.1. However, in the event that a TCR is unexpectedly identified during the course of the proposed project, and the District determines that the project may cause a substantial adverse change to a TCR, the District will rely on measures described in the Public Resources Code that, if the District determines to be feasible, may avoid or minimize the significant adverse impacts (California Public Resources Code, Section 21084.3[b]).

Section 2 Project Description

2.1 Project Description

The proposed project involves the demolition and remediation of the existing Lockheed Martin Harbor Island Facilities, referred to as the Lockheed Martin Marine Terminal Facilities (MTF), located at 1160 Harbor Island Drive in San Diego. The existing landside and waterside improvements were constructed in 1966 and were primarily used by the Lockheed Martin Company as a maintenance facility for deepwater submersible vehicles. The purpose of the project is to address the contaminated sediments and to remediate the site to return it to its original undeveloped state. Lockheed Martin Corporation proposes to demolish all existing landside and waterside improvements to return the site to its original, undeveloped state. Activities would be broken down into three phases and would include (1) landside demolition; (2) waterside demolition, dredging, and sediment remediation; (3) and post-remediation activities. It is anticipated that the project would be completed in approximately 6 months, with the projected schedule for Phase 1 being from September 2020 to October 2020, Phase 2 from October 2020 to January 2021, and Phase 3 in February 2021.

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Section 3 Environmental Factors Potentially Affected

An Initial Study is conducted by a Lead Agency to determine if a project may have a potentially significant effect on the environment. An EIR must be prepared if an Initial Study indicates that further analysis is needed to determine whether a significant impact will occur or if there is substantial evidence in the record that a project may have a significant effect on the environment. The environmental factors checked below would be potentially affected by the project, involving at least one impact that may require mitigation to reduce the impact from "Potential Impact" to "Less than Significant with Mitigation." The potential impacts and mitigation are described in the Initial Study Checklist.

☐ Aesthetics	☐ Agriculture/Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☐ Geology/Soils	☒ Greenhouse Gas Emissions	☒ Hazards/Hazardous Materials
☒ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☒ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

On the basis of this initial evaluation:

☐ I find that the project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the project MAY have a significant effect on the environment, and an environmental impact report is required.

☒ I find that the project MAY have a "potential impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on the attached

sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Wileen C. Manaois

Signature

10/25/19

Date

Wileen C. Manaois
Director, Development Services

A. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

B. "Less Than Significant with Mitigation" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from other areas of the initial study may be cross-referenced).

C. "Less Than Significant Impact" applies where the project creates no significant impacts, only less than significant impacts.

D. "No Impact" applies where a project does not create an impact in that category. "No Impact" answers do not require an explanation if they are adequately supported by the information sources cited by the lead agency which show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project specific screening analysis)

4.1 Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

a. Would the project have a substantial adverse effect on a scenic vista?

No Impact. The project proposes landside demolition and waterside dredging and remediation of the MTF. The project is located in the East Basin Industrial Subarea of the certified Port Master Plan (PMP) Planning District 2 (Harbor Island/Lindbergh Field) adjacent to the San Diego Bay. Upon completion of the project, no new structures would remain at the project site, and therefore, the project would have no permanent adverse effect on an existing scenic vista. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

b. Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. State Route 163 is designated as a state scenic highway and is located approximately 3 miles to the east of the project site. In addition, the San Diego–Coronado Bay Bridge (State Route 75) is a California state-designated scenic highway and is located approximately 3.5 miles southeast of the project site. Upon completion of demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state and would not result in damages to scenic resources. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

c. Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact. The project is located at the existing MTF. The project involves the demolition of the existing landside and waterside structures, the dredging of contaminated sediments and the waterside remediation of the site. Upon completion of the project, the site would be returned to its original undeveloped state. The site would be revegetated with drought tolerant vegetation and no new structures would be constructed. The project would not conflict with any regulations governing scenic quality. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

d. Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

No Impact. Dredging activities may occur during nighttime hours (between 10:00 p.m. and 7:00 a.m.), which would require the use of temporary construction lighting. Construction lighting would be minimized and would be directed to the specific activity. Existing light sources that currently illuminate the project site at night would be removed. Once construction is completed, no permanent light sources would remain on the project site. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

4.2 Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The project site is located entirely within the District. According to the California Department of Conservation's San Diego County Important Farmland 2016 Map, the project site is classified as "Urban and Built-Up Land" and "Other Land," which do not contain agricultural uses or areas designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (DOC 2016). Dredging and remediation activities would not impact Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, and there is no potential for any actions

to convert farmland resources to non-agricultural uses. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The project site is not zoned for agricultural use, nor is there a Williamson Act contract for the site (DOC 2013). Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The project site is classified as "Urban and Built-Up Land" and is not zoned as forest land, timberlands, or timberland zoned Timberland Production (DOC 2016). No land that has been zoned as forest land or timberland exists within the boundaries of the project site. Therefore no impact would occur, and no further discussion is warranted in the EIR.

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As discussed under question 2(c), no land that has been zoned as forest land or timberland exists within the boundaries of the project site. Implementation of any of the project elements would not result in a loss of forest land or the conversion of forest land to other uses. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. See question 2(a). Implementation of the proposed project would have no impact on agriculture and/or forestry resources. No agricultural land, forest land, or timberland exists on or in the vicinity of the project site. The proposed project would not involve changes to the existing environment that, because of their location or nature, could result in the conversion of Farmland to non-agricultural use or forest land to non-forest use. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

4.3 Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard)?	☒	☐	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☒	☐	☐	☐

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

Potentially Significant Impact. The San Diego County Air Pollution Control District (SDAPCD) is required, pursuant to the federal and state Clean Air Acts, to reduce emissions of criteria pollutants for which the County is in nonattainment (i.e., ozone, particulate matter of 10 microns in diameter or smaller [PM_{10}], and particulate matter of 2.5 microns in diameter or smaller [$PM_{2.5}$]). The Regional Air Quality Strategy (RAQS) projects future emissions and determines the strategies necessary for the reduction of stationary source emissions through regulatory controls to attain the CAAQS for ozone. The federal Clean Air Act also mandates that the state submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. California Air Resources Board (CARB) mobile source emission projections and San Diego Association of Governments (SANDAG) growth projections are based on population and vehicle trends and land use plans developed by local agencies. The demolition, dredging, and remediation activities associated with the proposed project may conflict with the RAQS and SIP and might have a potentially significant impact on air quality because emissions would exceed those estimated for the existing PMP. Further analysis will be provided in the EIR.

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard)?

Potentially Significant Impact. The San Diego Air Basin (SDAB) is in nonattainment status for ozone (8-hour standard) at the federal and state level; and for ozone (1-hour standard), PM_{10}, and $PM_{2.5}$ at the State level. Implementation of the proposed project could result in a cumulatively considerable net increase in these criteria pollutants. Therefore, further discussion will be provided in the EIR.

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Potentially Significant Impact. The SDAB is in nonattainment status for ozone (8-hour standard) at the federal and state level; and for ozone (1-hour standard), PM_{10}, and $PM_{2.5}$ at the State level. Implementation of the proposed project could result in a cumulatively considerable net increase in these criteria pollutants. Therefore, further discussion will be provided in the EIR.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Potentially Significant Impact. According to CARB's Air Quality and Land Use Handbook (2005), land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding facilities. The proposed project does not include any uses identified by CARB as being associated with odors. However, odors may be generated from vehicles and equipment exhaust emissions. Impacts are potentially significant, and this topic will be analyzed further in the EIR.

4.4 Biological Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e. Conflict with any applicable policies protecting biological resources?	☒	☐	☐	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?	☒	☐	☐	☐

a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Potentially Significant Impact. The California Natural Diversity Database (CNDDB) was reviewed to identify special-status species that are known to occur within 1 mile of the project site. Eleven special-status plant species and 14 special-status wildlife species have been recorded within 1 mile of the project site. Only two species listed by U.S. Fish and Wildlife Service (USFWS) and/or California Department of Fish and Wildlife (CDFW) as federally or state endangered or threatened have an elevated potential to occur within the project site: the federally threatened green sea turtle (*Chelonia mydas*) which has not been documented in the study area but which is known to move in and out of San Diego Bay, and the federally and state endangered California least tern (*Sternula antillarum browni*) which is known to forage in the study area as it regularly cruises the shorelines

of San Diego Bay and forages opportunistically when in the Bay. No special status flora species are expected to occur in the upland sides of the project site. In addition, nine species managed under the Pacific Coast Groundfish Fisheries Management Plan (FMP) and six fish species and two invertebrate stocks (squid and krill) managed under the Coastal Pelagics FMP have a record of occurrence within San Diego Bay. Construction activities at the project site could result in a significant impact on these special-status wildlife species. Because there are potential impacts related to implementation of the proposed project elements, a full analysis will be provided in the EIR to determine if a significant impact would occur on candidate, sensitive, or special-status species.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Potentially Significant Impact. The landside portion of the project site consists entirely of developed land; there are no sensitive vegetation communities or areas of riparian habitat on site. Eelgrass vegetated habitat has been detected in the project area, and therefore, impacts may occur to a sensitive natural community. A full analysis will be provided in the EIR to determine if a significant impact would occur.

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Potentially Significant Impact. The proposed project would not alter water flow or water quality to marsh habitat and is not anticipated to degrade marshlands in any way. Therefore, no significant impacts to wetlands are anticipated to occur. Eelgrass beds are considered to be a sensitive habitat and "special aquatic site" under the Clean Water Act (CWA) and are designated as Essential Fish Habitat (EFH). Eelgrass has been detected in the past at the project site. Therefore, additional analysis will be provided in the EIR to determine if a significant impact would occur.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Potentially Significant Impact. The project site is located within the Pacific Flyway but does not provide any specific terrestrial movement corridors, and no marine mammal, reptile, or fish migratory corridors occur within it. However, California least tern nest seasonally within San Diego Bay. Noise resulting from construction activities could inhibit the nesting of the California least tern. Therefore, construction during the breeding season could result in a potentially significant impact, and further analysis is warranted in the EIR.

e. Would the project conflict with any applicable policies protecting biological resources?

Potentially Significant Impact. The City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan does not apply to projects within the District's jurisdiction, nor is any City of San Diego Multi-Habitat Planning Area (MHPA) present within the District's jurisdiction or adjacent to the project site. The project site is several miles outside the boundary of the closest MHPA, which is the planned habitat preserve within the City of San Diego MSCP Subarea.

The applicable local land use plans, policies, ordinances, or regulations of the District, adopted for the purpose of protecting biological resources, are the PMP, San Diego Unified Port District Code, and the District's Integrated Natural Resource Management Plan (INRMP). The District and the U.S. Navy Southwest Division maintain and implement the INRMP, which catalogues the plant and animal species around the Bay and identifies habitat types to ensure the long-term health, recovery, and protection of San Diego Bay's ecosystem in concert with economic, Naval, recreational, navigational, and fisheries needs. Additionally, the District has established goals to protect, preserve, and enhance natural resources in San Diego Bay in Section II of the PMP, Planning Goals (Goal XI). The project site is located within the District's PMP Planning District 2. The PMP's conservation policies focus on protecting and restoring functional areas of high ecological value, none of which are located within or adjacent to the project site. However, the proposed project includes in-water work that has the potential to result in significant impacts on biological resources of the San Diego Bay. Therefore, the proposed project would potentially conflict with local policies or ordinances protecting biological resources. Impacts would be potentially significant, and, further analysis is warranted in the EIR.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?

Potentially Significant Impact. The City of San Diego MSCP Subarea Plan does not apply to projects within the District's jurisdiction, nor is any City of San Diego MHPA present within the District's jurisdiction or adjacent to the project site. The project site is several miles outside the boundary of the closest MHPA, which is the planned habitat preserve within the City of San Diego MSCP Subarea.

As previously mentioned, the District and the U.S. Navy Southwest Division maintain the INRMP, which aims to ensure the long-term health, recovery, and protection of San Diego Bay's ecosystem. In-water work associated with the proposed project has the potential to result in significant impacts on biological resources of the San Diego Bay. Therefore, development of the proposed project will be reviewed with the goals and intent of the INRMP and a more detailed analysis will be provided in the EIR.

4.5 Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☒	☐	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☒	☐	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☒	☐	☐	☐

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Potentially Significant Impact. The MTF were constructed in 1966 on Harbor Island in San Diego to house the research submersible Deep Quest. The property is a good representation of the theme of Industry: Maritime Research and Exploration through its close association with Deep Quest, a submersible vessel internationally recognized in the late 1960s. The building was also designed by Frank Hope, Jr., an architect listed on the City of San Diego's list of Master Architects. Additionally, it is a unique and rare representation of the Contemporary style applied to an industrial building. No historically significant individuals were found to be associated with the property and it is not recommended as a contributor to a potential historic district. The building has not been altered since its original construction and has very good integrity although it is in fair condition. Therefore, the MTF are potentially eligible as a historic resource meeting the criteria for the California Register for Historic Resources (CRHR) and as defined by CEQA, and demolition could result in a substantial adverse change pursuant to CEQA Guidelines, Section 15064.5. Further analysis will be provided in the EIR.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Potentially Significant Impact. A record search will be conducted during the EIR process to determine if any archaeological resources are present within the project area. Further analysis will be provided in the EIR.

c. Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Potentially Significant Impact. A record search will be conducted during the EIR process to determine if any archaeological resources are present within the project area. Further analysis will be provided in the EIR.

4.6 Energy

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

a. Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. Project construction would primarily consume diesel fuel through operation of heavy-duty construction equipment, dredging activities, and debris hauling; gasoline associated with worker commutes; and minor amounts of electricity associated with operation of electrically powered construction equipment. Construction-related energy use would represent a small demand on local and regional fuel and electricity supplies that could be easily accommodated by fuel suppliers. This demand for fuel would have no noticeable effect on peak or baseline demands for energy. Moreover, after the demolition, the project site will remain vacant and no further demand for energy would be required. Therefore, construction of the proposed project would not result in a wasteful, inefficient, and unnecessary usage of direct or indirect energy. In addition, the project does not propose construction of any structures and therefore would not result the wasteful, inefficient, or unnecessary consumption of energy during operation. Therefore, no further discussion is warranted in the EIR.

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. The project would remediate the existing MTF and does not propose construction of any structures. There would be no operations following remediation activities. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and no further discussion is warranted in the EIR.

4.7 Geology and Soils

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less than Significant Impact. The project site is located in a seismically active region of Southern California. Active faults in the immediate vicinity of the project site include the Rose Canyon Fault Zone, which runs under the Bay; the Coronado Fault Zone, which has faults trending north-south through Coronado; and the La Nacion Fault Zone, which lies to the east of the project site (DOC 2003). Since there are no known active faults underlying the project site, the potential for the site to experience surface rupture is low. However, lurching or cracking of the ground surface adjacent to the project site because of nearby seismic events is possible. The project does not propose the

construction of any structures. The existing 5,500 sf building would be demolished. Therefore, the project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving fault rupture, and impacts would be less than significant. No further discussion is warranted in the EIR.

ii. Strong seismic ground shaking?

Less than Significant Impact. As with all properties in the seismically active Southern California region, the project site would be susceptible to ground shaking produced by local faults during earthquakes. However, the project is a remediation project and does not propose the construction of any structures. As a result, impacts from seismic ground shaking would be less than significant. No further discussion is warranted in the EIR.

iii. Seismic-related ground failure, including liquefaction?

Less than Significant Impact. The project area has a high potential for liquefaction and seismically induced settlement based the presence of shallow groundwater and loose, unconsolidated sediments underlying the site. However, the project is remediation project and does not proposed the construction of any structures. As a result, impacts from seismic-related ground failure including liquefaction would be less than significant. No further discussion is warranted in the EIR.

iv. Landslides?

Less than Significant Impact. Geologic mapping does not indicate the presence of mapped landslides on the project site. Additionally, landslides were not observed on or adjacent to the project. Therefore, the project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides, and impacts would be less than significant, and no further discussion is warranted in the EIR.

b. Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. The surface and near-surface soils on the project site are mapped as fill, bay deposits, and old paralic deposits. Alterations may temporarily result in increased erosion and siltation if flows were substantially increased or routed to facilities or channels without capacity to carry the additional flow. During landside demolition activities, the project would implement best management practices that reduce the potential for soil erosion to occur.

Once the sediment has been dredged and disposed of, the sediment management area (SMA) would be removed. The asphalt and concrete paving areas would be demolished with the exception of a retaining wall above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to allow stormwater to be absorbed and to minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain, and the site would be graded so that the excess water from storm events would be directed to those spillways. The

existing mature trees would be left undisturbed. Drought-tolerant vegetation would be planted, and an irrigation system would be installed. No new impervious surfaces would be added. Therefore, impacts would be less than significant, and no further discussion is warranted in the EIR.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant Impact. The project site is within area mapped as being least susceptible to landslides. Additionally, based on the relatively flat topography of the project, landslides are not anticipated to impact the project site. The fill, bay deposits, and old paralic deposits underlying the site may be subject to seismic settlement or liquefaction during a nearby seismic event. Therefore, impacts would be less than significant, and no further discussion is warranted in the EIR.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

No Impact. The surface and near-surface soils at the project are mapped as fill, bay deposits, and old paralic deposits and have moderate potential for expansion. However the project is a remediation project and would not result in substantial direct or indirect risks to life or property. No impact would occur, and no further discussion is warranted in the EIR.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed project would not entail the use of septic tanks or alternative disposal systems as no septic tanks or alternative wastewater disposal systems are proposed as part of the project Therefore, no impact would occur, and no further discussion is warranted in the EIR.

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant Impact. The project site is underlain by the Bay Point Formation which is a near shore marine sedimentary deposit that is about 220,000 years old. This formation has produced a large and diverse amount of well-preserved marine invertebrate and vertebrate fossils. The Bay Point Formation is exposed along the northern shore of Mission Bay (i.e., Crown Point), along the San Diego waterfront, and throughout the city of Coronado. It is assigned high resource sensitivity.

Pursuant to the City of San Diego's Municipal Code Chapter 14, Article 2, Division 11: Grading Regulations, any proposed excavation or other ground disturbing activities in a paleontological sensitive area would need to comply with the City's Municipal Code, Section 142.0151; which requires paleontological resource monitoring when grading involves 1,000 cubic yards or greater, and results in 10 feet or greater in depth within in a highly sensitive formation.

Once all the dredging and demolition activities have been completed the existing site would be graded so that the excess water from storm events is directed to those spillways. The grading required would be minimal and would not involve 1,000 cubic yards of cut or 10 feet of depth. Therefore impacts would be less than significant, and no further discussion is warranted in the EIR.

4.8 Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Potentially Significant Impact. Implementation of the proposed project's various elements would generate greenhouse gas (GHG) emissions, primarily associated with off- and on-road equipment use during remediation and demolition activities. Upon completion of landside demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state. GHG emissions from construction remediation and demolition activities could potentially, either directly or indirectly, have a significant impact on the environment. Further discussion is warranted in the EIR. In addition, the EIR will consider the physical effects of climate change on the proposed project, including an analysis on sea level rise. The sea level rise analysis will identify any areas of potential impacts due to potential future increases in mean sea level rise (temporary coastal flooding, and permanent inundation) and if the project exacerbates potential impacts on the environment resulting from sea level rise or associated events (e.g., coastal flooding, wave overtopping, erosion).

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Potentially Significant Impact. The District has enacted a variety of policies and plans to reduce GHG emissions as part of its Climate Action Plan, including the implementation of shore power, equipment and truck replacement/retrofits, vessel speed reductions, and the Clean Truck Program. Implementation of the proposed project could increase GHG emissions during project remediation activities. Therefore, further discussion is warranted in the EIR.

4.9 Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐	☐	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☒	☐	☐	☐
e. For a project located within an airport land-use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area?	☒	☐	☐	☐
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. The proposed project would use heavy equipment for demolition and dredging activities. Construction-related hazardous materials would be used during project construction, including fuel, solvents, paints, oils, and grease. The proposed project would be required to comply with federal, state, and local regulations for the routine transport, use, and disposal of any hazardous materials. These regulations include the Resource Conservation and Recovery Act (RCRA); U.S. Department of Transportation (DOT) Hazardous Materials Regulations (Code of Federal Regulations [CFR] Title 49); California Health and Safety Code; and San Diego County Code, Title 6, Division 8, in combination with construction best management practices that would be implemented during project construction.

Any accidental release of these materials due to spills or leaks would be cleaned up in the normal course of business, consistent with the previously mentioned regulations. Upon completion of demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state and would not involve the use of hazardous materials. Therefore, impacts associated with the potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials would be less than significant, and no further discussion in the EIR is warranted.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Potentially Significant Impact. A Hazardous Building Materials Survey would be performed at the buildings associated with the MTF as part of the EIR. Asbestos Containing Materials (ACM), Lead Containing Surfaces (LCS), and fluorescent light tubes and associated ballasts have the potential to occur. The presence of these hazardous materials could create a significant hazard to the public or the environment if they were to be disrupted during demolition activities and released into the environment. Therefore, impacts are potentially significant, and further analysis is warranted in the EIR.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less than Significant Impact. No existing public schools have been identified within one-quarter mile of the project site. The closest school to the project site is San Diego Montessori School, approximately 2.3 mile to the west on the other side of Interstate 5. As such, the project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Therefore, impacts would be less than significant, and no further discussion is warranted in the EIR.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Potentially Significant Impact. The MTF may be located within a list of hazardous materials sites compiled pursuant to Government Code, Section 65962.5. During remediation activities, construction workers would be present on the site and could be exposed to significant hazards that would result in a potentially significant impact. Upon completion of landside demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state and would not create a significant hazard. Further analysis will be provided in the EIR.

e. Would the project for a project located within an airport land-use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area?

Potentially Significant Impact. The MTF are located within 2 miles of the San Diego International Airport and is located with the Airport Influence Area. The project area is located within the 60–65 decibel noise contour area and is not located in the safety compatibility zone. During remediation activities construction workers would be present at the site and could be exposed to excessive noise limits which would result in a potentially significant impact. Upon completion of landside demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state and would not result in a safety hazard or expose people to excessive noise. Further analysis will be provided in the EIR.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The project proposes the demolition, dredging, and remediation of the MTF. Upon completion of the remediation, the project site would be returned to its original undeveloped state. No building or uses would remain on the property. There would not be any change to emergency access to the project site and it would not impair an adopted emergency response plan or emergency evacuation plan. Furthermore, the project would not result in the temporary or permanent closures of public roadways or driveways within City or District jurisdiction. The project site would remain accessible by water from the Bay and from Harbor Island Drive. Therefore, there would be no impact, and no further discussion is warranted in the EIR.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. The project proposes the demolition, dredging, and remediation of the MTF. Upon completion of the remediation, the project site would be returned to its original undeveloped state. No uses are proposed that could exacerbate wildfire risk. According to CAL FIRE's Fire Hazard Safety Zone (FHSZ) Map of San Diego County (2009), the project is located in a local responsibility non-very high FHSZ. In addition, no building or uses would remain on the property that would expose project or structures to risk of loss, injury or death involving wildfires. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

4.10 Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☒	☐	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on or offsite?	☐	☐	☒	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☐	☒
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
iv. Impede or redirect flood flows?	☐	☐	☐	☒
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☒	☐	☐	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Potentially Significant Impact. The project proposes the demolition and waterside dredging and remediation at the MTF. Activities would be broken down into two phases and would include landside demolition, waterside demolition, dredging and waterside remediation, and post remediation activities. These activities would have the potential to result in substantial additional sources of polluted runoff, which could have short-term impacts on surface water quality through project activities such as demolition, clearing and grading, dredging and stockpiling of soils and materials.

The proposed activities would involve various types of equipment such as bulldozers, scrapers, backhoes, and other earth-moving equipment; haul trucks; barge mounted Derrick crane, and generators. Pollutants associated with these construction activities that could result in water quality

impacts include soils/sediment, debris, fuels and other fluids associated with the equipment used for construction.

These pollutants could impact water quality if they are washed off site by stormwater or non-stormwater, or are blown or tracked off site to areas susceptible to wash off by stormwater or non-stormwater. Depending on the location of the construction site at its discharges, pollutants are likely to drain into the San Diego Bay, which is impaired by PCBs (Project Clean Water 2019). Under these impairments, the receiving water cannot assimilate or accommodate additional loading of pollutants, and any increases would contribute to the impairment. Therefore, implementation of the project could result in significant short-term impacts to water quality from uncontrolled sediment and pollutants in stormwater runoff from construction. Therefore, further discussion is warranted in the EIR.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact. No groundwater would be withdrawn as part of the project. The proposed project would demolish all existing structures on the site. No new impervious surfaces would be added. The project would not interfere with groundwater recharge. Therefore, the project would not deplete groundwater supplies and no impact would occur. No further discussion is warranted in the EIR.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on or offsite?

Less than Significant Impact. There are no rivers or streams within the project site. Land-disturbing activities associated with the proposed project, such as vegetation clearing, grading and demolition could result in localized alteration of drainage patterns and temporarily increase erosion and sedimentation in the construction area. Alterations may temporarily result in increased erosion and siltation if flows were substantially increased or routed to facilities or channels without capacity to carry the additional flow. During landside demolition activities, the project would implement best management practices that reduce the potential for erosion or siltation to occur.

Once all the sediment has been dredged and disposed of the SMA would be removed. The asphalt and concrete paving areas would be demolished with the exception of a retaining wall above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to allow stormwater to be absorbed and minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain and the site would be graded so that the excess water from storm events is directed to those spillways. The existing mature trees would be left undisturbed. Drought tolerant vegetation would be planted and an irrigation system would be

installed. No new impervious surfaces would be added. Therefore, impacts would be less than significant, and no further discussion is warranted in the EIR.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

No Impact. There are no rivers or streams within the project site. Land-disturbing activities associated with the proposed project, such as vegetation clearing, grading and demolition could result in localized alteration of drainage patterns and temporarily increase runoff rates in the construction area. Alterations may temporarily result in flooding on – or off-site if flows were substantially increased or routed to facilities or channels without capacity to carry the additional flow. During landside demolition activities, the project would implement best management practices that reduce the potential for flooding to occur.

The proposed demolition of the landside facilities would reduce the amount of impervious surface currently existing at the project site and would not create an increase in runoff. The existing asphalt and concrete paving areas would be demolished with the exception of a retaining wall above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to allow stormwater to be absorbed and minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain and the site would be graded so that the excess water from storm events is directed to those spillways. The proposed project would not impede or substantially increase the rate or amount of surface runoff in a matter that would result in flooding on or off site. Therefore, no impacts would occur, and no further discussion is warranted in the EIR.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

No Impact. The proposed demolition of the landside facilities would reduce the amount of impervious surface currently existing at the project site and would not create an increase in runoff. The existing, asphalt and concrete paving areas would be demolished with the exception of a retaining wall above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to allow stormwater to be absorbed and minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain and the site would be graded so that the excess water from storm events is directed to those spillways. The existing on-site stormwater system would have the capacity to accommodate runoff associated with the project. Therefore, no impacts would occur, and no further discussion is warranted in the EIR.

iv. Impede or redirect flood flows?

No Impact. The proposed demolition of the landside facilities would reduce the amount of impervious surface currently existing at the project site and would not create an increase in runoff.

The existing asphalt and concrete paving areas would be demolished with the exception of a retaining wall above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to allow stormwater to be absorbed and minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain and the site would be graded so that the excess water from storm events is directed to those spillways. The proposed project would not impede or redirect flood flows. Therefore, no impacts would occur, and no further discussion is warranted in the EIR.

d. Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Potentially Significant Impact. Tsunamis are seismic sea waves generated by sudden movements of the sea floor caused by submarine earthquakes, landslides, or volcanic activity. The project site is within a tsunami inundation zone mapped by the Tsunami Inundation Map for Emergency Planning for the Point Loma Quadrangle (California Emergency Management Agency 2009). Therefore, the potential for tsunami to occur at the project site is considered high. During construction, if the site were hit by a tsunami there would be risk for the release of pollutants from the project site. Therefore, further discussion is warranted in the EIR.

The project would not be at risk of inundation by mudflow because the project site and surrounding areas are generally flat and paved and incapable of producing mudflows. The project would also not be at risk of inundation by seiche because seiches are typically associated with land-locked bodies of water, none of which are near the project site. Therefore, no impacts related to the risk of release of pollutants from inundation by mudflow or seiche would occur, and no further discussion is warranted in the EIR.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Potentially Significant Impact. The project site is located within the San Diego Bay Watershed Management Area (WMA). Specifically, the project is located in the Pueblo Hydrologic Unit and is further located within the San Diego Mesa Hydrologic Area (SDRWQCB 2016). The major receiving water for the project area is the San Diego Bay.

The designated beneficial uses for the San Diego Bay include Municipal, Biological Habitats, Agriculture, Commercial Sport Fishing, Contact Water Recreation, Estuarine Habitat, Industrial Service Supply, Marine Habitat, Migration of Aquatic Organisms, Navigation, Non-Contact Water Recreation, Rare, Threatened and Endangered Species, Shellfish Harvesting, Spawning, Reproduction, and Early Development, and Wildlife Habitat.

The proposed activities would involve various types of equipment such as bulldozers, scrapers, backhoes, and other earth-moving equipment; haul trucks; barge mounted Derrick crane, and generators. Pollutants associated with these construction activities that could result in water quality

impacts include soils/sediments, debris, fuels and other fluids associated with the equipment used for construction. Implementation could result in significant short-term impacts to water quality impacts from uncontrolled sediment and pollutants in stormwater runoff that could conflict with the policies of the San Diego Basin Plan. Therefore, further discussion is warranted in the EIR.

The proposed project is not located within a Groundwater Sustainability Agency Boundary and therefore no sustainable groundwater management plan has been prepared for the project area. In addition, no groundwater would be withdrawn as part of the proposed project. Upon completion of demolition, dredging and remediation activities, the site would returned to its original undeveloped state and would not interfere with groundwater recharge. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

4.11 Land Use and Planning

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

a. Would the project physically divide an established community?

No Impact. All project demolition and waterside dredging and remediation activities would occur within the existing property boundaries. No component of the project would introduce a barrier or division to, or otherwise result in a conflict with, the surrounding commercial or industrial development or any other established community. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The PMP is the guiding land use policy document for the areas under the District's jurisdiction. The project site is located in the PMP Planning District Number 2 (Harbor Island) within the East Basin Industrial Subarea. The land use designation for the project site is Industrial Business Park and the water use designations are Recreational Boat Berthing, Specialized Berthing, and Boat Navigation Corridor. According to the PMP, the Industrial Business Park land use designation allows for a wide range of industrial and business uses sited in development (District 2017). The Recreational Boat Berthing water use designation supports numerous marine recreational uses, including recreational craft storage, refueling, and excursion ferry and charter operations (District 2017). The Specialized Berthing water use designation supports numerous marine commercial and industrial uses, including ship building and repair, water taxi, and any other facility supporting the marine craft engaged in commercial and industrial uses (District 2017). The Boat Navigation Corridor water use designation includes those water areas delineated by navigational channel markers or by conventional waterborne traffic movements (District 2017). Historically, the MTF were primarily used by the Lockheed Martin Company as a maintenance facility for deep water submersible vehicles. Currently the site remains vacant.

The project site is also located within the Coastal Zone and is subject to the requirements of the California Coastal Act. The proposed project type is not listed as "appealable" in Section 30715 of Chapter 8, Ports, of the California Coastal Act. As such, the proposed project requires a non-appealable coastal development permit, which is issued by the District (consistent with the PMP

as certified by the California Coastal Commission), and a PMP amendment is not required because non-appealable projects do not need to be added to the project list. In addition, the proposed project is consistent with the land and water use designations of the PMP, as discussed previously.

The proposed project also requires issuance of a coastal development permit in compliance with the California Coastal Act. The Lockheed Martin Corporation now proposes to demolish all existing landside and waterside improvements to return the site to its original, undeveloped state and to remediate the contaminated sediments. The project would not conflict with the certified PMP or California Coastal Act. Therefore, no impacts would occur, and further discussion is not warranted in the EIR.

4.12 Mineral Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. The project site is not known to contain mineral resources that would be of value to the region or state. According to the Conservation Element of the City of San Diego's General Plan (City of San Diego 2008), the project site is mapped as an area where no mineral deposits are present. No mineral resources would be lost as a result of the project. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. The project site is not known to contain mineral resources that would be of value to the region or state. According to the Conservation Element of the City of San Diego's General Plan (City of San Diego 2008), the project site is mapped as an area where no mineral deposits are present. No mineral resources would be lost as a result of the project. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

4.13 Noise

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?	☒	☐	☐	☐

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Potentially Significant Impact. The potential exists for project construction to result in significant impacts due to the proposed high-intensity construction activities (i.e., pile driving), as well as limited 24-hour construction activities (i.e., dredging) that would occur partly outside of the daytime hours typically permitted by the City of San Diego. Noise levels during project construction will be analyzed in the EIR and evaluated relative to the construction noise standards provided in the City of San Diego Municipal Code.

Due to the project's waterfront location and the proposed in-water construction activities, there is also the potential for the proposed project to result in significant noise impacts on sensitive biological resources (birds, fish, and/or marine mammals). Therefore, noise levels (including underwater noise [hydroacoustic] levels) will be evaluated for biological resources and addressed within the EIR's Biological Resources section.

b. Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?

Potentially Significant Impact. Vibration-generating activities would include demolition, dredging, and excavation. Although perceptible groundborne vibration or noise generated by project construction would most likely not propagate to surrounding residential uses or other sensitive receptors, the possibility of vibration-related damage to nearby buildings presents a potentially significant impact. Therefore, predicted vibration levels during project construction will be evaluated in the EIR.

c. Would the project, for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?

Potentially Significant Impact. The MTF are located within 2 miles of the San Diego International Airport. Airport Influence Area boundaries around the San Diego International Airport have been adopted by San Diego County Regional Airport Authority in its Airport Land Use Compatibility Plan). The project site is located within the Airport Influence Area Review Area 1, which is the combination of the 60-decibel community noise equivalent level noise contour, the outer boundary of all safety zones, and the threshold siting surfaces. The project area is located within the 60- to 65-decibel noise contour area and is not located in the safety compatibility zone. For the duration of the proposed project, construction workers would be present at the site and could be exposed to excessive noise limits, which would result in a potentially significant impact. Upon completion of landside demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state and would not result in a safety hazard or expose people to excessive noise. Further analysis will be provided in the EIR.

4.14 Population and Housing

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The project would not involve the development of new homes or businesses that would directly or indirectly induce substantial population growth. In addition, the project does not include the extension of roads or other infrastructure that would indirectly induce substantial population growth. Therefore, no impacts would occur, and no further discussion is warranted in the EIR.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The project is located on an industrial waterfront. There are no homes located within the vicinity of the project that would be displaced. Therefore, no impacts would occur, and no further discussion is warranted in the EIR.

4.15 Public Services

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

No Impact. Fire protection services are provided to the site by the San Diego Fire-Rescue Department Station 8, 3974 Goldfinch St, which is located 3.6 miles to the east of the project site. The project proposes the demolition and remediation of the existing MTF and would not result in an increase in operational capacity or number of employees. The project would not increase demand for fire protection. Therefore, no impacts would occur, and no further discussion is warranted in the EIR.

Police protection?

No Impact. Police protection services are provided to the area by the San Diego Harbor Police, which provide police protection services in the Bay region. The Harbor Police are headquartered at 3380 North Harbor Drive, approximately 0.7 miles northeast of the project site. The project proposes the demolition and remediation of the existing MTF and would not result in an increase in operational capacity or number of employees. The project would not increase demand for police protection. Therefore, no impacts would occur, and no further discussion is warranted in the EIR.

Schools?

No Impact. The proposed project does not involve the construction of housing units or other employment-generating development that would create the demand for new school facilities. The project proposes the demolition and remediation of the existing MTF and would not result in an increase in operational capacity or number of employees or school-aged children. The project would not increase demand on schools. Therefore, no impacts would occur, and no further discussion is warranted in the EIR.

Parks?

No Impact. The proposed project does not involve the construction of housing units or other employment-generating development that would create the demand for new public parks. The project proposes the demolition and remediation of the existing MTF and would not result in an increase in operational capacity or number of employees or potential park users. The project would not increase demand on parks. Therefore, no impacts would occur, and no further discussion is warranted in the EIR.

Other public facilities?

No Impact. The proposed project does not involve the construction of housing units or other employment-generating development that would create the demand for new public facilities. The project proposes the demolition and remediation of the existing MTF and would not result in an increase in operational capacity or number of employees. The project would not increase demand on public facilities. Therefore, no impacts would occur, and no further discussion is warranted in the EIR.

4.16 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The proposed project does not involve the construction of housing units or other employment-generating development that would increase the use or deterioration of existing public parks or recreational facilities. The project proposes the demolition and remediation of the existing MTF in an industrial waterfront area and would not impact public parks or recreational facilities. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed project does not include recreational facilities or require the expansion of recreational facilities. The project proposes the demolition and remediation of the existing MTF in an industrial waterfront area and would not impact recreational facilities or necessitate the expansion of existing facilities. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

4.17 Transportation

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d. Result in inadequate emergency access?	☐	☐	☐	☒

a. Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than Significant Impact. The project proposes the demolition and remediation of the existing MTF in an industrial waterfront area. During Phase 1, demolition of the facilities would require the removal of both landside and waterside infrastructure. Demolition debris would be transported for disposal via haul truck trips. The project would result in approximately 170 two way truck trips during demolition. Once the existing MTF are demolished approximately 15,000 cy of contaminated sediments would be dredged. All dredged sediment would be loaded into lined haul trucks and transported to an off-site upland disposal location. Approximately 534 truck trips would be required to haul the import and export material to and from the site during Phase 2. Approximately two weekly haul truck round trips for construction material delivery and demolition debris and dredged sediment disposal would be required and this increase would not constitute a significant impact to the capacity of the existing circulation system. Also, the minimal project construction traffic would not interfere with or decrease the performance of public transit, bicycle, or pedestrian facilities located in the area surrounding the project site. Therefore, the project does not conflict with an applicable circulation system plan, ordinance or policy, and all impacts would be less than significant. No further discussion is warranted in the EIR.

b. Would the project or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less than Significant Impact. The Lockheed Martin Corporation now proposes to demolish all existing landside and waterside improvements to return the site to its original, undeveloped state and to remediate the contaminated sediments. The project would not result in an increase in operational capacity or number of employees. The project would not result in vehicles miles traveled and would not be inconsistent with CEQA Guidelines, Section 15064.3(b). Therefore, impacts would be less than significant, and no further discussion is warranted in the EIR.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The project does not involve any design modification to existing street segment or intersections and would not change driveway configurations. The project proposes the demolition and remediation of the existing MTF in an industrial waterfront area. The project does not have the potential to increase traffic hazards to motorists or create incompatible traffic related use. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

d. Would the project result in inadequate emergency access?

No Impact. There would not be any change to emergency access to the project site. The project would not result in temporary closures of public roadways or driveways within City or District jurisdiction. The project site would remain accessible by water from the Bay and from Harbor Island Drive. Adequate controlled site access, would be maintained during and after remediation activities. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

4.18 Tribal Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☒	☐	☐	☐

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

Less than Significant Impact. The MTF were constructed in 1966 on Harbor Island in San Diego to house the research submersible Deep Quest. The property is a good representation of the theme of Industry: Maritime Research and Exploration through its close association with Deep Quest, a submersible vessel internationally recognized in the late 1960s. The building was also designed by Frank Hope, Jr., an architect listed on the City of San Diego's list of Master Architects. Additionally, it is a unique and rare representation of the Contemporary style applied to an industrial building. No historically significant individuals were found to be associated with the property and it is not recommended as a contributor to a potential historic district. The building has not been altered since its original construction and has very good integrity although it is in fair condition. The MTF are therefore eligible for the CRHR. The MTF are a historical resource as defined by CEQA, and its demolition will result in a substantial adverse change pursuant to CEQA

Guidelines, Section 15064.5. However the MTF have no cultural value to California Native American Tribe. Therefore, further analysis will be provided in the EIR.

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Potentially Significant Impact. A record search will be conducted during the EIR process to determine if any archaeological resources are present within the project area. Consultation with California Native American Tribes will be conducted during the EIR process. Therefore, further analysis will be provided in the EIR.

4.19 Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No Impact. The project proposes the demolition, dredging and remediation at the MTF. The project would demolish the existing building and remove all existing utilities including power to the San Diego Gas & Electric transformer vault, gas to the nearest valve box, sewage tank and associated piping to the tank and capping outlets to the sewage tank that tie to the City of San Diego's sewer system at or near the property line, and the water to the back-flow preventer on the site. Therefore, the project would not require or result in the relocation or construction of new or expanded wastewater treatment, electric power, natural gas, or telecommunication facilities. Upon completion of the remediation activities, the site would be returned to its original, undeveloped state. The project site would be revegetated with drought tolerant vegetation. The existing back-flow preventer would become the water supply for the proposed irrigation system for the revegetated areas. No new or expanded water facilities would be required. Therefore, there would be no impact, and no further discussion is warranted in the EIR.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact. The project proposes the demolition, dredging and remediation at the MTF. The project would not increase water usage at the site, and no new or expanded entitlements would be required. Upon completion of the remediation activities, the site would be returned to its original, undeveloped state. The project site would be revegetated with drought tolerant vegetation. The existing back-flow preventer would become the water supply for the proposed irrigation system for the revegetated areas. Long term watering of the site is not required once the vegetation is established. Therefore, there would be no impact, and no further discussion is warranted in the EIR.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. The project proposes the demolition, dredging and remediation at the MTF. The project would demolish the existing building and remove all existing utilities including power to the San Diego Gas & Electric transformer vault, gas to the nearest valve box, sewage tank and associated piping to the tank and capping outlets to the sewage tank that tie to the City of San Diego's sewer system at or near the property line, and the water to the back-flow preventer on the site. Upon completion of the remediation, the project site would be returned to its original undeveloped state and would not require wastewater treatment. Therefore, the project would have no impact on the capacity of a wastewater treatment provider, and no further discussion is warranted in the EIR.

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact. The project proposes the demolition and remediation of the existing MTF in an industrial waterfront area. Demolition of the facilities would require the removal of both landside and waterside infrastructure. Demolition debris would be transported for disposal via haul truck trips to an off-site disposal location. It is estimated that 700 tons of concrete from both landside and waterside facilities would be removed, which would be 100 percent recycled. In addition, an estimated 770 tons of asphalt would be removed, which would be 100 percent recycled. Demolition activities would also remove 35 tons of steel and other miscellaneous metal debris that would all be recycled. The remaining mixed construction debris created as a result of demolition would be approximately 115 tons, which would be 50 percent recycled.

Once the existing MTF are demolished approximately 15,000 cy of contaminated sediments would be dredged. All dredged sediment would be loaded into lined haul trucks and transported to an off-site upland disposal location. All dredged material would be disposed of at an approved Class III (or Class II) landfill. The nearest available landfill would be the Otay Landfill, which is a Class III

with a maximum permitted throughput of 6,700 tons of solid waste per day and has a remaining capacity of 21,194,008 cubic yards (California Department of Resources Recycling and Recovery 2018). Due to the remaining capacity, the Otay Landfill would be able to accommodate the project's solid waste disposal needs, and impacts would be less than significant. Further discussion is not warranted in the EIR.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. The project proposes the demolition and remediation of the existing MTF in an industrial waterfront area. Demolition of the facilities would require the removal of both landside and waterside infrastructure. Demolition debris would be transported for disposal via haul truck trips to an off-site disposal location. It is estimated that 700 tons of concrete from both landside and waterside facilities would be removed, which would be 100 percent recycled. In addition, an estimated 770 tons of asphalt would be removed, which would be 100 percent recycled. Demolition activities would also remove 35 tons of steel and other miscellaneous metal debris that would all be recycled. The remaining mixed construction debris created as a result of demolition would be approximately 115 tons, which would be 50 percent recycled. During construction, the project would be required to comply with applicable federal, State, and local regulations regarding the proper disposal of solid waste. Impacts would be less than significant, and no further discussion is warranted in the EIR.

4.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. The project proposes the demolition, dredging and remediation of the MTF. Upon completion of the remediation, the project site would be returned to its original undeveloped state. No building or uses would remain on the property. There would not be any change to emergency access to the project site and it would not impair an adopted emergency response plan or emergency evacuation plan. Furthermore, the project would not result in the temporary or permanent closures of public roadways or driveways within City or District jurisdiction. The project site would remain accessible by water from the Bay and from Harbor Island Drive. Therefore, there would be no impact, and no further discussion is warranted in the EIR.

b. Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. The project proposes the demolition, dredging and remediation of the MTF. Upon completion of the remediation, the project site would be returned to its original undeveloped state. No uses are proposed that could exacerbate wildfire risk. According to CAL FIRE's FHSZ Map of San Diego County (2009), the project is located in a local responsibility non-very high FHSZ. In addition, no building or uses would remain on the property that would expose project occupants to wildfire pollutants. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

c. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. The project proposes the demolition, dredging and remediation of the MTF. Upon completion of the remediation, the project site would be returned to its original undeveloped state. No infrastructure would remain nor does the project propose the installation of any new infrastructure. Therefore, no new fire risk would occur and no impact would occur. No further discussion is warranted in the EIR.

d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The project proposes the demolition, dredging and remediation of the MTF. Once all the sediment has been dredged and disposed of the SMA would be removed. The asphalt and concrete paving areas would be demolished with the exception of a retaining wall above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to allow stormwater to be absorbed and minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain and the site would be graded so that the excess water from storm events is directed to those spillways.

The existing mature trees would be left undisturbed. Drought tolerant vegetation would be planted and an irrigation system would be installed. The project would not introduce any new land uses to the site and would be returned to its original undeveloped state. Therefore, the project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Therefore no impact would occur, and no further discussion is warranted in the EIR.

4.21 Mandatory Findings of Significance

Does the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; Sundstrom v. County of Mendocino,(1988) 202 Cal.App.3d 296; Leonoff v. Monterey Board of Supervisors, (1990) 222 Cal.App.3d 1337; Eureka Citizens for Responsible Govt. v. City of Eureka (2007) 147 Cal.App.4th 357; Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th at 1109; San Franciscans Upholding the Downtown Plan v. City and County of San Francisco (2002) 102 Cal.App.4th 656.

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Potentially Significant Impact. In-water work would occur in the Bay, which would cause potential impacts on biological resources such as fish, green sea turtles, and marine mammal species. Therefore, further analysis of the proposed project's potential biological resources is warranted in the EIR.

The MTF are eligible for the CRHR. The Lockheed Marine Terminal is a historical resource as defined by CEQA, and its demolition will result in a substantial adverse change pursuant to CEQA Guidelines, Section 15064.5. Further analysis will be provided in the EIR.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Potentially Significant Impact. CEQA Guidelines, Section 15130, requires a discussion of the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects. The cumulative impacts discussion does not need to provide as much detail as is provided in the analysis of project-specific impacts and should be guided by the standards of practicality and reasonableness.

As determined by this Initial Study, there may be potentially significant effects related to air quality, biological resources, cultural resources, GHG emissions, hazards and hazardous materials, hydrology and water quality, noise, and tribal cultural resources. Therefore, the project's potential contribution to cumulative impacts related to these resources will be discussed in the EIR.

Because the project would have no impact on aesthetics, agriculture and forestry resources, energy, geology and soils, mineral resources, land use and planning, population and housing, public services, recreation, transportation, utility and service systems, or wildfire, it was determined that the proposed project would have no potential to result in cumulative impacts related to these resource areas. Further discussion of the cumulative effect on these resources is not warranted in the EIR.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Potentially Significant Impact. Based on the analysis above, the proposed project has the potential to result in significant impacts on air quality, biological resources, cultural resources, GHG emissions, hazards and hazardous materials, hydrology and water quality, noise, and tribal and cultural resources. As such, the project has the potential to result in environmental impacts that could cause substantial adverse effects on human beings, either directly or indirectly. Therefore, further discussion is warranted in the EIR.

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Section 5 References

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Section 6 California Department of Fish and Wildlife Fee Determination

(California Fish and Game Code, Section 711.4, Statutes of 2006 – SB 1535)

☐ It is hereby found that this project involves no potential for any adverse effect, either individually or cumulatively, on wildlife resources and that a "Certificate of Fee Exemption" shall be prepared for this project.

☒ It is hereby found that this project could potentially impact wildlife, individually or cumulatively, and therefore, fees in accordance with Section 711.4(d) of the Fish and Game Code shall be paid to the County Clerk.

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Section 7 Preparers

San Diego Unified Port District – Lead Agency

Wileen Manaois, Director, Development Services

Juliette Orozco, Associate Planner, Development Services

Joseph Smith, Department Manager, Development Services

Dana Sclar, Senior Planner, Development Services

Peter Eichar, Senior Planner, Development Services

Rebecca Harrington, Senior Deputy General Counsel, Office of the General Counsel

John Carter, Deputy General Counsel, Office of the General Counsel

Eileen Maher, Director, Environmental Conservation

Paul Brown, Program Manager, Planning & Green Port

James Hammel, Program Manager, Real Estate

HDR, Inc. – Project Mangement Consultant

Jenny Vick, Senior Environmental Planner

Harris & Associates – CEQA Consultant

Ryan Binns, ENV SP, Director and Quality Assurance/Quality Control

Kristin Blackson, Project Manager

Esther Daigneault, Environmental Analyst

Sharon Toland, Senior Air Quality/GHG/Noise Specialist

Kelsey Hawkins, Air Quality/GHG/Noise Analyst

Randy Deodat, Geographic Information Systems Analyst

Lindsey Messner, Technical Editor

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NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov

November 13, 2019

Juliette Orozco
San Diego Unified Port District
3165 Pacific Highway
San Diego, CA 92101

RE: SCH# 2019100658, Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project, San Diego County

Dear Ms. Orozco:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
    a. A brief description of the project.
    b. The lead agency contact information.
    c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
    d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
    a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
    a. Alternatives to the project.
    b. Recommended mitigation measures.
    c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
    a. Type of environmental review necessary.
    b. Significance of the tribal cultural resources.
    c. Significance of the project's impacts on tribal cultural resources.
    d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
    a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
    b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
   a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
   b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
       i. Planning and construction to avoid the resources and protect the cultural and natural context.
       ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
       i. Protecting the cultural character and integrity of the resource.
       ii. Protecting the traditional use of the resource.
       iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Staff Services Analyst

cc: State Clearinghouse

Save Our Heritage Organisation
Protecting San Diego's architectural and cultural heritage since 1969

Thursday, November 21, 2019

San Diego Unified Port District
Development Services, c/o Juliette Orozco
3165 Pacific Highway
San Diego, CA 92101

Re: Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project – NOP comments

Ms. Orozco,

SOHO understands the San Diego Unified Port District is soliciting scoping comments regarding the Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project, which proposes "demolition landside and waterside components of the existing Marine Terminal Facilities (MTF) located at 1160 Harbor Island Drive and remediation of the waterside sediment in the surrounding basin." SOHO further understands that the MTF includes the main building, accessory "shed" buildings, pier, and marine railway, however, SOHO's primary concern is the main building, which has been found potentially eligible for listing on the California Register of Historic Resources, with further analysis coming in the draft Environmental Impact Report.

SOHO agrees this property retains excellent integrity and is "a good representation of the theme of Industry: Maritime Research and Exploration through its close association with Deep Quest, a submersible vessel internationally recognized in the late 1960s." Further, as a Frank Hope, Jr. design – a San Diego Master Architect – SOHO also agrees "it is a unique and rare representation of the Contemporary style applied to an industrial building," which warrants the MTF being treated as a historical resource and any project should be consistent with the Secretary of the Interior Standards (Standards).

SOHO recommends the Port undertake an adaptive reuse study for the MTF, and to evaluate moving or repurposing the main MTF building, which will likely be mitigation to remediate toxins. Additionally, SOHO can provide free consultations to help determine appropriate solutions and/or mitigation.

SOHO agrees the MTF are potentially significant to the California State Historical Register under the theme of Industry, Maritime Research and Exploration, and that they should be treated consistent with the Standards. Further, an adaptive reuse study should be prepared to evaluate the next use in the life of the main MTF building.

Thank you for the opportunity to comment,

Bruce Coons
Executive Director
Save Our Heritage Organisation

2476 San Diego Avenue • San Diego CA 92110 • www.SOHOsandiego.org • 619/297-9327

Appendix B. March 2017 Remedial Action Plan

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UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA

SAN DIEGO UNIFIED PORT DISTRICT, Plaintiff, v. GENERAL DYNAMICS CORPORATION and LOCKHEED MARTIN CORPORATION, Defendants.	Case No.: 07-CV-0955-CB (WVG)

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA

SAN DIEGO UNIFIED PORT DISTRICT, Plaintiff, v. LOCKHEED MARTIN CORPORATION and LOCKHEED MARTIN ENGINEERING & SCIENCES COMPANY, Defendants.	Case No.: 3:16-cv-2026-L-KSC

RECITALS

WHEREAS, the Settling Parties are involved in the Actions (as defined in Section 1.1, below);

WHEREAS, the Settling Parties desire to enter into this Agreement to resolve the claims asserted by any Settling Party against any other Settling Party in connection with Covered Matters (as defined in Section 1.8 below), except as expressly set forth in this Agreement, and to avoid the complication and expense of further litigation;

WHEREAS, the Settling Parties agree that this Agreement is fair, reasonable, and in the public interest;

WHEREAS, the Settling Parties agree that this Agreement calls for the implementation of a sediment remedy in the Active Remediation Area (as defined in Section 1.2 below); and

WHEREAS, the Settling Parties enter into this Agreement as a final settlement of all claims in connection with Covered Matters associated with the Site, except as otherwise expressly set forth in this Agreement.

ARTICLE I. DEFINITIONS

For the purposes of this Agreement, these terms shall be defined as follows:

1.1 Actions. "Actions" shall mean the cases entitled *San Diego Unified Port District v. General Dynamics*, Case No. 3:07-cv-01955-BAS-WVG and *San Diego Unified Port District v. Lockheed Martin*, Case No. 3:16-cv-02026-L-KSC, involving claims under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675 ("CERCLA"), together with other claims seeking cost recovery, contribution, and indemnity for costs allegedly incurred in response to the release or threatened release of hazardous substances at the Site (as defined below), seeking a declaration as to the various parties' liability for costs to be incurred in the future, asserting contract claims under various leases, including the Lease, and asserting tort claims.

1.2 Active Remediation Area. "Active Remediation Area" shall mean the areas that will be dredged and areas that will receive sand cover and/or activated carbon, as required by the Remedial Action Plan. Without limiting the foregoing, and for purpose of clarification, "Active Remediation Area" includes polygons SQO2 and SQO3 to the extent that the State requires those areas of the Site to be remediated.

1.3 Agency. "Agency" shall mean the Regional Water Quality Control Board, San Diego Region and any successor thereto.

1.4 CAO. "CAO" shall mean the San Diego Regional Water Quality Control Board Draft Cleanup and Abatement Order No. R9-2017-0021 dated January 30, 2017, attached hereto as Exhibit B, as it may be amended, or as it may be reissued in the future as a new CAO covering the Site.

1.5 Coastal Development Permit. "Coastal Development Permit" or "CDP" shall mean the Coastal Development Permit that is necessary for the performance of the (a) Remedial Action pursuant to the CAO and (b) end-of-term demolition and removal activities required under the Lease. The CDP shall be issued to Lockheed Martin following the requisite process and may include the conditions and special conditions set forth in the form attached hereto as Exhibit E, or in a materially similar version, and, as it may be amended in the future to address any changes in the nature or scope of the work pursuant to the CAO. Lockheed Martin shall apply for the CDP and provide all necessary supporting documents to the Port District for the Board of Port Commissioners' ("BPC") consideration. In the event the BPC denies approval of the CDP, or approves a Coastal Development Permit with conditions that materially differ from the CDP attached hereto as Exhibit E, including without limitation changes causing a material increase in costs or time frame for implementation of the Remedial Action or revokes the CDP, Lockheed Martin may elect to terminate this Settlement Agreement or file an amended CDP application addressing any concerns raised by the BPC. If Lockheed Martin elects to terminate this Settlement Agreement, it may do so by providing the Settling Parties with notice of termination within thirty (30) days of the issuance of the CDP, the denial of the CDP application or any amended CDP application, or revocation of the CDP. Upon termination, this Settlement Agreement and the dismissal of claims shall be null and void, and the Settling Parties agree to jointly move the Court or Courts to reinstate litigation of the Actions. All limitations for claims

that were or could have been alleged in the Actions relating to the subject matter thereto shall be tolled from the Effective Date (and to the extent claims relate back to the original filings, the respective dates the Actions were first filed) and the Settling Parties shall be placed in the same position in the Actions as prior to the Effective Date and dismissals.

1.6 COCs. "COCs" shall mean polychlorinated biphenyls ("PCBs") and Mercury.

1.7 Covered Matters. "Covered Matters" shall mean:

(a) Any and all claims asserted in the Actions related to the Site by and between the Settling Parties;

(b) Any and all claims that could have been, could now be, or could later be asserted by any of the Settling Parties against any of the other Settling Parties as of the Effective Date of this Agreement arising out of or in connection with alleged contamination of the sediments within the Active Remediation Area, including all claims for breach of contract or express contractual indemnity relating to the alleged contamination within the Active Remediation Area;

(c) All Past Response Costs;

(d) All Current Response Costs; and

(e) All Future Response Costs incurred by Lockheed Martin.

"Covered Matters" shall not include and shall expressly exclude all Excluded Matters (as defined in Section 1.11, below).

1.8 Current Response Costs. All costs of response arising out of or in connection with actions required of a Settling Party by the CAO or CDP for implementation of the CAO, RAP, and/or CDP, until a completion letter or analogous instrument is issued by the Water Board.

1.9 Effective Date. This Agreement requires an Order Approving Agreement and Barring and Dismissing Claims (the "Orders," defined in Section 5.2, below) to be entered in each Action. The Effective Date of this Agreement shall be the date on which the latter of the two Orders is entered.

1.10 Easement. "Easement" shall mean the easement agreement covering the Active Remediation Area and sand cover area in the form and with the content agreed by the parties in the form attached hereto as Exhibit F, or in a similar version, issued to Lockheed Martin.

1.11 Excluded Matters. "Excluded Matters" shall mean any claims and liabilities arising out of or in connection with:

a) Obligations or claims arising under this Agreement or a breach thereof, including, without limitation, Future Development Costs;

b) Future Response Costs incurred by the Port District or GD;

c) Any contamination in areas outside the Active Remediation Area;

d) Port District Lost Revenues suffered or incurred by the Port District;

e) Any claims a Settling Party may have against another Settling Party or any other party which may arise in the future that relate to the Site for conduct and/or liability arising after the Effective Date; provided, however, that any claim related to future contamination of the Site shall only be considered an "Excluded Matter" if the contamination can be conclusively established to have occurred after execution of this Agreement and the contamination materially alters Remedial Action required by the CAO or is not addressed by the Remedial Action.

f) Any claims in contribution or indemnity related to third-party claims not barred by the Orders, for personal injury or property damages in connection with the Site, and

g) Natural resource damages.

No Settling Party admits that any potential claim, right, or obligation described in "Excluded Matters" exists or is legally cognizable. Except as provided by Section 7.8, no Settling Party waives any defense to any potential claim, right, or obligation described in "Excluded Matters." Nothing in the definition of "Excluded Matters" shall be argued or construed to suggest that any Settling Party agrees or admits that a potential claim described in "Excluded Matters" exists or is legally cognizable.

1.12 Future Development Costs. "Future Development Costs" shall mean:

a) The costs above those that would have otherwise been incurred in connection with a future development ("incremental costs") that:

(i) arise out of the development of the Active Remediation Area, in the future, for Intended Uses; AND

(ii) were caused by (A) COC contamination of the sediments within the Active Remediation Area as of the Effective Date or (B) the Remedial Action (e.g., the increased cost of removing or disposing of sediments that are COC-contaminated rather than clean sediments or of the increased volume of disposed sediments to the extent due to sand cover deposited in the Remedial Action or the replacement of the sand cover following dredging within the Active Remediation Area); AND

(iii) are typical costs of construction or of such development work given the presence of the COC contamination (e.g., not an atypical developer request intended to transfer development costs from one phase or section of the development to another); AND

(iv) were incurred by the Port District, and, in the case of third party development, incurred by the Port District only after reasonable business efforts to have a third party cover such costs without offset or other reduction in compensation or value to the Port District, OR were incurred by a third party only after reasonable business efforts to avoid such costs, were sufficiently documented, and directly resulted in a specific and proven offset or other reduction in compensation to the Port District.

b) In the event of dredging within the Active Remediation Area for navigational purposes, the increased cost of removing or disposing of COC-contaminated sediments at the Active Remediation Area rather than clean sediments or the increased volume of disposed sediments due to sand cover deposited in the Active Remediation Area or the replacement of the sand cover following dredging within the Active Remediation Area.

Nothing in this Section or Agreement shall be construed to prevent any Settling Party from pursuing claims, including claims for indemnity or contribution, against any third party, except as expressly provided elsewhere in this Agreement.

1.13 Future Response Costs. "Future Response Costs" shall mean:

a) Those necessary costs of response that are consistent with the National Contingency Plan, as defined in 42 U.S.C. § 9601(25) and do not arise out of or in connection with the CAO, RAP, and CDP, but are necessary to address future orders of the Agency or other state or federal environmental authorities with jurisdiction over the Site regarding COC-contaminated sediments at the Site; and

b) Any State oversight costs relating to the implementation of the CAO at the Site, or billed pursuant to Sections 13304 and 13305 of the California Water Code, or required to be paid under Section J.1 of the CAO, or costs otherwise relating to the implementation of the CAO, RAP, or CDP at the Site ("Oversight Costs"), which Oversight Costs are incurred by the Agency or any federal agency or the State after the Effective Date.

1.14 GD. "GD" shall mean General Dynamics Corporation and its parents, subsidiaries, predecessors, affiliates, and successors.

1.15 Intended Uses. "Intended Uses" shall mean actual, planned, specific uses for the Active Remediation Area that are (a) consistent with the Port District's enumerated permitted uses of the tidelands and submerged lands held for the benefit of the public and (b) approved by the Board of Port Commissioners, and (c) intended for long-term (greater than one year) use or redevelopment. Intended Uses as used herein does not include preparation of the Active Remediation Area for non-specific, speculative, and/or as-yet unapproved development. The Parties acknowledge that, as of the date of execution of this Agreement, the Active Remediation Area is under consideration for long-term, major commercial and recreational redevelopment.

1.16 Lease. The "Lease" shall mean the April 1, 1966 lease of certain tidelands and submerged lands located at 1160 Harbor Drive, San Diego California (District Document No. 1885) and the Tidelands Use and Occupancy Permit ("TUOP") No. 56605 issued by the Port District to Lockheed Martin.

1.17 Lockheed Martin. "Lockheed Martin" shall mean Lockheed Martin Corporation and Lockheed Martin Engineering & Sciences Company, including their parents, subsidiaries, predecessors, affiliates, and successors.

1.18 Marine Terminal Facility. The "MTF" shall mean the property leased from the Port District by Lockheed Martin under the Lease and any improvements thereon.

1.19 Orders. Promptly after execution of this Agreement, the Settling Parties shall prepare and file in each Action a Motion for Order Approving Agreement and Barring and Dismissing Claims. The Motions and Orders shall be jointly prepared and agreed upon by the Settling Parties.

1.20 Past Response Costs. "Past Response Costs" shall mean those necessary costs of response, as defined in 42 U.S.C. § 9601(25), and/or any other costs that were incurred by the Settling Parties for investigation and remediation of the Site incurred prior to the Effective Date, including Past State Oversight Costs.

1.21 Past State Oversight Costs. "Past State Oversight Costs" shall mean any State oversight costs relating to the CAO at the Site, or billed pursuant to Sections 13304 and 13305 of the California Water Code, or alleged under Sections 15 and J.1 of the CAO, or otherwise relating to the Site that were incurred by the State prior to the Effective Date.

1.22 Port District. The "Port District" shall mean the San Diego Unified Port District.

1.23 Port District Lost Revenue. "Port District Lost Revenue" shall mean revenue the Port District did not receive in connection with a future development and/or the reduction of revenue to the Port District as a result of the Remedial Action or sediments contaminated with COCs at the Site beginning two years after the Effective Date (the "Post-Closure Condition"). Port District Lost Revenue (a) shall be measured by the reduction in funds paid to the Port District for the future development project in the Post-Closure Condition as measured against the Site without COC-contaminated sediment, and (b) must be clearly tied to the Post-Closure Condition by the developer or third party lessee.

1.24 Remedial Action. "Remedial Action" shall mean and refer to the activities required under the Remedial Action Plan. "Remedial Action" shall specifically not include any Excluded Matters.

1.25 Remedial Action Plan ("RAP"). "Remedial Action Plan" or "RAP" shall refer to the Remedial Action Plan prepared by Anchor QEA, LP, or a similar plan agreed to by the Settling Parties in substantial conformity with the draft attached as Exhibit C.

1.26 Settling Parties. "Settling Parties" shall collectively refer to the Port District, Lockheed Martin, and GD.

1.27 Site. The "Site" shall mean and refer to the Northwest Portion of the East Basin Sediments (CAO Study Area) defined in the CAO as Figure 1 and attached as Exhibit A The Site does not include the upland portions of the Tow Basin Facility or MTF.

1.28 State. "State" shall mean the State of California, including its departments, agencies, and instrumentalities.

1.29 Tow Basin Facility. The "Tow Basin Facility" shall mean the upland property located at 3380 North Harbor Drive, San Diego California and described in TUOP Port Document No. 20699.

ARTICLE II. SETTLEMENT PAYMENTS AND OBLIGATIONS

2.1 Lockheed Martin.

(a) Lockheed Martin shall be solely responsible for (i) Current Response Costs; (ii) all Future Response Costs and (iii) the implementation and completion of the Remedial Action as required under the CAO through and until notification by the Agency that no further remedial work is required at the Site, provided that the Port District and GD fulfill their obligations contained in Section 2.2(a) and 2.3(a).

(b) Lockheed Martin shall remove all installations and improvements from the MTF premises and restore the MTF premises in accordance with the plan for return of the MTF property that is attached as Exhibit D. The removal of improvements includes improvements on the submerged portion of the MTF, but remediation of sediments within the MTF shall be conducted as part of the Remedial Action.

(c) Lockheed Martin shall pay or reimburse the Port District for Future Development Costs that arise after the Effective Date. The Port District shall provide Lockheed Martin reasonable advance notice of any permit application that is reasonably expected to give rise to Future Development Costs. The Port District will use good faith efforts to notify Lockheed of any reasonably anticipated third party application filing that could give rise to Future Development Costs. The Port District shall then take commercially reasonable efforts to allow Lockheed Martin to mitigate or minimize such costs, as long as such efforts do not cause unreasonable delay or additional costs on the Port District or third parties. The obligation to pay or reimburse the Port District for Future Development Costs shall not apply to any Intended Use for which an

application for a Coastal Development Permit (or the future equivalent and as reasonably amended) is not filed with the Port District within 5 years after the submittal of the Cleanup and Abatement Remedy Completion Report (as defined in the CAO) and, thereafter, diligently acted on by the Port District and BPC within the time period reasonably required for the review and approval of similar developments or activities. In no event shall Lockheed Martin be responsible under this Section for Future Development Costs in excess of $2,500,000. Beyond the time or amount specified in this Section, Future Development Costs will be treated as Excluded Matters.

2.2 The San Diego Unified Port District.

(a) In consideration for Lockheed Martin's and GD's agreements herein, the Port District shall (i) abate the rent required under the Lease for a period of 36 months beginning on the date all permits necessary to perform and complete the Remedial Action and removal of improvements have been approved (to the extent Lockheed is utilizing its best efforts to obtain all necessary permits), (ii) contribute the value of its staff time for the processing and implementation of the CDP and any amendments thereto sought by Lockheed Martin from the Port District, and (iii) shall waive its right to reimbursement of Past State Oversight Costs from Lockheed Martin and GD.

(b) As further valuable consideration for Lockheed Martin's assumption of responsibility for assuring the funding, implementation, and completion of the Remedial Action and Future Response Costs, and in consideration for Lockheed Martin's other agreements herein, the Port District shall actively support Lockheed Martin's efforts to achieve approval of, implement, and complete the Remedial Action. Lockheed Martin will pursue a Mitigated Negative Declaration under the California Environmental Quality Act ("CEQA") for the Remedial Action and removal of improvements anticipated and the Port District will give due consideration to

Lockheed's request, recognizing that the Port District shall determine the level of CEQA review required pursuant to the standards set forth under CEQA. The Port District's active support includes avoidance of any and all communication with the Agency supporting greater remedial action within the Site (except as may result from a change in the applicable cleanup standard or the addition of new contamination, contamination not associated with the COCs, or if conditions post-implementation of the Remedial Action warrant additional investigation or remediation), allowing for the use of the Marine Terminal Railway property (assuming issuance of and compliance with any and all requisite permits for such use) or, if that property is unavailable for reasons other than Lockheed Martin's failure to diligently fulfill its lease obligations and obligations under this Agreement, a reasonable and equivalent substitute property of the Port District to the extent reasonably available, for a staging area to perform dredge material re-handling without requiring Lockheed Martin to pay a fee of any kind, except for third-party consultant costs for preparation for the CEQA analysis, and support for additional actions before or requests to additional agencies facilitating the Remedial Action. Such active support shall not require and does not include any expenditure of funds by or on behalf of the Port District.

(c) During the term of the Easement, the Port District shall undertake commercially reasonable efforts to coordinate the timing, sequencing, and implementation of development activities, including dredging for navigational purposes, with Lockheed Martin and request third party developers and their agents do the same and, to the extent reasonably possible, to avoid compromising the performance or completion of the Remedial Action.

(d) As further consideration, the Port District covenants that it will not sue or assert a claim against the Settling Parties for natural resource damages wholly within the Site; provided, however, that this covenant not to sue shall not apply to any action, assessment or claims

related to injuries to natural resources, or seeking natural resource damages, that concern resources or geographic areas that are either outside of the Site or that include areas or resources both within and outside of the Site, and, in such event, the Port District shall not be restricted by this covenant as to the actions, claims or damages it may assert or seek to recover. Furthermore, the Port District represents and warrants that, as of the date of execution of this Agreement, a natural resource damage assessment has not been initiated for injuries within the Site. In the event a claim for natural resource damages covered by this Subsection is brought against a Settling Party, nothing herein waives any rights or remedies that are available to any Settling Party against another Settling Party, including but not limited to claims for contribution or equitable indemnity. For the purposes of clarity and the avoidance of doubt, the Port District expressly reserves its right to assert an action, assessment, or claims related to injuries to natural resources within the Site as part of a larger action, assessment, or claim for natural resource damages concerning resources or geographic areas that are outside of the Site.

2.3 GD

(a) In consideration for Lockheed Martin and the Port District's agreements herein, GD shall pay the total sum of $850,000.00 to Lockheed Martin, payable in cash within thirty days of the later of (a) the Effective Date of this Agreement, (b) Lockheed's acceptance of a CDP under Section 1.5 (i.e., Lockheed elects not to terminate this Agreement); or (c) the date the remediation contractor agreement for the performance of the Remedial Action is fully executed, in full and final settlement of all claims asserted by the Port District and Lockheed Martin against GD in the Actions, including, without limitation, claims for Past State Oversight Costs, Past Response Costs, Current Response Costs, and Future Response Costs. The cash payment shall be in the form of an Electronic Funds Transfer in accordance with Section 2.3(b) and the instructions provided by

the designated representative, or trustee, of Lockheed Martin. If GD does not pay this amount in full when due, then interest of eight percent (8%) per annum shall accrue on any unpaid balance.

(b) Electronic Funds Transfer Information to be provided by Lockheed Martin.

2.4 Joint Obligations. From and after the date this Agreement is fully executed, Lockheed Martin's and the Port District's, and GD's respective directors, officers, and commissioners agree to cooperate and refrain from making, supporting, or encouraging any other party to make, any negative comments about the other party concerning the litigation, administrative proceedings, cleanup, or settlement to any third persons, publications, or agencies to assure the timely remediation of the Site under the CAO. Additionally, said directors, officers and commissioners agree not to encourage any other Lockheed Martin, Port District, or GD personnel to violate the terms of this clause. This provision does not preclude any actions to enforce the terms of this Agreement or to the extent related to Excluded Matters, and such actions do not constitute a breach of this provision.

ARTICLE III. RELEASES AND COVENANTS NOT TO SUE

3.1 Releases and Covenants Not To Sue. Upon the Effective Date, any and all claims and causes of actions brought by the Settling Parties against one another in the Actions will be dismissed with prejudice, unless they are Excluded Matters (which Excluded Matters will be dismissed without prejudice). Except as otherwise provided in this Agreement, immediately upon the Effective Date of this Agreement, the Settling Parties simultaneously forever release, discharge, covenant, and agree not to assert (by way of the commencement of an action or in any other fashion) any and all claims, causes of action, suits or demands of any kind whatsoever, in law or in equity, that they have, may have had, or hereafter have or could have, against each other relating to Covered Matters, including, but not limited to, claims under CERCLA Sections 107 and 113. This release specifically encompasses any claims or causes of action against the

Settling Parties arising out of or in connection with COC contamination in the Active Remediation Area. These releases expressly include, but are not limited to, all claims for any costs or fees incurred by the Settling Parties related to the Site prior to the execution of this Agreement. Notwithstanding anything to the contrary herein, the Settling Parties agree that such releases do not include any release by Lockheed Martin, GD, or the Port District with respect to any Excluded Matters, or the right to enforce this Agreement.

3.2 Release of Insurers. Except as otherwise provided in this Agreement, immediately upon the Effective Date of this Agreement, each Settling Parties simultaneously forever release, discharge, covenant, and agree not to assert (by way of the commencement of an action or in any other fashion) any and all claims, causes of action, suits, in law or equity, that were, could have been, could be now, or could be later asserted by it against any insurers, or putative insurers (as an additional insured), of the other Settling Parties for insurance coverage or indemnity under policies issued to the other Settling Parties and arising out of or in connection with the alleged contamination of the sediments within the Site.

3.3 No Release of Third Parties. Except as otherwise provided in this Agreement, none of the Settling Parties is releasing any third party under this Agreement and any rights the Settling Parties, and each of them, may have against third parties are expressly preserved.

3.4 Protection Against Claims.

(a) The Settling Parties acknowledge and agree that the payments and obligations provided for in this Agreement represent a good faith compromise of disputed claims for Covered Matters and that the compromise represents a fair, reasonable, and equitable resolution of Covered Matters.

(b) With regard to any claims for costs, damages, or other claims against the Settling Parties relating to Covered Matters in this Agreement, the Settling Parties agree that each is entitled to contribution protection pursuant to Section 6 of the Uniform Comparative Fault Act, 12 U.L.A. 147 (1996) ("UCFA"), California Code of Civil Procedure section 877.6, and any other applicable provision of federal or state law, whether by statute or common law, extinguishing each Settling Party's liability to persons not party to this Agreement and barring any claims for contribution or equitable indemnity by any third party, whether they are brought pursuant to, CERCLA or any other theory, relating to the Covered Matters. Any rights the Settling Parties may have to obtain contribution or otherwise recover costs or damages from persons not party to this Agreement are expressly preserved, except as otherwise provided herein.

ARTICLE IV. INDEMNIFICATION

4.1 Lockheed Martin agrees to defend, indemnify, and hold harmless the Port District and GD from any and all claims, liabilities, demands, costs, fees, judgments, damages, fines and penalties ("Claims") relating to or arising out of (i) Future Response Costs to the extent of Lockheed Martin's responsibility for same as described at Section 2.1(a), (ii) Current Response Costs, (iii) the performance by Lockheed Martin of the Remedial Action, and any and all obligations, requirements and activities, including, without limitation, any requirements or obligations triggered by the resuspension of contaminants within or adjacent to the Active Remediation Area, by any contamination caused by handling or dewatering of dredged sediments, or by an enforcement action by any regulatory agency, which relate to or arise from the CAO, RAP, CDP, and (iv) any and all other permits and requirements of or issued by any regulatory agency related to the implementation of the CAO as they relate to the Site (collectively, the "Indemnified Matters"). Obligations identified in this Section 4.1 will not apply to Claims to the extent they arise from the gross negligence or intentional misconduct of

the Port District or GD; provided, however, that actions taken by the Port District in its lawful exercise of its regulatory authority under the Port Act (Cal. Harbors & Nav. Code, App. 1, *et seq.*), the adopted ordinances and policies of the Port District or the CDP, shall not constitute gross negligence or intentional misconduct.

ARTICLE V. EFFECT OF SETTLEMENT/ENTRY OF JUDGMENT

5.1 No Admission. This Agreement was negotiated and executed by the Settling Parties in good faith and at arm's length and is a fair and equitable compromise of claims, which were vigorously contested. This Agreement shall not constitute or be construed as an admission of wrongdoing or liability by any Settling Party for any contamination at the Site, or for any response costs, damages, or other relief sought in the Actions, nor is it an admission or denial of any factual allegations set out in the complaints underlying the Actions, or in any counterclaim, or cross-claim or third-party claim or an admission of any violation of law, rule, regulation, or policy by any of the Settling Parties. This Agreement may not be offered as evidence by any party or third party in any administrative or judicial proceeding as an indication or admission of liability, wrongdoing, or culpability with respect to the Site, the CAO, the RAP, waste discharge requirements, other claims raised in the lawsuit, or with respect to any other matters addressed by this Agreement.

5.2 Order Approving Agreement and Barring and Dismissing Claims.

(a) This Agreement is conditioned upon the Court issuing an order approving the Agreement under CERCLA, the UCFA, adopted as federal common law, and California Code of Civil Procedure sections 877 and 877.6, and providing the Settling Parties with contribution and equitable indemnity protection pursuant to Section 6 of the UCFA, California Code of Civil Procedure section 877.6, and any other applicable provision of federal or state law, whether by statute or common law, extinguishing the Settling Parties' liability to persons not party to this

Agreement and barring and dismissing any claims against the Settling Parties for contribution or equitable indemnity by any third party regardless of whether they are brought pursuant to CERCLA, or any other theory, relating to Covered Matters (the "Order Approving Agreement"). The parties agree to promptly and jointly seek issuance by the Court of the Order Approving Agreement, in a form attached hereto as Exhibit G.

(b) The Settling Parties shall also request the Court to include in the Order Approving Agreement that, based upon and subject to the rulings in said Order, (i) all claims made by a Settling Party against any other Settling Party in the Actions, whether alleged in a counterclaim, cross-claim or third-party claim, or otherwise, that are Covered Matters shall be dismissed with prejudice subject to the conditions set forth in Section 1.5, <u>except</u> that any and all claims by any Settling Party against any other Settling Party relating to the Excluded Matters shall be reserved, dismissed without prejudice and not deemed barred by entry of judgment or dismissal pursuant to the Agreement. All dismissals described in this Section are further subject to (1) the rights of the parties under this Agreement to later assert any and all claims related to Excluded Matters, which claims shall not be deemed barred by entry of judgment or dismissal pursuant to this Agreement, (2) other rights expressly reserved under this Agreement, and (3) the Order Approving Agreement becoming final and effective. The Court retains jurisdiction to enforce the terms of this Agreement. As between the Settling Parties, each Party shall bear its own costs and expenses, including attorneys' fees, in this Action.

(c) Except as otherwise provided herein, all obligations, waivers, releases, indemnities and dismissals under this Agreement are expressly conditioned upon (1) the Court's entry of the Order Approving Agreement; and (2) the expiration of any time for appeal or review of such Order Approving Agreement or, if any appeal is filed and not dismissed, the upholding of

the Order Approving Agreement on appeal in full. Should the Court fail to approve the Order Approving Agreement in full, or if the Order Approving Agreement is not upheld in full on appeal, this Agreement, and all dismissals described in Sections 3.1 and 5.2, shall automatically be deemed null and void and of no force or effect.

5.3 Good Faith Efforts. The Settling Parties agree to cooperate and exercise good faith, due diligence, and all reasonable efforts to jointly prepare the motion for the Order Approving Settlement ("Good Faith Motion") and to execute all necessary documents to carry out the provisions of this Agreement.

5.4 Effect On Discovery In The Action. The Settling Parties agree not to propound any written discovery requests (and California Public Records Act requests), or serve deposition notices, upon one another in the Actions and the Settling Parties may suspend production of documents in response to the same. The Settling Parties, however, reserve all rights to submit California Public Records Act requests outside of the Actions, including requests related to Excluded Matters. In the event the Court does not enter the Order Approving Agreement, the Agreement shall be null and void, and the Settling Parties agree to jointly move the Court to extend any discovery deadlines previously established by the Court for the completion of fact discovery for an additional time period equal to the period from January 30, 2017, through the date of the Court's order denying approval of this Agreement.

ARTICLE VI. REPRESENTATIVE AUTHORITY

6.1 Each individual executing this Agreement on behalf of any Party hereto represents and warrants to each other Party that such individual is authorized to enter into this Agreement on behalf of that Party and that this Agreement binds that Party. Each of the Parties to this Agreement hereby respectively represents and warrants to each other Party that each of them is a duly organized or constituted entity, with all requisite power to carry out its obligations under this

Agreement, and that the execution, delivery and performance of this Agreement have been duly authorized by all necessary action of the board or other governing body of such Party, and will not result in a violation of such Party's organizational documents.

ARTICLE VII. MISCELLANEOUS

7.1 Retention of Jurisdiction. The Court shall retain jurisdiction over both the subject matter of this Agreement and the Settling Parties for the duration of the performance of the terms and provisions of this Agreement for the purpose of enabling any of the Settling Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate to construe, implement, or enforce compliance with the terms of this Agreement, to enforce any obligations constituting Indemnified Matters pursuant to Section 4.1 or obligations relating to the performance of work by Lockheed Martin pursuant to Section 2.1, which rights and obligations under Section 4.1 and Section 2.1 shall survive the dismissal of the Actions, or for any further relief as the interest of justice may require.

7.2 Agreement is Binding and Final. This document embodies the entire terms and conditions of this Agreement, and each Party acknowledges that it has not relied upon any warranties, representations, or promises except those set forth expressly in this Agreement. This Agreement may not be altered, amended, modified, or otherwise changed in any respect except by a writing executed by an authorized representative of each of the Settling Parties.

7.3 Disputes. Each Party agrees to provide the other Parties no fewer than thirty calendar days' notice of any dispute, claim, or difference arising out of or in connection with this Agreement, or the breach or invalidity thereof, including disputes related to disposal of contaminated dredge spoils in the future, prior to commencing any proceedings in any court or tribunal. During the thirty day notice period, the Settling Parties agree to attempt in good faith to resolve the issue. If the Settling Parties do not reach resolution of the issue, any dispute

concerning this Agreement or disposal costs must be resolved first by participation in a mediation with Timothy Gallagher, or with another mediator mutually agreed upon by the parties. Only if such mediation is unsuccessful shall the parties seek relief in the United States District Court for the Southern District of California. To the maximum extent permitted by law, the Settling Parties agree to personal jurisdiction, subject matter jurisdiction, and venue in that Court for purposes of resolving disputes under this Agreement.

7.4 Binding Effect. This Agreement shall be binding upon and inure to the benefit of the Settling Parties, as well as their respective employees, officers, directors, shareholders, corporate affiliates, agents, Commissioners, successors, representatives, and assigns.

7.5 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original but all of which taken together shall constitute one and the same instrument. Any Party's signature to this Agreement transmitted by facsimile or electronic mail transmission shall be deemed to be binding originals on said Party.

7.6 Governing Law. This Agreement shall be governed by and construed under federal law. To the extent federal law does not apply or calls for the application of state law, then the laws of the State of California shall apply.

7.7 Enforcement of Agreement. In any action to enforce this Agreement, the prevailing party shall be entitled to recover its reasonable attorney's fees and costs incurred in connection with such action.

7.8 Excluded Matters are Excluded. This Agreement shall impose no obligation on any of the Settling Parties with regard to any Excluded Matters, nor bar or create a defense to any action or proceeding between the Parties concerning the Excluded Matters. The Settling Parties agree and acknowledge that this Agreement, the dismissal of the claims asserted in the Actions,

and the approval of the Response Action or CAO shall not release, nor be applied as a credit against, a defense to, contribution protection for, or a compromise of, any Excluded Matter, nor does this Agreement waive or diminish any right or defense of the Settling Parties associated with an Excluded Matter. In any future action or proceeding regarding Excluded Matters, no Settling Party shall assert a statute of limitations or laches defense based, in whole or in part, on the fact that the asserted matter was identified as an Excluded Matter in this Agreement, and each Settling Party agrees not to assert, plead, or raise in any fashion, whether by answer, motion, or otherwise, any defense or avoidance based on the running of any statutes of limitation or any defense or avoidance based on laches or other principle concerning the timeliness of commencing a civil action regarding Excluded Matters based, in whole or in part, on the fact that the asserted matter was identified as an Excluded Matter in this Agreement.

7.9 No Impact On Existing Agreements. Except as stated above, this Agreement is not intended to, nor does it, amend, modify, alter, or supersede any other agreement or permit by and between the Port District, Lockheed Martin, and/or GD, or any combination thereof, or issued by the Port District to Lockheed Martin and/or GD, including, without limitation, existing leases, Tidelands Use and Occupancy Permits, easements, conveyances, tenant improvement permits and Coastal Development Permits.

7.10 Construction of Agreement. This Agreement is the product of arms-length negotiations between the Settling Parties. Each of said parties expressly acknowledges and agrees that this Agreement shall be deemed to have been mutually prepared so that the rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement. The paragraph headings used in this Agreement are for reference only and shall not affect the construction of this Agreement.

7.11 Notices to Settling Parties. Any notice to be given under this Agreement shall be in writing and addressed as follows:

For Lockheed Martin:

Norman A. Varney Jr.
Associate General Counsel
Energy, Environment Safety & Health
Lockheed Martin Corporation

Mail Drop 532
5600 West Sand Lake Road
Orlando, FL 32819
Norman.a.varney@lmco.com

With a copy to:

Legal Department
Lockheed Martin Corporation
6801 Rockledge Drive
Bethesda, MD 20817

George Gigounas
DLA Piper LLP
555 Mission Street, Suite 2400
San Francisco, CA 94105
Email: George.gigounas@dlapiper.com

And

Kimberly Hyde
DLA Piper LLP
401 B Street, Suite 1700
San Diego, CA 92101-4297
Email: Kimberly.hyde@dlapiper.com

For San Diego Unified Port District:

Thomas A. Russell, Esq.
General Counsel
San Diego Unified Port District
3165 Pacific Highway
San Diego, CA 92101
Email: trussell@portofsandiego.org

With a copy to:

William Jackson
Kelley Drye & Warren LLP
515 Post Oak Blvd., Suite 900
Houston, Texas 77027
Email: bjackson@kelleydrye.com

For GD:

Catherine Razzano
Assistant General Counsel & Director
General Dynamics Corp.
2941 Fairview Park Drive
Falls Church, VA 22042-4513
crazzano@generaldynamics.com

With a copy to:

Kelly E. Richardson
Latham & Watkins LLP
12670 High Bluff Drive
San Diego, CA 92130
Email: kelly.richardson@lw.com

IN WITNESS WHEREOF, the Settling Parties enter into this Agreement.

DATED:_____ **LOCKHEED MARTIN CORPORATION**

By:_____

DATED: 3/9/17 **SAN DIEGO UNIFIED PORT DISTRICT**

By: Randa J. Coniglio
RANDA J. CONIGLIO
Executive Vice President, Operations
San Diego Unified Port District

Approved as to Form and Legality

By:_____
Thomas A. Russell
General Counsel

DATED:_____ **GENERAL DYNAMICS CORPORATION**

By:_____

DATED: 3/21/17

LOCKHEED MARTIN CORPORATION

By: _____
CAROL B. CALA
VICE PRESIDENT - CORPORATE ENERGY, ENVIRONMENT, SAFETY & HEALTH

DATED: _____

SAN DIEGO UNIFIED PORT DISTRICT

By: _____
RANDA J. CONIGLIO
Executive Vice President, Operations
San Diego Unified Port District

Approved as to Form and Legality

By: _____
Thomas A. Russell
General Counsel

DATED: _____

GENERAL DYNAMICS CORPORATION

By: _____

DATED:_____ **LOCKHEED MARTIN CORPORATION**

By:_____

DATED:_____ **SAN DIEGO UNIFIED PORT DISTRICT**

By:_____
RANDA J. CONIGLIO
Executive Vice President, Operations
San Diego Unified Port District

Approved as to Form and Legality

By:_____
Thomas A. Russell
General Counsel

DATED: 3/16/17 **GENERAL DYNAMICS CORPORATION**

By: Julie P. Aslaksen
JULIE P. ASLAKSEN
DEPUTY GENERAL COUNSEL
AND ASSISTANT SECRETARY

EXHIBIT A

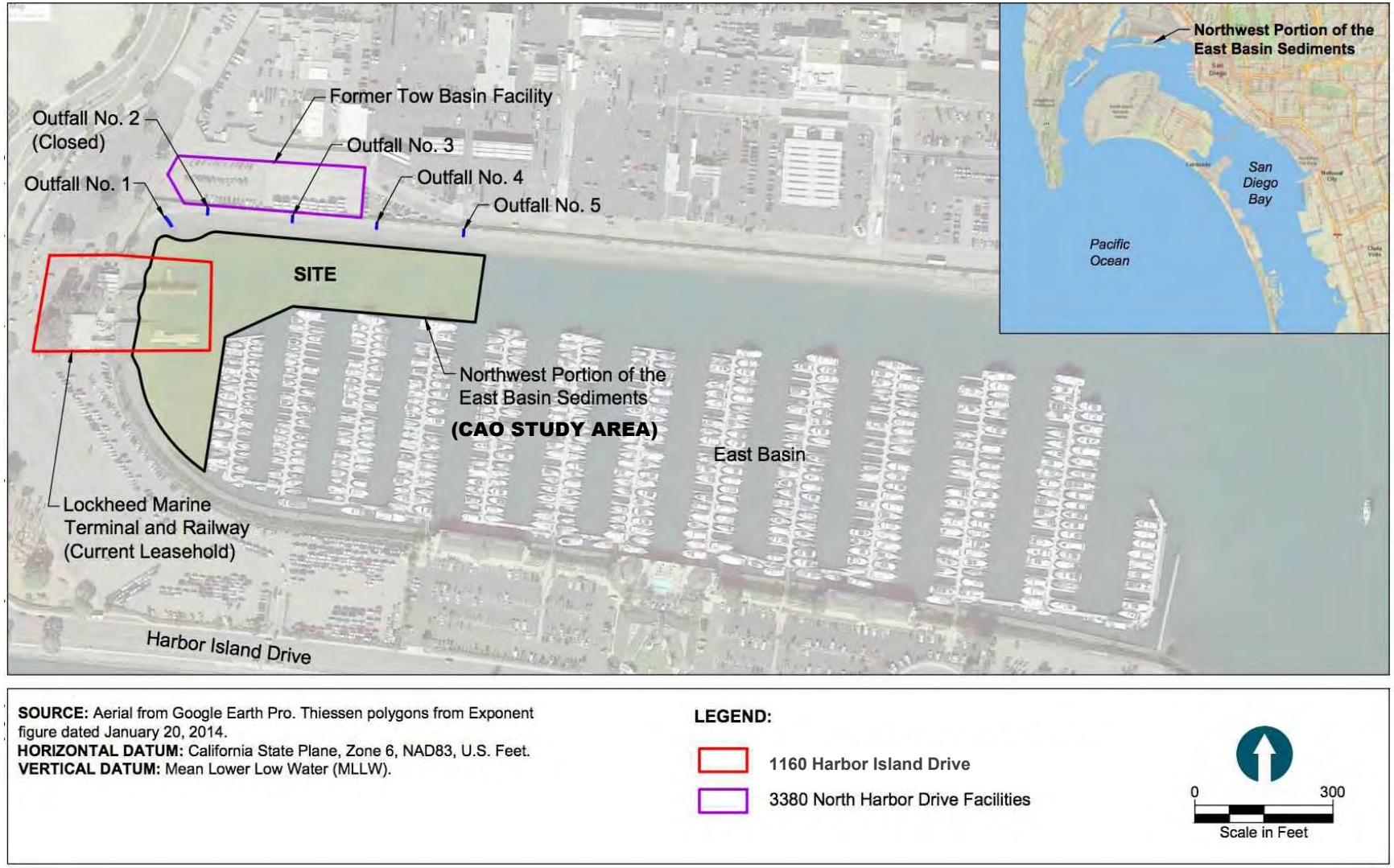

Figure 1 – Northwest Portion of the Harbor Island East Basin.

EXHIBIT B

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

CLEANUP AND ABATEMENT ORDER NO. R9-2017-0021

AN ORDER DIRECTING LOCKHEED MARTIN CORPORATION TO CLEAN UP AND ABATE THE EFFECTS OF WASTE DISCHARGED FROM THE FORMER TOW BASIN AND FORMER MARINE TERMINAL AND RAILWAY FACILITIES AT 3380 NORTH HARBOR DRIVE AND 1160 HARBOR ISLAND DRIVE TO THE EAST BASIN OF SAN DIEGO BAY, SAN DIEGO, CALIFORNIA[1]

The California Regional Water Quality Control Board, San Diego Region (hereinafter San Diego Water Board), finds that:

1. **Legal and Regulatory Authority.** This Order conforms to and implements policies and requirements of the Porter-Cologne Water Quality Control Act (division 7 of the Water Code, commencing with section 13000) including (1) sections 13267 and 13304; (2) applicable State and federal regulations; (3) all applicable provisions of statewide Water Quality Control Plans adopted by the State Water Resources Control Board (State Water Board) and the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) adopted by the San Diego Water Board including beneficial uses, water quality objectives, and implementation plans; (4) State Water Board policies and regulations, including Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*, Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304,* the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality,*[2] California Code of Regulations (Cal. Code Regs.) Title 23, chapter 16, article 11, and Cal. Code Regs. Title 23, section 3890 et seq.; and (5) relevant standards, criteria, and advisories adopted by other State and federal agencies.

2. **Unauthorized Discharge of Wastes.** The former Tow Basin and former Marine Terminal and Railway contaminated sediment site (Site; Figure 1) is located adjacent to the north and west bank of the Harbor Island East Basin of San Diego Bay. The Site encompasses the area of the East Basin where sediment has been contaminated by discharges from the former Tow Basin and former Marine Terminal and Railway (Railway) facilities. The area of the two former

[1] Pursuant to a settlement agreement reached by the parties in a separate lawsuit, the San Diego Water Board is only issuing this Cleanup and Abatement Order (CAO) to Lockheed Martin Corporation. The San Diego Water Board reserves the right to amend and/or reissue the CAO for any reason.
[2] http://www.waterboards.ca.gov/water_issues/programs/bptcp/docs/sediment/sed_qlty_part1.pdf

facilities was submerged tideland until 1941 at which time the area was reclaimed by placement of hydraulic fill material (Figure 1).

Five outfalls are located along the north shoreline of the East Basin that discharged wastes to the Site (Figure 1). A 48-inch-diameter reinforced concrete pipe (RCP) storm drain outfall (Outfall No. 1) is located in the northwest corner of the basin and drains the adjacent hotel parking lot and part of an airport parking lot. A 30-inch-diameter RCP closed outfall (Outfall No. 2) is located east of the 48-inch-diameter pipe that is on the former Tow Basin facility. Another active RCP 30-inch-diameter outfall drains the Harbor Police site and adjacent parking lot (Outfall No. 3). The portion of this outfall within the former Tow Basin facility was partially replaced and the remainder of the line and catch basins were cleaned as part of site demolition activities.

a. **Former Tow Basin Facility (3380 North Harbor Drive).** The former Tow Basin facility parcel is approximately 61,630 square feet in area and included a 13,000-square-foot building. The area has historically been the site of a variety of industrial facilities. An open-top concrete water tank within the building was used to test various hull designs of boats, submersible vehicles, and seaplanes. A steep seawall is located on the south side of the parcel sloping southerly from the Tow Basin property to Harbor Island East Basin. Discharges of polychlorinated biphenyls (PCBs), metals, and other pollutant wastes to San Diego Bay throughout the years have resulted in the accumulation of contaminants in marine sediments along the north shore of central San Diego Bay. Paint samples from the open-top concrete water tank surfaces, inside and out, were reported to contain approximately 3 to 6 percent PCBs (Aroclor 1254).[3] PCBs were also detected in the paint that was hydroblasted from the building at the former Tow Basin facility.

Multiple sediment investigations have been conducted in the East Basin adjacent to the former Tow Basin and Railway facilities. The sampling results indicate that PCBs are present in Bay sediments, with the highest concentrations of PCBs located closest to the Tow Basin outfalls (Outfalls Nos. 1 and 2; Figure 1). In September 2010, sediment samples were collected from five stations within the site (see Figure 2). Sediment toxicity, chemistry, and benthic infauna samples collected from the study area were analyzed, and the results integrated using the benthic triad method in the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Bays and Estuaries Plan) to determine whether the benthic community was adversely impacted by exposure to wastes discharged to the sediment. The benthic communities at two of the five

[3] CH2M Hill. 1998. PCB Investigation, San Diego Tow Basin. Prepared for Lockheed Martin Missiles and Space, General Dynamics, and San Diego Unified Port District. January.

stations were determined to be likely impacted due to exposure to wastes, and one station was determined to be possibly impacted.[4]

b. **Former Lockheed Marine Terminal and Railway Facility (1160 Harbor Island Drive).** The former Lockheed Marine Terminal and Railway Facility (Railway facility) consisted of a laboratory building (constructed 1965-1966) and a pier and railway that extended into the East Basin. The Railroad facility was the site of a variety of maintenance and industrial activities. Historical use of mercury and other hazardous materials within the laboratory building could have resulted in a release of these materials to the drains within the building. A transformer existed adjacent to the laboratory building that could have leaked fluids containing PCBs. Various wastes (including mercury, waste and mixed oil, halogenated solvents, oxygenated solvents, and organic solids with halogens) were reported to be stored at several locations at the Railway facility including the main pier, as well as inside and outside of the laboratory building.

Pursuant to San Diego Water Board Investigative Order No. R9-2011-0026, sediments at three stations in the vicinity of the Railway facility were sampled and analyzed, and the results integrated using the benthic triad method in the Bays and Estuaries Plan (Figure 3). The benthic communities at each of the three sediment stations were classified as likely impacted to due exposure to wastes. Based on soil, groundwater, catch basin, building material, and sediment sampling results the San Diego Water Board determined the chemicals of concern at the Site to be divalent metals, mercury, and PCBs.[5]

3. **Persons Responsible for the Waste Discharges.**[6] General Dynamics Corporation, Lockheed Martin Corporation, RMI, Inc., and San Diego Unified Port District (collectively, Dischargers) are responsible for discharges of wastes to sediment in the East Basin of San Diego Bay. Various waste constituents originated at facilities owned and/or operated by these parties and were discharged directly or transported to the East Basin where they cause or threaten to cause a condition of pollution or nuisance.

a. **General Dynamics Corporation.** General Dynamics Corporation and its subsidiary (Convair) were operators at the Tow Basin site from its

[4] Haley & Aldrich, Inc. 2011. Report on Sediment Quality Objectives Sampling, Former Tow Basin, East Basin of San Diego Bay, San Diego, California. March 10.
[5] San Diego Water Board. 2012. Comments on Site Assessment Report for Lockheed Marine Terminal and Railway. June 28.
[6] Pursuant to a settlement agreement reached by the parties in a separate lawsuit, the San Diego Water Board is only issuing the CAO to Lockheed Martin Corporation. The Board reserves the right to name any additional parties, including any of those parties listed under this section, and to amend and/or reissue the CAO for any reason. This includes, but is not limited to, a scenario in which the work set forth in this CAO is not adequately performed or completed by Lockheed Martin Corporation, in which case the Board reserves the right to amend the CAO and reissue it to all Responsible Parties.

inception in 1954 until 1970. The former Tow Basin facility was used by Electric Boat, a division of Convair, to test and develop hull designs for deep submersible vehicles and seaplanes.

b. **Lockheed Martin Corporation.** Lockheed Martin Corporation and its various entities (LMC) operated at the former Tow Basin site from 1970 until 1983 and from 1986 to 1991. In 1970, LMC purchased the building and the open-top concrete water tank within the building referred to as the Tow Basin, which was used to test various hull designs of boats, submersible vehicles, and seaplanes, and sublet the property from Convair. LMC continued to use the facility to test hull designs until 1983. LMC leased the facility from the San Diego Unified Port District (Port District) from 1986 to 1991 at which time the facility reverted back to the Port of San Diego.

The Railway Facility had been leased by various LMC entities since 1966. Lockheed Aircraft Company began leasing the facility from the Port District in April 1966. In 1966, the facility consisted of a recently constructed building and a pier and railway that extended into the East Basin of San Diego Bay.

A deep submergence vehicle owned by Lockheed Missiles and Space Company began operating from the Railway Facility in 1969. In 1971, the site lease was assigned to Lockheed Missiles and Space Company. From 1971 through 2009 deep submergence vehicle and deep submergence rescue vehicle maintenance operations were conducted at the Railway Facility. In 1981, the deep submergence rescue vehicle maintenance operations were conducted at the facility. In December 1983, LMC assigned the leases for the Railway Facility to Lockheed Advanced Marine Systems. In June 1989, Lockheed Missiles and Space Company assigned the leases for the Railway Facility to Lockheed Engineering and Sciences Company. In June 2010, LMC reorganized and site operations and the lease were assigned to Lockheed Martin Electronics Systems under the Global Training and Logistics business unit. The Electronics Systems Support line of business operated the Site. LMC renewed the lease for five consecutive five-year options beginning in 1990 and ending in 2015.

c. **RMI, Inc.** In 1983 RMI, Inc. (RMI), purchased the Tow Basin facility structures from LMC and leased the parcel from the Port of San Diego. RMI conducted similar industrial operations to those of LMC until 1986.

d. **San Diego Unified Port District/Port of San Diego.** In 1986 the Port of San Diego took ownership of the building and the Tow Basin facility when RMI relinquished the facility due to bankruptcy.

4. **Water Quality Standards.** The Basin Plan and the Bays and Estuaries Plan designate the following beneficial uses for San Diego Bay that apply to the East Basin of San Diego Bay. These uses could be impacted by contaminants discharged from the Dischargers' facilities to the Bay and Bay sediments:

   a. **Human Health**
      i. Commercial and Sport Fishing (COMM)
      ii. Shellfish Harvesting (SHELL)

   b. **Aquatic Life – Benthic Community**
      i. Estuarine Habitat (EST)
      ii. Marine Habitat (MAR)

   c. **Aquatic-Dependent Wildlife**
      i. Wildlife Habitat (WILD)
      ii. Rare, Threatened, or Endangered Species (RARE)

   The Bays and Estuaries Plan contains the following sediment quality objectives (SQOs) that support the human health and aquatic life-benthic community beneficial uses.

   Human Health. Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health in bays and estuaries of California.

   Aquatic Life – Benthic Community Protection. Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California.

   The Basin Plan contains the following toxicity objective that supports aquatic-dependent wildlife beneficial uses:

   Toxicity. All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.

5. **Human Health Impairment.** San Diego Bay is listed in the 2012 Integrated Report[7] as impaired for PCBs in fish tissue. The listing is based on all fish tissue samples from the Bay exceeding the Office of Environmental Health Hazard Assessment's screening value of 20 nanograms per gram. Furthermore, the Office of Environmental Health Hazard Assessment published a health advisory and guidelines for fish consumption from San Diego Bay in 2013 warning of

[7] 2012 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report). http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml

unhealthy levels of PCBs and mercury in fish tissue from San Diego Bay.[8] PCBs and mercury were discharged from the former Tow Basin and Railway facilities to the East Basin, contributing to the unhealthy levels of these pollutants in San Diego Bay fish tissue.

6. **Benthic Community Impairment.** Five of the eight sediment quality triad-sampling stations at the Site were categorized as having sediment pollutant levels "likely" to adversely affect the health of the benthic community, and one triad station was classified as "possible." These results are based on the synoptic measures of sediment chemistry, toxicity, and benthic community structure at the Site.

7. **Potential Aquatic-Dependent Wildlife Impairment.** Concentrations of pollutants in the sediment at the Site are at levels that can have an impact on human health and the benthic community. The impact on aquatic-dependent wildlife is unknown. Aquatic-dependent wildlife beneficial uses designated for San Diego Bay could potentially be impaired due to elevated levels of pollutants present in the marine sediment at the Site. An ecological risk assessment is needed to determine if the cleanup levels proposed for protection of human health and the benthic community will also be protective of aquatic-dependent wildlife if alternative cleanup levels greater than established background concentrations are used.

8. **Condition of Pollution.** The concentrations of pollutants in the sediments of the East Basin of San Diego Bay are at levels that may have an impact on human health and the benthic community, and may have an impact on aquatic-dependent wildlife, thus creating a condition of pollution and nuisance in waters of the State.

9. **Basis for Cleanup and Abatement Order.** Water Code section 13304 contains the authority for the San Diego Water Board to require cleanup and/or abatement of the effects of pollution caused by discharges of wastes. Water Code section 13304 requires a person to clean up waste or abate the effects of the waste discharge if so ordered by a regional water board in the event there has been a discharge in violation of waste discharge requirements, or if a person has caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State and creates or threatens to create a condition of pollution or nuisance. Therefore, based on the findings in this Cleanup and Abatement Order (CAO) the Board is authorized to order the Dischargers identified in Finding 3 to clean up and/or abate the effects of the waste discharged.

10. **Basis for Requiring Technical and Monitoring Reports.** Water Code section 13267 provides that the San Diego Water Board may require dischargers, past

[8] Office of Environmental Health Hazard Assessment, Health Advisory and Guidelines for Eating Fish from San Diego Bay (San Diego County). October 2013.

dischargers, or suspected dischargers to furnish those technical or monitoring reports as the Board may specify, provided that the burden, including costs, of these reports bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

11. **Need for and Benefit of Technical and Monitoring Reports.** Technical and monitoring reports are needed to provide information to the San Diego Water Board regarding (a) the nature and extent of the discharge, (b) the nature and extent of pollution conditions in State waters created by the discharge, and (c) appropriate cleanup and abatement measures. The reports will enable the Board to determine the vertical and lateral extents of the discharge, describe appropriate cleanup and abatement measures for the Site, and provide technical information to determine if those cleanup and abatement measures have brought the Site into compliance with applicable water quality standards. Based on the nature and possible consequences of the discharges, the burden of providing the required reports, including the costs, bears a reasonable relationship to the need for the reports, and the benefits to be obtained from the reports.

12. **Cleanup Levels.** State Water Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under California Water Code Section 13304*, sets forth the policies and procedures to be used during an investigation, or cleanup and abatement of a discharge of waste, and requires that cleanup levels be consistent with State Water Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*. Resolution No. 92-49 applies to the cleanup and abatement of the effects of waste discharges at the Site.

    Resolution No. 92-49 requires that dischargers clean up and abate the effects of discharges in a manner that promotes the attainment of background water quality, or the best water quality that is reasonable if background water quality cannot be restored, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible. For the purposes of this CAO, background concentrations for total PCBs and mercury (contaminants of concern [COCs]) applicable to East Basin sediments are 84 parts per billion and 0.57 parts per million, respectively.[9] Any alternative cleanup levels greater than established background concentrations must (1) be consistent with the maximum benefit to the people of the State; (2) not unreasonably affect present and anticipated beneficial use of waters of the State; and (3) not result in water quality less than that prescribed in the Basin Plan and applicable Water Quality Control Plans and Policies of the State Water Board.

13. **California Environmental Quality Act Compliance.** The issuance of this CAO is an enforcement action taken by a regulatory agency and is categorically

[9] San Diego Water Board. 2015. Updated Background Analysis, Draft Remedial Action Plan – Northwest Portion of the East Basin, San Diego Two Basin and Marine Terminal Sites. September 16.

exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to section 15321(a)(2), chapter 3, title 14 of the Cal. Code Regs.

If the San Diego Water Board later determines that work proposed in the Remedial Action Plan may have a significant effect on the environment, the San Diego Water Board will prepare and adopt an appropriate environmental document prior to approving the Remedial Action Plan incompliance with CEQA.

14. **Public Notice.** The San Diego Water Board has notified all known interested persons and the public of its intent to adopt this CAO, and has provided them with an opportunity to submit written comments, evidence, testimony, and recommendations.

15. **Cost Recovery.** Pursuant to Water Code section 13304, and consistent with other statutory and regulatory requirements, including but not limited to Water Code section 13365, the San Diego Water Board is entitled to, and will seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this CAO.

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13267 and 13304, LMC shall comply with the following directives:

A. **CLEAN UP AND ABATE THE EFFECTS OF PCB AND MERCURY DISCHARGES.** PCBs and mercury are the COCs present in Site sediments. LMC shall take all corrective actions necessary to clean up and abate COC concentrations in Site sediments to background concentrations or to alternative cleanup levels that meet the SQOs for benthic community protection and human health in the Bays and Estuaries Plan and the toxicity water quality objective in the Basin Plan for the protection of aquatic-dependent wildlife.

For all analyses associated with this project, total PCB concentrations shall be expressed as the sum of the following 41 congeners:

Congeners 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

B. **FEASIBILITY STUDY.** LMC shall prepare a Feasibility Study to evaluate cleanup alternatives capable of attaining background sediment quality. LMC shall submit the Feasibility Study to the San Diego Water Board for review and approval no later than **90 calendar days after CAO adoption**. If LMC proposes a cleanup alternative that attains background sediment quality, the Feasibility Study shall include, but shall not be limited to, the following:

1. An evaluation of the technical and economic feasibility of cleaning up sediment to background concentrations.

2. An evaluation of remedial alternatives capable of effectively cleaning up sediments to background concentrations.

3. An evaluation of the cost and effectiveness of each alternative for the remediation of the waste constituents to attain a level of sediment cleanup that results in attainment of background sediment quality.

4. A recommended remedial alternative(s) for the cleanup and/or abatement of wastes discharged. The recommended alternative(s) must be capable of achieving the proposed cleanup levels for all waste constituents at all monitoring points and throughout the zone affected by the waste constituents.

If it is not feasible to clean up to background, LMC shall propose alternative cleanup levels less stringent than background that comply with State Water Board Resolution No. 92-49. In addition to the items listed above, which shall be performed with respect to alternative cleanup levels instead of background concentrations, the Feasibility Study shall include an ecological risk assessment to determine the risk to aquatic-dependent wildlife from the presence of pollutants in sediment. The ecological risk assessment is needed to determine if the alternative cleanup levels proposed for protection of human health and the benthic community will also be protective of aquatic-dependent wildlife.

C. **REMEDIAL ACTION PLAN AND IMPLEMENTATION.**

1. **Remedial Action Plan.** LMC shall prepare and submit a Remedial Action Plan (RAP) to the San Diego Water Board for review and approval no later than **90 calendar days after Board approval of the Feasibility Study**. The RAP shall describe the activities needed to clean up PCB and mercury discharges at the Site to background concentrations or to alternative cleanup levels that comply with the SQOs. At a minimum, the RAP shall contain the following information:

   a. **Introduction.** A brief description of the Site and Site history.

   b. **Selected Remedy.** A detailed description of all of the remedial activities selected to attain the proposed cleanup levels for total PCBs and mercury.

   c. **Health and Safety Plan.** A Health and Safety Plan that includes employee training requirements, a list of personal protective equipment for each task, medical surveillance requirements, standard operating procedures, and contingency plans.

d. **Community Relations Plan.** A Community Relations Plan for informing the public about (i) activities related to the final remedial design, (ii) the schedule for the remedial action, (iii) the activities to be expected during construction and remediation, (iv) provisions for responding to emergency releases and spills during remediation, and (v) any potential inconveniences such as excess traffic and noise that may affect the community during the remedial action.

e. **Quality Assurance Project Plan.** A Quality Assurance Project Plan (QAPP) that describes the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols as they relate to the remedial action.

f. **Sampling and Analysis Plan.** A Sampling and Analysis Plan (SAP) that defines (i) sample and data collection methods to be used for the project, (ii) a description of the media and parameters to be monitored or sampled during the remedial action, and (iii) a description of the analytical methods to be used and an appropriate reference for each.

g. **Evaluation of Environmental Impacts.** An evaluation of the potential environmental impacts of implementing the RAP based on the environmental factors in the CEQA checklist. The evaluation must identify levels of significance for environmental impacts, propose mitigation to lessen environmental impacts to less than significant levels, and be adequate to allow the San Diego Water Board to prepare a CEQA Initial Study and an appropriate CEQA document for the RAP.

h. **Wastes Generated.** A description of the plans for management, treatment, storage, and disposal of all wastes generated by the remedial action.

i. **Pre-Remedial Studies Workplan.** A workplan for any Pre-Remedial Studies or for the collection of any data needed to optimize the remedial design.

j. **Design Criteria Report.** A Design Criteria Report that defines in detail the technical parameters upon which the remedial design will be based. Specifically, the Design Criteria Report shall include preliminary design assumptions and parameters, including (i) waste characterization; (ii) volume and types of each medium requiring removal or containment; (iii) removal or containment schemes and rates; (iv) required qualities of waste streams (e.g., input and output rates to stockpiles, influent and effluent qualities of any liquid waste streams such as dredge spoil return water, and potential air emissions); (v) performance standards; (vi) compliance with applicable local, State, and federal regulations; and (vii)

technical factors of importance to the design, construction, and implementation of the selected remedy including use of currently accepted environmental control measures, constructability of the design, and use of currently acceptable construction practices and techniques.

k. **Equipment, Services, and Utilities.** A list of any elements or components of the selected remedial action that will require custom fabrication or long lead time for procurement. The list shall state the basis for such need and the recognized sources of such procurement.

l. **Regulatory Permits and Approvals.** A list of required federal, State, and local permits and approvals needed to conduct the remedial action.

m. **Remediation Monitoring Plan.** A Remediation Monitoring Plan consisting of (i) water quality monitoring, (ii) sediment monitoring, (iii) silt curtain monitoring by a qualified biologist, and (iv) disposal monitoring. Water quality monitoring must be sufficient to demonstrate that implementation of the selected remedial activities does not result in violations of water quality standards outside the construction area. Sediment monitoring must be sufficient to confirm that the selected remedial activities have achieved target cleanup levels within the remedial footprint. Silt curtain monitoring must be sufficient to ensure that no aquatic-dependent wildlife is harmed during installation, maintenance, or removal of the curtains. Disposal monitoring must be sufficient to adequately characterize the dredged sediments to identify appropriate disposal options.

n. **Site Map.** A site map showing the location of buildings, roads, property boundaries, remedial equipment locations, staging areas, boundaries of remedial activities, and other information pertinent to the remedial action.

o. **Contingencies.** A description of any additional items necessary to complete the RAP.

p. **Remediation Schedule.** A schedule detailing the sequence of events and activities, and the timeframe for each event and activity based on the shortest practicable time required to complete each activity. Any and all proposed time frames and completion dates are subject to review and revision by the San Diego Water Board.

2. **RAP Implementation.** LMC shall begin implementation of the RAP **60 calendar days after San Diego Water Board approval of the RAP**, unless otherwise directed in writing by the Board. LMC shall carry out the activities in the RAP according to the schedule in the RAP as long as active remedial work can be completed outside of the least tern nesting season (typically April 1 through September 30). If, upon permit approval, work cannot be

completed due to the least tern nesting season, corrective actions shall be completed within one month following the end of the current nesting season. Before beginning RAP implementation activities, LMC shall:

a. Notify the Board of the intention to begin cleanup in accordance with Provision H.6.

b. Comply with any conditions set by the Board, including mitigation of adverse consequences from cleanup activities.

LMC shall modify or suspend cleanup activities when directed to do so by the Board.

D. **CLEANUP AND ABATEMENT COMPLETION VERIFICATION.**
LMC shall verify through, the submission of a **Cleanup and Abatement Completion Report,** that all RAP activities for the Site have been completed as described in the approved RAP. The report must be received by the San Diego Water Board **within 90 calendar days after completion of the last remedial event or activity on the Remediation Schedule in the RAP**. The Board will review and approve the Cleanup and Abatement Completion Report pending receipt of adequate responses to comments.

E. **POST-REMEDIAL MONITORING.**

Post-remedial monitoring shall be performed to demonstrate, based on sound technical analysis, that the cleanup levels in the approved RAP have been achieved. Post-remedial monitoring shall consist of the following components:

1. **Post-Remedial Monitoring Plan.** LMC shall prepare and submit a Post-Remedial Monitoring Plan to the San Diego Water Board for review and approval **within 90 calendar days after CAO adoption**. The Post-Remedial Monitoring Plan shall be designed to verify that the remaining pollutant concentrations in the sediments will not unreasonably affect San Diego Bay beneficial uses. At a minimum the Post-Remedial Monitoring Plan shall include the following elements:

   a. **Quality Assurance Project Plan.** A QAPP describing the project objectives and organization, functional activities, and QA/QC protocols for post-remediation monitoring.

   b. **Sampling and Analysis Plan.** A SAP defining (i) sample and data collection methods to be used for the post-remedial monitoring, (ii) a description of the media and parameters to be monitored or sampled, and (iii) a description of the analytical methods to be used and an appropriate reference for each.

c. **Sediment Chemistry.** Site-wide post-remedial surface sediment chemistry (PCBs and mercury) for grab samples collected at the stations sampled in the initial delineation of the Site.

d. **Activities Completion Schedule.** A schedule detailing the sequence of and timeframe for each activity based on the time reasonably required to complete each activity.

2. **Post-Remedial Monitoring Plan Implementation.** LMC shall implement the Post-Remedial Monitoring Plan (Directive E.1) in accordance with the Activities Completion Schedule contained in the Post-Remedial Monitoring Plan unless otherwise directed in writing by the San Diego Water Board. Before beginning sample collection activities, LMC shall:

a. Notify the Board in advance of the beginning of sample collection activities in accordance with Provision H.6.

b. Comply with any conditions set by the Board with respect to sample collection methods such as providing split samples.

For convenience, post-remediation plans and reports required by this Directive may be submitted in a single document along with the RAP or as separate documents.

F. **QUARTERLY PROGRESS REPORTS.**

LMC shall prepare and provide written quarterly progress reports that:

- Describe the actions that have been taken toward achieving compliance with the CAO during the previous quarter.
- Include all results of sampling and tests, and all other verified or validated data received or generated by or on behalf of LMC during the previous quarter in the implementation of the remedial actions required by the CAO.
- Evaluate and interpret monitoring data. Interpretations and conclusions shall be made regarding the potential presence and chemical characteristics of any newly deposited sediment within the cleanup areas.
- Analysis of whether or not cleanup levels have been attained.
- Show the locations, type, and number of samples on a site map.
- Describe all activities, including data collection and other field activities, that are scheduled for the next two quarters, and provide other information relating to the progress of work, including, but not limited to, a graphical depiction of the progress of the remedial actions.
- Identify any modifications to the RAP or other work plan(s) that LMC submitted to the San Diego Water Board or that have been approved by the Board during the previous quarter.

- Include information regarding all delays encountered or anticipated that may affect the future schedule for completion of the events and activities in the RAP, and a description of all efforts made to mitigate those delays or anticipated delays.

LMC shall submit the quarterly progress reports to the Board for review and approval by the **15th day of March, June, September, and December** of each year following the adoption of the CAO. Submission of these progress reports shall continue until the Board determines that no further action is required by LMC.

G. **VIOLATION REPORTS.** If LMC violates any requirement of the CAO, then LMC must notify the San Diego Water Board office by telephone and electronic mail as soon as practicable once LMC has knowledge of the violation. The Board may, depending on violation's severity, require LMC to submit a separate technical report addressing the violation within five working days of notification. In addition, a violation may subject LMC to a future enforcement action.

H. **REPORTS AND WORK PLANS.** LMC shall prepare and submit all required plans and reports described in the CAO to the San Diego Water Board for review and approval. The Board intends to make these plans/reports available to the public for review and will consider public comments prior to approving any plan or report.

I. **PROVISIONS.**

1. **Waste Management.** LMC shall properly manage, store, treat, and dispose of contaminated marine sediment and associated wastes in accordance with applicable federal, State, and local laws and regulations. The storage, handling, treatment, or disposal of contaminated marine sediment and associated waste shall not create conditions of pollution, contamination, or nuisance as defined in Water Code section 13050. LMC shall, as required by the San Diego Water Board, obtain or apply for waste discharge requirements or a conditional waiver of waste discharge requirements for the removal of waste from the immediate place of release and discharge of the waste to (a) to land for treatment, storage, or disposal or (b) to waters of the State. No waste discharge requirements or conditional waiver of waste discharge requirements shall be required for disposal of marine sediment and associated waste in a landfill regulated under existing waste discharge requirements.

2. **Preliminary Information.** LMC may present data, preliminary interpretations, and preliminary conclusions to the San Diego Water Board as they become available, rather than withholding this information until a final report is prepared. This type of ongoing reporting is encouraged to facilitate and expedite Board approval of reports required by this CAO.

3. **Laboratory Qualifications.** All samples must be analyzed by Environmental Laboratory Accreditation Program-certified laboratories using methods approved by the U.S. Environmental Protection Agency (USEPA) for the type of analysis to be performed. All laboratories must maintain QA/QC records for San Diego Water Board review.

4. **Laboratory Analytical Reports.** Any report presenting new analytical data must include the complete laboratory analytical report(s). The laboratory analytical report(s) must be signed by the laboratory director and contain:

   - Complete sample analytical reports
   - Complete laboratory QA/QC reports
   - A discussion of the sample and QA/QC data
   - A transmittal letter indicating whether or not all the analytical work was supervised by the director of the laboratory, and contain the following statement: "All analyses were conducted at a laboratory certified for such analyses by the Environmental Laboratory Accreditation Program in accordance with current USEPA procedures."

5. **Duty to Operate and Maintain.** LMC shall, at all times, properly operate and maintain all facilities and systems of treatment, control, storage, disposal, and monitoring (and related appurtenances) that are installed or used by the Dischargers to achieve compliance with the CAO. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities, which would be installed by LMC only when the operation is necessary to achieve compliance the conditions of the CAO.

6. **Field Work Notice.** LMC shall give the San Diego Water Board advance notice of 14 days of all field work or field activities to be performed by LMC pursuant to the CAO. If 14 days of advance notice is impossible for LMC to provide, LMC shall provide notice to the Board of all such field work or activities as far in advance of such work as is possible. In any event, any notification pursuant to this Provision shall be given at least 24 hours prior to the given field activities, unless the Board agrees otherwise.

7. **Duty to Use Registered Professionals.** LMC shall provide documentation that plans and reports required under the CAO are prepared under the direction of appropriately qualified professionals. California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals. A statement of qualifications and license numbers of the responsible lead professionals and all professionals making significant and/or substantive contributions shall be included in all plans and reports submitted by LMC. The lead professional performing engineering and geologic evaluations and judgments shall sign and affix their license stamp to

all technical reports, plans, or documents submitted to the San Diego Water Board.

8. **Corporate Signatory Requirements.** All reports required under the CAO shall be signed and certified by a responsible corporate officer of LMC described in paragraph (a) of this provision or by a duly authorized representative of that person as described in paragraph (b) of this provision.

   a. **Responsible Corporate Officer(s).** For the purposes of this provision, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

   b. **Duly Authorized Representative.** A person is a duly authorized representative only if:

      i. The authorization is made in writing by a person described in paragraph (a) of this provision.

      ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual (a duly authorized representative may thus be either a named individual or any individual occupying a named position).

      iii. The written authorization is submitted to the San Diego Water Board.

   c. **Changes to Authorization.** If an authorization under paragraph (b) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility or for any activity, a new authorization satisfying the requirements of paragraph (b) of this provision shall be submitted to the San Diego

Water Board prior to or together with any reports or information to be signed by an authorized representative.

d. **Penalty of Perjury Statement.** All reports shall be signed by LMC's corporate officer or its duly authorized representative, and shall include the following statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

9. **Duty to Submit Other Information.** When LMC becomes aware that it failed to submit any relevant facts in any submittal required under the CAO, or submitted incorrect information in any such report, LMC shall promptly submit in writing such facts or information to the San Diego Water Board.

10. **Document Submittals.** All documents prepared in compliance with this Order shall be submitted to the San Diego Water Board via the Geotracker database. The Board may also request hard copies and/or electronic copies on a CD or other appropriate media, including electronic mail.

a. **Geotracker Database.** LMC shall submit all documents electronically to the Geotracker database located at:

https://geotracker.waterboards.ca.gov/esi

Electronic Reporting Regulations require electronic submission of any report or data required by a regulatory agency from a cleanup site after July 1, 2005. The electronic data shall be uploaded on or prior to the regulatory due dates set forth in the CAO or addenda thereto. Upon receipt of the documents, the San Diego Water Board shall use the email date and time to determine compliance with the regulatory due dates specified in the CAO. Note the following regarding email document submittals:

i. Addressee. All documents shall include the following addressee information on the cover letter and/or document title page unless

otherwise directed by the Executive Officer:

Executive Officer
California Regional Water Quality Control Board, San Diego Region
2375 Northside Drive, Suite 100
San Diego, California 92108-2700
Attn: Sarah Mearon

ii. Geotracker Global ID. All documents submitted to the San Diego Water Board shall include the following Geotracker Global ID in the header or subject line: **T10000002323**.

iii. Document Size. Documents larger than 100 megabytes (MB) shall be divided into separate files at logical places to keep the file sizes under 100 MB.

To comply with these requirements, LMC shall upload all documents, including the following minimum information, to the Geotracker database:

i. Laboratory Analytical Data. Analytical data (including geochemical data) for all sediment samples in Electronic Deliverable Format (EDF).

ii. Locational Data. The latitude and longitude of all sampling locations for which data are reported in EDF.

iii. Site Map. The site map shall be a stand-alone document and can be submitted in various electronic formats. An updated site map may be uploaded at any time.

b. **CEDEN Database.** LMC shall submit study data in the appropriate format for upload into the California Environmental Data Exchange Network (CEDEN), or an alternative State database if directed by the Executive Officer. The CEDEN website (http://www.ceden.org/) provides information on procedures for submitting data for upload into CEDEN.

c. **Hard Copies and CDs.** If requested by the San Diego Water Board, LMC shall also provide any or all of the following to the Board: a hard copy of the complete document, a hard copy of the cover/transmittal letter, a hard copy of oversized drawings or maps, and an electronic copy (on a CD or other appropriate media) of the complete document.

d. **Electronic Mail.** If requested by the San Diego Water Board, LMC shall also submit a complete copy (in a text-searchable PDF file) of all

documents including signed transmittal letters, professional certifications, and all data presented in the documents to:

sandiego@waterboards.ca.gov

Upon receipt of the documents, the Board shall use the email date and time to determine compliance with the regulatory due dates specified in the CAO.

11. **Amendment.** The CAO in no way limits the authority of the San Diego Water Board to institute additional enforcement actions or to require additional investigation and cleanup consistent with the California Water Code. The CAO may be revised by the Board as additional information becomes available.

12. **Time Extensions.** If, for any reason, LMC is unable to perform any activity or submit any documentation in compliance with requirements in the CAO, including the RAP, or in compliance with associated implementation schedules, including the RAP implementation schedule, LMC may request, in writing, an extension of time. The written extension request shall include justification for the delay and shall be received by the San Diego Water Board reasonably (but not less than 15 calendar days) in advance of the deadline sought to be extended. An extension may be granted for good cause, in which case the CAO will be accordingly amended.

13. **Community Relations.** LMC shall cooperate with the San Diego Water Board in providing information regarding remediation of the Site to the public. If requested by the Board, LMC shall participate in the preparation of such information for distribution to the public and in public meetings that may be held or sponsored by the Board to explain activities at or relating to the Site.

J. **NOTIFICATIONS.**

1. **Cost Recovery.** Upon receipt of invoices, and in accordance with instructions therein, LMC shall reimburse the San Diego Water Board for all reasonable costs incurred by the Board to investigate discharge of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action required by the CAO and consistent with the estimation of work, including the cost to prepare CEQA documents. LMC is enrolled in a reimbursement program managed by the State Water Board for the discharge addressed by the CAO, and reimbursement shall be made pursuant to the procedures established in that program.

2. **All Applicable Permits.** The CAO does not relieve LMC of the responsibility to obtain permits or other entitlements to perform necessary remedial

activities. This includes, but is not limited to, actions that are subject to local, State, and/or federal discretionary review and permitting.

3. **Enforcement Discretion.** The San Diego Water Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of the CAO.

4. **Enforcement Notification.** Failure to comply with requirements of this CAO may subject LMC to further enforcement action, including but not limited to, administrative enforcement orders requiring LMC to cease and desist from violations, and imposition of administrative civil liability pursuant to Water Code sections 13268 and 13350. Failure to comply may also result in referral to the State Attorney General for injunctive relief and/or referral to the District Attorney for criminal prosecution.

5. **Requesting Administrative Review by the State Water Board.** Any person affected by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and Cal. Code Regs. title 23, section 2050. The petition must be received by the State Water Board, Office of Chief Counsel, within **30 calendar days of CAO adoption**. Copies of the law and regulations applicable to filing petitions will be provided upon request.

This CAO is effective upon the date of signature.

ORDERED BY

_____ _____

DAVID W. GIBSON DATE
Executive Officer

Summary of Required Submittals and Due Dates

Directive	Document	Due Date
B	Feasibility Study	Within 90 calendar days of CAO adoption
C.1	Remedial Action Plan	Within 90 calendar days of Board approval of Feasibility Study
C.2	Remedial Action Plan Implementation	Within 60 calendar days of Board approval of Remedial Action Plan as long as active remedial work can be completed outside of the least tern nesting season (typically April 1 through September 30). If, upon permit approval, work cannot be completed due to the least tern nesting season, corrective actions shall be completed within one month following the end of the current nesting season.
D	Cleanup and Abatement Completion Report	Within 90 calendar days of completion of remediation
E.1	Post-Remedial Monitoring Plan	Within 90 calendar days of CAO adoption
F	Quarterly Progress Reports	March 15, June 15, September 15, and December 15 of each year following completion of remediation

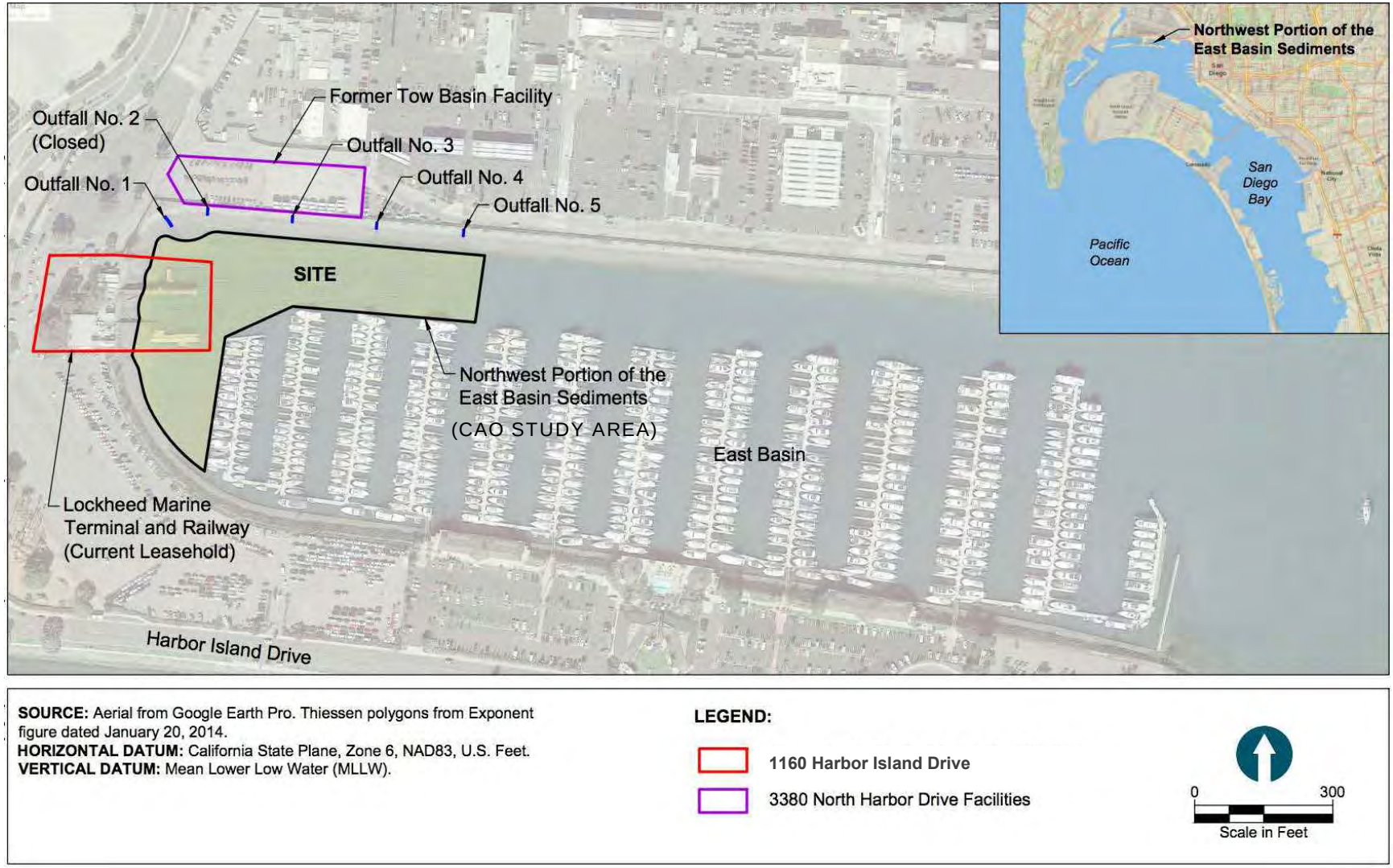

Figure 1 – Northwest Portion of the Harbor Island East Basin.

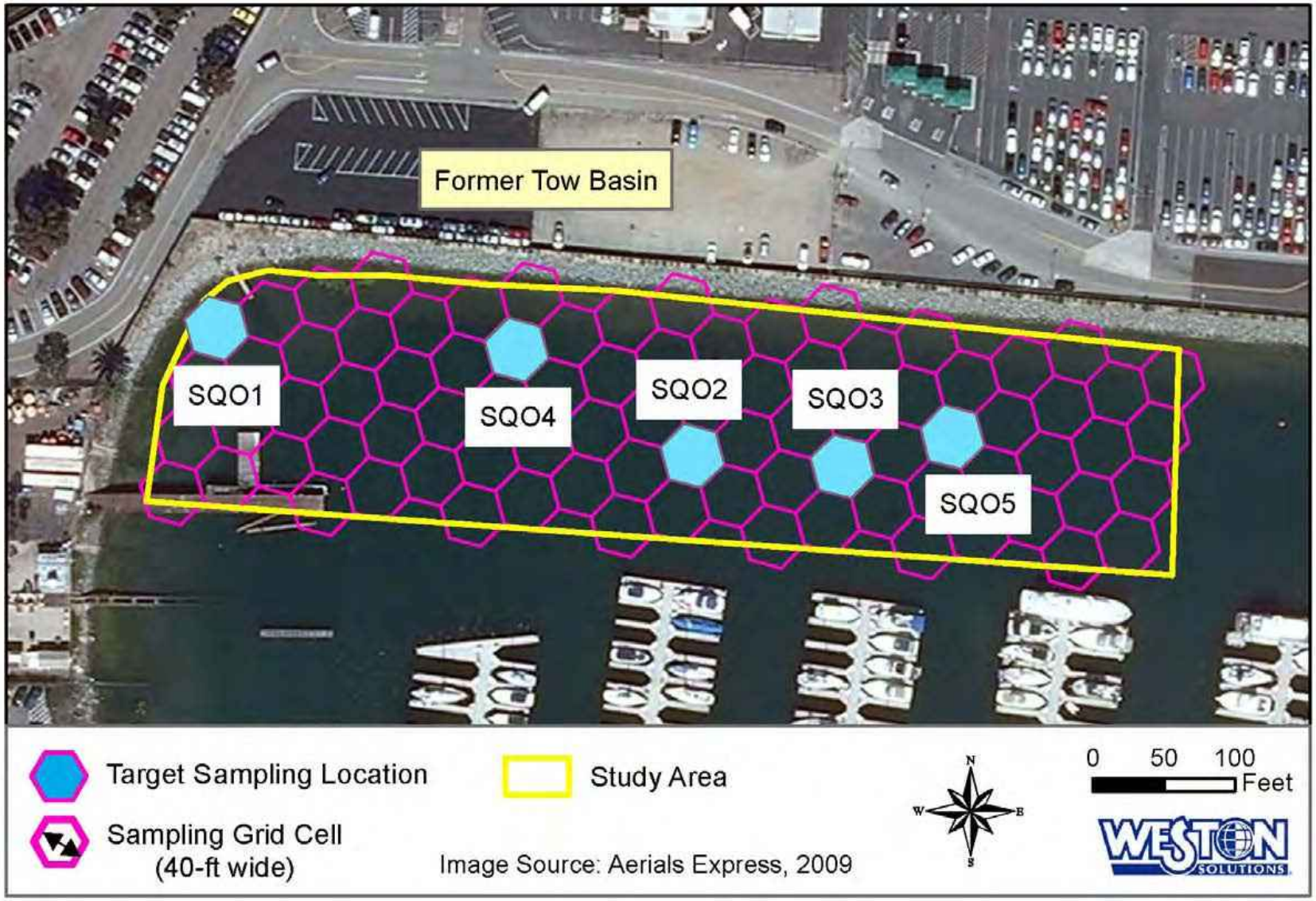

Figure 2 – Locations of Sediment Sample Stations within the Tow Basin Study Area of the East Basin.

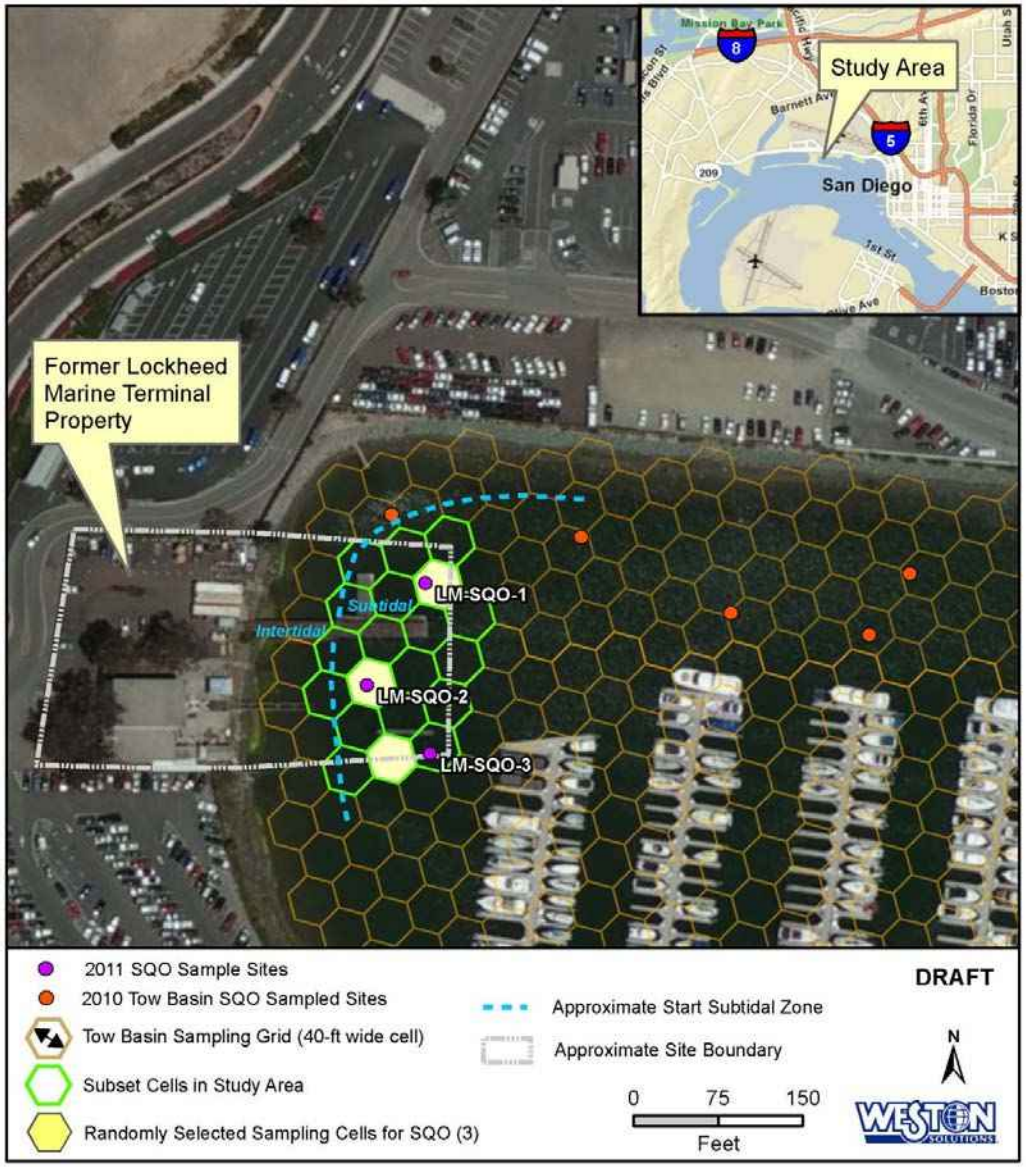

Figure 3 – Locations of Sediment Sample Stations within the Lockheed Marine Terminal and Railway Site of the East Basin.

EXHIBIT C

DRAFT

REMEDIAL ACTION PLAN
NORTHWEST PORTION OF EAST BASIN

Site Locations

Former Tow Basin Facility
T10000002642
3380 North Harbor Drive
San Diego, California 92101

Lockheed Marine Terminal and Railway
T10000002323
1160 Harbor Island Drive
San Diego, California 92101

Prepared by

Anchor QEA, LLC
27201 Puerta Real, Suite 350
Mission Viejo, California 92691

March 2017

REMEDIAL ACTION PLAN

NORTHWEST PORTION OF EAST BASIN SEDIMENTS

This Remedial Action Plan (RAP) is subject to modification during development of the Feasibility Study and RAP by the San Diego Regional Water Quality Control Board (Water Board), as required by Cleanup and Abatement Order No. R9-2017-0021

Prepared by

Anchor QEA, LLC

27201 Puerta Real, Suite 350

Mission Viejo, California 92691

March 2017

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Figure 8 Remediation Schedule

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Attachment B Quality Assurance Project Plan

Attachment C Health and Safety Plan

Attachment D Exponent September 2016 Technical Memorandum

Attachment E Sampling and Analysis Plan

LIST OF ACRONYMS AND ABBREVIATIONS

µg/kg	microgram per kilogram
CAO	Cleanup and Abatement Order
CCA	California Coastal Act
CEQA	California Environmental Quality Act
Cm	Centimeter
COC	contaminant of concern
DMMU	Dredge Material Management Unit
DSV	Deep Submergence Vehicle
DSRV	Deep Submergence Rescue Vehicle
DTSC	Department of Toxic Substances Control
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
ERM	effects range median
ESA	Endangered Species Act
ITM	*Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual; Inland Testing Manual*
LAET	lowest apparent effect threshold
LMSC	Lockheed Missiles and Space Company
mg/kg	milligram per kilogram
NEPA	National Environmental Policy Act
NGO	non-governmental organization
QAPP	Quality Assurance Project Plan
Port	San Diego Unified Port District
PCB	polychlorinated biphenyl
PEL	Probable Effect Level
Ppb	part per billion
Ppm	part per million
RAP	Remedial Action Plan
RCP	reinforced concrete pipe
SAP	Sampling and Analysis Plan
SMA	Sediment Management Area

SWAC	surface-area weighted average concentration
Site	Northwest Portion of East Basin Sediments
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
Water Board	San Diego Regional Water Quality Control Board
WDR	Waste Discharge Requirements
WQC	Water Quality Certification

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name	Signature	Date

DUTY TO USE REGISTERED PROFESSIONAL

This RAP was prepared under the direction of qualified professionals in accordance with the California Business and Professions Code Sections 6735, 7835, and 7835.1.

David Templeton Project Coordinator	John Verduin, P.E. Project Engineer

1 INTRODUCTION

Discharges of polychlorinated biphenyls (PCBs), metals, and other pollutant wastes to San Diego Bay throughout the years have resulted in the accumulation of contaminants in marine sediments along the northern shore of central San Diego Bay, in San Diego, California. This accumulation has resulted in conditions identified by the San Diego Regional Water Quality Control Board (Water Board) as potentially impacting beneficial uses (aquatic life, aquatic-dependent wildlife, and human health). The East Basin Water Quality Segment encompasses the entire area of the East Basin of Harbor Island. Currently, three San Diego Bay sediment investigations are being conducted within the East Basin Water Quality Segment: 1) the Tow Basin Study (Department of Toxic Substances Control [DTSC]) (1998 Remedial Action Order); 2) the Sunroad Marina Study (Water Board Investigative Order No. R9-2011-0064); and 3) the Lockheed Marine Terminal and Railway Study (Water Board Investigative Order R9-2011-0026).

This Remedial Action Plan (RAP) addresses contaminated sediments present within the East Basin of Harbor Island offshore of the Former Tow Basin and Lockheed Marine Terminal and Railway Sites, which will be referred to as the Northwest Portion of East Basin Sediments Site (Site). Demolition of the Lockheed Marine Terminal improvements will occur prior to implementation of the remedial action. Although elevated, observed concentrations of site-related contaminants of concern (COCs) in the sediment (PCBs and mercury) are generally low compared to other sites in the Bay, and are below the cleanup levels adopted for the nearby Shipyard Sediment Site. Active remediation, including limited dredging is contemplated to address purported navigation concerns raised by the San Diego Unified Port District, and to avoid the significant delay and costs associated with a site-specific risk assessment and feasibility studies. This RAP details a conservative remedial option that targets the highest concentration areas to reduce site-related COCs to background concentrations as established by the Water Board and as discussed in detail in Section 2.1. Section 2.1 lists the identified COCs and the numeric cleanup objectives proposed by the Water Board in a Cleanup and Abatement Order (CAO; Water Board 2014).

This RAP is Appendix A to the CAO. It describes the process by which cleanup of the Site will be managed, designed, planned, implemented, and monitored in accordance with the

CAO, and the remedial action is generally consistent with the U.S. Environmental Protection Agency's (USEPA's) National Contingency Plan.

This RAP documents the general basis of design for the detailed engineering of the project. The detailed engineering design process will result in technical specifications and construction drawings that will be incorporated into a construction contract, which will then be used to document project requirements and obtain construction bids.

This RAP also provides details on the timing and scoping of subsequent submittals that require Water Board approval. Implementation of activities set forth in this RAP may commence as soon as 60 calendar days after the effective date of the CAO, although elements may need to be adjusted or updated as agency permits and approvals are received and if additional regulatory requirements are identified.

1.1 Site Description

The East Basin is a relatively shallow (minus 15 to minus 10 Mean Lower Low Water [MLLW]), artificial embayment of San Diego Bay that is enclosed on three sides (Figure 1). The East Basin was formed by dredging in the early 1960s, with the dredge spoil used to create what is now Harbor Island (McLaren Hart 1991). It is bounded to the north by the man-made, riprapped shoreline of the San Diego waterfront and to the west and south by the man-made peninsula known as Harbor Island, and it has a narrow opening to the bay on the east side. Approximately two-thirds of the East Basin is presently occupied by the Sunroad Resort Marina, a 550-slip floating pier.

As shown on Figure 1, five outfalls are evident along the north shoreline of the East Basin and discharge into the Site. A 48-inch stormwater reinforced concrete pipe (RCP) outfall (Outfall No. 1), which originates in the City of San Diego watershed, is located in the northwestern corner of the basin and drains the surrounding urban area (primarily roadways and parking lots) and a portion of San Diego International Airport and other San Diego Unified Port District (Port) properties. East of Outfall No. 1 is a visible but closed approximately 30-inch RCP outfall identified as Outfall No. 2 (former Tow Basin Outfall). Outfall No. 3 is another active stormwater RCP outfall (30 inches), which currently drains

the Harbor Police site and adjacent parking lot. The portion of the Outfall No. 3 line within the Former Tow Basin Facility was partially replaced and the remainder of the line and catch basins were cleaned as part of the Tow Basin demolition project (ERM 2004) completed in 2004 with DTSC oversight (DTSC 2004). Additionally, the catch basin north of the former Tow Basin site connected to Outfall No. 3 was cleaned in 1991 (McLaren Hart 1991). Outfall Nos. 4 and 5 are located east of the Site but within the boundaries of the remedial footprint for this RAP.

1.2 Site History

The Site is located on the north bank of the Harbor Island East Basin adjacent to the San Diego Bay and is maintained by the Port as trustee for the State of California. The Site was submerged tideland until reclaimed using hydraulic fill material in 1941.

The former Tow Basin property is managed by the Port and until 2016 was used by car rental companies for automobile parking. The Former Tow Basin Site (Tow Basin Site; Figure 1) is approximately 61,629 square feet and includes the area of the former Tow Basin building, which the structure (as well as ancillary structures) was demolished in 2004. The area has historically been the site of a variety of industrial facilities (Exponent 2013). Current and historical conditions and potential sources of sediment contaminants have been extensively reviewed and identified in reports documenting various East Basin sediment, upland, and shoreline investigations (Haley & Aldrich and Weston 2011; AMEC 2012; Tetra Tech and Weston 2012). PCBs were determined to exist in the paint at the Tow Basin Site. The paint was hydroblasted from the building and disposed, and the building was demolished in 2004 under DTSC oversight. Source control at the Tow Basin Site is well established based on soil and groundwater closure letters from DTSC (2004, 2009) and the Water Board (2010).

The Lockheed Marine Terminal and Railway Site (Lockheed Site) is located on land that is owned by the Port (Figure 1) and has been leased by various Lockheed Martin Corporation entities since 1966. Lockheed Aircraft Company began leasing the Lockheed Site from the Port in April 1966. At that time the Lockheed Site included a recently constructed (between 1965 and 1966) building and a pier and railway that extended into the San Diego Bay's East Basin. The *Deep Quest*, a Deep Submergence Vehicle (DSV) owned by Lockheed Missiles

and Space Company (LMSC), began operating from the Lockheed Marine Terminal and Railway Facility in 1969. In 1971 the Lockheed Site lease was assigned to LMSC. From 1971, through 2009 as part of the U.S. Navy's Deep Submergence Systems Program, DSV and Deep Submergence Rescue Vehicle (DSRV) maintenance operations were conducted at the Lockheed Site (Tetra Tech 2012). The Marine Terminal facility is currently vacant and all structures, including the building, railway and piers, are scheduled for demolition.

On June 3, 2011, the Water Board issued Investigative Order R9-2011-0026 directing Lockheed Martin Corporation to conduct a site assessment of the Lockheed Site. The Site Assessment Report was submitted in June 2012 (Tetra Tech 2012). The Water Board provided comments on the Site Assessment Report in February 2014. Based on the results of the Site Assessment Report, the Water Board concurred that the site assessment results did not warrant further investigation of uplands soils but requested further investigation of groundwater at the Lockheed Site. The groundwater investigation was completed in 2015 and summarized in a March 2016 Groundwater Investigation Report. Based on the results of the groundwater investigation, the Water Board concurred that no further action to address groundwater at the Site was required.

1.3 Site

The Site encompasses the Tow Basin Site and Lockheed Site located in the western end of the East Basin into a single contiguous assessment area: Northwest Portion of the East Basin Sediments (Figure 1). The Site lies outside of the expected operational area for vessels using the Sunroad Resort Marina, including the area leased from the Port.

1.4 Structure of this Document

This RAP details framework for the execution of the remedial action and provides (at a minimum) all informational elements and sub-elements mandated by the CAO (Water Board 2014). The RAP is organized into the following sections:

- Section 2: Remedial Approach
- Section 3: Project Team and Organization
- Section 4: Preparation and Planning for the Remedial Action
- Section 5: Implementation and Monitoring of the Remedial Action

- Section 6: Regulatory Permits and Approvals
- Section 7: Remediation Schedule
- Section 8: References

This RAP is supported by the following documents, which are briefly described below and attached to this RAP:

- Attachment A: Technical Specifications for Cover Material Requirements
- Attachment B: Quality Assurance Project Plan
- Attachment C: Health and Safety Plan
- Attachment D: Exponent September 2014 Technical Memorandum
- Attachment E: Sampling and Analysis Plan
- Attachment F: Coastal Development Plan

1.4.1 Technical Specification for Cover Material Requirements (Attachment A)

A component of the remedial action will consist of placing a clean sand cover over certain areas of impacted sediments, including dredge area side slopes. The clean cover material will be obtained from a local source and will be subject to specific physical and chemical requirements, including grain size limits and chemical criteria (material for the outfall spill pads and cover material for the upper portion of the northwest corner will be coarser than the primary clean cover material). Some areas will receive clean sand that is uniformly amended by blending granular activated carbon (GAC) at a minimum content of 0.5 percent GAC (by dry weight). This technical specification details these requirements, as well as the construction performance standards to be used by the selected contractor, in a package that will be suitable for soliciting bids, selecting a contractor, and overseeing and managing the work. Attachment A includes the draft technical specification section for cover materials and will be incorporated into the complete set of technical specifications and construction drawings to be completed after the approval of this RAP.

1.4.2 Quality Assurance Project Plan (Attachment B)

The Quality Assurance Project Plan (QAPP) describes the project objectives and organization, functional activities, and quality assurance protocols as they relate to the remedial action.

1.4.3 Health and Safety Plan (Attachment C)

The Health and Safety Plan describes health and safety measures to be used during the design, construction, and post-construction monitoring phases of the work. The plan will include sections for employee training, protective equipment, medical surveillance requirements, and contingency plans.

1.4.4 Technical Memorandum (Attachment D)

Exponent has prepared a technical memorandum discussing the surface-area weighted average concentration (SWAC) approach to remediation of the Site. It includes sample data, the derivation of the Thiessen polygons, and the analysis of which polygons require remediation in order to achieve background SWACs. This Technical Memorandum (Exponent, 2017) presents the rationale for the proposed remedial footprint. The analysis evaluated the placement of clean sand cover over areas of the highest contaminant concentration to reduce surface sediment concentration and associated exposure. The analysis assumes a 75% reduction in surface sediment concentration in areas targeted by the sand cover with an overall goal of achieving background concentrations for total PCBs and total mercury on a SWAC basis.

1.4.5 Sampling and Analysis Plan (Attachment E)

This project will use the Sampling and Analysis Plan (SAP) presented in Attachment E. The SAP defines surface sediment sample collection methods to be used and a description of the analytical methods to be used, including an appropriate reference to each.

2 REMEDIAL APPROACH

2.1 Cleanup Objectives, Cleanup Levels, and Remedial Area

Sediments with concentrations of primary COCs higher than CAO-mandated limits will be remediated to comply with cleanup objectives stipulated by the Water Board in the CAO (Water Board 2016). The sediments targeted for remediation were identified in part through the State of California sediment quality objectives process. The identification of the remedial areas is presented in Feasibility Analysis of East Basin Remediation Technical Memorandum (Exponent, 2017) included as Attachment D. The analysis considered PCBs, mercury, cadmium, copper, lead and zinc even though they are not all site related. Because current surface area weighted concentrations (SWACs) for cadmium, copper, lead and zinc were at, below or very close to background concentrations, the remedial area was established based on the distribution of PCBs and mercury within the East Basin. The target cleanup levels for Primary COCs with established cleanup levels include total PCBs and total mercury are based on the established bulk sediment background concentrations derived from multiple areas in San Diego Bay with characteristics similar to the Site (see Section 2.2).

Due to the spatial heterogeneity of sediment chemistry concentrations at the Site, and the mobility of aquatic-dependent wildlife and angler-targeted game species, such as fish and lobster, an abatement level based on a SWAC is appropriate and protective at the Site. Fish and lobster do not limit their movement to the small area represented by a single sediment sample, but range among a much larger area, exposing them to sediments of varying chemical concentrations throughout the Site and greater San Diego Bay. Because these species have foraging ranges many times larger than the Site, SWAC for sediment is a more appropriate method for evaluating the exposure to chemicals that fish and lobsters incur during foraging. This technique is well established, in use throughout a broad range of sciences, and is being used at other sites in San Diego Bay and at many nationally known sediment remedial sites such as the Hudson River, Portland Harbor, Lower Duwamish River, Lower Passaic River, and Fort Ord cleanups.

Using existing surface sediment data from the 2010 Tow Basin Study Area and the 2011 Lockheed Marine Terminal Study Area, SWACs were assessed by subdividing the Site into a series of Thiessen polygons (Exponent 2017). Each Thiessen polygon is defined by half the

distance between adjacent sampling stations; therefore, each polygon is represented by a single sampling station at or near its mid-point. As described above, the analysis determined that only total PCBs and total mercury were sufficiently above background to warrant remediation. Table 1 presents current SWACs, target cleanup levels and estimated post remediation SWACs for total PCBs and total mercury.

Table 1

Cleanup Objectives and Surface-Area Weighted Average Concentrations

Primary COCs	Units (dry weight)	Pre-remedial SWAC	Targeted Post-Remedial Area Concentrations[1]	Estimated Post-remedial SWAC[2]
Total Mercury	mg/kg	0.984	0.57	0.42
Total PCB Congeners[3]	µg/kg	156.9	84	71.7

Notes:
Table adapted from the San Diego Shipyard Site CAO (Water Board 2012).
µg/kg = micrograms per kilogram
COCs = contaminants of concern
mg/kg = milligrams per kilogram
PCB = polychlorinated biphenyl
SWAC = surface-weighted average concentrations
1 Background as defined in the San Diego Shipyard Sediment Site CAO (Water Board 2012 and September 16, 2015)
2 Post-remedial SWAC (Exponent; 2017) which approximates the Site presented in this RAP but does not consider the amendment of clean cover with GAC or areas with more than 6 inches clean cover.
3 Total PCBs Congeners = sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206

In 2012, background COC concentrations were adjudicated to 84 micrograms per kilogram (µg/kg) for total PCBs and 0.57 milligrams per kilogram (mg/kg) for total mercury (see Order No. R9-2012-0024 and accompanying Technical Report for Shipyard Sediment Site and the Tentative CAO No. R9-2014-0085 for TDY; Water Board 2014). These concentrations were based on several reference pools considered by the Water Board, resource agencies, and non-governmental organizations (NGOs); therefore, these background concentrations are deemed to be protective of beneficial uses within San Diego Bay, including the Site, and are the extent to which State Water Resources Control Board Resolution 92-49 requires cleanup. The Water Board determined that background concentrations of 84 µg/kg for total PCBs and 0.57 mg/kg for total mercury are appropriate for this Site (Water Board, 2015).

The proposed cleanup goals of 84 µg/kg for total PCBs and 0.57 mg/kg for total mercury are below commonly accepted marine sediment criteria for the protection of the benthic community; i.e. 180 µg/kg effects range median (ERM) and 189 µg/kg Probable Effect Level (PEL) for total PCBs and 0.71 mg/kg ERM and 0.7 mg/kg PEL for total mercury. By achieving these criteria on a SWAC basis, benthic organisms are expected to be protected on a community basis. Protection of benthic organisms on a community basis is consistent with both the State of California sediment quality objectives, which state:

> *…pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities*

In addition, protection of benthic organisms on a community basis is also consistent with the USEPA's Ecological Risk Assessment and Risk Management Principles for Superfund Sites which states:

> *…remedial actions generally should not be designed to protect organisms on an individual basis (the exception being designated protected status resources, such as listed or candidate threatened and endangered species or treaty-protected species that could be exposed to site releases), but to protect local populations and communities of biota.*

The remedial footprint was defined as the area that if remediated would reduce the site-wide SWAC to concentrations at or below background. The placement of the sand cover (Figures 2 and 3) effectively accelerates natural deposition of sediment and, in conjunction with the removal of sediments within the area identified (Figure 2, 4, 5 and 6; Tetra Tech 2012)), will result in a 75% reduction in surface sediment concentrations due to mixing the sand cover with underlying sediments. By reducing sediment concentrations by 75% over the remedial footprint the background concentration will be achieved on a SWAC basis for the Site. This approach is a cost effective, implementable, and practical remedial approach that is protective of beneficial uses. Areas that will receive clean cover amended with GAC will further reduce biologically available concentrations by sequestering PCBs. Section 3 details the remedial approach in more detail.

2.2 Regulatory Basis for Remedial Action

The legal standard for establishing a cleanup standard comprises the following:

1. Porter-Cologne Act: Generally, this act establishes the framework pursuant to which the Water Board may reasonably protect water quality in California (i.e., California Water Code Section 13000 et seq.).
2. Water Code Section 13304: This code allows dischargers to clean up or abate the effects of wastes.
3. Resolution 92-4: This resolution, promulgated as a regulation, provides direction to the Water Board concerning the application of Water Code Section 13304, as states:

   Resolution 92-49 directs the RWQCBs to ensure that water affected by an unauthorized release attains either background water quality or the best water quality which is reasonable if background water quality cannot be restored, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible; in approving any alternative cleanup levels less stringent than background . . . any such cleanup level shall (1) be consistent with the maximum benefit to the people of the state; (2) not unreasonably affect present and anticipated beneficial use of such water; and (3) not result in water quality less stringent than that prescribed in the Water Quality Control Plans and Policies adopted by the State and Regional Water Boards. See Resolution 92-49, at III.G.

4. Resolution 92-49: This resolution also allows dischargers to implement a cleanup using cost-effective and technologically and economically feasible methods. The Water Board is not authorized to order cleanup beyond background levels, a stated:

   The Regional Water Board shall . . . ensure that dischargers shall have the opportunity to select cost-effective methods for . . . cleaning up or abating the effects [of wastes discharged and] . . . require the discharger to consider the effectiveness, feasibility, and relative costs of applicable alternative methods for investigation, cleanup, and abatement. See Resolution 92-49, at 6-7.

The cleanup objectives are similar to other sediment sites in San Diego Bay for which the Water Board applied Resolutions 92-49 that states:

> *Regional Water Board shall...prescribe cleanup levels which are consistent with appropriate levels set by the Regional Water Board for analogous discharges that involve similar wastes, Site characteristics, and water quality considerations.*

Cleanup levels for total PCBs prescribed by the Water Board at other sites within San Diego Bay with analogous discharges involving similar circumstances as the Site include:

- TDY (Convair Lagoon) – 4,600 µg/kg (1996)
- San Diego Shipyard Sediment Site – single point concentration of 60% lowest apparent effect threshold (LAET) of 3,000 µg/kg and SWAC of 194 µg/kg with upper bound SWAC of 253 µg/kg (2012)
- Campbell Industries Site – 950 µg/kg (1995)
- Draft Mouth of Chollas, Paleta, and Switzer Creek Total Maximum Daily Loads – 169 µg/kg (2013)

Observed concentrations at the Site generally meet cleanup levels established for total PCBs and total mercury at these other sites is San Diego Bay.

2.3 Remedial Approach and Design Criteria

Placement of sand cover and sand cover amended with GAC, in conjunction with the removal of sediments shown on Figures 2 and 3 are predicted to achieve the targeted post-remedial area concentrations by meeting post-remedial SWACs (Table 1 and Attachment D).

The placement of clean sand cover was the selected primary remedial alternative as the placement will have little effect on the existing sediment elevations within the East Basin by maintaining a draft depth of approximately -11 MLLW, thus will not impact the navigation beneficial use of the area. Dredging is being proposed within the dredge area to supplement the placement of clean sand cover, as well as meet the navigation beneficial use adjacent to the Lockheed Site.

Clean sand cover placement, also known as thin-layer cover, is an accepted sediment remediation alternative that involves placing a thickness comparable to, or greater than, the mixing depth from benthic interactions, effectively resulting in accelerated natural deposition of sediments and limiting exposure through separation of contaminants from the biologically active zone. The amendment with GAC further reduces the availability of chemicals (e.g., PCBs) by attenuation. Currently, the upper portion of the slopes are comprised of large quarry rock and these revetments are generally excluded, because they do not have an overlying layer of sediment suitable for habitat.

Dredging of sediments (expected to be by mechanical means) within the dredge area (Figure 2) will remove sediments with elevated mercury above the pre-remedial SWAC (Table 1) and maintain navigation beneficial use within that area. After the removal of existing structures within Lockheed Marine Terminal, sediments will be dredged to an elevation of -11 feet MLLW to a point where a 3 horizontal to 1 vertical (3H:1V) slope can be established, with a minimum set back of 5 feet from the existing toe of revetment. Clean cover will be placed as depicted on Figure 3 including the dredge area side slopes. The methods of dredging will be decided on by the selected remedial contractor, but is expected to be conducted mechanically.

Central to this approach is the demonstration that all sources are controlled (e.g., outfalls, spills, and releases). The placement immediately isolates the chemicals in the original surface, achieving immediate risk reduction. Sand cover placement also serves as a practical, implementable, and time- and cost-effective alternative that maintains navigation depths and allows for rapid re-colonization of the benthic habitat. It should be noted that the proposed cleanup approach is consistent with current navigation beneficial uses of the East Basin and anticipated limited disturbance associated with boat traffic in and out of the marina and bioturbation. However, the remedy may not be protective should changes in waterway use result in disturbance of the proposed sand and/or armor cover.

2.4 Dredge Design

The development of the dredge design accounted for sediment properties, physical constraints, expected equipment capabilities, and dredging performance criteria. Sediments

are anticipated to be dredged via mechanical means, dewatered, transported overland, and disposed of at an off-site solid waste disposal facility(s). Technical specifications and construction drawings will provide further detail to the dredge design summarized below.

As described in Section 1.2, existing structures within Lockheed Marine Terminal are expected to be demolished prior to dredging. Structures for which removal is anticipated include an existing timber pier (approximately 2,200 square feet) as well as existing marine railways located south of the existing pier. As such, the structures were not accounted for in generation of the dredge prism.

The desired dredge depth of -10 feet to -11 feet MLLW is reached at the base of the stable slope (Figure 4, 5, 6). All generated side slopes within the DMMU-2 are to be designated for clean cover, as shown on Figure 3, 4, 5, and 6. The resulting dredge design equates to an estimated neatline volume of approximately 3,500 cubic yards, excluding any over-dredge volume. Due to equipment tolerances, a 2 foot allowable over-dredge tolerance will be provided to the Contractor.

Based on experience with stability evaluations conducted for other projects conducted in the San Diego Bay, a side slope of 3H:1V is expected to be reasonable for the Bay Deposits while meeting a recommended factor of safety of 1.3, consistent with performance standards provided in the U.S. Army Corps of Engineers Slope Stability Guide (2003) for permanent slopes. Side slopes of 3H:1V were therefore utilized throughout the dredge design.

To protect the existing revetment located along the bank, a 5-foot offset is prescribed between the toe of the existing revetment and the top of side slope (as shown on the cross-section provided on Figure 5 and 6). This offset is mainly provided to avoid contact of the existing structure with the contractor's equipment, as the dredge side slope is expected to remain stable at 3H:1V thought geotechnical evaluations will be required during design. Confirmation of the dredge depth will be evaluated by a third-party bathymetric survey (discussed in Section 2.5).

2.5 Dredge and Disposal Activities

The remedial approach involves dredging impacted sediments within a defined remedial footprint, transporting dredged material to an upland Sediment Management Area (SMA), stabilizing sediment (if necessary), offloading dewatered sediment to haul trucks for off-site disposal, and remediation of sloped areas with sand cover placement (in addition to other areas identified on Figure 3). During development of the complete technical specification and construction drawings, best management practices will be detailed.

Dredging operations are expected to be conducted using mechanical dredging methodology. Two types of clamshell buckets would be utilized; a closed environmental clamshell bucket or if due to the density of material and presence of debris, a standard or heavy clamshell bucket. In either situation, the bucket will be positioned using GPS software. Once the appropriate depth is achieved during dredging, a third-party post-dredge bathymetric survey will be conducted to confirm dredge depths and to determine final dredge volumes (no post dredge samples will be collected). At the discretion of the Engineer and based on the results of the post-dredge bathymetric survey, additional dredging passes may be required in targeted areas, followed by additional third-party bathymetric surveys, to meet the dredge design.

Throughout dredging and sand cover placement operations, silt curtains will be used to contain re-suspended sediment during dredging, clean cover placement, and debris removal operations. Each silt curtain will include an oil boom component contained within the silt curtain, which will float on the water surface. Silt curtains will be weighted and positioned by the Contractor using anchors, marine structures, and/or shoreline tie-off locations. Dredged material will be placed in water-tight scows that will be transferred to an upland SMA by tugboats for processing or transferred directly to the upland area of the former Lockheed Marine Terminal if used as the SMA. At the SMA sediment will be stabilized with Portland cement (as necessary to pass the Paint Filter Test), loaded into lined haul trucks and transported to an upland disposal location. Prior to leaving the SMA, haul trucks will be washed on a truck wash to prevent sediment track out.

2.6 Clean Cover Design

The placement of clean sand cover reduce any disturbance of the existing sediment bottom which may be caused through dredging. The area of placement is shown on Figure 3, with various sand cover placement cross sections provided in Figures 4-6. As time passes, the clean cover will mix into the underlying sediment via benthic interactions, such as organism burrowing, conveyor-belt feeding mechanisms, and porewater pumping (commonly referred to as bioturbation) as well as external physical disturbances, such as propeller wash generating sufficient bottom shear force to erode the placed sand cover. The depth of bioturbation varies but is typically 10 to 15 centimeters. The amendment of the clean cover with GAC sequesters the chemicals (e.g., PCBs) and limits bioavailability.

If a minimum of 15 centimeters of sand is placed, it is expected that the upper 10 centimeters (cm) of underlying sediments will become mixed in with the clean cover material. The result will be a reduction of chemical concentrations by approximately 75% in the resulting upper 10 centimeters. Because bioturbation is not expected to extend to 25 centimeters, the surface concentration will be less than if uniform mixing occurred. Thus, a minimum of 15 cm of sand cover is prescribed for the Site, and included in the technical specifications for Sand Placement (Attachment A). Gravelly sand may be utilized in place of sand in areas where propeller wash is expected, or on sloping areas where sand may migrate. As shown on Figure 2, sand cover is being prescribed in approximately 93,000 square feet, equating to a 4500 tons of sand (based on an average of 15 cm thickness of sand) placed at the Site. The limits of sand and gravelly sand will be finalized during the development of the complete technical specifications and construction drawings.

Another benefit of the sand cover placement approach at the Site is the cover material will be slightly coarser than what is present today (sand or gravelly sand), and coarser material will minimize erosion from small-boat traffic or tidal currents and limit the potential for the underlying sediments to be exposed (specifically in the northwest corner in the vicinity of Outfall No. 1; Figure 1). Localized erosion, particularly at low tide from the two active outfalls, will be mitigated by placing quarry spall and gravely sand at the discharge point ("splash pad"; Figure 4).

Additionally, because a thin-layer cover is not intended to be an engineered cap (i.e., not entirely isolating contaminants), limited mixing associated with boat traffic in and out of the marina and bioturbation are anticipated and accounted for in the design; however, disturbance of the sand or gravelly sand is expected to be minimal and thus will not expose underlying sediments.

The technical specifications and construction drawings will detail specifically where sand and gravely sand (and clean cover amended with GAC) will be placed as well as detail construction performance standards which will be used by the selected contractor in a package that will be suitable for soliciting bids, selecting a contractor, and overseeing and managing the work.

2.7 Cover Material Source and Approval

Sand and gravelly sand cover materials will be acquired from a pre-approved, off-site source and transported to the Site, most likely by truck but possibly by barge, depending on the source that is selected by the contractor and approved for use. The borrow source characterization requirements that appear in the technical specifications (Attachment A) are the same as those previously approved for use by the U.S. Army Corps of Engineers (USACE) and USEPA at the San Diego Shipyard Sediment Site during the remedial efforts of that site. Prior to on-site use, a Borrow Source Characterization Report will be provided to the above agencies for review and approval.

The Borrow Source Characterization Report will include results of geotechnical and analytical testing, required by the performance standards set forth in the technical specifications (Attachment A). This technical specifications are in compliance with a Special Condition of the USACE's Standard Individual Permit expected for the Site (see Section 6). Specifically, the Special Condition of the Standard Individual Permit is anticipated to state:

> *No discharge of structural debris fill or dredged material in navigable waters is authorized by this Standard Individual permit except for the authorized sand and rock cover and slope materials outlined in the Project Description. All imported sand and rock materials to be discharged within navigable waters of*

the U.S. must meet ITM requirements and be approved by the Corps and EPA per ITM requirements for discharge of fill within waters of the U.S. prior to work occurring within waters of the U.S.

The *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual; Inland Testing Manual* (ITM) was developed as guidance for conducting dredge material testing to assess the potential for contaminant-related impacts associated with open-water dredged material disposal. Testing per the ITM may not be necessary if the material to be placed is not considered to be a carrier of contaminants (40 Code of Federal Regulations 230.60 (b)). Exclusions occur most commonly, "if the dredged material is composed primarily of sand, gravel and/or inert materials; the sediments are from locations far removed from sources of contaminants, or if the sediments are from depths deposited in preindustrial times and have not been exposed to modern sources of pollution" (USEPA/USACE 1998).

2.8 Cover Material Placement

The Contractor will be required sand and gravelly sand at a rate of 4 tons per 100 square feet of area, which equates to a sand layer thickness of approximately 20 cm (8 inches). However, placement is expected to result in an average sand layer thickness of 15 cm (6 inches; to be verified through a combination of surveys, visual inspections during construction, and summation of material delivery weight tickets), due to material losses during placement based on industry experience. Throughout placement operations, placement amounts will be monitored to verify that sand is being placed at the specified rate of 4 tons per 100 square feet, and meets the performance standards required by the technical specifications for cover materials (Attachment A).

The majority of sand cover material is anticipated to be placed via mechanical methods, such as an excavator or crane, which will be stationed inland or offshore on a barge. The placement method(s) will be finalized with the Contractor, but such methods have been proven to be effective in meeting the performance standards included in the technical specifications for cover materials.

During placement, material delivery weigh tickets will be collected and tabulated to verify the proper amount of sand cover has been placed. Observation of material barges throughout placement operations will also be important to determine the specified amount of material has been placed over a given area. A third-party bathymetric survey will be performed prior to beginning placement. Diver surveys may be performed periodically to visually verify that the placement area and thickness of material is within placement limits. Further, during material placement, progress bathymetric surveys will be conducted to provide the design engineer with progress updates. Following the completion of material placement, a third-party bathymetric survey will be conducted to supplement the observations made during construction, as well as the material delivery weight tickets, to confirm that material placement meets the performance standards required by the technical specifications for cover materials (Attachment A).

2.9 Remediation Monitoring Plan

2.9.1 Monitoring During Construction

Monitoring during construction will be performed and will have two objectives. The first objective will be to confirm that the construction activities (including dredging, placement of sand cover, sediment offloading and transportation) meets the environmental conditions required by the permits, including but not limited to impacts to water quality. The second objective will be to confirm that the construction activities are being performed in a method that meets the performance requirements of the technical specifications.

In order to confirm that impacts to water quality are in compliance with the San Diego Basin Plan and Section 401 Water Quality Certification requirements, water quality monitoring will be conducted. The monitoring is anticipated to be required daily for three consecutive working days at the beginning of the remedial activities (intensive monitoring) and will then be reduced to weekly monitoring through the duration of the project (routine monitoring), assuming that no exceedances of the water quality monitoring criteria are observed during the intensive monitoring. If any exceedances of the water quality monitoring criteria are measured during the intensive or routine monitoring events, intensive monitoring will be re-conducted/started. Monitoring is anticipated to include manual water measurements for pH, dissolved oxygen, and turbidity.

2.9.2 Post-construction Monitoring

Bulk sediment chemistry sampling (for total PCBs and total mercury) will be conducted approximately 1 year after the completion of construction activities to confirm that placement of the sand cover has achieved and maintained the target SWAC of 84 µg/kg for total PCBs and 0.57 mg/kg for total mercury. Surface samples will be collected from 15 previously sampled stations (Appendix E) in and adjacent to the remedial footprint addressed by the thin-layer cover at the Site, and a site-wide SWAC will be re-calculated based on new data. The results of these analyses will be used to calculate a post-remedial SWAC to evaluate the post-remedial concentration compared with predicted performance across the area.

If the post-remedial SWAC is greater than 84 µg/kg but less than 169 µg/kg for total PCBs (Draft Mouth of Chollas, Paleta, and Switzer Creek Total Maximum Daily Loads – 169 µg/kg) or greater than 0.57 mg/kg but less than the ERM of 0.70 mg/kg for total mercury, then monitoring shall be conducted again 2 years after the first sampling event to determine if natural attenuation (including sediment deposition) is continuing, such that the SWAC is approaching and will achieve background concentrations within a reasonable time. If the post-remedial SWAC is greater than 169 µg/kg for total PCBs or 0.70 mg/kg for total mercury, then the Responsible Parties shall submit a plan for additional actions needed to understand the site conceptual model, including the possibility of post-remedial releases.

3 PROJECT TEAM AND ORGANIZATION

Figure 6 presents an organizational chart for the implementation of the RAP. The performing party is Lockheed Martin. Anchor QEA, LLC, has been retained to support the Responsible Parties as the Project Coordinator (David Templeton) and the Project Engineer (John Verduin P.E.).

Anchor QEA is a leading environmental and engineering consulting company that specializes in projects with aquatic, shoreline, and water resource components. Anchor QEA is nationally recognized for coastal development, engineering, landscape architecture, dredging management, resource and regulatory agency permitting, water quality, habitat restoration, and construction management.

Anchor QEA's staff includes environmental planners, scientists, landscape architects, and construction managers who apply their technical skills and creativity on a wide range of projects. The firm has offices on the West, East, and Gulf coasts as well as the Great Lakes and Alaska, including locations in Southern California and the Bay Area. Anchor QEA leads and supports many high-profile local, regional, and national waterfront cleanup projects, including such recent regional examples as the San Diego Shipyard Sediment Site, NW Portion of the East Bay, Rhine Channel sediment cleanup in Newport Beach; IR Site 7 (West Basin), Pier G slip fill, and Middle Harbor slip fill at the Port of Long Beach; and the Port of Hueneme Confined Aquatic Disposal Facility in Port Hueneme.

For matters of CAO compliance, the Water Board will serve as a point of communication and information dissemination for other governmental agencies (as necessary), including the USACE, National Oceanic and Atmospheric Administration, and California Department of Fish and Wildlife. Separate matters of permit compliance may be communicated and managed directly with individual agencies. The Responsible Parties and Project Team, defined in Figure 6, will maintain close, regular communication and coordination with the Water Board regarding project progress and success.

Commentary from stakeholders, the public, and NGOs, such as environmental groups, will be managed by the Water Board until the amended RAP is approved. During the

implementation of the RAP, the Project Team will coordinate communications with the public, stakeholders, and Water Board.

4 PREPARATION AND PLANNING FOR THE REMEDIAL ACTION

The Project Team, defined in Figure 6, will maintain close, regular communication and coordination with the Water Board regarding project progress and success. At a minimum, the following communications will be conducted:

- Attend briefings with Water Board representatives, as necessary.
- Send notifications to the Water Board as required by the CAO.
- Submit quarterly progress reports during the development of technical specifications and construction drawings and during active remediation.
- Submit various permit applications for review and approval.
- Submit the Final Cleanup and Abatement Completion Report for review and approval following the completion of construction.

The Responsible Parties will cooperate with the Water Board in providing information regarding the remediation of the Site to the public. If requested by the Water Board, the Responsible Parties will participate in the preparation of such information for distribution to the public and at public meetings, which may be held or sponsored by the Water Board to explain activities at/or relating to this cleanup.

4.1 Technical Design and Preparation of Contract Documents

Technical design details, including performance criteria, monitoring requirements, and compliance with applicable local, state, and federal regulations, will be documented in the final technical specifications and construction drawings. These documents, in conjunction with legal contract language, will be included in a contract that will be used by the contractor(s) in preparing bids for the work. They will then form the basis for the execution, monitoring, approval, and payment for the work.

4.2 Contract Award

The final technical specifications and construction drawings (collectively the contract documents) will be made available to selected, qualified contractors for bidding. The Project Team will select a responsive and responsible contractor for the work based on the value of their bid and their capabilities to perform the work.

5 IMPLEMENTATION AND MONITORING OF THE REMEDIAL ACTION

Once a contractor has been selected and contracted to perform the remedial action, the work will begin in accordance with project permits and contract documents. During construction, a remedial monitoring program will be undertaken to determine if cleanup activities have been successfully completed in compliance with permit provisions. This section describes each of the remedial action execution and monitoring steps in greater detail.

5.1 Equipment, Services, and Utilities

Because the remedial action will involve dredging and clean cover material placement, no elements or components of the remedial action are expected to require custom fabrication or a long-lead time for procurement. All equipment and materials anticipated to be used are expected to be readily available.

5.2 Construction Oversight

The Project Team will oversee the construction process to ensure and document compliance with project permits and contract documents. Continuous communication will be maintained with the contractor in order to alert them to any need to change or modify their equipment or methods. The contractor will be required to meet all construction performance standards prescribed in the final technical specifications. Example sections of the technical specifications are included in Attachment A. Elements of construction management, construction oversight, and remedial monitoring are described in the QAPP (Attachment B).

5.3 Final Cleanup and Abatement Completion Report

After the remediation work has been completed, a Final Cleanup and Abatement Completion Report will be prepared to verify completion of the remedial action. The report will include the following information:

- Compilation of results to demonstrate that the performance standards of dredging and placement of cover material have been met.
- Verification that all permit and approval conditions were met.

- Verification that RAP implementation is complete, subject to post-remedial monitoring.

Once Water Board staff determines that this RAP has been implemented and the terms of the CAO have been achieved (other than post-remedial monitoring), the Final Cleanup and Abatement Completion Report shall be approved.

5.4 Post-remedial Monitoring Plan

Post-remedial monitoring will be conducted to verify remediation is effective in reducing and maintaining chemical concentrations in sediment at the predicted SWAC. Post-remedial monitoring is anticipated to include collecting surface sediments (0 to 10 cm) and analyzing COCs at Year 1 and possibly Year 3 (if required), depending on the results of sampling at Year 1. The SAP (Attachment E) outlines surface sediment collection and chemical analysis procedures.

6 REGULATORY PERMITS AND APPROVALS

The following state and federal permits and approvals are anticipated to be required prior to implementation of the remedial action:

- California Environmental Quality Act (CEQA) compliance
- Rivers and Harbors Act Section 10 and Clean Water Act Section 404 Permits
- Endangered Species Act (ESA)/Magnuson-Stevens Fishery Conservation and Management Act
- Section 401 Water Quality Certification (WQC) and Waste Discharge Requirements (WDRs)
- California Coastal Act (CCA) Consistency
- Other reports and entitlements

6.1 California Environmental Quality Act

The Water Board will ensure adequate public participation at key steps in the remedial action and will ensure that the remedy for cleanup and abatement of the discharges at the Site shall comply with CEQA (Public Resources Code Section 21000 et seq.). The Water Board will notify all known interested persons and the public of its intent to adopt the CAO and will provide them with an opportunity to submit written comments, evidence, testimony, and recommendations.

The Water Board is expected to determine that CEQA review is not required, because the project is likely to be considered categorically exempt on several independent bases. Due to the small size of the remedial footprint and remedial approach (no dredging nor placement of enhancements, such as activated carbon), the removal/abatement will cost $1 million or less; therefore, it should be considered categorically exempt from CEQA in accordance with Title 14, California Code of Regulations, Section 15330 (Class 30). This determination is consistent with the Tentative CAO No. R9-2014-0085 for TDY (Water Board 2014) and will require that the lead agency (Water Board) confirm. The project is also categorically exempt under other provisions of CEQA, including: 1) "actions taken by regulatory agencies as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment" (Class 7); 2) "actions taken by regulatory agencies, as authorized by state or

local ordinance, to assure the maintenance, restoration, enhancement or protection of the environment where the regulatory process involves procedures for protection of the environment" (Class 8); and 3) actions by agencies related to "enforcement of a law, general rule, standard, or objective, administered or adopted by the regulatory agency" (Class 21) (CEQA Guidelines Sections 15307, 15308 and 15321).

6.2 Rivers and Harbors Act Section 10 and Clean Water Act Section 404 Permits

Rivers and Harbors Act Section 10 and Clean Water Act Section 404 permits are needed for the work. The USACE will act as the lead agency for obtaining these permits and will serve as the lead agency for required ESA and Essential Fish Habitat (EFH) consultations. Because construction activities are a required component of the CAO (Water Board 2014), the USACE has the ability to issue a letter of verification for Nationwide Permit 38, which applies to "containment stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority (notice)" (Federal Register 77:34). However, the USACE also has the discretion to require a Standard Individual Permit.

The USACE will act as the lead National Environmental Policy Act (NEPA) agency. The USACE's decision on permit forms affects the form of the NEPA review. An Environmental Impact Statement is not anticipated to be required.

6.3 Endangered Species Act/Magnuson-Stevens Fishery Conservation and Management Act

Consultation under Section 7 of the ESA and the Magnuson-Stevens Fishery Conservation and Management Act is required for this work. Consultations concern potential effects to federally listed, threatened, or endangered species and EFH issues. The USACE will act as the lead agency for consultations with the U.S. Fish and Wildlife Service and National Marine Fisheries Service and will make the final determination on requirements to comply with these regulations. Project construction activities may be limited to the period between September 15 and March 31 in order to protect the endangered California least tern (*Sterna antillarum browni*); although work within the least tern season may be requested per the terms of the Programmatic Environmental Impact Report for sediment remediation in

San Diego Bay (Water Board 2012). A Biological Assessment and EFH Evaluation Report may be required to support the consultation, and work windows may be confirmed during that process. Some other sensitive species, such as sea turtles (*Chelonioidea*), may be present near the Site. A pre-construction eelgrass (*Zostera marina*) survey will be required though previous studies have indicated that no eelgrass is present at the Site (U.S. Navy 2008).

6.4 Section 401 Water Quality Certification and Waste Discharge Requirements

Clean Water Act Section 401 WQC and WDRs are needed for the work. The Water Board will publish its WQC and WDRs after submission and acceptance of the QAPP (Attachment B) and review and approval of the WQC/WDR application.

6.5 California Coastal Act Consistency

A CCA consistency determination will be needed for the work. The Port is anticipated to act as the CCA agency through the Port's environmental process, because the Port is one of the parties in this matter. The Port can consider the work under its Port Master Plan, which was approved by the California Coastal Commission.

6.6 Other Reports and Entitlements

Access agreements for the use of an onshore staging area may also be required by land owners adjacent to the Site.

6.7 Impact to Marina

Impacts to the Sunroad Resort Marina are expected to be minimal. Access to the western side of the western most pier may need to be limited to early and late hours during sand cover placement.

7 REMEDIATION SCHEDULE

The remedial action implementation (mobilization through demobilization, excluding demolition) is expected to take approximately 6 weeks to complete and implementation of the RAP may commence as soon as 60 calendar days after it has been submitted to the Water Board (unless otherwise directed in writing by the Water Board). Figure 7 presents a schedule detailing the expected sequence of events and the timeframe for each activity based on the anticipated time required to complete each activity. Initial implementation steps include applying for and securing required agency permits and preparing a bid-ready set of contract documents. The permitting and approval timelines are placeholders, as the actual timeline is not controlled by the Responsible Parties. Similarly, other restrictions, not in the Responsible Parties' control, may affect the timelines presented.

The project schedule may be constrained by the limited marine construction window (September 15 through March 31) to protect the endangered California Least Tern during dredging and sand cover placement unless and except as authorized by resource agencies. As a result, marine construction work is typically restricted to the months of September through March.

Once remedial activities have been completed and the CAO objectives have been met, the Responsible Parties will prepare and submit a Final Cleanup and Abatement Completion Report to document that the requirements of this RAP and the CAO have been met, subject to post-remedial monitoring. Implementation of the RAP will be followed by post-remedial monitoring activities (to ensure long-term compliance with the objectives of the CAO). These activities will be conducted 1 year after the remedial action implementation activities are completed. If the monitoring indicates that the target SWACs have been achieved, then the Water Board will be requested to issue a No Further Action determination.

8 REFERENCES

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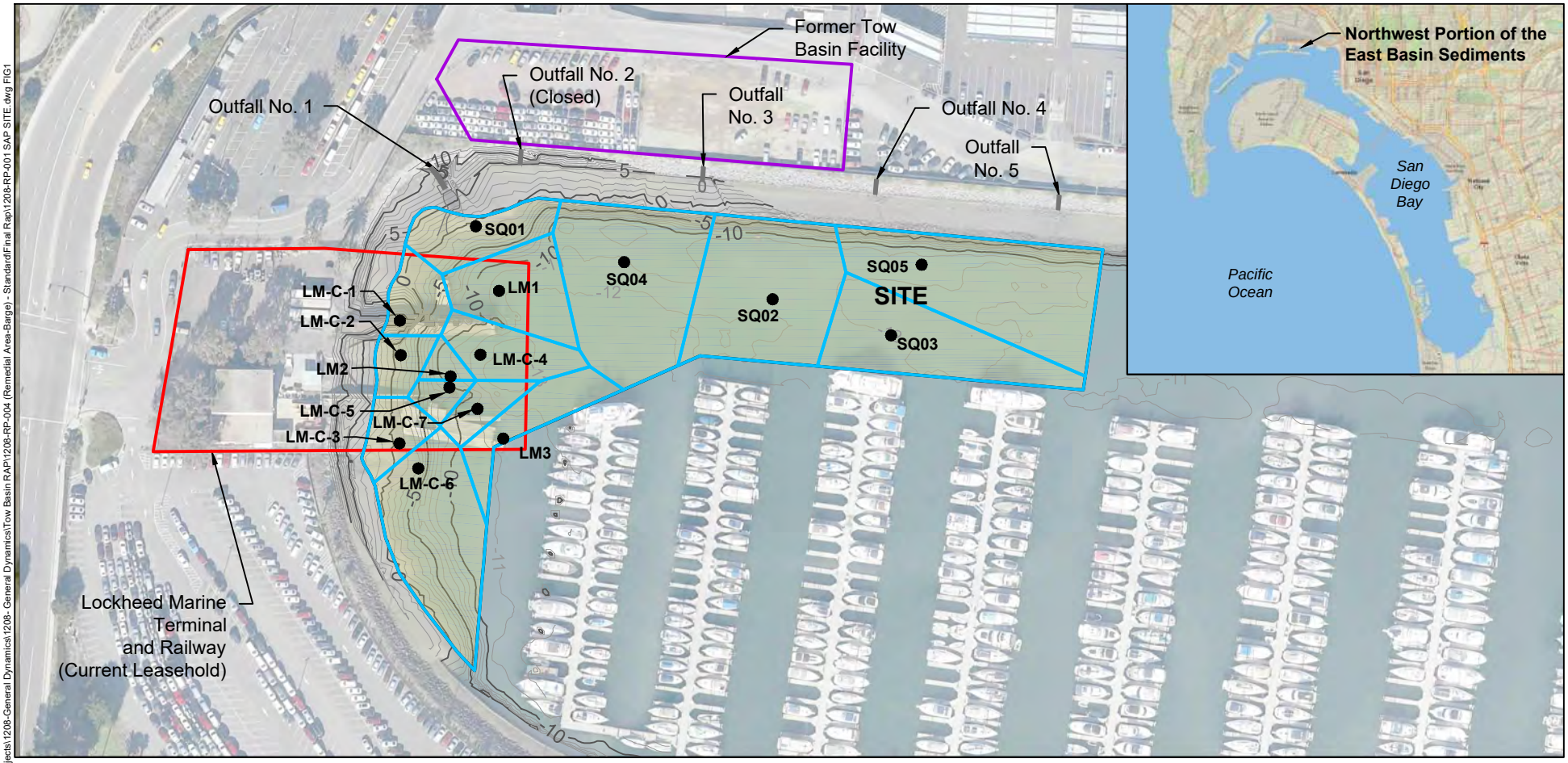
FIGURES



SOURCE: Aerial from Google Earth Pro. Thiessen polygons from Exponent figure dated January 20, 2014. Bathymetric contours from eTrac Inc., survey dated July 9, 2016.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

LEGEND:

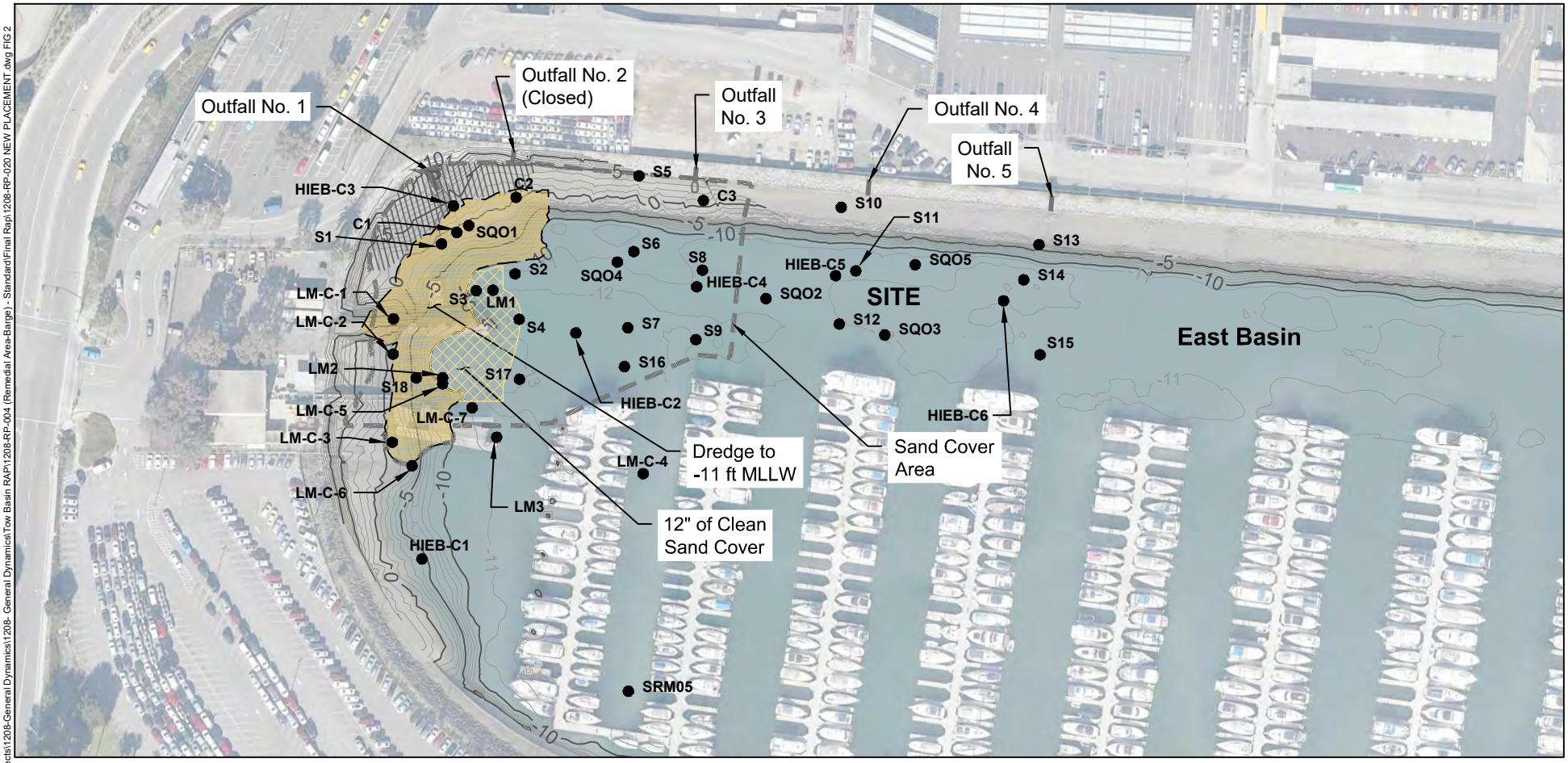
- Approximate Marine Terminal and Railway
- 3380 North Harbor Drive Facilities
- ● # Previous Sampling Location
- Site

0 160
Scale in Feet

K:\Projects\1208-General Dynamics\1208- General Dynamics\Tow Basin RAP\1208-RP-004 (Remedial Area-Barge) - Standard\Final Rap\1208-RP-001 SAP SITE.dwg FIG1
Mar 08, 2017 11:54am mpratschner

ANCHOR QEA

Figure 1
Site Plan
Northwest Portion of East Basin



SOURCE: Aerial from Google Earth Pro. Thiessen polygons from Exponent figure dated January 20, 2014. Bathymetric contours from eTrac Inc., survey dated July 9, 2016.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

LEGEND:

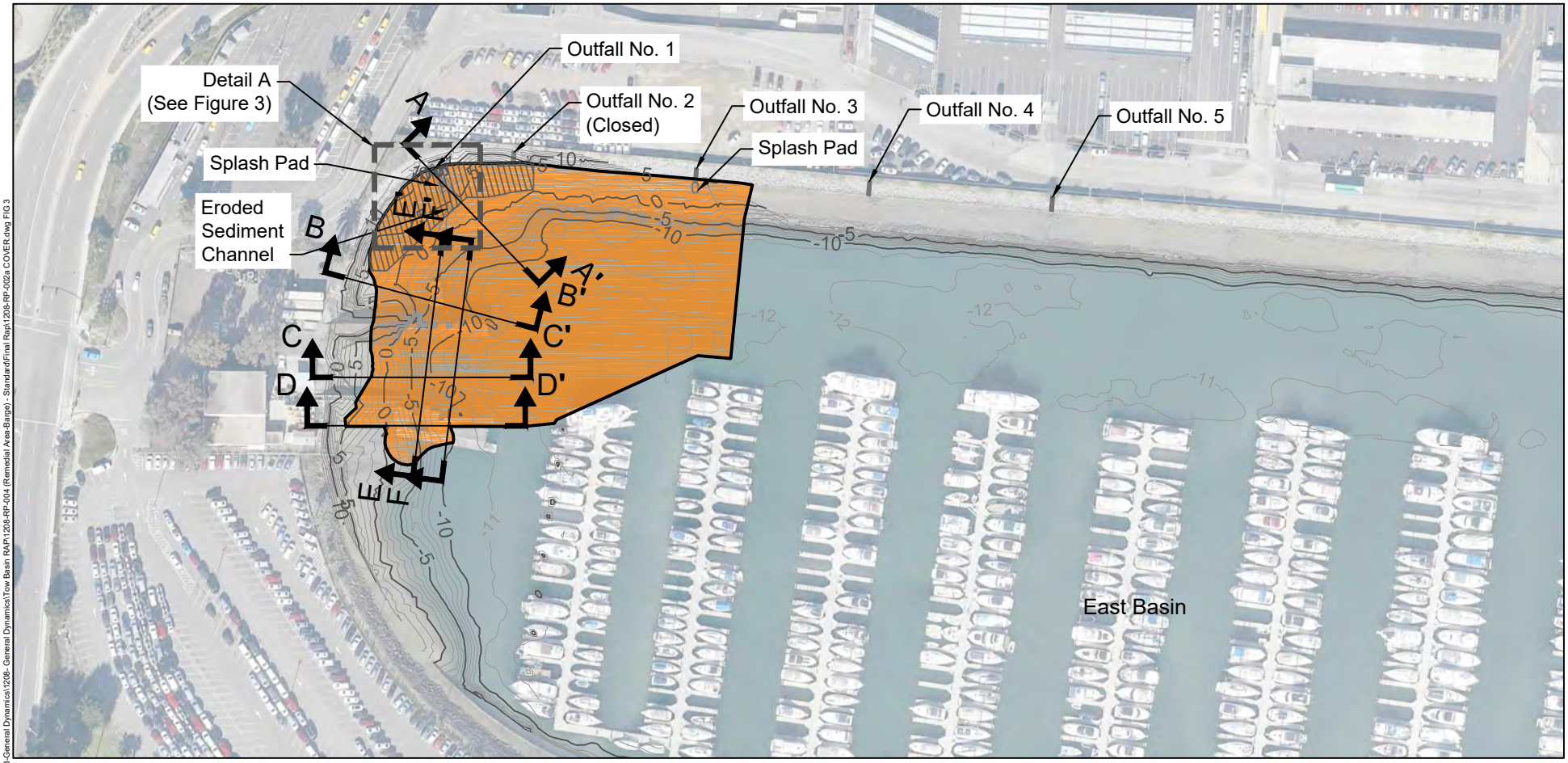
- ●# Previous Sampling Location
- Clean Sand w/GAC
- Dredge Area
- 12" of Clean Sand Cover
- Sand Cover Area

0 160
Scale in Feet

K:\Projects\1208-General Dynamics\1208- General Dynamics\Tow Basin RAP\1208-RP-004 (Remedial Area-Barge) - Standard\Final Rap\1208-RP-020 NEW PLACEMENT.dwg FIG 2
Mar 08, 2017 1:45pm mpratschner

ANCHOR QEA

Figure 2
Site Plan With Conceptual Dredge Design
Northwest Portion of East Basin



SOURCE: Aerial from Google Earth Pro. Thiessen polygons from Exponent figure dated January 20, 2014.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

LEGEND:

Thiessen Polygon Boundary

Clean Cover Placement Area (92,307 S.F.)

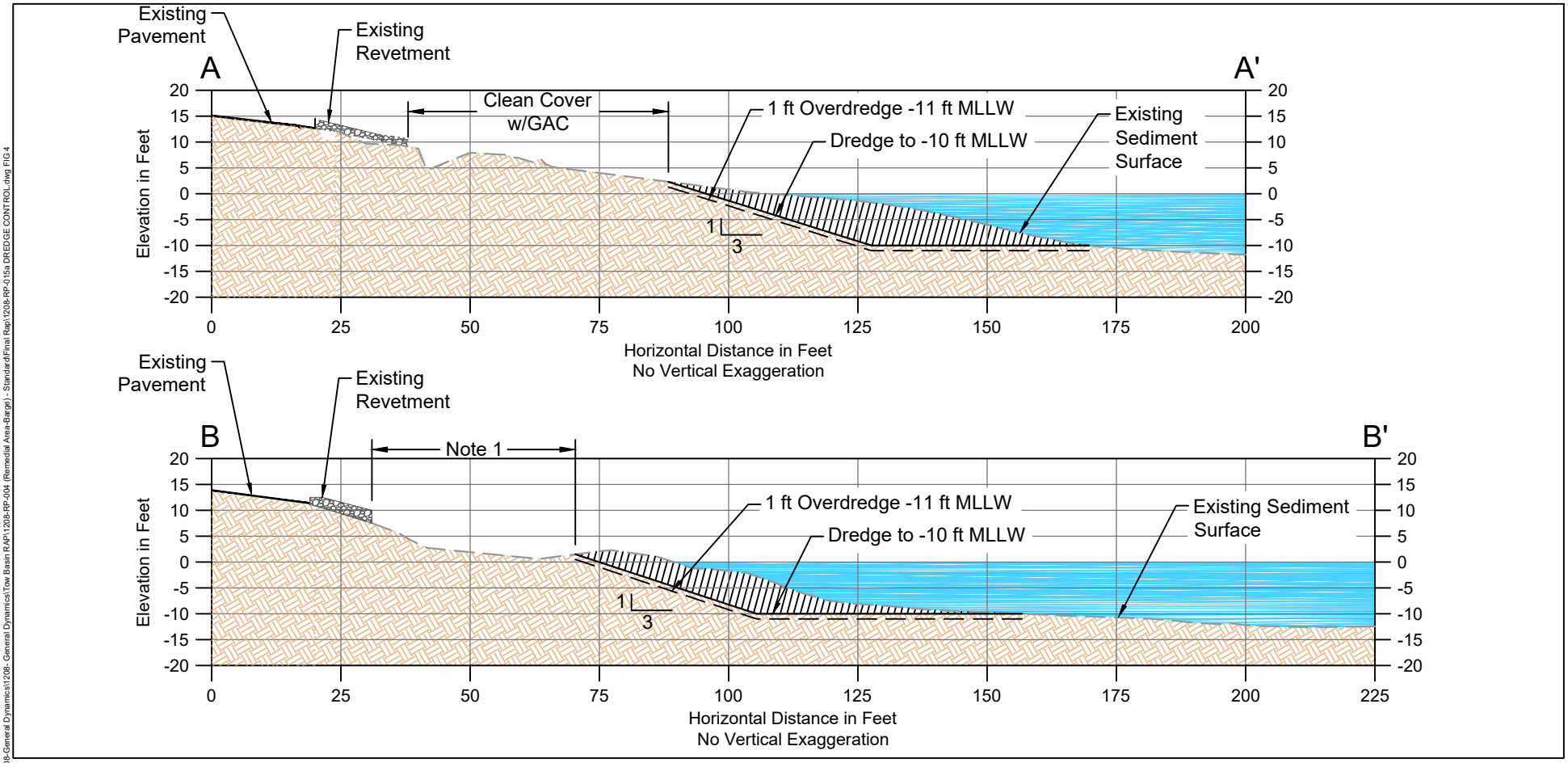
Clean Sand w/GAC (7,878 S.F.)

0 160
Scale in Feet

Mar 08, 2017 1:53pm mpratschner K:\Projects\1208-General Dynamics\1208- General Dynamics\Tow Basin RAP\1208-RP-004 (Remedial Area-Barge) - Standard\Final Rap\1208-RP-002a COVER.dwg FIG3

ANCHOR QEA

Figure 3
Cover Material Placement Plan
Northwest Portion of the East Basin Sediments



SOURCE: Bathymetric contours from Etrac Inc., survey dated July 9, 2016.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

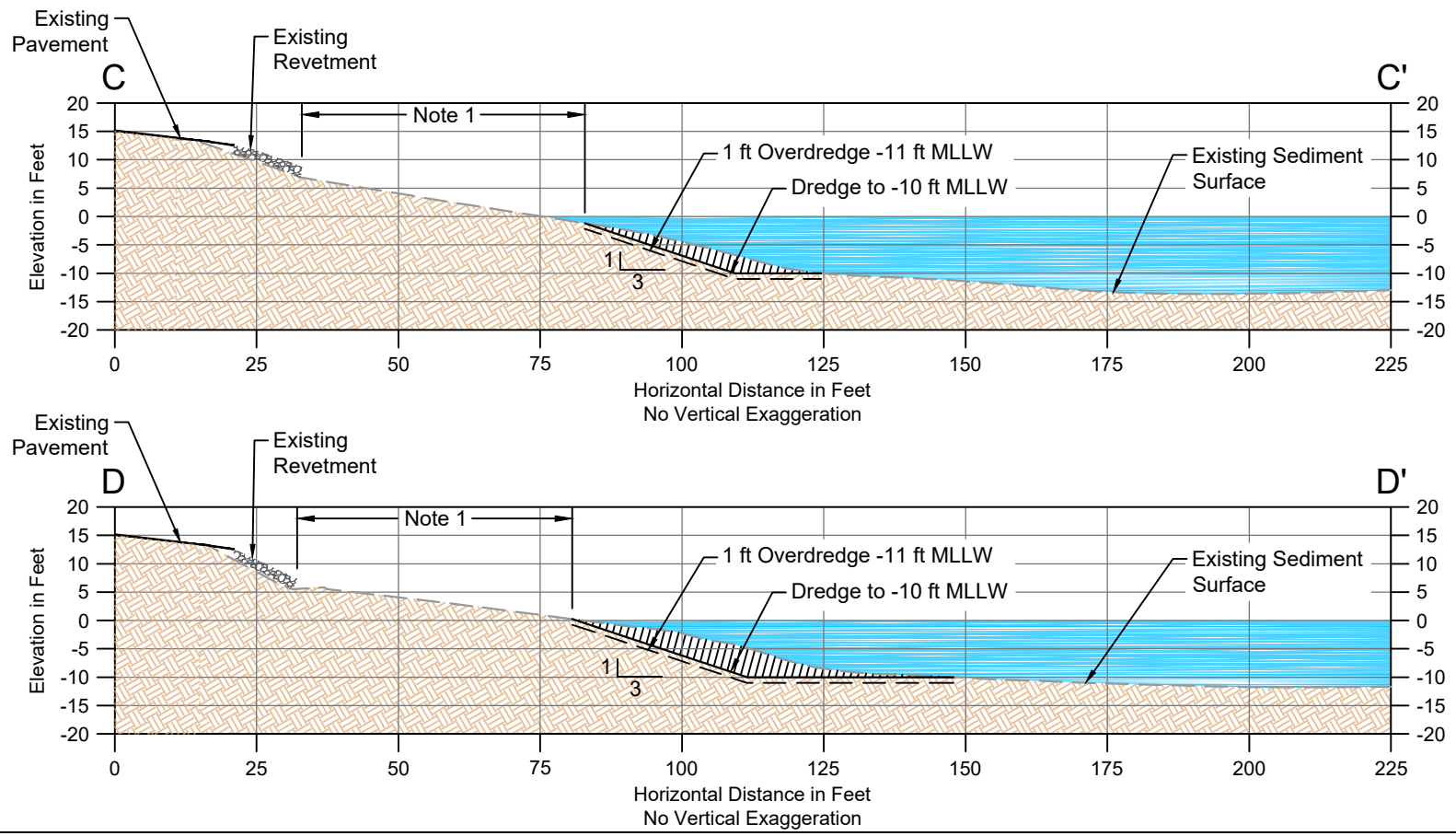
Note:
1. A minimum 5 foot offset is required from the toe of the existing revetment.

0 30
Scale in Feet

Mar 08, 2017 12:49pm mpratschner K:\Projects\1208-General Dynamics\1208- General Dynamics\Tow Basin RAP\1208-RP-004 (Remedial Area-Barge) - Standard\Final Rap\1208-RP-015a DREDGE CONTROL.dwg FIG 4

ANCHOR QEA

Figure 4
Dredging Cross-sections A-A' and B-B'
Northwest Portion of the East Basin Sediments



SOURCE: Bathymetric contours from Etrac Inc., survey dated July 9, 2016.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

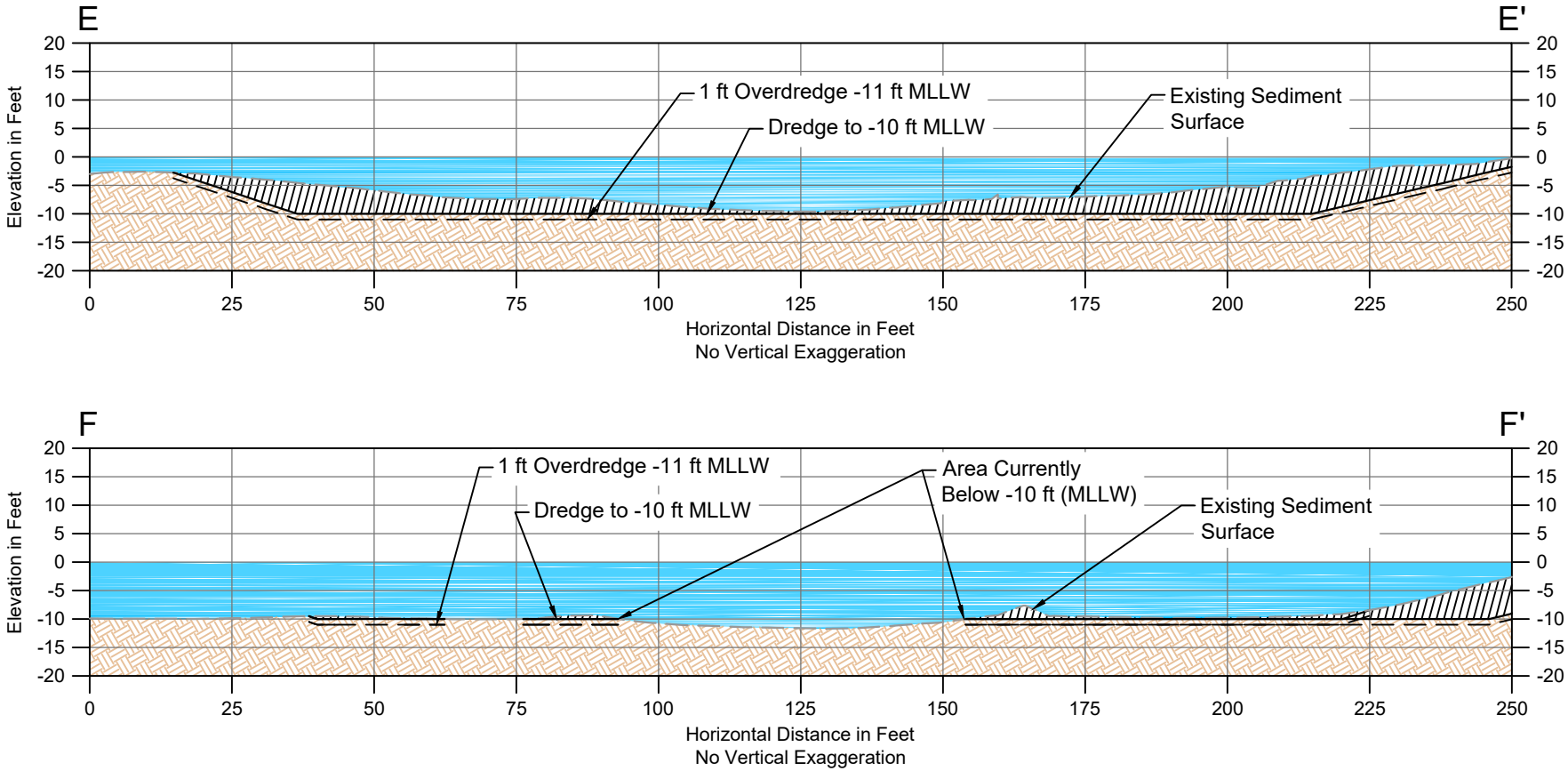
Note:
1. A minimum 5 foot offset is required from the toe of the existing revetment.

0 30
Scale in Feet

Mar 08, 2017 12:53pm mpratschner K:\Projects\1208-General Dynamics\1208- General Dynamics\Tow Basin RAP\1208-RP-004 (Remedial Area-Barge) - Standard\Final Rap\1208-RP-015a DREDGE CONTROL.dwg FIG 5

ANCHOR QEA

Figure 5
Dredging Cross-sections C-C' and D-D'
Northwest Portion of the East Basin Sediments



SOURCE: Bathymetric contours from Etrac Inc., survey dated July 9, 2016.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

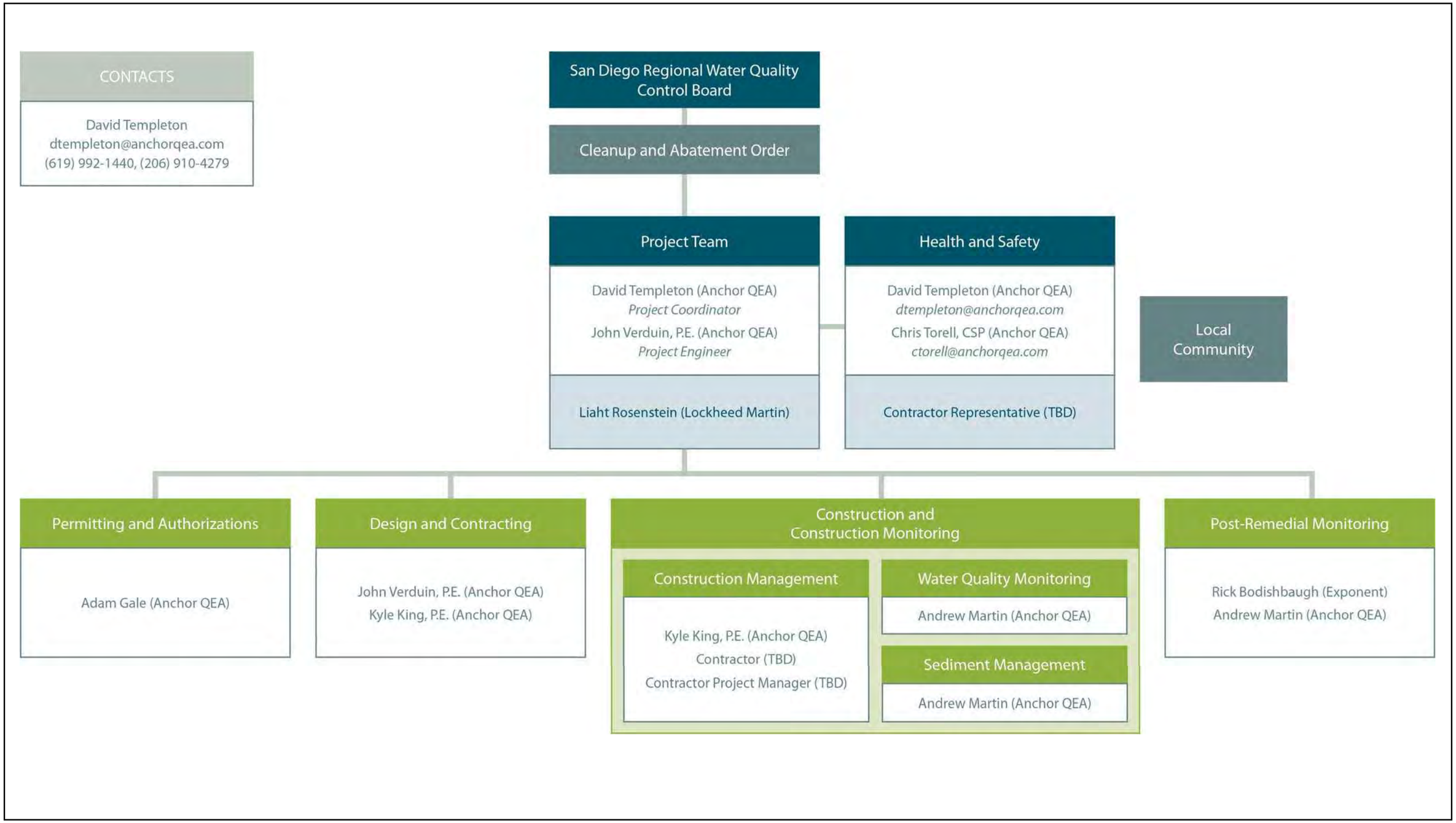
Note:
1. A minimum 5 foot offset is required from the toe of the existing revetment.

0 30
Scale in Feet

Mar 08, 2017 12:57pm mpratschner K:\Projects\1208-General Dynamics\1208- General Dynamics\Tow Basin RAP\1208-RP-004 (Remedial Area-Barge) - Standard\Final Rap\1208-RP-015a DREDGE CONTROL.dwg FIG 6

ANCHOR QEA

Figure 6
Dredging Cross-sections E-E' and F-F'
Northwest Portion of the East Basin Sediments

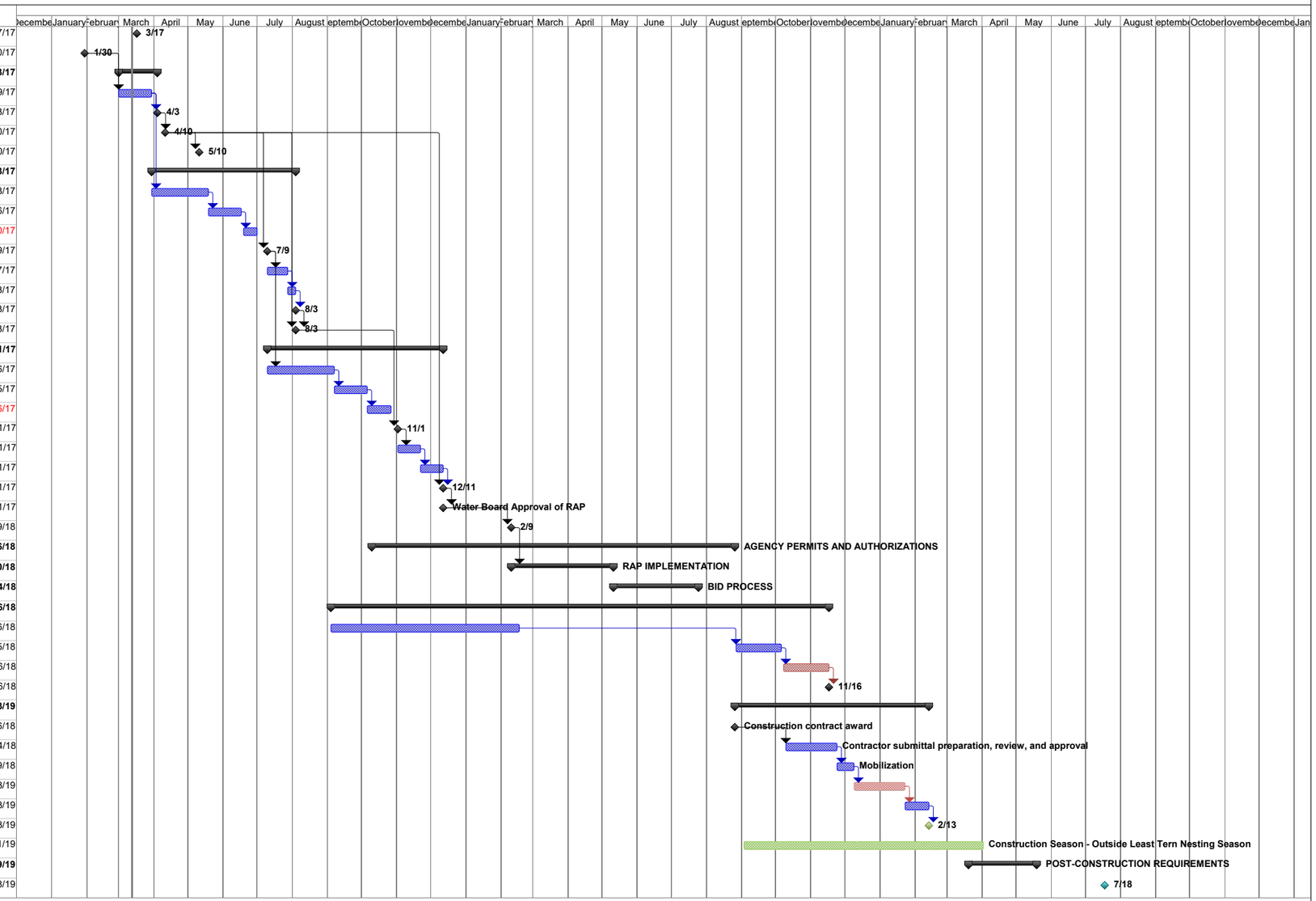


ANCHOR QEA

Figure 7
Project Team Organizational Chart
Northwest Portion of the East Basin Sediments

CAO Implementation Schedule
NW Corner of the East Basin

ID	Task Name	Duration	Start	Finish
1	Finalize Settlement Agreement/CDP	0 edays	Fri 3/17/17	Fri 3/17/17
2	Issuance of Draft CAO (1/30/17)	0 edays	Mon 1/30/17	Mon 1/30/17
3	**Public Comment Process CAO**	**25 days**	**Wed 3/1/17**	**Mon 4/3/17**
4	Address Public Comments	21 days	Wed 3/1/17	Wed 3/29/17
5	Board Meeting	0 edays	Mon 4/3/17	Mon 4/3/17
6	Issuance of Final CAO	0 edays	Mon 4/10/17	Mon 4/10/17
7	Progress Reports (Monthly)	0 edays	Wed 5/10/17	Wed 5/10/17
8	**FS (90 Days)**	**92 days**	**Wed 3/29/17**	**Thu 8/3/17**
9	Draft FS	50 edays	Wed 3/29/17	Thu 5/18/17
10	Internal Review	21 days	Fri 5/19/17	Fri 6/16/17
11	Finalize Draft FS	10 days	Mon 6/19/17	Fri 6/30/17
12	Draft FS to Board (90 days from Final CAO)	0 edays	Sun 7/9/17	Sun 7/9/17
13	Board Review	14 days	Mon 7/10/17	Thu 7/27/17
14	Finalize Final FS	5 days	Fri 7/28/17	Thu 8/3/17
15	Final FS to Board	0 edays	Thu 8/3/17	Thu 8/3/17
16	Approval of FS	0 edays	Thu 8/3/17	Thu 8/3/17
17	**RAP (90 Days)**	**113 days**	**Mon 7/10/17**	**Mon 12/11/17**
18	Preparation of Draft RAP, Post Remedial Monitoring Plan	45 days	Mon 7/10/17	Wed 9/6/17
19	Internal Review	21 days	Thu 9/7/17	Thu 10/5/17
20	Finalize Draft RAP	15 days	Fri 10/6/17	Thu 10/26/17
21	Draft RAP to Board	0 edays	Wed 11/1/17	Wed 11/1/17
22	Board Review (No Public Comment?)	14 days	Thu 11/2/17	Tue 11/21/17
23	Develop Final RAP	14 days	Wed 11/22/17	Mon 12/11/17
24	Final RAP to Board	0 edays	Mon 12/11/17	Mon 12/11/17
25	**Water Board Approval of RAP**	0 edays	Mon 12/11/17	Mon 12/11/17
26	**RAP Implementation**	0 edays	Fri 2/9/18	Fri 2/9/18
27	**AGENCY PERMITS AND AUTHORIZATIONS**	**229 days**	**Tue 10/10/17**	**Sun 8/26/18**
33	**RAP IMPLEMENTATION**	**64 days**	**Fri 2/9/18**	**Thu 5/10/18**
36	**BID PROCESS**	**53 days**	**Thu 5/10/18**	**Tue 7/24/18**
39	**Marine Terminal Demolition**	**315 days**	**Mon 9/4/17**	**Fri 11/16/18**
40	Select Contractor	120 days	Mon 9/4/17	Fri 2/16/18
41	Contractor submittal preparation, review, and approval	30 days	Mon 8/27/18	Fri 10/5/18
42	Demolition Activities	30 days	Mon 10/8/18	Fri 11/16/18
43	Demolition Activities Complete	0 edays	Fri 11/16/18	Fri 11/16/18
44	**REMEDIAL CONSTRUCTION**	**122 days**	**Sun 8/26/18**	**Wed 2/13/19**
45	Construction contract award	0 edays	Sun 8/26/18	Sun 8/26/18
46	Contractor submittal preparation, review, and approval	45 edays	Wed 10/10/18	Sat 11/24/18
47	Mobilization	15 edays	Sat 11/24/18	Sun 12/9/18
48	Construction	45 edays	Sun 12/9/18	Wed 1/23/19
49	Debmobilization	21 edays	Wed 1/23/19	Wed 2/13/19
50	Work Complete	0 edays	Wed 2/13/19	Wed 2/13/19
51	**Construction Season - Outside Least Tern Nesting Season**	7.55 mons	Mon 9/3/18	Mon 4/1/19
52	**POST-CONSTRUCTION REQUIREMENTS**	**43 days**	**Wed 3/20/19**	**Sun 5/19/19**
55	**POST-REMEDIAL MONITORING PLAN IMPLEMENTATION (Years 3,5)**	0 edays	Thu 7/18/19	Thu 7/18/19



Project: SD Shipyards Remediation
Date: Mon 3/13/17

Task | Split | Milestone | Summary | Project Summary | External Tasks | External Milestone | Inactive Task | Inactive Task | Inactive Milestone | Inactive Summary | Manual Task | Duration-only | Manual Summary Rollup | Manual Summary | Start-only | Finish-only | Progress | Deadline

Figure 8
Detailed Projection of Project Schedule
Northwestern Portion of the East Basin Sediments, San Diego, California

ATTACHMENT A
TECHNICAL SPECIFICATION FOR COVER MATERIAL REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. The work consists of furnishing all transportation, labor, materials, equipment, and incidentals necessary for placement of Cover Materials at the Former Tow Basin (Site) as shown on the Contract Drawings.

B. Cover work consists of placement of cover materials in designated open water areas or as instructed by the Engineer.

C. Designated open water placement areas shown on the Contract Drawings shall receive Cover Material or Cover Material with Granular Activated Carbon (GAC) at a specified material weight per unit area rate.

D. Following dredging operations, the Engineer may specify certain dredged areas to receive Cover Material within designated boundaries and a specified layer thickness.

E. Cover Materials placement operations shall not be performed until approved by the Engineer.

1.02 DEFINITIONS

A. Cover Material: Cover Material is defined as non-contaminated material placed as a material weight per unit area over the Required Cover Extents with a Required Cover Minimum Thickness, as shown on the Contract Drawings. Cover Material takes the form of Sand Cover Material and Gravelly Sand Cover Material, to be placed in various locations as shown and defined on the Contract Drawings. Cover Material shall be obtained from an upland, off-site source, and shall not be a reused dredged material, nor from an in-water source. Cover Material shall meet all acceptance criteria as specified herein.

B. The Cover Material with GAC is defined as Cover Material uniformly amended by blending GAC at a minimum content of 0.5 percent GAC (by dry weight).

C. Required Cover Placement Quantity: The required quantity of cover materials to be placed over the Required Cover Extents, as specified in tons per unit area. The required tonnage per unit area is noted on the Contract Drawings and is intended to provide an average coverage of 15 centimeters (6 inches) or 30 centimeters (12 inches) throughout the required coverage area as defined on the Contract Drawings. A Required Cover Minimum Thickness shall be met in addition to the Required Cover Placement Quantity to ensure an even distribution of Cover Materials over the Required Cover Extents.

D. Required Cover Extents: The required cover extents are the horizontal limits to which the Contractor is required to place Cover Materials. The required cover

extents are shown on the Drawings. The Contractor will not be paid for any cover material placed outside the Required Cover Extents shown on the drawings.

E. Required Cover Minimum Thickness: The required cover minimum thickness is 15 centimeters (6 inches) or 30 centimeters (12 inches) as defined on the Drawings. Completeness and adequacy of coverage will be verified and surveyed in the field by the Engineer, and shall be subject to the Engineer's approval.

F. Excessive Over-Placement: Any material placed with thicknesses greater than 4 inches above the Required Cover Minimum Thickness (total cover thickness of 10 inches or 16 inches) shall be considered Excessive Over-Placement.

1.03 REFERENCES

A. ASTM method D422-63 Standard Test Method for Particle-Size Analysis of Soils.

B. ASTM method D2216-10 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.

C. ANSI/NSF Standard 61

1.04 QUALITY ASSURANCE

A. The Contractor shall provide testing and inspection services, as required. Sampling and testing to ensure compliance with the Contract provisions shall be in accordance with the Construction Quality Control Plan, as described in Section 014500 – Quality Control of the full Technical Specifications (to be prepared during Design), and are the Contractor's responsibility. The Owner reserves the right to require additional testing as deemed necessary by the Engineer.

B. The Cover Material with GAC shall be uniformly amended by blending GAC at a minimum content of 0.5 percent GAC (by dry weight). The GAC shall meet the requirements of ANSI/NSF Standard 61. GAC shall be virgin or regenerated, either bituminous or coconut shell based, activated carbon meeting a U.S. Sieve 8x30 mesh size (Aquacarb® 830 by USFilter, SGL® 8 x 30 by Calgon Carbon, or equal). Product specification sheets for the selected GAC must be submitted to the Owner for review and approval prior to ordering the material.

C. The amended Filter Material shall be thoroughly pre-wetted prior to placement as needed to minimize flotation of the GAC.

D. The Contractor shall provide a means of verification of the GAC content, subject to approval by the Engineer. The amended Clean Cover with GAC shall be manufactured prior to placement. The amended Clean Cover with GAC shall be manufactured by proportioning Clean Cover and GAC in the proper amounts and

thoroughly mixed using mechanical means. The amended Cover Material shall be mixed until the mixture has a uniform texture and color.

E. A signed affidavit from the materials supplier, providing the total weight of Clean Cover and weight of blended GAC for each truck or barge delivered, may be an acceptable means of verification.

1.05 JOB CONDITIONS

A. Character of Materials.

1. The character of the existing sediments within the waterway is described in Section 3520XX.

B. Protection of Existing Facilities.

1. Exercise care when conducting cover placement operations so as not to damage, undermine, or otherwise disturb existing facilities or structures. Any damage to existing facilities or structures caused by the Contractor's operations, as determined by the Engineer, shall be repaired at the Contractor's expense.

C. Protection of Eelgrass Beds, Sea Turtles, and Marine Mammals.

1. All in-water work shall be temporarily halted if a sea turtle or marine mammal is sighted within 100 meters of the construction zone and resumed only when the sea turtle or marine mammal is safely outside of the perimeter.

2. Eelgrass beds, if confirmed in the field by a Project Marine Biologist, shall not be disturbed during in-water operations, including but not limited to, anchoring, grounding, and propeller damage.

3. The Project Marine Biologist will conduct pre-construction eelgrass surveys not more than 30 days prior to commencement of in-water work near eelgrass beds, as shown on the Contract Drawings. A post-construction eelgrass survey will be conducted by the Project Marine Biologist within 30 days of completion of work near eelgrass beds, as shown on the Contract Drawings. The Contractor shall work with the Project Marine Biologist to accommodate the eelgrass surveys described herein.

4. The Contractor shall maintain a minimum 10-foot buffer around existing eelgrass beds, as shown on the Contract Drawings.

5. When working within 50 feet of eelgrass beds (if any), the Contractor shall drive posts along the dredge boundary to attach a silt curtain

outboard of the posts such that it does not drag over the eelgrass. The Contractor shall place cover material outboard of the curtain working away from the shore in a manner that minimizes the time period that curtains are present.

6. In the event that eelgrass beds are determined by the Project Marine Biologist to be impacted from the remediation work, the Contractor shall be responsible for mitigation of eelgrass beds in an area approximately 450 feet to the east of the timber pier (to be demolished as part of this Contract). Eelgrass beds will be restored by placing approximately 5 cubic yards of sand at the toe of the existing riprap slope and planting eelgrass.

D. Control of Pollutants Other Than Sediment.

1. Requirements for control of pollutants as specified in Section 352023 – Dredging are also applicable to cover material placement operations.

E. Inherent Delays and Marina Activities.

1. Anticipate inherent delays while conducting cover material placement operations at the Site. Marina operations within the Site and commercial shipping traffic in nearby waters shall have precedence over the Contractor's activities and will require them to stop, move, adjust, and/or slow down to accommodate vessel movement. The bid prices shall include allowances for such inherent delays.

F. Interference with Navigation.

1. Requirements for limiting interference with navigation as specified in Section 3520XX are applicable to Cover Material placement operations.

1.06 MISPLACED MATERIAL

A. Requirements for misplaced materials as specified in Section 3520XX are applicable to cover placement operations.

1.07 SUBMITTALS

A. Cover Material Placement Plan. As part of the RAWP submittal detailed in Section 014000 – Remedial Action Work Plan, Contractor shall submit to the Owner a detailed, written Material Placement Plan, which shall contain the following information:

1. The order in which the work is to be performed, indicating the work sequence.

2. Number, types, and capacity of equipment to be used.

3. Methods and procedures for placing cover materials per these specifications.

4. Methods and means for monitoring Cover Material placement, including:

   a) The rate of deposition of the Cover Material at all times.

   b) The location of placed Cover Material in the project coordinate system.

   c) The area where Cover Material was placed in the previous day.

   d) The volume of Cover Material placed during the previous day.

   e) Average thickness of Cover Material placed during the previous day.

5. The time and duration required to complete each activity related to cover material placement.

6. Transportation route and storage location for cover material.

7. Methods, procedures, and equipment for coordinating and performing progress surveys; layout of the work; and positioning of Cover Material placement equipment.

8. Notification and procedures to be used for ensuring that construction work related to cover material placement accommodates commercial and Marina traffic using the surrounding waters at all times.

B. Imported Cover Materials Source Report. Concurrent or prior to submittal of the Cover Material Placement Plan, the Contractor shall also submit an Imported Cover Materials Source Report, which shall contain the following information:

1. Names, addresses, maps and contact information for each supplier proposed for cover material(s).

2. Documentation that proposed supplier(s) are fully permitted and authorized to provide the cover material(s).

3. Test reports from accredited laboratories that demonstrate the proposed cover material(s) meet all physical and chemical requirements presented in these specifications, as detailed in Section 2.01, below.

4. Details regarding the samples obtained for the laboratory testing listed above; including source and location of samples; sampling technique; and chain-of-custody forms for the samples.

5. Written statement from proposed cover material suppliers that there is adequate available quantity to supply the necessary material(s) for use on this project, within the necessary timeframes.

6. Representative samples of each material proposed for placement, per PART 2 – PRODUCTS.

C. Cover Material Approval Process.

1. Submittals listed above shall be provided to the Owner, who will then provide review copies to the Engineer.

2. The Contractor shall not bring any Cover Materials to the Site until approval from the Owner and the Engineer has been received.

PART 2 – PRODUCTS

2.01 COVER MATERIALS CHARACTERIZATION

A. General.

1. The Contractor shall ensure that there is an availability of adequate and acceptable materials source, based on quantity, quality, and gradation to complete the cover material placement work. All borrow sources and imported material used by the Contractor shall meet the specifications listed below.

2. Provide all required materials for the cover material placement work. Materials shall be of the quality, size, shape, and gradation, or equal to that specified herein.

3. Perform the activities specified below to assure that imported materials are free of contaminants, including debris or recycled materials, and meet construction specifications. The Engineer maintains the right to reject any materials that have been determined to be substandard for any reason. In the event of rejections, it shall be the responsibility of the Contractor to remove all stockpiles of rejected material from the Site at their expense.

B. Testing, Reporting, and Certification.

1. Test cover materials for the following parameters:

a) Grain Size Distribution (ASTM method D422-63).

b) In situ Moisture Content (ASTM method D2216).

2. Metals, semivolatile organics, polychlorinated biphenyls (PCBs), phthalate esters, and other constituents shall be tested using the analysis method and reporting limits shown in Table 1 – Fill Chemical Acceptance Criteria, Laboratory Reporting Limits, and Required Analysis Methods (attached to this Section). Materials shall be deemed acceptable if not detected at the reporting limit. Higher acceptance values will be considered by the Owner and Engineer if detectable concentrations are at background levels.

C. Inspection of Materials at the Project Site.

1. The Contractor shall visually inspect truckloads or barges of import material upon delivery. Material shall be inspected for the presence of foreign, recycled, or reprocessed material. The Engineer may at any and all times perform an independent inspection. Material may be rejected if identified as substandard or test results show it to be substandard. Material may be segregated for testing based on appearance or odor. Segregated material may be tested according to designated procedures at the Engineer's discretion.

2.02 SAND COVER MATERIAL

A. Sand Cover Material shall be free-draining sand from an existing commercial sources or sources approved by the Engineer. Reuse of dredged material will not be allowed as cover material.

B. The material shall be free of all objectionable coating.

C. Sand Cover Material shall be sampled and analyzed by the Contractor to demonstrate that the chemical parameters are below the chemical acceptance criteria presented in Table 1 – Fill Chemical Acceptance Criteria, Laboratory Reporting Limits, and Required Analysis Methods (attached to this section). Sand Cover Material that does not meet the chemical acceptance criteria will be rejected by the Engineer.

D. Material samples shall be submitted to the Engineer no less than 30 days prior to the completion of required dredging activities.

E. Sand Cover Material shall be graded between the limits specified below:

SIEVE SIZE	PERCENT PASSING (BY WEIGHT)
3/8 inch	100%
U.S. No. 4	95% to 100%

U.S. No. 8	80% to 95%
U.S. No. 16	40% to 70%
U.S. No. 50	3% to ~~10%~~ 20%
U.S. No. 200	0% to 5% (wet screen)

2.03 GRAVELLY SAND COVER MATERIAL

A. Gravelly Sand Cover Material shall be free-draining, sandy gravel or gravelly sand obtained from an existing commercial source or sources approved by the Engineer. Individual particles shall be free from all objectionable coating. The material shall not contain organic matter in quantities considered objectionable by the Engineer.

B. Gravelly Sand Cover Material will be tested by the Contractor to demonstrate that results are below the chemical acceptance criteria presented in Table 1 – Fill Chemical Acceptance Criteria (attached to this section). Gravelly Sand Cover Material that does not pass the required criteria will be rejected by the Engineer.

C. Gravelly Sand Cover Material shall be graded between the limits specified below:

SIEVE SIZE	PERCENT PASSING (BY WEIGHT)
4 inches	90% to 100%
¾ inch	50% to 75%
U.S. No. 4	35% to 55%
U.S. No. 10	25% to 45%
U.S. No. 40	10% to 25%
U.S. No. 200	0% to 5% (wet screen)

PART 3 – EXECUTION

3.01 QUALITY CONTROL

A. Execution and documentation of the Contractor's quality control activities related to this section of the specifications shall be done in accordance with the Contractor's Quality Control Plan, described in Section 014500 – Quality Control.

3.02 ORDER OF WORK

A. Sand Cover Placement.

1. Conduct placement of post-dredge Sand Cover Material to the limits and thicknesses specified by the Engineer.

B. Gravelly Sand Cover Placement.

1. Conduct placement of Gravelly Sand Cover Material to the limits shown on the Contract Drawings.

C. Under Pier or Structures and Open Water Cover Placement.

1. Conduct placement of underpier and open water Sand Cover Material to the limits shown on the Contract Drawings.

D. Removal of Excessive Over-Placement Material.

1. The Contractor may be required by the engineer to remove any excessive over-placement material.

3.03 SURVEYS

A. Pre-Cover Survey.

1. The Final Dredging acceptance survey described in Section 352023 – Dredging and Section 017123 – Surveying shall serve as the pre-cover bathymetric survey.

B. Post-Cover Survey.

1. Upon nearing completion for cover placement in the required areas, notify the Engineer at least 5 days prior to completing placement operations, and request that the independent third party surveyor conduct the post-cover acceptance survey as described in Section 017123 - Surveying. If required placement coverages or thicknesses have not been met, as determined by the Engineer, the Contractor shall place additional cover material, and the area(s) will be re-checked by the Engineer.

2. The cover thickness for all cover areas shall be determined by comparison of the independent hydrographic surveys conducted before and after cover placement, in accordance with Section 017123 – Surveying. Response action will be required for all areas with less than 6-inches of cover material.

3. The post-cover acceptance survey will be used as the basis for acceptance of Work and determination of final pay areas. The Engineer, computing placement areas to the nearest square yard, will calculate final pay areas. Upon request, the Contractor will be provided a copy of the bathymetric soundings and the area calculations.

C. Bathymetric Equipment and Methods.

1. Requirements for bathymetric equipment and methods as specified in Section 017123 – Surveying are also applicable to cover placement operations.

D. Ranges and Tide Gauges.

1. Requirements for ranges and tide gauges as specified in Section 017123 – Surveying are also applicable to cover placement operations.

3.04 CONDUCT OF WORK

A. Layout of Work.

1. Verify that all required gauges, targets, ranges, and other survey markers are in place and properly maintained as described in Section 017123 – Surveying.

B. Positioning Equipment and Methods.

1. Requirements for positioning equipment and methods as specified in Section 352023 – Dredging are also applicable to cover placement operations.

C. Cover Material Placement Equipment.

1. All equipment utilized for Cover Material placement shall be affixed with properly functioning mufflers consistent with manufacturer's standards.

2. All stationary equipment shall be positioned so that noise emission is directed away from sensitive receptors at or near the Site.

3. Equipment shall be positioned so that the greatest distance practical is observed between noise emission and sensitive receptors at or near the Site.

D. Silt curtains (if required) shall be positioned to surround the active Work area at all times during placement of cover materials.

E. Surface booms, oil-absorbent pads, and similar materials shall be on Site for any sheen that may occur on the surface of the water during the Work.

F. Water Quality Monitoring.

1. The Contractor and the Engineer shall monitor water quality throughout cover placement operations in accordance with the requirements of the applicable regulatory documents and as described in Section 015719 – Temporary Environmental Controls and Protection.

2. The Engineer will monitor water quality at regular occasions using a combination of automated water quality sensors and manual water sample collection. The contractor shall abide by all Owner-derived direction regarding responding to the results of water quality monitoring.

3. The Contractor shall have in place:

   a) BMPs to prevent water quality exceedances.

   b) Contingency measures to implement should water quality exceedances occur.

G. Placement of Cover Materials.

1. No placement shall occur outside of the in-water construction window of September 17, 2013, through March 31, 2014.

2. Cover material placement shall be accomplished in the designated areas, within the tolerances, and to the depths indicated on the Contract Drawings.

3. Generally, cover materials shall be placed from the bottom of slope, or low point within a given placement area, and progress up the slope or towards the high point within a given placement area.

4. Cover material shall be placed in controlled lifts not to exceed 6-inches. A specific cover placement area shall receive an initial lift of cover materials over the entire placement footprint before the Contractor places subsequent lifts.

5. Contractor shall place the Cover Material in such a manner as to reduce the vertical impact and lateral spreading of Cover Material and potential for resuspending surficial sediments. Controlled placement shall also occur to minimize the mixing of Cover Material and surficial sediment to allow sediment to slowly gain strength before subsequent layers are deposited.

6. Contractor shall minimize the drop height for placement of cover materials to the extent practical in order to limit mixing of the cover materials and the surficial sediments.

7. Use of spuds is not allowed in previously covered areas.

8. The Contractor shall monitor the cover placement work throughout the course of work for depth, slopes, location, and tolerances, and shall be responsible for damages due to over-placement or placement outside the given limits for cover materials.

9. The Contractor will not be allowed to drag cover areas to even out cover material overplacements.

10. Any cover material that is deposited other than in the area indicated on the drawings, or other than as approved by the Owner or Engineer, will not be paid for, and the Contractor may be required to remove such misplaced material and deposit it where directed at its own expense.

H. Stoppage of Work.

1. All Site personnel shall have the authority to stop Work in the event that unsafe conditions area observed.

2. No work shall be conducted in high winds greater than 25 miles per hour.

END OF SECTION

TABLE 1
FILL CHEMICAL ACCEPTANCE CRITERIA, LABORATORY REPORTING LIMITS, AND PREFERRED ANALYSIS METHODS

CAS	CONSTITUENT	PREFERRED ANALYSIS METHODS[1]	REPORTING LIMITS[2]	UNITS
Metals				
7440-38-2	Arsenic	6010C	6.8E+00	mg/kg dw
7440-43-9	Cadmium	6010C	2.6E+00	mg/kg dw
7447-47-3	Total Chromium	6010C	1.3E+02	mg/kg dw
7440-50-8	Copper	6010C	4.0E+01	mg/kg dw
7439-92-1	Lead	6010C	1.3E+02	mg/kg dw
7439-97-6	Mercury as Elemental	7471	2.1E-01	mg/kg dw
7440-02-0	Nickel	6010C	--	mg/kg dw
7440-22-4	Silver	6010C	3.1E+00	mg/kg dw
7440-66-6	Zinc	6010C	2.1E+02	mg/kg dw
Miscellaneous				
1336-36-3	Total PCBs [7]	8082	3.0E+01	µg/kg dw
Semivolatile Organic Compounds (SVOCs)				
Aromatic Hydrocarbons				
	Total LPAH[3,4]	--	--	µg/kg dw
91-20-3	Naphthalene	8270 and 8270SIM	1.1E+03	µg/kg dw
208-96-8	Acenaphthylene	8270 and 8270SIM	6.5E+02	µg/kg dw
83-32-9	Acenaphthene	8270 and 8270SIM	2.5E+02	µg/kg dw
86-73-7	Fluorene	8270 and 8270SIM	2.7E+02	µg/kg dw
85-01-8	Phenanthrene	8270 and 8270SIM	7.5E+02	µg/kg dw
120-12-7	Anthracene	8270 and 8270SIM	4.8E+02	µg/kg dw
91-57-6	2-Methylnaphthalene	8270 and 8270SIM	3.4E+02	µg/kg dw
	Total HPAH[3,5]	--	--	µg/kg dw
206-44-0	Fluoranthene	8270 and 8270SIM	8.5E+02	µg/kg dw
129-00-0	Pyrene	8270 and 8270SIM	1.3E+03	µg/kg dw
56-55-3	Benzo(a)anthracene	8270 and 8270SIM	6.5E+02	µg/kg dw
218-01-9	Chrysene	8270 and 8270SIM	7.0E+02	µg/kg dw
--	Total benzofluoranthenes[3,6]	--	--	µg/kg dw
50-32-8	Benzo(a)pyrene	8270 and 8270SIM	8.0E+02	µg/kg dw
193-39-5	Indeno(1,2,3-cd)pyrene	8270 and 8270SIM	3.0E+02	µg/kg dw
53-70-3	Dibenz(a,h)anthracene	8270 and 8270SIM	1.2E+02	µg/kg dw
191-24-2	Benzo(g,h,i)perylene	8270 and 8270SIM	3.4E+02	µg/kg dw
95-50-1	1,2-Dichlorobenzene	8270 and 8270SIM	1.8E+01	µg/kg dw
106-46-7	1,4-Dichlorobenzene	8270 and 8270SIM	5.5E+01	µg/kg dw
118-74-1	Hexachlorobenzene	8081	1.1E+01	µg/kg dw
120-82-1	1,2,4-trichlorobenzene	8270 and 8270SIM	1.6E+01	ug/kg dw

CAS	CONSTITUENT	PREFERRED ANALYSIS METHODS[1]	REPORTING LIMITS[2]	UNITS
Phthalate Esters				
131-11-3	Dimethyl phthalate	8270 and 8270SIM	3.6E+01	µg/kg dw
84-66-2	Diethyl phthalate	8270 and 8270SIM	1.0E+02	µg/kg dw
84-74-2	Di-n-butylphthalate	8270 and 8270SIM	7.0E+02	µg/kg dw
85-68-7	Butylbenzyl phthalate	8270 and 8270SIM	3.2E+01	µg/kg dw
117-81-7	Bis(2-ethylhexyl)phthalate	8270 and 8270SIM	6.5E+02	µg/kg dw
117-84-0	Di-n-octyl phthalate	8270 and 8270SIM	3.1E+03	ug/kg dw
Ionizable Organic Compounds				
108-95-2	Phenol	8270 and 8270SIM	2.1E+02	µg/kg dw
95-48-7	2-Methylphenol	8270 and 8270SIM	3.2E+01	µg/kg dw
106-44-5	4-Methylphenol	8270 and 8270SIM	3.4E+02	µg/kg dw
105-67-9	2,4-Dimethylphenol	8270 and 8270SIM	1.5E+01	µg/kg dw
87-86-5	Pentachlorophenol	8270 and 8270SIM	1.8E+02	µg/kg dw
100-51-6	Benzyl alcohol	8270 and 8270SIM	2.9E+01	µg/kg dw
65-85-0	Benzoic acid	8270 and 8270SIM	3.3E+02	ug/kg dw
Miscellaneous				
132-64-9	Dibenzofuran	8270 and 8270SIM	2.7E+02	µg/kg dw
87-68-3	Hexachlorobutadiene	8081	5.5E+00	µg/kg dw
86-30-6	N-nitrosodiphenylamine	8270 and 8270SIM	1.4E+01	µg/kg dw
--	Grain Size	PSEP—Sieve/Pipette	--	--

Notes:

-- No criteria available.

1 Preferred analysis methods have been selected based on known or suspected properties of material to be analyzed and acceptance of the method by EPA among other factors. The laboratory may, at its discretion, choose to use an alternative method approved under SW-846 if properties of the material or laboratory methods indicate that another method is more appropriate.

2 If the laboratory is capable of achieving lower limits, the laboratory may negotiate an alternative reporting limit prior to completing analysis.

3 Sums shall be calculated and reported to two significant figures. Summing rules are[DT1]:

4 Total LPAH is sum of: acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene.

5 Total HPAH is sum of: fluoranthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and

6 Total benzofluoranthenes is sum of: benzo(b)fluoranthene, benzo(k)fluoranthene, and benzo(j)fluoranthene, if available.

7. Total PCBs defined as _____

Abbreviations:

dw = dryweight

HPAH = Higher molecular weight polycyclic aromatic hydrocarbons

LPAH = Lower molecular weight polycyclic aromatic hydrocarbons

PCBs = polychlorinated biphenyls

PSEP = Puget Sound Estuary Program

SIM = Simultaneous ion monitoring

EPA = U.S. Environmental Protection Agency

ATTACHMENT B
QUALITY ASSURANCE PROJECT PLAN
NORTHWEST PORTION OF EAST BASIN

Site Locations

Former Tow Basin Facility
T10000002642
3380 North Harbor Drive
San Diego, California 92101

Lockheed Marine Terminal and Railway
T10000002323
1160 Harbor Island Drive
San Diego, California 92101

Prepared by

Anchor QEA, LLC
27201 Puerta Real, Suite 350
Mission Viejo, California 92691

March 2017

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Anchor QEA, LLC
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Mission Viejo, California 92691

March 2017

ATTACHMENT B
QUALITY ASSURANCE PROJECT PLAN
NORTHWEST PORTION OF EAST BASIN SEDIMENTS

Prepared by
Anchor QEA, LLC
27201 Puerta Real, Suite 350
Mission Viejo, California 92691

September 2016

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1 INTRODUCTION

This Quality Assurance Project Plan (QAPP) is one component of the Remedial Action Plan (RAP) for the Northwest Portion of East Basin Sediments Site (Site). This document describes quality assurance/quality control (QA/QC) protocols to be taken during construction to ensure that the cleanup meets design specifications, the objectives of the cleanup action, and the requirements set forth in regulatory permits, when received.

The purpose of this QAPP is to describe and explain project objectives, organization, and functional activities, including clean cover placement oversight and environmental monitoring as well as the rationale used to develop those activities. This document also identifies the QA/QC protocols to be used in construction management, including monitoring actions, reporting mechanisms, and documentation formats. This QAPP describes how environmental monitoring will be performed and how modifications to construction procedures will be made, as necessary, in response to the results of environmental monitoring. In addition, this QAPP defines QA methods and protocols to ensure that project personnel have a complete understanding of monitoring, feedback, and adjustment mechanisms.

The selected contractor will use this QAPP, together with the construction drawings and technical specifications, to develop a Cleanup Construction Schedule, Contractor's Health and Safety Plan (CHASP), Contractor's Quality Assurance Project Plan (CQAPP), Borrow Source Characterization Report, Environmental Protection Plan (EPP), and Vessel Management Plan.

The remainder of the QAPP is organized as follows:

- Section 2: Project Roles and Responsibilities
- Section 3: Contractor/Subcontractor Qualifications
- Section 4: Documentation and Reporting
- Section 5: Cleanup Construction Elements
- Section 6: Summary of Inspection Activities and Construction Monitoring
- Section 7: Final Cleanup and Abatement Completion Report

2 PROJECT ROLES AND RESPONSIBILITIES

The roles and responsibilities of the parties involved in the Site cleanup are discussed below. The Project Team (as described in the RAP) will be responsible for design, permitting, contractor selection, budgets, and communication. It is anticipated that the construction work will extend over a single season.

2.1 Regulatory Oversight

The San Diego Regional Water Quality Control Board (Water Board) is the lead agency for the cleanup process and will issue approvals of the various key steps, including the development of the RAP and supporting documents and documentation of final cleanup completion. Additional regulatory agencies, including the U.S. Army Corps of Engineers (USACE), National Oceanic and Atmospheric Administration (NOAA), and California Department of Fish and Game (CDFG), will review and comment on the implementation of the remedial action and may issue additional regulatory authorizations.

2.2 Construction Contractor

One or more construction contractors will be selected to perform construction activities, including sand cover placement and other required cleanup activities. The selected contractor will have demonstrable experience with clean cover placement. The contractor's activities will be performed in accordance with the construction drawings and technical specifications, pursuant to the remedial action and associated permits. The construction drawings and technical specifications will contain specific, detailed requirements for accomplishing the work and achieving suitable overall quality compliance for the construction project.

The contractor will be responsible for QC during all phases of construction and will designate one or more job site superintendents with the responsibility to observe that the work is conducted in accordance with the contract requirements. The technical specifications will require the contractor to develop a CQAPP and to fully implement this plan, with documentation, throughout performance of the work. Details on the documentation required are presented in Section 4.

2.3 Subcontractors

The contractor may employ subcontractors to perform selected phases of the work for which they have special expertise; for example, the contractor might employ the services of a firm specializing in bathymetric surveys to perform these surveys. Subcontractors are responsible to their prime contractor for the quality of their work, and for the health and safety of their project personnel in accordance with the contractor's submittals (as outlined in Section 4). The subcontractor's principals will designate a job

site superintendent or foreman with the responsibility to observe that work is conducted in accordance with contract requirements.

2.4 Construction Monitoring Responsibilities

Monitoring activities will be the responsibility of the Project Team. Certain aspects of monitoring activities, however, may be performed by the contractor but overseen by the Project Team to ensure that the contractor's construction and monitoring work is completed as stipulated by project permits, approvals, and contract documents. For further information on the overall project organization and the various roles and responsibilities, refer to Section 3 of the RAP.

3 CONTRACTOR/SUBCONTRACTOR QUALIFICATIONS

The contractor involved with the project will be required to name one or more QC managers who must have documented qualifications and experience to perform independent checks on the contractor's operations that are necessary to determine compliance with the contract provisions. Additionally, any subcontractors used in the work must have demonstrated to the satisfaction of the Project Team that they are qualified and have satisfactorily performed the type of work for which they will be engaged. Responsibility for subcontractor performance rests with the prime contractor.

The contractor and all subcontractors will be required to have all health and safety training required by the state of California and will be required to follow applicable guidance from Occupational Safety and Health Administration (OSHA) and the U.S. Environmental Protection Agency (USEPA).

The contractor will keep (as part of their permanent organization) high caliber, knowledgeable, and experienced key personnel to perform their jobs. These individuals will have demonstrable experience in the type of work being contracted. All operators, surveyors, and other personnel performing key jobs must have demonstrated the ability and skills to satisfactorily perform these assignments.

4 DOCUMENTATION AND REPORTING

This section summarizes the various submittals required of the contractor prior to, during, and at the completion of the required construction work. This information will also be required in the technical specifications, establishing it as minimum requirements for executing the work.

4.1 Documentation and Submittals prior to Construction

4.1.1 Environmental Protection Plan

For construction activities, the contractor will be required to submit an EPP to the Project Team for approval. No physical work is to be performed at the Northwest Portion of East Basin Sediments until the EPP is reviewed and approved by the Project Team and the construction management team. The EPP will present methods and equipment that will be used by the contractor to prevent or minimize potential environmental impacts resulting from the contractor's operations. It will address monitoring and prevention of leakage and other loss of contaminants into the surrounding environment, response to spills, cleanup, and control of water quality during the work.

4.1.2 Contractor's Quality Assurance Project Plan

The CQAPP will present the system through which the contractor ensures that the requirements of the contract and permits are in compliance. The CQAPP will identify a Construction Quality Control (CQC) supervisor and other personnel involved with executing QC activities, as well as all procedures, methods, instructions, inspections, records, and forms to be used in the CQC system.

The CQAPP will include information regarding equipment specifications and techniques to be used for positioning control, bathymetric surveys, and tracking and documentation of ongoing material placement activities in "real time" as the construction proceeds.

4.1.3 Cleanup Construction Schedule

The contractor will be required to submit a Cleanup Construction Schedule identifying areas of activity of the contractor and subcontractors for the various items of work. The contractor shall maintain the schedule throughout the construction period, record changes in responsibilities, and distribute the revised schedule on a weekly basis. The weekly revised schedule shall provide a 1-week forecast of

planned construction activity. The Project Team may require the contractor to modify its equipment, methods, or operations if construction progress falls behind schedule.

4.1.4 Borrow Source Characterization

The contractor will submit a Borrow Source Characterization Report prior to any on-site placement of import materials. This characterization report will include identification of import material source(s), map(s) documenting the origin of the materials, site inspection documentation, and material sampling results for characterization (physical and chemical testing, as specified) to ensure that the import material will uniformly meet the specifications of its intended use. Additional verification of import material will be performed by the Project Team representatives after the material has been delivered to the site. The Project Team construction management representatives will verify that import material continues to meet the physical and chemical specifications specified in the construction drawings and technical specifications. These verifications will occur at on a periodic basis throughout the remedial action.

4.1.5 Vessel Management Plan

The contractor will be required to prepare a Vessel Management Plan prior to initiation of site activity. The Vessel Management Plan will document the means by which the contractor will coordinate its activities with other vessels and marine activities in the East Basin and adjoining locations in San Diego Bay. Commercial activities taking place at the East Basin will have precedence over the contractor's activities.

4.1.6 Health and Safety Plan

The contractor will submit a CHASP that presents the minimum health and safety requirements for job site activities and the measures and procedures to be employed for protection of on-site personnel and area residents from physical, chemical, and all other hazards posed by the cleanup construction. The CHASP will cover the controls, work practices, and other health and safety requirements that will be implemented by the contractor in connection with the cleanup construction. The CHASP will describe the training required by all applicable state and federal regulations and will be developed in accordance with OSHA requirements.

The Project Team's Health and Safety Plan is included as Attachment C.

4.2 Documentation and Submittals during Construction

During construction activities, the contractor will be required to participate in weekly construction meetings throughout the project duration and to submit daily and weekly reports to the Project Team. The Project Team and their construction management team, in turn, will submit regular reports to the Water Board. A brief description of key documentation to be prepared and submitted during the construction process is provided in Sections 4.2.1 and 4.2.2. The technical specifications will provide to the contractor all requirements for this documentation.

4.2.1 Daily Quality Control Report

The contractor will prepare a Daily QC Report for each day of active construction work at the Site and will be required to submit it to the Project Team on the next business day. The report will summarize the work performed by the contractor, the equipment used, and the QC inspection results, including water quality monitoring results.

When clean placement activities are in progress, the Daily QC Reports will detail operations for that day.

When sand or rock placement activities are in progress, the Daily QC Reports will include the following, at a minimum:

- Shipping receipts and material volumes for all shipments of import fill materials used
- Daily and cumulative volume estimates of material placed
- Depiction of areas in which material placement was accomplished that day and cumulatively for the project through that date

4.2.2 Bathymetric Progress Surveys

The contractor will be required to conduct a daily bathymetric progress survey that covers, at a minimum, the area(s) in which material placement work occurred that day. Daily progress surveys will be required to be submitted to the Project Team within the ensuing calendar day with the Daily QC Report and will include a plot of the survey results, which will be contoured or color coded to facilitate interpretation, one or more cross-sectional presentations through the area surveyed, “isopach” plots comparing that day’s survey to the pre-construction conditions (depicting the total thickness of material

placement to that date), and the electronic data file of the survey results for the use of the Project Team and their construction management team.

4.3 Post-construction Documentation

The following submittals will be prepared following the completion of cleanup construction activities at the Site.

4.3.1 Pre-final Punch List

The pre-final "punch list" will be used by the Project Team as the basis for a final inspection, after the contractor has completed the required remedial construction work. Following a pre-final inspection of the completed work with the Project Team, the construction management team, the appropriate agencies, the contractor, and the Project Team will prepare this consolidated list of items that are required to be completed or corrected after inspection.

4.3.2 As-built Drawings and Post-remediation Bathymetric Survey

The contractor will be required to submit as-built drawings and a post-remediation bathymetric survey following completion of the cleanup work. These as-built drawings will include all areas where rock and clean sand materials were placed. As-built drawings will also be required for any remaining overwater structures where the contractor made changes to pre-existing conditions, including the off-site staging area.

4.4 Document Storage

All documents submitted to or by the Project Team relating to the project, including pre-construction submittals and daily construction reports, will be stored by the Project Team at their selected office(s). The Project Team will retain these documents as specified in the CAO. The contractor will maintain its own set of records.

5 CLEANUP CONSTRUCTION ELEMENTS

The work described herein includes placement of clean cover material. The contractor shall meet performance standards associated with placement of clean cover materials, per the project's construction drawings and technical specifications, Section 401 Water Quality Certification, and other permits for this work (all of which are currently pending).

The contractor will be required to perform the following activities (see Sections 5.1 through 5.4 for further detail):

- Protection of remaining marine structures and slopes
- Placement of clean sand cover

All related work will be conducted in strict accordance with the construction drawings and technical specifications. These documents contain specific, detailed requirements to achieve the overall quality of the construction product.

In this section, the following issues are discussed for each work activity:

- **Description.** A description of the tasks required for accomplishing the construction activity and the overall goal of the activity.
- **Potential Problems, Concerns, and Remedies.** A description and evaluation of potential construction concerns, sources of information regarding potential problems, and common or anticipated remedies.
- **Monitoring, Contingency Plans, and Corrective Actions.** A plan for monitoring to be performed during remediation, required laboratory tests and their interpretation, a description of applicable criteria, and common or anticipated remedies.
- **Description of Equipment, Monitoring, and Maintenance.** A description of the equipment likely to be used by the contractor to complete the work and monitor construction activities. This discussion will also include monitoring and maintenance of the construction equipment.
- **Documentation.** A description of the documentation that will be required for each activity (in addition to that described in Section 4).

5.1 Placement of Clean Cover

5.1.1 Description

The design details and performance standards of the construction drawings will include placement of a layer of clean sand in prescribed areas.

Clean sand materials will be obtained from an off-site source approved by the Project Team and subject to physical and chemical testing requirements prior to use.

5.1.2 Potential Problems, Concerns, and Remedies

The main concerns in the process of placing clean sand cover include the following:

- **Verification of Import Material Quality.** The chemical and physical characteristics of the clean sand cover material must be verified as appropriate for its intended use, as specified in the contract documents.
- **Achieving Specified Placement Thickness and Extent of Clean Sand Cover.** Clean sand cover material must be satisfactorily placed over the required areas and to the required thicknesses depicted on the construction drawings.

5.1.2.1 Verification of Import Material Quality

Import material used for clean sand cover or for underpier remediation must meet chemical and physical requirements that will be presented in the technical specifications. Physical requirements will ensure that the imported materials qualify as an appropriate sand and/or gravel product (consistent with engineering design requirements for the intended use) as well as containing sufficiently low concentrations of key chemicals for use in the remedial action.

Prior to the use of an imported material, the contractor must submit a Borrow Source Characterization Report for the material (as described in Section 4), verifying its specified physical properties, chemical properties, and gradation, as described below and further described in the technical specifications. A minimum of three representative samples should be analyzed to ensure that key chemical constituents are well below the cleanup levels listed in the CAO.

Individual delivery loads will be visually inspected by the Project Team representatives to ensure that objectionable content, unsuitable coatings, or unsuitable materials (debris, organics, etc.) are not

present and that the load complies with the general physical requirements of the technical specifications. If necessary, the Project Team representative may obtain representative samples for physical testing to confirm compliance with the gradation. The Project Team representative inspector will have the right to refuse any loads, in which case the contractor shall return the load and obtain an acceptable load in its place, at no additional cost to the Project Team.

5.1.2.2 Achieving Specified Thickness and Extent of Clean Sand Cover

The effectiveness of clean sand cover placed will be determined by ensuring that the thickness of the cover and its horizontal extents are consistent with cleanup requirements and construction drawings and technical specifications. To ensure that proper coverage and thickness of clean sand cover is achieved, the contractor will be required to perform daily progress surveys of areas where clean sand material was placed to allow daily verification of thickness and extent of sand cover. The contractor will also be required to provide daily reports of the extent and quantity (in tons) of sand placed in underpier areas on that day and the cumulative tonnage of sand placed on the project to that date. The extent of cover placement will be monitored and mapped using real-time GPS locating and positioning equipment. The Project Team may supplement these monitoring techniques by using divers to directly observe the placed sand material and to ensure accurate horizontal extent and depth of cover. Divers could observe areas to determine if sand coverage is consistent and if the required amount of sand cover has been achieved, using probes or push cores to directly observe sand cover thickness at selected, representative locations.

Because it is likely that progress surveys will be difficult to conduct in underpier areas, evaluation of clean sand cover in these locations will be based a comparison of the quantity of sand placed to the overall area covered; the overall tonnage per square foot of area should be consistent with the target sand layer thickness.

5.1.3 Monitoring, Contingency Plans, and Corrective Actions

The contractor will be required to perform daily progress surveys of areas where clean sand material was placed, such that the total thickness and extent of sand can be verified on a daily basis. The contractor will also be required to report, on a daily basis, the quantity (in tons) of sand placed during that day, the area over which sand was placed (verified by its vessel positioning system), and the cumulative tonnage of sand placed on the project to that date. The overall tonnage per square foot of area should be consistent with the target sand layer thickness. These quantities will be monitored by

the Project Team and the construction management team for adequacy of the work can be continuously evaluated.

The Project Team may elect to supplement these monitoring techniques by using divers to ensure accurate horizontal extent and depth of cover. Divers would survey areas to determine if sand coverage is consistent and without voids, which will be accomplished using probes and/or push cores to directly observe sand cover thickness at selected, representative points, to determine if required thicknesses were achieved. Push cores may also be used to determine material thickness.

5.1.4 Description of Equipment, Monitoring, and Maintenance

Cover placement equipment will likely consist of a barge with clamshell bucket or long-reach excavator arm. Additional equipment may include a conveyor, hopper, and tremie or hydraulic system from a haul barge. In accordance with the technical specifications, the equipment will be maintained in good working order and in safe working condition at all times. Survey equipment will be maintained and calibrated for the life of the contract. Calibration techniques are prescribed to ensure that the equipment performs to the accuracy required.

Equipment used for this phase of work will likely consist of flat deck barges or scows for the transport of clean sand materials to the Site. The barges or scows will likely be unloaded using clamshell buckets or other typical earth-moving equipment and placed directly through the water column onto the targeted subgrade area or loaded into conveyor systems or tremie tubes for delivery to the mudline.

In accordance with the contract terms, the equipment will be maintained in good working order and in safe working condition at all times. Survey and settlement monitoring equipment will be maintained and calibrated for the life of the contract. Calibration techniques will be prescribed to ensure that the equipment performs to the accuracy required.

5.1.5 Documentation

The contractor will be required to keep daily records of operations during sand cover placement on its Daily QC Report. These reports will document daily estimates of tonnage of sand placed and areas of sand placed by stationing and offset. Additionally, the contractor will be required to perform daily surveys during clean sand placement and submit to the construction management team for review.

After clean sand cover placement is complete, a post-placement survey will be performed to ensure that the areas indicated on the construction drawings are covered appropriately. A dive team may also be employed to visually inspect the coverage areas and confirm the work has been satisfactorily performed.

6 SUMMARY OF INSPECTION ACTIVITIES AND CONSTRUCTION MONITORING

The Project Team will arrange for or conduct sufficient inspections, independent checks of surveying, independent sampling and testing, and monitoring activities to ensure compliance with the terms of the contract. The required inspections, surveying, and material sampling and testing activities as well as the frequency for each of the remedial activities are described below. The results of these inspections, surveys, sampling, and testing activities will be documented as specified in Section 4. The contractor will be required to provide corrective measures for out-of-compliance work identified during inspection by the Project Team.

The inspection activities include the following items to be accomplished by the Project Team and its construction management team:

- Verify that the contractor performs checks on the location (stationing, offset, and elevation) of each clean cover placement activity within the remedial area. At a minimum, the bathymetric surveys performed by the contractor before and after remedial activities will be verified. The Project Team will accomplish additional inspections through independent means or verification of the contractor's CQC checks. These checks are critical to ensure that clean cover materials are placed to the limits and depths specified.
- Verify conformance of field data collected by the contractor with the water quality monitoring procedures and compliance with the Section 401 Water Quality Certification for this project during in-water remedial activities at the Site.
- Verify sand cover thickness and surface quality through review of contractor surveys (supplemented by diver observations and probing).
- Provide verification that imported sand cover materials comply with contract requirements for quality, durability, gradation, and chemical quality prior to delivery to the job site. The contractor shall provide test results to the Project Team prior to delivery of materials to the job site. The Project Team will provide the Water Board with copies of these import material test reports, as necessary, for review.
- Perform a pre-final inspection following completion of discrete construction elements. Final inspections will then be conducted after completion of any additional work identified in the pre-final inspection reports.

6.1 Management of Changed Conditions

In the event that a change or changed condition is encountered, as defined in the technical specifications, the Project Team will review the condition and make a determination as to what revision

in the construction activity or construction process is required, if any. This review and determination will be made in recognition of the project design documents.

If the changed condition(s) leads to a design change, the Project Team will notify the Water Board of the purpose and nature of the adjustments or changes made.

7 FINAL CLEANUP AND ABATEMENT COMPLETION REPORT

The Project Team will prepare and submit a Final Cleanup and Abatement Completion Report verifying completion of remedial cleanup construction activities on the project and are detailed in the RAP.

ATTACHMENT C
HEALTH AND SAFETY PLAN

ATTACHMENT C
HEALTH AND SAFETY PLAN
NORTHWEST PORTION OF EAST BASIN

Site Locations

Former Tow Basin Facility
T10000002642
3380 North Harbor Drive
San Diego, California 92101

Lockheed Marine Terminal and Railway
T10000002323
1160 Harbor Island Drive
San Diego, California 92101

Prepared by

Anchor QEA, LLC
27201 Puerta Real, Suite 350
Mission Viejo, California 92691

March 2017

ATTACHMENT C
HEALTH AND SAFETY PLAN
NORTHWEST PORTION OF EAST BASIN

Prepared by
Anchor QEA, LLC
27201 Puerta Real, Suite 350
Mission Viejo, California 92691

September 2016

CERTIFICATION PAGE

_____

David Templeton
Project Coordinator
Anchor QEA, LLC

Date: _____

The information in this Health and Safety Plan has been designed for the Northwest Portion of East Basin Sediments Site. Therefore, this document may not be appropriate if the work is not performed by or using the methods presently contemplated by Anchor QEA. In addition, as the work is performed, conditions different from those anticipated may be encountered, and this document may have to be modified. Therefore, Anchor QEA only intends this plan to address currently anticipated activities and conditions and makes no representations or warranties as to the adequacy of the Health and Safety Plan for all conditions encountered.

HEALTH AND SAFETY PLAN ACKNOWLEDGEMENT FORM

Project Number: 141208-01.01 Project Name: Northwest Portion of East Basin Sediments

My signature below certifies that I have read and understand the policies and procedures specified in this Health and Safety Plan (HASP). For non-Anchor QEA employees, this HASP may include company-specific appendices to this plan developed by entities other than Anchor QEA. Non-affiliated personnel may be required to sign the Liability Waiver following this Acknowledgement Form.

Date	Name (print)	Signature	Company

SITE EMERGENCY PROCEDURES

Emergency Contact Information

Tables A and B provide site emergency contact information.

Table A

Site Emergency Form and Emergency Phone Numbers

Category	Information	
Possible Chemicals of Concern	Polychlorinated biphenyls (PCBs) and mercury	
Minimum Level of Protection	D	
Site(s) Location Address	1106 Harbor Island Drive, San Diego, CA 92101	
Emergency Phone Numbers		
Ambulance	911	
Fire	911	
Police	911	
Poison Control	1-800-222-1212	
Client Contacts	Liaht Rosenstein	Cell: 303-335-5489
	Liaht Rosenstein	Office: 720-842-6121
Project Coordinator	David Templeton	Office: (619) 992-1440 Cell: (206) 910-4279
Project Engineer	Kyle King	Office: (949) 334-9636 Cell: (516) 306-7744
Corporate Health and Safety Manager	Christopher Torell	Office: (315) 414-2017 Cell: (315) 245-4954
National Response Center	1-800-424-8802	
State Emergency Response System	California Office of Emergency Services: (916) 845-8510	
U.S. Environmental Protection Agency Environmental Response Team	1-201-321-6600	

Note:
In the event of any emergency, contact the Project Coordinator or the Project Engineer.

Table B

Hospital Information

Category	Information
Hospital Name	Scripps Mercy Hospital
Address	4077 5th Avenue
City, State	San Diego, CA
Phone	(619) 294-8111
Emergency Phone	911

Hospital Route Map and Driving Directions

The total distance from the site to the nearest hospital is 4.2 miles, with a total travel time of 11 minutes. Driving directions from the site (1106 Harbor Island Drive) are listed below:

- Follow Harbor Island Drive to North Harbor Drive
- Continue on North Harbor Drive
- Take India Street and West Washington Street to 4th Avenue
- Turn left onto 4th Avenue
- Task the first right onto 5th Avenue
- Arrive at Scripps Memorial Hospital (4077 5th Avenue)

The hospital rout map is present on Figure A.

WorkCare Incident Intervention

Anchor QEA has an additional Incident Intervention resource from WorkCare to help answer questions, alleviate uncertainty and stress in a potential injury situation, and maintain the health and safety of its employees. Incident Intervention is an injury and illness management tool that provides employees with 24/7 immediate telephone access to a member of WorkCare's clinical staff of nurses and physicians who intervene at the time of a workplace injury or illness. Contact information is provided below:

- **Access WorkCare 24/7 from anywhere using the toll free number: 1-888-449-7787**

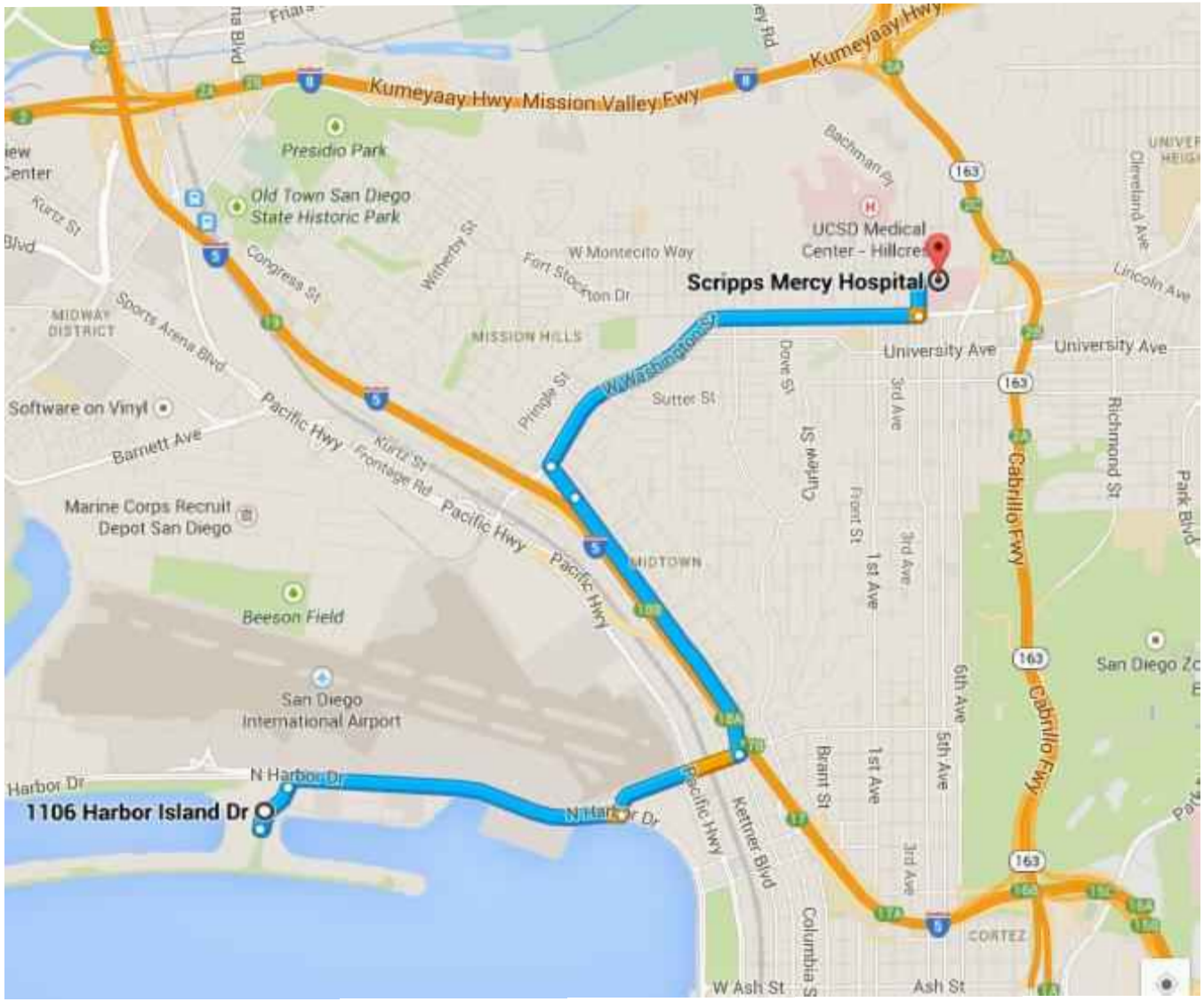

Figure A
Hospital Route Map
Northwest Portion of East Basin Sediments

At the time of a workplace injury or illness, the employee, manager, or another employee at the scene notifies WorkCare using the toll free number listed above. The caller provides information on the type of incident, possible cause, and the scope of the situation. With the details of the incident recorded, an experienced nurse or physician provides the following:

- Responsive evaluation of the incident
- Direction on the appropriate course of action
- Consultation with the employee's treating physician to design a quality care treatment plan that meets the needs of the employee and employer

All employees are encouraged to utilize this service should a workplace injury or illness occur.

For information and as a resource for field staff, US Healthworks is the nearest WorkCare-approved occupational health care clinic is. It is located at 3930 4th Avenue, Suite 200, San Diego, California 92103. They can be contacted by phone at (619) 297-9610.

Key Safety Personnel

The following people share responsibility for health and safety at the site. See Section 4 of this Health and Safety Plan (HASP) for a description of the role and responsibility of each.

Client Contacts: Mark Russell	Office: (703) 876-3045
Liaht Rosenstein	
	Cell: (303) 335-5489
Project Coordinator: David Templeton	Office: (619) 992-1440
	Cell: (206) 910-4279
Project Engineer: Kyle King	Office: (949) 334-9636
	Cell: (516) 306-7744
Corporate Health and Safety Manager:	Office: (315) 414-2017
Christopher Torell	Cell: (315) 245-4954

Emergency Response Procedures

In the event of an emergency, immediate action must be taken by the first person to recognize the event. Use the following steps as a guideline:

- Survey the situation to ensure that it is safe for you and the victim. Do not endanger your own life. Do not enter an area to rescue someone who has been overcome unless properly equipped and trained. Ensure that all protocols are followed. If applicable, review Material Safety Data Sheets (MSDS) to evaluate response actions for chemical exposures.
- Call the appropriate emergency number (911, if available) or direct someone else to do this immediately (see Table A). Explain the physical injury, chemical exposure, fire, or release and location of the incident.
- Have someone retrieve the nearest first aid kit (containing appropriate items for the particular work scope) and Automated External Defibrillator (AED), if available. Note: Only use an AED if you have been properly trained and are currently certified to do so.
- Decontaminate the victim without delaying life-saving procedures (see Section 8).
- Administer first aid and CPR, if properly trained, until emergency responders arrive.
- Notify the Project Coordinator (PC), Project Engineer (PE), and owner.
- Complete the appropriate incident investigation reports.

First Aid and CPR Guidelines

Personnel qualified and current in basic first aid and/or CPR procedures may perform those procedures as necessary. Personnel qualified and current in basic first aid and/or CPR are protected under Good Samaritan policies as long as they only perform the basic tasks that they were taught. Do not perform first aid and/or CPR tasks if you have not been trained in first aid and/or CPR.

Injury Management/Incident Notification

Observe the following injury management/incident notification procedures and practices:

Injury Management

- Once a personal injury incident is discovered, the first action will be to ensure that the injured party receives appropriate medical attention.
- If it is safe to do so, the nearest workers will immediately assist a person who shows signs of medical distress or who is involved in an accident.
- Call 911 or the appropriate emergency number and render first aid as soon as possible.
- Escort the injured person to the occupational clinic or hospital or arrange for an ambulance.
- Proceed immediately to Notification Requirements below.

Notification Requirements

- Directly after caring for an injured person, the PE will be summoned. The PE will immediately make contact with the PC or other designated individual to alert them of the medical emergency. The PE will advise them of the following:
  - Location of the victim at the work site
  - Nature of the emergency
  - Whether the victim is conscious
  - Specific conditions contributing to the injury, if known
- Contact the PC (if not contacted previously) and owner immediately.
- The PC will contact upper line management, including the Corporate Health and Safety Manager (CHSM).
- The CHSM will facilitate the incident investigation.

All client requirements will also be adhered to pertinent to personal injury incident reporting.

Incident Other Than Personal Injury

All incidents, including but not limited to fire, explosion, property damage, or environmental release, will be responded to in accordance with the site-specific HASP. In general, this includes securing the site appropriate to the incident, turning control over to the emergency responders, or securing the site and summoning appropriate remedial

personnel or equipment. Anchor QEA will immediately notify the client of any major incident, fire, equipment or property damage, or environmental incident with a preliminary report. A full report will be provided within 72 hours.

Near-miss Reporting

All near-miss incidents (those that could have reasonably led to an injury, environmental release, or other incident) must also be reported to the PE and/or PC immediately so they can take action to ensure that such conditions that led to the near-miss incident can be readily corrected to prevent future occurrences.

Spills and Releases of Hazardous Materials

When required, notify the National Response Center and local state agencies. The following information should be provided to the National Response Center:

- Name and telephone number
- Name and address of facility
- Time and type of incident
- Name and quantity of materials involved, if known
- Extent of injuries
- Possible hazards to human health or the environment outside of the facility

The emergency telephone number for the National Response Center is 1-800-424-8802. If hazardous waste has been released or produced through control of the incident, ensure that the following occurs:

- Waste is collected and contained
- Containers of waste are removed or isolated from the immediate site of the emergency
- Treatment or storage of the recovered waste, contaminated soil or surface water, or any other material that results from the incident or its control is provided
- No waste that is incompatible with released material is treated or stored in the facility until cleanup procedures are completed

Ensure that all emergency equipment used is decontaminated, recharged, and fit for its intended use before operations are resumed.

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LIST OF ACRONYMS AND ABBREVIATIONS

°C	degree Celsius
°F	degree Fahrenheit
ACGIH	American Conference of Governmental Industrial Hygienists
AED	Automated External Defibrillator
ANSI	American National Standards Institute
APR	Air-Purifying Respirator
CAO	Cleanup and Laboratory Abatement Order
CFR	Code of Federal Regulations
CHSM	Corporate Health and Safety Manager
COC	chemical of concern
CRZ	Contamination Reduction Zone
dbA	A-weighted decibel
dB	decibel
DOT	U.S. Department of Transportation
eV	electron volt
EZ	Exclusion Zone/Hot Zone
GFCI	Ground-fault Circuit Interrupter
H:V	horizontal to vertical
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High Efficiency Particulate Air
IP	Ionization Potential
JSA	Job Safety Analysis
kV	kilovolt
LEL	Lower Explosive Limit
LO/TO	Lockout/Tagout
mg/m^3	milligram per cubic meter
MHR	Maximum Heart Rate
MSDS	Material Safety Data Sheets
MUTCD	Manual of Uniform Traffic Control Devices
NIOSH	National Institute for Occupational Safety and Health

NPL	National Priority List
NRR	Noise Reduction Rating
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Act or Administration
OV	Organic Vapor
OVM	Organic Vapor Monitor
PAH	polycyclic aromatic hydrocarbon
PC	Project Coordinator
PE	Project Engineer
PEL	Permissible Exposure Limit
PFD	personal flotation device
PPE	Personal Protective Equipment
REL	Recommended Exposure Limits
RCRA	Resource Conservation and Recovery Act
STEL	Short Term Exposure Limit
SZ	Support Zone/Clean Zone
TLV	Threshold Limit Value
TWA	time-weighted average
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
WBGT	Wet Bulb Globe Temperature

1 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared on behalf of General Dynamics Corporation and Lockheed Martin Corporation and presents health and safety requirements and procedures that will be followed by Anchor QEA, LLC, personnel and at a minimum by its subcontractors during work activities at the Northwest Portion of East Basin Sediments Site. This HASP has been developed in accordance with Title 29 of the Code of Federal Regulations (CFR), Part 1910.120 (b), and will be used in conjunction with Anchor QEA's Corporate Health and Safety Program. See Section 1.1 for HASP modification procedures.

The provisions of this HASP are mandatory for all Anchor QEA personnel assigned to the project. Anchor QEA subcontractors are also expected to follow the provisions of this HASP unless they have their own HASP that covers their specific activities related to this project. Any subcontractor's HASP must include the requirements set forth in this HASP, at a minimum. All visitors to the work site must also abide by the requirements of this HASP and will attend a pre-work briefing where the contents of this HASP will be presented and discussed.

Personnel assigned to work at the project site will be required to read this plan and must sign the Health and Safety Plan Acknowledgement Form to confirm that they understand and agree to abide by the provisions of the HASP.

Subcontractors are ultimately responsible for the health and safety of their employees. Subcontractors may mandate health and safety protection measures for their employees beyond the minimum requirements specified in this HASP.

The objectives of this HASP are to identify potential physical, chemical, and biological hazards associated with field activities; establish safe working conditions and protective measures to control those hazards; define emergency procedures; and describe the responsibilities, training requirements, and medical monitoring requirements for site personnel.

This HASP prescribes the procedures that must be followed during specific site activities. Significant operational changes that could affect the health and safety of personnel, the community, or the environment will not be made without the prior approval of the Project Coordinator (PC) and the Corporate Health and Safety Manager (CHSM).

Issuance of this approved plan documents that the workplace has been evaluated for hazards. A hazard assessment has been performed and the adequacy of the personal protective equipment (PPE) selected was evaluated as required by 29 CFR 1910.132(d) – Personal Protective Equipment, General Requirements (general industry); 1910.134 – Respiratory Protection; 1926.28 – Personal Protective Equipment (construction industry); and 1926.55 – Gases, vapors, fumes, dusts and mist, and is duly noted by the signature(s) and date appearing on the certification page of this document.

1.1 Health and Safety Plan Modifications

This HASP will be modified by amendment, if necessary, to address changing field conditions or additional work tasks not already described in this document. Modifications will be proposed by the Resident Engineer (RE) using the "Modification to Health and Safety Plan" form included in Appendix A. Modifications will be reviewed by the CHSM or authorized representative and approved by the PC.

2 SITE DESCRIPTION/BACKGROUND INFORMATION

2.1 Site Description

The East Basin is relatively shallow (minus 15 to minus 10 Mean Lower Low Water [MLLW]), artificial embayment of San Diego Bay that is enclosed on three sides. The East Basin was formed by dredging in the early 1960s, with the dredge spoil used to create what is now Harbor Island (McLaren Hart 1991). It is bounded to the north by the man-made, riprapped shoreline of the San Diego waterfront and to the west and south by the man-made peninsula known as Harbor Island, and it has a narrow opening to the bay on the east side. Approximately two-thirds of the East Basin is presently occupied by the Sunroad Resort Marina, a 550-slip, floating pier, pleasure boat marina operated by the Port.

Five outfalls are evident along the north shoreline of the East Basin and discharge into the Site. A 48-inch stormwater reinforced concrete pipe (RCP) outfall (Outfall No. 1), which originates in the City of San Diego watershed, is located in the northwestern corner of the basin and drains the surrounding urban area (primarily roadways and parking lots) and a portion of San Diego International Airport and other San Diego Unified Port District (Port) properties. East of Outfall No. 1 is a visible but closed approximately 30-inch RCP outfall identified as Outfall No. 2 (former Tow Basin Outfall). Outfall No. 3 is another active stormwater RCP outfall (30 inches), which currently drains the Harbor Police site and adjacent parking lot. The portion of the Outfall No. 3 line within the Former Tow Basin Facility was partially replaced and the remainder of the line and catch basins were cleaned as part of the Tow Basin demolition project (ERM 2004) completed in 2004 with DTSC oversight (DTSC 2004). Additionally, the catch basin north of the former Tow Basin site connected to Outfall No. 3 was cleaned in 1991 (McLaren Hart 1991). Outfall Nos. 4 and 5 are located east of the Site but within the boundaries of the remedial footprint for this RAP.

2.2 Site Background Information

The area has historically been the site of a variety of industrial facilities (Anchor QEA 2016). Current and historical conditions and potential sources of sediment contaminants have been extensively reviewed and identified in reports documenting various East Basin sediment, upland, and shoreline investigations (Anchor QEA 2016).

3 SCOPE OF WORK

3.1 Project Scope of Work

Currently, the site is subject to a Cleanup and Abatement Order (CAO) requiring the submittal of a Remedial Action Plan (RAP), to which this HASP is appended. As described in the RAP, the planned remedial action consists of placement of clean cover materials over impacted sediments. As part of the design and implementation of the RAP, the following potential field activities are addressed by this HASP.

- Construction observation activities
- Water quality monitoring during construction
- Outfall inspection activities
- Surface sediment sampling activities

Additional details regarding the scope of work are provided in the RAP (Anchor QEA 2016).

4 AUTHORITY AND RESPONSIBILITIES OF KEY PERSONNEL

This section describes the authority and responsibilities of key Anchor QEA project personnel. The names and contact information for the following key safety personnel are listed in the Emergency Site Procedures section at the beginning of this HASP. Should key site personnel change during the course of the project, a new list will be established and posted immediately at the site. The emergency phone number for the site is **911**, and should be used for all medical, fire, and police emergencies.

4.1 Project Coordinator

The PC provides overall direction for the project. The PC is responsible for ensuring that the project meets the client's objectives in a safe and timely manner. The PC is responsible for providing qualified staff for the project and adequate resources and budget for the health and safety staff to carry out their responsibilities during the field work. The PC will be in regular contact with the PE and CHSM to ensure that appropriate health and safety procedures are implemented into each project task.

The PC has authority to direct response operations; the PC assumes total control over project activities but may assign responsibility for aspects of the project to others. In addition, the PC performs the following tasks:

- Oversees the preparation and organization of background review of the project, the work plan, and the field team
- Ensures that the team obtains permission for site access and coordinates activities with appropriate officials
- Briefs the PE and field personnel on specific assignments
- Together with the PE, sees that health and safety requirements are met
- Consults with the CHSM regarding unsafe conditions, incidents, or changes in site conditions or the scope of work

4.2 Project Engineer

The Project Engineer reports to the PC, has authority to direct response operations, and assumes control over on-site activities. The PE will direct field activities, will coordinate the

technical and health and safety components of the field program, and is responsible in general for enforcing this site-specific HASP and Corporate Health and Safety Program requirements. The PE will be the primary point of contact for all field personnel and visitors and has direct responsibility for implementation and administration of this HASP. The PE and any other member of the field crew have **STOP WORK AUTHORITY**—the authority to stop or suspend work in the event of an emergency if conditions arise that pose an unacceptable health and safety risk to the field crew or environment, or if conditions arise that warrant revision or amendment of this HASP. It is critical that both the PE and PC communicate regularly to proactively identify and address any safety-related concerns that may arise. The following include, but are not necessarily limited to, the functions of the PE related to this HASP, as follows:

- Conduct and document daily safety meetings, or designate an alternate PE in his/her absence
- Execute the work plan and schedule
- Conduct periodic field health and safety inspections to ensure compliance with this HASP
- Oversee implementation of safety procedures
- Implement worker protection levels
- Enforce site control measures to ensure that only authorized personnel are allowed on site
- Notify, when necessary, local public emergency officials (all personnel on site may conduct this task as needed)
- Follow-up on incident reports to the PC
- Periodically inspect protective clothing and equipment for adequacy and safety compliance
- Ensure that protective clothing and equipment are properly stored and maintained
- Perform or oversee air monitoring in accordance with this HASP
- Maintain and oversee operation of monitoring equipment and interpretation of data from the monitoring equipment
- Monitor workers for signs of stress, including heat stress, overexertion, cold exposure, and fatigue
- Require participants to use the “buddy” system

- Provide (via implementation of this HASP) emergency procedures, evacuation routes, and telephone numbers for the local hospital, poison control center, fire department, and police department
- Communicate incidents promptly to the PC
- Maintain communication with the CHSM on site activities
- If applicable, ensure that decontamination and disposal procedures are followed
- Maintain the availability of required safety equipment
- Advise appropriate health services and medical personnel of potential exposures
- Notify emergency response personnel in the event of an emergency and coordinate emergency medical care

The PE will record health-and-safety-related details of the project in the field logbook. At a minimum, each day's entries must include the following information:

- Project name or location
- Names of all on-site personnel
- Level of PPE worn and any other specifics regarding PPE
- Weather conditions
- Type of field work being performed

The PE will have completed the required Occupational Safety and Health Administration (OSHA) 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training and annual updates, the 8-hour Supervisor training, medical monitoring clearance, and current first aid and CPR training. Other certifications or training may be stipulated based on client or site requirements.

4.3 Corporate Health and Safety Manager

The CHSM (or his/her designee) will be responsible for managing on-site health and safety activities and will provide support to the PC and PE on health and safety issues. The following are specific duties of the CHSM:

- Provide technical input into the design and implementation of this HASP
- Advise on the potential for occupational exposure to project hazards, along with appropriate methods and/or controls to eliminate site hazards

- Ensure that a hazard assessment has been performed and that the adequacy of the PPE selected was evaluated as required by 29 CFR 1910.132(d), 1910.134, 1926.25, and 1926.55, and is duly noted by the signatures and date appearing on the Certification Page of this document
- Consult with the PE on matters relating to suspending site activities in the event of an emergency
- Verify that all on-site Anchor QEA personnel and subcontractors have read and signed the HASP Acknowledgement Form
- Verify that corrective actions resulting from deficiencies identified by audit and observations are implemented and effective

The CHSM, or his/her designee, will have completed the required OSHA 40-hour HAZWOPER training and annual updates, as well as the 8-hour Supervisor training, and will have medical monitoring clearance. In addition, the CHSM, or his/her designee, will have current training in first aid and CPR.

4.4 Project Field Team

All project field team members will attend a project-specific meeting conducted by the PE concerning safety issues and project work task review before beginning work. All field crew, including subcontractors, must be familiar with and comply with this HASP. The field crew has the responsibility to immediately report any potentially unsafe or hazardous conditions to the PE, and all members of the field crew have **STOP WORK AUTHORITY**—the authority to stop or suspend work if conditions arise that pose an unacceptable health and safety risk to the field crew or environment, or if conditions arise that warrant revision or amendment of this HASP. It is critical that all field team members proactively communicate with the PE to identify potential unsafe conditions. The field team reports to the PE for on-site activities and is responsible for the following:

- Reviewing and maintaining a working knowledge of this HASP
- Safe completion of on-site tasks required to fulfill the work plan
- Compliance with the HASP
- Attendance and participation in daily safety meetings
- Notification to the PE of existing or potential safety conditions at the site

- Reporting all incidents to the PE
- Demonstrating safety- and health-conscious conduct

Per OSHA 1910.120(e)(3)(i)[1], newly assigned HAZWOPER 40-hour trained field team members must have at least 3 days of field work supervised by an experienced PE (preferably an individual with HAZWOPER Supervisor training). It is the responsibility of the PC to identify such "short service" personnel and ensure that their supervised field experience occurs (or has occurred) and is documented in the project field notes and on the Daily Safety Briefing Form (Appendix A).

1 "General site workers (such as equipment operators, general laborers and supervisory personnel) engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained experienced supervisor."

5 PROJECT-SPECIFIC REQUIREMENTS

This section provides activity-specific levels of protection and air monitoring requirements to be used on this site based on the scope of work and the chemicals of concern (COCs).

5.1 Activity-specific Level of Protection Requirements

Refer to Section 10 of this plan for general requirements for PPE. Level D is the minimum acceptable level for most sites. An upgrade to Modified Level D occurs when there is a possibility that contaminated media can come in contact with the skin or work uniform. An upgrade to Level C occurs when there is a potential for exposure to airborne COCs (i.e., if the results of air monitoring reveal that action levels have been exceeded). Hearing protection must be worn when there are high noise levels. Workers must maintain proficiency in the use and care of PPE that is to be worn.

It is assumed at this time that only Level D and Modified Level D will be required for on-site work. If conditions or requirements dictate the need for Level C or higher, this HASP will be amended accordingly.

Table 5-1, Project Job Tasks and Required PPE, describes the specific means of protection needed for each identified work activity.

5.2 Project Air Monitoring Requirements

It is assumed at this time that only Level D and Modified Level D will be required for on-site work and, accordingly, air monitoring is not required. As such, if conditions or requirements dictate the need for air monitoring, this HASP will be amended accordingly.

Table 5-1

Project Job Tasks and Required PPE

Job Tasks		PPE Requirements
Construction observation, site visits, activities where proximity to chemicals of concern is unlikely	☐	Standard work uniform/coveralls
	☒	Work boots with safety toe conforming to ASTM F2412-05/ASTM F2413-05
	☒	Traffic Safety Vest
	☐	Chemical-resistant clothing check appropriate garments: ☐ One-piece coverall ☐ Hooded one- or two-piece chemical splash suit ☐ Disposable chemical coveralls ☐ Chemical-resistant hood and apron ☐ Bib-style overalls and jacket with hood **Fabric Type:** Tyvek NOTE: Thick rain pants and coveralls may be substituted for coated Tyvek if sediments are not obviously contaminated with polycyclic aromatic hydrocarbons (PAHs) or related petroleum products. Rain slickers cannot be effectively decontaminated of tar/petroleum contamination.
	☐	Disposable inner gloves (latex or equivalent "surgical")
	☐	Disposable chemical-resistant outer gloves **Material Type:** Nitrile
	☐	Chemical-resistant boots with safety toe conforming to ASTM F2412-05/ASTM F2413-05 or disposable boot covers for safety toe/work boots **Material Type:** Rubber or leather
	☐	Puncture-resistant shanks in safety shoes conforming to ASTM F2412-05/ASTM F2413-05
	☐	Metatarsal guards conforming to ASTM F2412-05/ASTM F2413-05
	☐	Sleeves to be duct-taped over gloves and pants to be duct-taped over boots
	☐	Splash-proof safety goggles
	☒	Safety glasses
	☒	Hard hat
	☐	Hard hat with face shield
	☐	Hearing protectors (**REQUIRED** if site noise levels are greater than 85 decibels [dB] based on an 8-hour time-weighted average [TWA]). **Type:** Fill in
	☐	Two-way radio communication (intrinsically safe, if explosive atmosphere is a potential)

Job Tasks		PPE Requirements
	☐	Long cotton underwear
	☒	High-visibility, U.S. Coast Guard (USCG)-approved personal flotation device (PFD) (if working on any water vessel or without fall protection within 10 feet of water)
	☐	USCG-approved float coat and bib-overalls (e.g., full two-piece "Mustang" survival suit or similar) or one-piece survival suit if combined air and water temperature is below 90 degrees Fahrenheit (°F)
	☐	Half-face Air-Purifying Respirator (APR) (OSHA/National Institute of Occupational Safety and Health [NIOSH]-approved)
	☐	Full-face APR (OSHA/NIOSH-approved)
	☐	**Type of Cartridges to be Used:** ☐ Organic vapor (**OV) or** ☐ **OV/high-efficiency particulate air (HEPA; if samples are dry)**
Sampling or Survey Activities – sediment coring, surface water quality monitoring outfall surveys	☐	Standard work uniform/coveralls
	☒	Work boots with safety toe conforming to ASTM F2412-05/ASTM F2413-05
	☒	Traffic Safety Vest
	☒	Chemical-resistant clothing if contact with sediment is anticipated or likely. ☒ One-piece coverall ☐ Hooded one- or two-piece chemical splash suit ☐ Disposable chemical coveralls ☐ Chemical-resistant hood and apron ☐ Bib-style overalls and jacket with hood **Fabric Type:** Tyvek NOTE: Thick rain pants and coveralls may be substituted for coated Tyvek if sediments are not obviously contaminated with PAHs or related petroleum products. Rain slickers cannot be effectively decontaminated of tar/petroleum contamination.
	☒	Disposable inner gloves (latex or equivalent "surgical")
	☒	Disposable chemical-resistant outer gloves **Material Type:** Nitrile
	☐	Chemical-resistant boots with safety toe and steel shank conforming to ASTM F2412-05/ASTM F2413-05 or disposable boot covers for safety toe/work boots **Material Type:** Rubber or leather
	☐	Puncture-resistant shanks in safety shoes conforming to ASTM F2412-05/ASTM F2413-05
	☐	Metatarsal guards conforming to ASTM F2412-05/ASTM F2413-05

Job Tasks		PPE Requirements
	☐	Sleeves to be duct-taped over gloves and pants to be duct-taped over boots
	☐	Splash-proof safety goggles
	☒	Safety glasses
	☒	Hard hat
	☐	Hard hat with face shield
	☐	Hearing protectors (**REQUIRED** if site noise levels are greater than 85 dB based on an 8-hour TWA). **Type:** Fill in
	☐	Two-way radio communication (intrinsically safe, if explosive atmosphere is a potential)
	☐	Long cotton underwear
	☒	High-visibility, USCG-approved PFD (if working on any water vessel or without fall protection within 10 feet of water)
	☐	USCG-approved float coat and bib-overalls (e.g., full two-piece "Mustang" survival suit or similar) or one-piece survival suit if combined air and water temperature is below 90°F
	☐	Half-face APR (OSHA/NIOSH-approved)
	☐	Full-face APR (OSHA/NIOSH-approved)
	☐	**Type of Cartridges to be Used:** ☐ **OV or** ☐ **OV/HEPA (if samples are dry)**

6 RISK ANALYSIS AND CONTROL

The following sections discuss the potential worker health and safety hazards associated with the field tasks described in the scope of work. Controls of these hazards are addressed through the mechanical and physical control measures, use of PPE, monitoring, training, decontamination, emergency response, and safety procedures.

Significant changes in the scope of work covered by this HASP must be communicated to the PC and CHSM, and an amendment to this HASP must be created as needed (see Section 1.1). Any task conducted beyond those identified in the scope of work and this HASP must be evaluated using the Job Safety Analysis (JSA) process prior to conducting the work.

6.1 Job Safety Analysis

Anchor QEA work tasks have been evaluated for their hazards, and JSA documents have been developed that detail the chemical, physical, and biological hazards associated with these tasks, along with the control measures (e.g., engineering controls, administrative controls, and/or PPE) that will be used to ensure that these tasks are conducted in a safe manner.

The PC and PE are responsible for identifying work tasks and project site conditions that are beyond the previously developed JSA documents, and for communicating such information to the CHSM. The CHSM will provide support, as needed, to the PC and/or the PE, who will have primary responsibility to develop project-specific JSAs.

The contents of the JSA documents shall be communicated to project personnel during the site orientation meeting and during daily safety meetings when conducting work where the specific JSAs are applicable.

JSA documents applicable to this project are located in Appendix B of this HASP and include the following field tasks:

- Field Activities/Construction Observation
- Motor Vehicle Operation
- Sediment Sampling

- Boating Activities

6.1.1 Augmented Job Safety Analysis Process

If significant work tasks are identified during the course of the project that were not previously addressed in the JSA documentation supplied in Appendix B of this HASP, then a task-specific JSA document must be developed at the project site prior to conducting the work. The PC and/or PE shall develop this document(s) with input from the CHSM, as needed, and this HASP will be amended to include the document (see Section 1.1 for HASP modification procedures). Project personnel shall be trained on the contents of the developed task-specific JSA prior to its implementation. A copy of the task-specific JSA form used in this process is supplied in Appendix B of this HASP.

6.2 Exposure Routes

Possible routes of exposure to the chemicals potentially encountered on this project include inhalation, dermal contact, and ingestion of dust, mist, gas, vapor, or liquid. Exposure will be minimized by using safe work practices and by wearing the appropriate PPE. A further discussion of PPE requirements is presented in Section 10.

6.2.1 Inhalation

Inhalation of particulates, dust, mist, gas, or vapor during field activities is possible. Whenever possible, work activities will be oriented so that personnel are upwind of the sampling location. An organic vapor monitor (OVM) may be used to monitor ambient air and the breathing zone within the work area for organic compounds. Section 5.2 describes potential OVM action levels and response procedures.

6.2.2 Dermal Contact

Dermal contact with potentially contaminated soil, sediment, or groundwater during field activities is possible. Direct contact will be minimized through the use of appropriate PPE and decontamination procedures.

6.2.3 Ingestion

Direct ingestion of contaminants can occur by inhaling airborne dust, mist, or vapors, or by swallowing contaminants trapped in the upper respiratory tract. Indirect ingestion can occur by introducing the contaminants into the mouth by way of food, tobacco, fingers, or other carriers. Although ingestion of contaminants can occur, proper hygiene, decontamination, and contamination reduction procedures should reduce the probability of this route of exposure.

6.3 Chemicals of Concern Profile

Table 6-1 provides a summary profile for the COCs for this project. As available, this profile is based on recent site history and site characterization information. For more detailed and specific information, always refer to the Material Safety Data Sheet (MSDS) or equivalent information for the chemical (see Appendix C).

Table 6-1

Chemicals of Concern Profile

Chemical	Exposure Routes, Symptoms, Target Organs[1]	TWA[1]	STEL[1]	Odor Threshold[1]	LEL (%)[1]	IP (eV)[1]
Mercury (inorganic)	• Inhalation, absorption, ingestion, contact • Irritant to eyes and skin, cough, chest pain, difficulty breathing, bronchitis, pneumonia, tremors, insomnia, irritability, indecision, headache, lassitude, stomatitis, salivation, gastrointestinal disturbance, anorexia, weight loss, proteinuria • Eyes, skin, respiratory system, central nervous system, kidneys	0.025 mg/m^3	--	--	--	--
PCBs (chlorodiphenyl @ 54% chlorine)	• Inhalation, absorption, ingestion, contact • Irritant to eyes, chloracne, liver damage, reproductive effects [potential occupational carcinogen] • Skin, eyes, liver, reproductive system	0.001 mg/m^3	--	-- (hydrocarbon odor)	--	Unknown

Notes:
1 *NIOSH Pocket Guide to Chemical Hazards* (DDHS 2007), cross referenced to *TLVs and BEIs* (ACGIH 2012)
eV = electron volts
IP = Ionization Potential
LEL = Lower Explosive Limit
mg/m^3 = milligrams per cubic meter
OEL = Occupational Exposure Limit (identifies the most restrictive exposure limit, e.g., federal or state OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values (TLV), and/or National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit (REL) for the chemicals of concern.
PCB = polychlorinated biphenyl
STEL = Short-term exposure limit
-- = no value or not applicable

7 SITE CONTROL AND COMMUNICATIONS

The primary purposes for site controls are to establish the hazardous area perimeter, reduce migration of contaminants into clean areas, and prevent unauthorized access or exposure to hazardous materials by site personnel and the public. Site control is especially important in emergency situations.

7.1 General Site Control Safety Procedures

The following standard safe work practices apply to all Anchor QEA site personnel and subcontractors, and shall be discussed in the safety briefing prior to initiating work on the site:

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited on site except in designated areas.
- Hands and faces must be washed upon leaving the work area and before eating, drinking, chewing gum or tobacco, and smoking.
- A buddy system will be used. Radio or hand signals will be established to maintain communication.
- During site operations, each worker will consider himself or herself as a safety backup to his/her partner.
- Visual contact will be maintained between buddies on site when performing hazardous duties.
- No personnel will be admitted to the site without the proper safety equipment, training, and medical surveillance certification.
- All personnel must comply with established safety procedures. Any staff member who does not comply with safety policy as established in this HASP will be subject to corrective action, potentially including but not limited to being reprimanded and immediate dismissal.
- Proper decontamination procedures must be followed before leaving a contaminated work area.

7.2 Work Area Access Control

If work is performed in public areas, the following precautions shall be taken to protect both the workers and the public. Access control to the work area will be accomplished by the use of a combination of the following devices and/or methods:

- Fences and/or barricades
- Traffic control devices and/or use of flaggers
- Caution tape
- Other methods to keep the site secure and provide a visual barrier to help keep unauthorized personnel from entering the site and active work areas

7.3 Hazardous Waste Site Work Control Procedures

To prevent contamination from migrating from personnel and equipment, work areas will be clearly specified as an Exclusion Zone/Hot Zone (EZ), Contamination Reduction Zone (CRZ), or Support Zone/Clean Zone (SZ) prior to beginning operations. Each work area will be clearly identified using signs or physical barriers. At the end of each workday, the site should be secured and/or guarded to prevent unauthorized entry.

Site work zones will include:

- **Exclusion Zone/Hot Zone (EZ).** The EZ will be the "hot zone" or contaminated area inside the site perimeter (or sample collection area of boat). The EZ is the defined area where potential respiratory and/or health hazards exist. All personnel entering the EZ must use the required PPE, as set forth in this HASP, and must meet the appropriate training and medical clearance. Entry to and exit from this zone will be made through a designated point. Appropriate warning signs to identify the EZ should be posted (e.g., DANGER, AUTHORIZED PERSONNEL ONLY, PROTECTIVE EQUIPMENT REQUIRED BEYOND THIS POINT). Personnel and equipment decontamination must be performed upon exiting the EZ.
- **Contamination Reduction Zone (CRZ).** The CRZ, also known as the "warm zone," is a transitional zone between the EZ and the SZ (also known as the "cold zone" or "clean zone"). The CRZ provides a location for removal and decontamination of PPE and tools leaving the EZ. A separate decontamination area will be established for

heavy equipment. All personnel and equipment must exit via the CRZ. If the CRZ is compromised at any time, a new CRZ will be established.

- **Support Zone/Clean Zone (SZ).** This uncontaminated zone will be the area outside the EZ and CRZ and within the geographic perimeters of the site (including boat and processing areas). The SZ is used for support personnel; staging materials; parking vehicles; office, laboratory, and sanitation facilities; and receiving deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, and others who will not necessarily be permitted in the EZ or CRZ.

A log of all personnel visiting, entering, or working on the site shall be maintained by the PE. No visitor will be allowed in the EZ without showing proof of training and medical certification, per 29 CFR 1910.120(e), (f) (and 29 CFR 1926.1101(k) (9), (m) if appropriate). Visitors will attend a site orientation given by the PE and sign the HASP.

7.4 Site-specific Work Zone Requirements

This section contains guidelines for maintaining safe conditions when working from a boat, in a roadway, or at an excavation site.

7.4.1 Sediment Sampling Work Zones

This subsection contains guidelines concerning health and safety aboard marine sampling vessels. The vessel captain, onshore coring operator, and the PE will delineate the boundaries of the work zones aboard the vessel and will inform the field crews of the arrangement. The purpose of the zones is to limit the migration of sample material out of the zones and to restrict access to active work areas.

Two work zones will be observed aboard the vessel. One will encompass the “moonhole” of the vessel, where the samplers will be deployed and recovered. Only the coring crew may enter this zone unless assistance is required by other personnel. The second work zone will be a sample processing area on the vessel. The contractor crew will deliver sediment core tubes to this zone and open them. Anchor QEA personnel will log and process the sediment cores either on the boat or on shore.

Both the collection and processing areas on the vessel and onshore will have a SZ outside the CRZ to stage clean equipment, don PPE, take rest breaks, or perform any other site activities that do not involve potentially contaminated materials.

7.4.1.1 Vessel Decontamination Area

A station will be set up for decontaminating sample processing equipment and personnel gear such as boots or PPE. The station will have the buckets, brushes, soapy water, rinse water, or wipes necessary to perform decontamination operations. Plastic bags will be provided for expendable and disposable materials. The decontamination fluids will be stored in sealable containers and will be properly disposed of.

7.4.1.2 Access Control

Security and control of access to the sampling vessel and onshore area will be the responsibility of the captain and PE. Additional security measures may be placed into effect by the client, or as required by national security threat levels determined by the federal government. Access to the vessel and onshore areas will only be granted to necessary project personnel and authorized visitors. Any security or access control problems will be reported to the client or appropriate authorities.

7.4.1.3 Safety Equipment

In addition to PPE that will be worn by shipboard personnel, basic emergency and first aid equipment will also be provided. Equipment will include the following:

- U.S. Coast Guard (USCG)-approved personal flotation devices (PFDs)
- First aid kit adequate for the number of personnel
- Emergency eyewash

Anchor QEA and/or subconsultants will provide this equipment, which must be at the location(s) where field activities are being performed. Equipment will be checked daily to ensure its readiness for use.

7.4.2 Working in a Roadway

Work conducted in public streets may require coordination with local city and/or county governments and development and submittal of a traffic control plan in accordance with the U.S. Department of Transportation (DOT) Manual on Uniform Traffic Control Devices (MUTCD). Use of personnel qualified as Flaggers may also be required to provide temporary traffic control.

Observe the following site control practices and procedures when working in roadways:

- Wear a traffic vest and hardhat when a vehicle hazard exists.[2]
- Use cones, flag-mounted cones, caution tape, and/or barricades.
- Use a vehicle strobe light and block area with truck.
- Develop a traffic flow plan for high-traffic situations (as appropriate):
  - Use a flag person
  - Use a flashing arrow sign
  - Use "MEN WORKING" signs liberally
  - Obtain lane closing permits
  - Engage police details

See Sections 12.1.13 and 12.1.14 for additional information regarding motor vehicle operation and vehicular traffic.

7.5 Field Communications

Communications between all Anchor QEA employees and subcontractors at the work site can be verbal and/or non-verbal. Verbal communication can be affected by the on-site background noise and various PPE. See Table 7-1 for a list of the types of communication methods and equipment to use, depending on site conditions. Communication equipment must be checked daily to ensure proper operation. All project personnel must initially be

2 The 2009 MUTCD (ANSI 107-2004) federal standard for High-Visibility Apparel and Headwear stipulates specific requirements for, among other characteristics, reflectivity of work vests and headwear. This standard must be reviewed and provisions included if work covered by this HASP includes work in controlled roadways.

briefed on the communication methods prior to starting work, and communication methods should be reviewed in daily safety meetings.

Table 7-1
Field Communication Methods

Type of Communication	Communication Device	Signal
Emergency notification	On-site Telephone or Cellular Telephone	Initiate phone call using applicable emergency numbers
Emergency notification among site personnel	Two-way Radio	Initiate radio communication with Code Red message
Hailing site personnel for non-emergency	Compressed Air Horn	One long blast, one short blast
Hailing site personnel for emergency evacuation	Compressed Air Horn	Three long, continuous blasts
Hailing site personnel for distress, need help	Visual	Arms waved in circle over head
Hailing site personnel for emergency evacuation	Visual	Arms waved in criss-cross over head
Contaminated air/strong odor	Visual	Hands clutching throat
Break, lunch, end of day	Visual	Two hands together, break apart

8 DECONTAMINATION PROCEDURES AND PRACTICES

8.1 Minimization of Contamination

The following measures will be observed to prevent or minimize exposure to potentially contaminated materials:

Personnel

- Do not walk through spilled materials.
- Do not handle, touch, or smell sample media directly.
- Make sure PPE has no cuts or tears prior to use.
- Protect and cover any skin injuries.
- Stay upwind of airborne dusts and vapors.
- Do not eat, drink, chew tobacco, or smoke in the work zones.

Sampling Equipment and Vehicles/Vessels

- Use care to avoid getting sampled media on the outside of sample containers.
- If necessary, bag sample containers before filling with sampled media.
- Place clean equipment on a plastic sheet to avoid direct contact with contaminated media.
- Keep contaminated equipment and tools separate from clean equipment and tools.
- Fill sample containers over a plastic tub to contain spillage.
- Clean up spilled material immediately to avoid tracking around the vehicle/vessel.

8.2 Decontamination Equipment

All vehicles, vessels, and equipment that have entered potentially contaminated areas will be visually inspected and, if necessary, decontaminated prior to leaving the area. If the level of vehicle contamination is low, decontamination may be limited to rinsing tires and wheel wells with an appropriate detergent and water. If the vehicle is significantly contaminated, steam cleaning or pressure washing may be required. Tools will be cleaned in the same manner. Rinsate from all decontamination activities will be collected for proper disposal. Decontamination of equipment and tools will take place within the CRZ.

The following supplies will be available to perform decontamination activities:

- Wash and rinse buckets
- Tap water and phosphate-free detergent
- Scrub brushes
- Distilled/deionized water
- Deck pump with pressurized freshwater hose (aboard the vessel)
- Pressure washer/steam cleaner, if appropriate
- Paper towels and plastic garbage bags

8.3 Personnel Decontamination

The PE will ensure that all site personnel are familiar with personnel decontamination procedures as listed below. All personnel wearing PPE in a work area (EZ) must undergo decontamination prior to entering the SZ. Personnel will perform the following decontamination procedures:

- Wash and rinse outer gloves and boots in portable buckets to remove gross contamination.
- If suit is heavily soiled, rinse it off.
- Remove outer gloves; inspect and discard if damaged. Leave inner gloves on. Personnel will remove their outer garment and gloves, dispose of them, and properly label container or drum. Personnel will then decontaminate their hard hats and boots with an aqueous solution of detergent or other appropriate cleaning solution. These items then will be hand-carried to the next station. Remove inner gloves.
- Thoroughly wash hands and face before leaving CRZ.
- Sanitize respirators and place in a clean plastic bag.

8.4 Sampling and Processing Equipment Decontamination

To prevent sample cross-contamination, sampling and processing equipment in contact with soil, sediment, or water samples will undergo the following decontamination procedures when work is completed in the CRZ and prior to additional use:

1. Rinse with potable water and wash with scrub brush.
2. Wash with phosphate-free detergent (Alconox®).

3. Visually inspect the sampler and repeat the scrub and rinse step, if necessary. If scrubbing and rinsing with Alconox® is insufficient to remove visually observable tar-related contamination on equipment, the equipment will be scrubbed and rinsed using hexane (or similar type solution) until all visual signs of contamination are absent.
4. Rinse external sampling equipment with potable water three times prior to use. Rinse homogenizing equipment once with potable water and three times with distilled water prior to and between sample processing.

8.5 Handling of Investigation-derived Waste

All remaining soil or sediment, fluids used for decontamination of sampling equipment, and sample collection disposable wastes (e.g., gloves, paper towels, foil, or others) will be placed into appropriate containers and staged on site for disposal.

8.5.1 Disposable PPE

Disposable PPE may include Tyvek suits, inner latex gloves, and respirator cartridges. Dispose of PPE according to the requirements of the client and state and federal agencies.

8.5.2 Non-disposable PPE

Non-disposable PPE may include respirators and boots and gloves. When decontaminating respirators, observe the following practices and procedures:

- Wipe out the respirator with a disinfecting pad prior to donning.
- Decontaminate the respirator on site at the close of each day with an approved sanitizing solution.

When decontaminating boots and gloves, observe the following practices and procedures:

- Decontaminate the boots or gloves outside with a solution of detergent and water; rinse with water prior to leaving the site.
- Protect the boots or gloves from exposure by covering with disposable covers such as plastic to minimize required decontamination activities.

8.6 Sanitizing of Personal Protective Equipment

Respirators, reusable protective clothing, and other personal articles must not only be decontaminated before being reused, but also sanitized. The insides of masks and clothing become soiled due to exhalation, body oils, and perspiration. Manufacturer's instructions should be used to sanitize respirator masks. If practical, reusable protective clothing should be machine-washed after a thorough decontamination; otherwise, it must be cleaned by hand.

8.7 Emergency Personnel Decontamination

Personnel with medical problems or injuries may also require decontamination. There is the possibility that the decontamination may aggravate or cause more serious health effects. If prompt lifesaving, first aid, and medical treatment are required, decontamination procedures will be omitted. In either case, a member of the site management team will accompany contaminated personnel to the medical facility to advise on matters involving decontamination.

8.8 Containment of Decontamination Fluids

As necessary, spill control measures will be used to contain contaminated runoff that may enter into clean areas. Use plastic sheeting or hay bales, or install a spill control system to prevent spills and contain contaminated water.

8.9 Pressure Washing

The following procedure is required when using high-pressure washing equipment for decontamination purposes:

- Wear modified Level D protection, including a face shield and safety goggles.
- Ensure that other personnel are out of the area prior to decontamination.
- Secure the area around the decontamination pad with cones, caution tape, or barricades.
- Ensure that safe work practices and precautions are taken to minimize the potential for physical injury from high-pressure water spray. Follow the manufacturer's operating instructions.

- The pressure washer wand must be equipped with a safety release handle.
- Ensure that the area is clean after equipment is decontaminated. Barricades, cones, or caution tape must be left in place and secured at all times.

9 HEALTH AND SAFETY TRAINING AND INFORMATIONAL PROGRAMS

This section describes the health and safety training and informational programs with which Anchor QEA project site personnel must comply. All certifications required in this section will be kept on internal file.

9.1 Initial Project Site Orientation

Work on all Anchor QEA project sites will require participation in an initial health and safety orientation presented by the PC or PE that will consist of, at a minimum, the following topics:

- A review of the contents of this HASP, including the scope of work and associated site hazards and control methods and procedures.
- Provisions of this plan are mandatory for all Anchor QEA personnel assigned to the project.
- Anchor QEA subcontractors are also expected to follow the provisions of this plan unless they have their own HASP that covers their specific activities related to this project and includes the minimum requirements of this HASP.
- All visitors to the work site will also be required to abide by the requirements of this plan.
- Personnel assigned to perform work at the project site, working under the provisions of this HASP, will be required to read the plan and must sign the Health and Safety Plan Acknowledgement Form to confirm that they understand and agree to abide by the provisions of this plan. Personnel not directly affiliated with the project (i.e., visitors) may also be required to sign the Liability Waiver.

9.2 Daily Safety Meetings

Daily safety meetings ("tailgate meetings") make accident prevention a top priority for everyone and reinforce awareness of important accident-prevention techniques. The following daily safety meeting procedures and practices are required:

- Daily safety meetings will be held each morning prior to conducting site activities.
- The Daily Safety Briefing Form in Appendix A will be used to document each meeting.

- Copies of the completed Daily Safety Briefing Forms will be maintained on site during the course of the project.

9.3 Hazardous Waste Operations Training

Personnel working on project sites that present a potential exposure to hazardous wastes or other hazardous substances shall be trained in accordance with the requirements of the 29 CFR 1910.120 (HAZWOPER) regulation. Training requirements will consist of the following:

- Field personnel must complete a minimum of 40 hours of hazardous waste activity instruction.
- Field personnel must complete a minimum of 3 days of supervised field instruction.
- Field personnel assigned to the site will also have received 8 hours of refresher training if the time lapse since their previous training has exceeded 1 year.
- On-site managers and supervisors directly responsible for employees engaged in hazardous waste operations will receive an additional 8 hours of supervisory training.
- Field personnel shall be current in first aid/CPR training offered by the American Red Cross or equivalent.
- Other training may be required depending on the task to be performed (e.g., confined space, excavation/trenching, underground storage tank removal, fall protection, respiratory protection, and hazard communication).

9.4 Transportation Worker Identification Credential

All Anchor QEA field personnel will maintain current Transportation Worker Identification Credential status, pursuant to the Maritime Transportation Security Act of 2002, unless this requirement is waived specifically in writing by relevant property owners.

9.5 Asbestos Awareness Training

Field personnel working on project sites that present a potential exposure to asbestos shall receive asbestos awareness training in accordance with 29 CFR 1926.1101(k)(9)(vii), which shall address the following:

- The health effects associated with asbestos exposure.

- The relationship between smoking and asbestos in producing lung cancer.
- The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures.
- The purpose, proper use, fitting instructions, and limitation of respirators.
- The appropriate work practices to be used for the selected job tasks.
- Medical surveillance program requirements.

9.6 Hazard Communication Program

The purpose of hazard communication (Employee Right-to-Know) is to ensure that the hazards of all chemicals located at the field project site are communicated to all Anchor QEA personnel and subcontractors according to 29 CFR 1926.59.

Every container of hazardous materials must be labeled by the manufacturer, who must also provide a MSDS upon initial order of the product and upon request thereafter. The actual format may differ from company to company (e.g., National Fire Protection Association, Hazardous Material Information System, or other), but the labels must contain similar types of information. Maintain manufacturer labels if at all possible. The label may use words or symbols to communicate the following:

- The name of the chemical
- The name, address, and emergency telephone number of the company that made or imported the chemical
- The physical hazards (Will it explode or catch fire? Is it reactive? Is it radioactive?)
- Any important storage or handling instruction
- The health hazards (Is it toxic? Could it cause cancer? Is it an irritant? What is the target organ?)
- The basic protective clothing, equipment, and procedures that are recommended when working with the chemical

MSDSs for all chemicals brought on site or anticipated to be encountered on site shall be provided in Appendix C of this HASP. These MSDSs shall be readily available for reference by site personnel and emergency response personnel.

Hazardous materials received without proper labels shall be set aside and not distributed for use until properly labeled.

If a hazardous chemical is transferred into a portable container (approved safety can), even if for immediate use only, the contents (e.g., acetone or gasoline) of the portable container must be identified.

10 GENERAL PPE REQUIREMENTS

The minimum level of PPE should be selected according to the hazards that may be encountered during site activities in accordance with established U.S. Environmental Protection Agency (USEPA) levels of protection (D and C). Only PPE that meets American National Standards Institute (ANSI) standards shall be worn. Workers must maintain proficiency in the use and care of PPE. Damaged or defective PPE must be replaced and may not be used. Anchor QEA will provide all necessary PPE for its employees, as described in this HASP.

Refer to Section 5 of this plan for site-specific job task and level-of-protection requirements.

10.1 Minimum Requirements – Level D Protection

The minimum level of protection on project sites will be Level D protection, which consists of the following equipment:

- Standard work uniform/coveralls
- Work boots with safety toe conforming to ASTM F2412-05/ASTM F2413-05
- Approved safety glasses or goggles (meets ANSI Z87.1 – 1989 requirements for eye protection)
- Hard hat (meets ANSI Z89.1 – 1986 requirements for head protection)
- Traffic safety vest
- Hearing protection when there are high noise levels

Level D protection will only be used only in the following situations:

- The atmosphere contains no known hazards
- Work functions preclude splashes, immersions, or the potential for unexpected inhalation of, or contact with, hazardous concentrations of chemicals
- Atmospheric concentrations of contaminants are less than the Permissible Exposure Limit (PEL) and/or Threshold Limit Value (TLV)

10.1.1 Modified Level D Protection Requirements

Depending on the scope of work and the potential hazards to be encountered, Level D protection shall be modified to include additional protective equipment such as USCG-approved PFDs, face shields/goggles, chemical-resistant clothing, and disposable gloves of varying materials depending on the chemical substances involved. An upgrade to Modified Level D occurs when there is a possibility that contaminated media can contact the skin or work uniform.

10.2 Respiratory Protection Requirements

Respiratory protection is not anticipated at this time for field tasks on this project.

11 GENERAL AIR MONITORING REQUIREMENTS

11.1 General Requirements

Air monitoring is not anticipated at this time for field tasks on this project. However, in the event that air monitoring is deemed necessary, this section provides reference information. Specific air monitoring procedures and action levels will be determined at that time.

In general, air monitoring shall be conducted when the possibility of hazardous atmospheres, chemical volatilization, or contaminated airborne dust exists (e.g., from intrusive activities involving contaminated soils and/or groundwater, developing new monitoring wells, wells containing known COCs, confined space entry, or others).

12 HEALTH AND SAFETY PROCEDURES AND PRACTICES

In addition to the task-specific JSAs listed in Section 6.1 and presented in Appendix B of this HASP, this section lists the health and safety procedures and practices applicable to this project. For additional information, consult with the PC.

12.1 Physical Hazards and Controls

12.1.1 General Site Activities

Observe the following general procedures and practices to prevent physical hazards:

- Legible and understandable precautionary labels shall be affixed prominently to containers of potentially contaminated soil, sediment, water, and clothing.
- No food or beverages shall be present or consumed in areas that have the potential to contain COCs and/or contaminated materials or equipment.
- No tobacco products or cosmetics shall be present or used in areas that have the potential to contain COCs and/or contaminated materials or equipment.
- An emergency eyewash unit shall be located immediately adjacent to employees who handle hazardous or corrosive materials, including decontamination fluids. All operations involving the potential for eye injury or splash must have approved eyewash units locally available capable of delivering at least 0.4 gallon per minute for at least 15 minutes.
- Personnel working within 10 feet of bodies of water shall wear USCG-approved PFDs.
- Certain project sites may have newly finished work (e.g., concrete, paving, framing, habitat reconstruction, or sediment caps) that may be damaged by unnecessary contact, or that could cause dangerous conditions for personnel (e.g., slipping, sinking, or tripping). Personnel working in or around these areas shall communicate with the PC, PE, and property owner as needed to prevent damaging new work or entering dangerous conditions.
- Generally, all on-site activities will be conducted during daylight hours. If work after dusk is planned or becomes necessary due to an emergency, adequate lighting must be provided.

- Hazardous work, such as handling hazardous materials and heavy loads and operating equipment, should not be conducted during severe storms.
- All temporary electrical power must have a Ground-fault Circuit Interrupter (GFCI) as part of its circuit if the circuit is not part of permanent wiring. All equipment must be suitable and approved for the class of hazard present.

12.1.2 Slips, Trips, and Falls

Observe the following procedures and practices to prevent slips, trips, and falls:

- Inspect each work area for slip, trip, and fall potential prior to each work task.
- Slip, trip, and fall hazards identified must be communicated to all personnel. Hazards identified shall be corrected or labeled with warning signs to be avoided.
- All personnel must be aware of their surroundings and maintain constant communication with each other at all times.

12.1.3 Sediment Sampling

Sediment samples will be collected using a grab sampler or coring sampling equipment operated from a boat. Please see Sections 12.1.11 and 12.1.12 for additional safety information regarding working on or near the water.

All operations involving the use of powered sediment coring rigs will follow generally accepted drilling/coring practices. One person will be assigned the responsibility of Lead Driller/Corer. Additional personnel will assist with equipment as needed. The Lead Driller/Corer will be responsible for operating the drilling/coring rig and ensuring safety.

General rules associated with drilling/coring rig operations will be as follows:

- While drilling, all non-essential personnel shall remain at a distance that is past the radius of any moving parts.
- All operators and crew members will be familiar with the rig operations and will have received practical training.
- All personnel will be instructed in the use of the emergency kill switch/shutdown on the drill rig.

- No loose-fitting clothing, jewelry, or free long hair is permitted near the drilling rig or moving machinery parts.
- A first aid kit and fire extinguisher will be available at all times.
- No drilling will occur during impending electrical storms or tornadoes, or when rain, ice, snow, or wind conditions create undue potential hazards.
- Never allow "horsing around" within the vicinity of the drill rig and tool and supply storage areas, even when the drill rig is shut down.

12.1.4 Underground/Overhead Utility Line Contact Prevention

Observe the following underground/overhead utility line contact prevention procedures and practices:

- Prior to conducting work, the PC or PE shall ensure that all existing underground or overhead utilities in the work area are located per the state or local mark-out methods. Documentation of utility mark-out shall be completed using the Utility Contact Prevention Checklist Form (see Appendix A). No excavation work is to be performed until all utility mark-outs are verified.
- The PC or PE shall conduct a site survey to search for signs of other buried or overhead utilities. The results of such surveys shall be documented on the Utility Mark-out Documentation Form.
- The property owner or facility operator shall be consulted on the issue of underground utilities. As-built drawings shall be reviewed, when available, to verify that underground utility locations are consistent with the utility location mark-outs. All knowledge of past and present utilities must be evaluated prior to conducting work.
- If on-site subsurface utility locations are in question, a private locating service shall be contacted to verify locations. If the investigation calls for boreholes in an area not covered by the municipal One-Call system, then a private utility locate firm shall be contacted to determine the location of other underground utilities.
- The PC shall have documented verbal contact and an agreement with the fiber optic company for all work within 50 feet of any fiber optic cables.

- **Only hand digging is permitted within 3 feet of underground high voltage, product, or gas lines.** Once the line is exposed, heavy equipment can be used, but must remain at least 3 feet from the exposed line.
- Elevated superstructures (e.g., drill rig, backhoe, scaffolding, ladders, and cranes) shall remain a distance of 10 feet away from utility lines and 20 feet away from power lines. Distance from utility lines may be adjusted by the PE depending on actual voltage of the lines.
- Overhead utility locations shall be marked with warning tape or flags where equipment has the potential for contacting overhead utilities.

Table 12-1 shows the minimum clearances required for energized overhead electrical lines.

Table 12-1
Overhead Utility Clearance Requirements

Minimum Clearance from Energized Overhead Electric Lines	
Nominal System Voltage	**Minimum Required Clearance**
0 to 50 kV	10 feet
51 to 100 kV	12 feet
101 to 200 kV	15 feet
201 to 300 kV	20 feet
301 to 500 kV	25 feet
501 to 750 kV	35 feet
751 to 1000 kV	45 feet

Notes:
Whenever equipment operations must be performed closer than 20 feet from overhead power lines, the Project Engineer (PE) must be notified. When clearance to proceed is received from the PE, the electric utility company must be contacted to turn the power off or physically insulate (protect) the lines if the operation must be performed closer to the power line than is allowed in this table. For voltages not listed on this table, add 0.4 inches per kV to obtain the safe distance between equipment and power lines.
kV = kilovolts

12.1.5 Electric Safety

Observe the following procedures and practices to prevent electric shock:

- General
  - Use only appropriately trained and certified electricians to perform tasks related to electrical equipment. A good rule of thumb is to defer any task that would not normally and reasonably be completed by the average public consumer.
  - Each circuit encountered will be considered live until proven otherwise.
  - Only proper tools will be used to test circuits.
  - No wire will be touched until the circuit is determined to be de-energized.
- Extension Cords
  - All extension cords used on any project will be three-pronged.
  - All extension cords will be in good working order.
  - Each extension cord ground will be tested for continuity on at least a quarterly basis and marked to indicate when the inspection occurred.
  - Each extension cord will be visually inspected before each use.
  - If any extension cord is found in disrepair or fails the continuity test, it will be taken out of service.
  - Any extension cord that does not have the grounding pin will be taken out of service and not used.
  - Extension cords will not be used in place of fixed wiring.
  - Extension cords will not be run through holes in walls, ceilings, or floors.
  - Extension cords will not be attached to the surface of any building.
  - No extension cord will be of the "flat wire" type. Every extension cord will have each individual wire insulated and further protected by an outside cover.
  - Be sure to locate extension cords out of traffic areas or, if this is unavoidable, flag cords and protect workers from tripping over them (i.e., use barricades, tape the cord down, etc.)
  - Do not stage extension cords or powered equipment in wet areas, to the degree possible. Elevate cords, connections, and equipment out of puddles.

- Power Tools/Plug and Cord Sets
  - Any cord that is cut in a way that exposes insulation will be removed from service.
  - All tools and plug and cord sets will be tested for continuity.
  - If grounding pins are missing, the plug and cord will be removed from service.
  - Any tool or plug and cord set failing the continuity test will be removed from service.
  - All power tools will have three-pronged plugs unless double insulated.
- Ground-fault Circuit Interrupters
  - Each 120-volt electrical wall receptacle providing power to the job site will be protected by a portable GFCI.
  - Each GFCI will be tested quarterly and marked to indicate when the inspection occurred.
  - Each 120-volt, single-phase, 15- and 20-ampere receptacle outlet, including those on generators, will have an approved GFCI.
  - GFCIs will be located in line as close to the piece of equipment as possible.
- Specific
  - If unsure whether a task requires specific electrical training, err on the side of caution and contact the PC and PE prior to proceeding.
  - If subsurface work is to be performed, follow the guidelines in Section 12.1.4 and conduct utility locating prior to work and in accordance with local ordinances.
  - If lock out/tag out (LO/TO) procedures are required (i.e., de-energizing machinery or equipment so work may be performed), the equipment owner must provide LO/TO procedures and training. By default, the equipment owner should perform any LO/TO. If it becomes necessary for Anchor QEA personnel to perform LO/TO tasks, contact the PC and PE prior to doing so.
  - Maintain appropriate distance from overhead utilities (see Table 12-1).
  - If unexpected electrical equipment is encountered (i.e., buried wire) assume it is live, stop work, and contact the PC and PE immediately.

12.1.6 General Falls/Ladders

Observe the following general falls/ladders procedures and practices:

- Assess work areas for fall hazards. A fall protection system that meets OSHA and ANSI Z3591 standards must be used if work is conducted 6 feet or more above the surface.
- Use Type 1A rated ladders.
- Make sure ladder rungs are sturdy and free of cracks.
- Use ladders with secure safety feet.
- Pitch ladders at a 4 horizontal to 1 vertical (4H:1V) ratio.
- Secure ladders at the top or have another person at the bottom to help stabilize it.
- Ladders used to access an upper landing surface shall extend at least 3 feet above the upper landing surface.
- Use non-conductive ladders near electrical wires.
- The top rung of a ladder should not be used as a step.
- Do not carry any object or load that could cause a loss of balance or a fall.

12.1.7 Heavy Equipment Operations

Observe the following heavy equipment operations procedures and practices:

- Wear leather gloves while attaching support members to protect against pinching injuries.
- While working from elevated levels greater than 6 feet, ensure that all employees have fall protection that meets OSHA and ANSI Z3591 standards.
- Do not stand under loads that are being raised or lowered with cranes or aerial lifts.
- The subcontractor or Anchor QEA equipment operator must conduct pre-operational inspections of all equipment. In addition, daily inspections will be conducted on the equipment prior to site activities.
- Maintain the appropriate distance from overhead utilities (see Table 12-1):
- Always stay out of the swing radius of all heavy equipment. Always use a spotter during movement of equipment. The spotter and others, as appropriate, shall maintain constant communication with the operator.
- All operators must have adequate training and be qualified to operate the particular heavy equipment unit.

- Conduct a site evaluation to determine proper positioning for the unit. Make sure the surface is level. Cordon off holes, drop-offs, bumps, or weak ground surfaces.
- When using a crane, do not use hands when the load is being lifted or lowered. Use non-conductive tag line to help direct and position the load.
- Never climb a raised platform or stand on the mid-rail or top-rail.
- Tools should always be hung or put into a belt whenever possible.

12.1.8 Hand and Power Tools

Observe the following procedures and practices when working with hand and power tools:

- Keep hand tools sharp, clean, oiled, dressed, and not abused.
- Worn tools are dangerous. For example, the "teeth" in a pipe wrench can slip if worn smooth, an adjustable wrench will slip if the jaws are sprung, and hammerheads can fly off loose handles.
- Tools subject to impact (e.g., chisels, star drills, and caulking irons) tend to "mushroom." Keep them dressed to avoid flying spalls, and use tool holders.
- Do not force tools beyond their capacity.
- Flying objects can result from operating almost any power tool, so always warn people in the vicinity and use proper eye protection.
- Each power tool should be examined before use for damaged parts, loose fittings, and frayed or cut electric cords. Tag and return defective tools for repairs. Ensure that there is adequate lighting, inspect tools for proper lubrication, and relocate tools or material that could "vibrate into trouble."
- Compressed air must be shut off or the electric cord unplugged before making tool adjustments. Air must be "bled down" before replacement or disconnection.
- Proper guards or shields must be installed on all power tools before issue. Do not use improper tools or tools without guards in place.
- Replace all guards before startup. Remove cranks, keys, or wrenches used in service work.

12.1.9 Motor Vehicle Operation

All drivers are required to have a valid driver's license, and all vehicles must have appropriate state vehicle registration and inspection stickers. **Anchor QEA prohibits the use**

of hand-held wireless devices while driving any vehicle for business use at any time, for personal use during business hours, and as defined by law. Additionally, site-specific motor vehicle requirements must be followed, if any.

When driving to, from, and within the job site, be aware of potential hazards including the following:

- Vehicle accidents
- Distractions
- Fatigue
- Weather and road conditions

To mitigate these hazards, observe the following procedures and practices regarding motor vehicle operation:

- Wear a seat belt at all times and make sure that clothing will not interfere with driving.
- Inspect fluid levels and air pressure in tires, adjust mirrors and seat positions appropriately, watch the fuel level, and fill up when the fuel level is low.
- Plan your travel route and check maps for directions or discuss with colleagues.
- Clean windows and mirrors as needed throughout the trip.
- Wear sunglasses as needed.
- Follow a vehicle maintenance schedule to reduce the possibility of a breakdown while driving.
- Stop driving the vehicle, regardless of the speed (e.g., even 5 miles per hour) or location (e.g., a private road), when the potential of being distracted by conversation exists.
- Using hand-held communication devices (e.g., cell phones) while operating any motor vehicle is prohibited.
- Get adequate rest prior to driving.
- Periodically change your seat position, stretch, open the window, or turn on the radio to stay alert.
- Pull over and rest if you are experiencing drowsiness.
- Check road and weather conditions prior to driving.
- Be prepared to adjust your driving plans if conditions change.

- Travel in daylight hours, if possible.
- Give yourself plenty of time to allow for slowdowns due to construction, accidents, or other unforeseen circumstances.
- Use lights at night and lights and wipers during inclement weather.

12.1.10 Vehicular Traffic

Observe the following procedures and practices regarding vehicular traffic:

- Wear a traffic safety vest when vehicle hazards exist.
- Use cones, flags, barricades, and caution tape to define the work area.
- Use a vehicle to block the work area.
- Engage a police detail for high-traffic situations.
- Always use a spotter in tight or congested areas for material deliveries.
- As necessary, develop traffic control plans and train personnel as flaggers in accordance with the DOT MUTCD and/or local requirements.

See Section 7.4.2 for additional information regarding work in roadways.

12.1.11 Boating Operations

The following precautions shall be followed when conducting boating trailer and launch activities:

- Follow the trailer and boat manufacturers' instructions for securing the boat to the trailer.
- Follow the trailer manufacturer's instructions for securing the trailer to the towing vehicle.
- Prohibit workers from moving into trailer/vehicle pinch points without advising the vehicle operator.
- Use experienced operators when backing trailers on boat ramps.
- Wear proper work gloves when the possibility of pinching or other injury may be caused by moving or handling large or heavy objects.
- Maintain all equipment in a safe condition.
- Launch boats one at a time to avoid collisions.

- Use a spotter for vehicles backing boats to the launch area.
- Understand and review hand signals.
- Wear boots with non-slip soles when launching boats.
- Wear USCG-approved PFDs when working within 10 feet of the water.
- Keep ropes and lines coiled and stowed to eliminate trip hazards.
- Maintain three-point contact on dock/pier or boat ladders.
- Ensure that drain plugs are in place, as present.

The following precautions shall be followed when conducting boating operations:

- Maintain a current boater's license(s) as required.
- Wear USCG-approved PFDs for work activities within 10 feet of the water.
- Obtain and review information regarding dams that may be present in work areas, particularly with regard to "no boating" zones and safety buoys, cables, and warning signage.
- Maintain boat anchorage devices commensurate with anticipate currents, distance to shore, and water depths.
- Provide a floating ring buoy in the immediate boat launch/landing areas with at least 60 feet (18.3 meters) of line for a vessel less than 65 feet (19.8 meters) in length, or 90 feet (27.4 meters) of line for a vessel 65 feet (19.8 meters) or greater in length (see http://www.uscg.mil/d13/cfvs/CheckLists/Regs/28.115.pdf for more information).
- Step into the center of the boat.
- Keep your weight low when moving on the boat.
- Move slowly and deliberately.
- Steer directly across other boat wakes at a 90-degree angle to avoid capsizing.
- Steer the boat facing forward.
- Watch for floating objects in the water.
- Right-of-way is yielded to vessels on your boat's right, or starboard, and vessels with limited ability to maneuver such as any wind-propelled vessel.

The following precautions shall be followed when working on a boat:

- Observe proper lifting techniques.
- Obey lifting limits (see Section 12.1.21).

- Use mechanical lifting equipment (i.e., pulleys or winches) to move large or awkward loads.
- Wear USCG-approved PFDs for work activities within 10 feet of the water.

The safety-related items listed in Table 12-2 shall be available when conducting boating operations.

Table 12-2
Safety Equipment Specific to In-water Work

Additional Safety Equipment for Sampling Vessel per U.S. Coast Guard (USCG) Requirements:
• Proper vessel registration, numbering, and documentation (registered with state, certificate of vessel registration number displayed, and carrying a valid certificate of number) • USCG-approved personal flotation devices (PFDs; or life jackets) for every person on the sampling vessel (Type II PFD required, Type I PFD preferred as it will turn most unconscious wearers face up in the water) • Appropriate, non-expired, visual distress devices for day and night use from the following: - Three hand-held red flares (day and night), or - One hand-held red flare and two parachute flares (day and night), or - One hand-held orange smoke signal, two floating orange smoke signals (day), and one electric distress light (night only) • Alternate means of propulsion (oars or paddles) • Dewatering device (pump or bailer) • Properly maintained and inspected USCG-approved fire extinguishers (no fixed system = (2) B-1 or (1) B-2 type extinguishers; fixed system = (1) B-1 type extinguisher) • Proper ventilation of gasoline-powered vessels • Sound-producing device (whistle, bell, or horn) • VHF 2-way radio • Proper navigational light display • Throwable life ring with attached line (any vessel larger than 16 feet is required to carry one Type IV [throwable] PFD)

Additional USCG Recommended Equipment Includes:	
• Extra visual distress signals • Primary and spare anchor • Heaving line • Fenders • First aid kit • Flashlight • Mirror • Searchlight • Sunburn lotion • Tool kit • Spare fuel	• Boat hook • Spare propeller • Mooring line • Food and water • Binoculars • Spare batteries • Sunglasses • Marine hardware • Extra clothing • Spare parts • Pertinent navigational chart(s) and compass

12.1.12 Working Over or Near Water

12.1.12.1 Personal Flotation Devices

PFDs are not required where employees are continuously protected from the hazard of drowning by railings, nets, safety belts, or other applicable provisions.

Type III, Type V, or better USCG-approved high-visibility PFD shall be provided and properly worn by all personnel in the following circumstances:

- On or within 10 feet of water
- On floating pipelines, pontoons, rafts, or stages
- On structures extending over or next to the water, except where guard rails or safety nets are provided for employees
- Working alone at night where there are drowning hazards, regardless of other safeguards provided
- In skiffs, small boats, or launches, unless in an enclosed cabin or cockpit
- Whenever there is a drowning hazard

The following precautions shall be followed when using PFDs:

- Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects that would alter their strength or buoyancy. Defective devices or devices with less than 13 pounds buoyancy shall be removed from service.
- All PFDs shall be equipped with reflective tape as specified in 46 CFR 25.25-15.

- Thirty-inch USCG-approved ring buoys with at least 150 feet of 600-pound capacity line shall be provided and readily available for emergency rescue operations. The distance between ring buoys shall not exceed 200 feet.
- PFD lights conforming to 46 CFR 161.012 shall be required whenever there is a potential need for life rings to be used after dark. Onshore installations, at least one life ring, and every third one thereafter, shall have a PFD light attached. PFD lights on life rings are only required in locations where adequate general lighting (e.g., floodlights or light stanchions) is not provided.

12.1.12.2 Cold Water Work

When the combined air and water temperature is below 90 degrees Fahrenheit (°F), field personnel working on or near water shall wear either a float coat and bib overalls (e.g., a full two-piece "Mustang" survival suit or similar) or a one-piece survival suit. Suits or float coats shall be USCG-approved. If extremely cold or severe weather conditions are forecast, work activities should be postponed. Work activities will be continually reviewed and adjustments made if wearing a survival suit during work activities potentially poses a hazard due to warm air temperatures, or limited mobility or agility. In addition, proximity of water work to shore and scope/duration/timing of work activities will be considered when stipulating the above requirement. Overall, if water craft will be used during work, or work will be conducted near water, it is imperative that site-specific conditions are considered and evaluated so that proper safeguards and procedures are in place prior to beginning work.

In addition to considering the use of apparel appropriate for anticipated air, weather, and water conditions, field teams shall identify any procedures necessary for cold-water "man-overboard" scenarios. These procedures should be identified in the site-specific HASP, described in the JSA used for boating activities and, if prudent, practiced before work.

12.1.13 Noise

Excessive noise is hazardous not only because of its potential to damage hearing, but also because of its potential to disrupt communications and instructions. The following procedures and practices shall be followed to prevent noise-related hazards:

- All employees will have access to disposable ear plugs with a Noise Reduction Rating of not less than 30.
- Ear plugs must be worn in any environment where workers must raise their voices to be heard while standing at a distance of 3 feet or less.
- Ear plugs must be worn by any personnel operating concrete cutting or sawing equipment.

Hearing protection is required for workers operating or working near noisy equipment or operations, where the noise level is greater than 85 A-weighted decibels (dbA) (time-weighted average [TWA]), as well as personnel working around heavy equipment. The PE will determine the need and appropriate testing procedures, (i.e., sound level meter and/or dosimeter) for noise measurement.

When needed, a sound level meter will be used to measure noise levels at selected locations in the work area and on the site perimeter. When used, noise monitoring equipment must be calibrated before and after each shift.

If continuous noise levels are found to exceed 85 dbA at any location within the work area, warning signs will be posted. Workers and visitors will be notified that hearing protection is required. Appropriate hearing protection (i.e., ear plugs or ear muffs) will be worn whenever personnel or visitors are working in that location. A supply of ear plugs will be maintained on site.

Action levels in Table 12-3 will trigger the use of appropriate hearing protection (plugs or muffs). Hearing protection must be able to attenuate noise below 90 dbA (8-hour TWA). Each hearing protection or device has a Noise Reduction Rating (NRR) assigned by USEPA. The calculation for a hearing protection device's effectiveness is as follows:

$$\text{Noise reading dbA} - (\text{NRR} - 7\text{dB}) < 90 \text{ dbA}$$

Table 12-3
Noise Exposure Action Levels

Instrument	Measurement	Action
Type I or Type II Sound Level Meter or Dosimeter	> 80 dbA to 85 dbA	Hearing protection recommended. Limit work duration to 8-hour shifts.
	> 85 dbA to 90 dbA	Hearing protection required. Limit work duration to 8-hour shifts.
	> 90 dbA to 115 dbA	Hearing protection required. Investigate use of engineering controls. Limit work duration to 8-hour shifts.
	> 115 dbA	Stop work. Consult CHSM.

12.1.14 Lifting and Material Handling

Observe the following procedures and practices for lifting and material handling:

- Use leather gloves when handling metal, wire rope, sharp debris, or transporting materials (wood, piping, drums, etc.).
- The size, shape, and weight of the object to be lifted must first be considered. No individual employee is permitted to lift any object that weighs more than 60 pounds. Multiple employees or mechanical lifting devices are required for objects heavier than the 60-pound limit.
- Plan a lift before doing it. Bend at the knees and lift with the legs, maintain the natural curves of the back, and do not use back muscles.
- Check the planned route for clearance.
- Use the buddy system when lifting heavy or awkward objects.
- Do not twist your body while lifting.
- Know the capacity of any handling device (e.g., crane, forklift, chain fall, or come-along) that you intend to use.
- Use tag lines to control loads.
- Ensure that your body, material, tools, and equipment are safe from such unexpected movement as falling, slipping, rolling, tripping, bowing, or any other uncontrolled motion.
- Trucks (i.e., flatbeds) hauling equipment or materials must not be moved once the rigging has been released.

- Chock all material and equipment (such as pipe, drums, tanks, reels, trailers, and wagons) as necessary to prevent rolling.
- Tie down all light, large-surface-area material that might be moved by the wind.
- When working at heights, secure tools, equipment, and wrenches against falling.
- Do not store materials or tools on ducts, lighting fixtures, beam flanges, hung ceilings, or similar elevated locations.
- Fuel-powered tools used inside buildings or enclosures shall be vented and checked for excessive noise.

12.1.15 Fire Control

Observe the following fire control procedures and practices:

- Smoke only in designated areas.
- Keep flammable liquids in closed containers.
- Keep the work site clean; avoid accumulating combustible debris such as paper.
- Obtain and follow property owner hot work safety procedures when welding or performing other activities requiring an open flame.
- Isolate flammable and combustible materials from ignition sources.
- Ensure fire safety integrity of equipment installations according to National Electrical Code specifications.

12.1.16 Static Electricity and Transfer of Flammable Liquids

Observe the following procedures and practices regarding static electricity when transferring flammable liquids:

- Electrically bond and ground pumps, transfer vessels, tanks, drums, bailers, and probes when moving flammable liquids.
- Electrically bond and ground vacuum trucks and the tanks they are emptying.
- Do not splash fill containers with flammable liquids.
- Pour flammable liquids slowly and carefully.
- Two fire extinguishers (2A20:BC) must be available, charged, inspected, and readily accessible.

12.1.17 Cleaning Equipment

Observe the following procedures and practices when cleaning equipment:

- Wear appropriate PPE to avoid skin and eye contact with isopropyl alcohol, Alconox®, or other cleaning materials.
- Stand upwind to minimize any potential inhalation exposure.
- Dispose of spent cleaning solutions and rinses accordingly.

12.2 Environmental Hazards and Controls

12.2.1 Fatigue Management

Because Anchor QEA personnel may be working during both daytime and nighttime hours several days per week, depending on the activity, it is important that all personnel are aware of the hazards related to fatigue. Fatigue can be defined as an increasing difficulty in performing physical or mental activities. Signs of fatigue may include tiredness, changes in behavior, loss of energy, and reduced ability to concentrate. Fatigued workers may have a reduced ability to recognize or avoid risks on the work site, which may lead to an increase in the number and severity of injuries and other incidents. Fatigue can occur at any time when working and may cause safety concerns due to decreased manual dexterity, reaction time, and alertness.

Fatigue results from insufficient rest and sleep between activities. Contributing factors to fatigue may include the following:

- The time of day that work takes place
- The length of time spent at work and in work-related duties
- The type and duration of a work task and the environment (e.g., weather conditions and ambient noise) in which it is performed
- The quantity and quality of rest obtained prior to, during, and after a work period
- Non-work activities
- Individual factors such as sleeping disorders, medications, or emotional state

Personnel suffering from fatigue may exhibit both physical and mental effects, such as the following:

- Slower movements
- Poor coordination
- Slower response time to interaction
- Bloodshot eyes
- Slumped or weary appearance
- Nodding off
- Distractedness or poor concentration
- Inability to complete tasks
- Fixed gaze
- Appearing depressed, irritable, frustrated, or disinterested

Employees are strongly encouraged to get sufficient pre-work rest, maintain sufficient nutritional intake during work (i.e., eat and drink at regular intervals), and communicate with team members and leaders if their level of fatigue elevates.

Use the following procedures to help detect and address fatigue-related issues:

- Periodically observe and query coworkers for signs or symptoms of fatigue.
- Workers that express concern over their level of fatigue, or that are observed to be fatigued such that elevated worker risk is evident, will be relieved or their work tasks adjusted so that they may rest sufficiently.
- Work schedules will consider fatigue factors and optimize continuous periods available for uninterrupted sleep. The employee is responsible for reporting to work properly rested and fit for duty. In case of an emergency or operational difficulties (e.g., limited access due to water levels or boat repairs), work hours may require adjustment.
- Maintain a routine exercise program and regular sleep schedule as much as possible over the course of the work.
- Avoid heavy meals or caffeine and minimize or eliminate the consumption of alcohol and nicotine before sleeping.

12.2.2 Heat Stress

Observe the following general procedures and practices regarding heat stress:

- Increase the number of rest breaks and/or rotate workers in shorter work shifts.
- Watch for signs and symptoms of heat stress and fatigue (see Section 12.2.2.1).
- During hot months, plan work for early morning or evening.
- Use ice vests when necessary.
- Rest in cool, dry areas.

12.2.2.1 Signs, Symptoms, and Treatment

Adverse climatic conditions are important considerations in planning and conducting site operations. High ambient temperature can result in health effects ranging from transient heat fatigue, physical discomfort, reduced efficiency, personal illness, and increased accident probability, to serious illness or death. Heat stress is of particular concern when chemical protective garments are worn because they prevent evaporative body cooling. Wearing PPE places employees at considerable risk of developing heat stress.

Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, workload, and the individual characteristics of the worker. Because heat stress is probably one of the most common (and potentially serious) illnesses, regular monitoring and other preventive precautions are vital.

Heat Rash. Heat rash can be caused by continuous exposure to hot and humid air and skin abrasion from sweat-soaked clothing, rubber boots, or impermeable waders. The condition is characterized by a localized red skin rash and reduced sweating. Heat rash reduces the ability to tolerate heat. To treat, keep skin hygienically clean and allow it to dry thoroughly after using chemical protective clothing. Take measures to prevent heat rash by changing clothes often to maximize use of dry garments, or taking frequent breaks to allow doffing of equipment and drying of skin.

Heat Cramps. Heat cramps are caused by profuse perspiration with inadequate electrolytic fluid replacement. This often robs the larger muscle groups (stomach and quadriceps) of blood, which can cause painful muscle spasms and pain in the extremities and abdomen. To

treat, move the employee to a cool place and give sips of water or an electrolytic drink. Watch for signs of heat exhaustion or heat stroke.

Heat Exhaustion. Heat exhaustion is a mild form of shock caused by increased stress on various organs to meet increased demand to cool the body. Onset is gradual, and symptoms should subside within 1 hour. Symptoms include a weak pulse; shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; and fatigue. To treat, move the employee to a cool place and remove as much clothing as possible. Give sips of water or electrolytic solution and fan the person continuously to remove heat by convection. Do not allow the affected person to become chilled. Treat for shock if necessary.

Heat Stroke. Heat stroke is the most severe form of heat stress. The body must be cooled immediately to prevent severe injury and/or death. ***This is a medical emergency!*** Symptoms include red, hot, dry skin; a body temperature of 105°F or higher; no perspiration; nausea; dizziness and confusion; and a strong, rapid pulse. Because heat stroke is a true medical emergency, transport the patient to a medical facility immediately. Prior to transport, remove as much clothing as possible and wrap the patient in a sheet soaked with water. Fan the patient vigorously while transporting to help reduce body temperature. If available, apply cold packs under the arms, around the neck, or any other place where they can cool large surface blood vessels. If transportation to a medical facility is delayed, reduce body temperature by immersing the patient in a cool-water bath (however, be careful not to over-chill the patient once body temperature is reduced below 102°F). If this is not possible, keep the patient wrapped in a sheet and continuously douse with water and fan.

12.2.2.2 Prevention

The implementation of preventative measures is the most effective way to limit the effects of heat-related illnesses. During periods of high heat, adequate liquids must be provided to replace lost body fluids. Replacement fluids can be a 0.1% saltwater solution, a commercial mix such as Gatorade, or a combination of these with fresh water. The replacement fluid temperature should be kept cool, 50 to 60°F, and should be placed close to the work area. Employees must be encouraged to drink more than the amount required to satisfy thirst.

Employees should also be encouraged to salt their foods more heavily during hot times of the year.

Cooling devices such as vortex tubes or cooling vests can be worn beneath impermeable clothing. If cooling devices are worn, only physiological monitoring will be used to determine work activity.

All workers are to rest when any symptoms of heat stress are noticed. Rest breaks are to be taken in a cool, shaded rest area. Employees shall remove chemical protective garments during rest periods and will not be assigned other tasks.

All employees shall be informed of the importance of adequate rest and proper diet, including the harmful effects of excessive alcohol and caffeine consumption.

12.2.2.3 Monitoring

Heat stress monitoring should be performed when employees are working in environments exceeding 90°F ambient air temperature. If employees are wearing impermeable clothing, this monitoring should begin at 77°F. There are two general types of monitoring that the health and safety representative can designate to be used: wet bulb globe temperature (WBGT), and physiological. The Heat Stress Monitoring Record Form (see Appendix A) will be used to record the results of heat stress monitoring.

Note that some states, such as Washington and California, have specific regulatory standards for protection of employees from heat stress-related injuries.

Wet Bulb Globe Temperature. The WBGT index is the simplest and most suitable technique to measure the environmental factors that most nearly correlate with core body temperature and other physiological responses to heat. When WBGT exceeds 25 degrees Celsius (°C) (or 77°F), the work regiment described in Table 12-4 should be followed.

Table 12-4
Permissible Heat Exposure Threshold Limit Values

Work/Rest Regimen	Workload		
	Light	Moderate	Heavy
Continuous work	86°F (30.0°C)	80°F (26.7°C)	77°F (25.0°C)
75% work, 25% rest each hour	87°F (30.6°C)	82°F (28.0°C)	78°F (25.9°C)
50% work, 50% rest, each hour	89°F (31.4°C)	85°F (29.4°C)	82°F (27.9°C)
25% work, 75% rest, each hour	90°F (32.2°C)	88°F (31.1°C)	86°F (30.0°C)

Notes:
From OSHA Technical Manual, Section III: Chapter 4 - Heat Stress
These TLVs are based on the assumption that nearly all acclimated, fully-clothed workers with adequate water and salt intake should be able to function effectively under the given working conditions without exceeding a deep body temperature of 100.4°F (38°C).
°C = degrees Celsius
°F = degrees Fahrenheit
TLV = Threshold Limit Value

The TLVs denoted in Table 12-4 apply to physically fit and acclimatized individuals wearing light, summer clothing. If heavier clothing that impedes sweat or has a higher insulation value is required, the permissible heat exposure TLVs should be adjusted based on the WBGT Correction Factors in Table 12-5.

Table 12-5
Wet Bulb Globe Temperature Correction Factors

Clothing Type	WBGT Correction
Summer lightweight working clothing	32°F (0°C)
Cotton coveralls	28°F (-2°C)
Winter work clothing	25°F (-4°C)
Water barrier, permeable	21°F (-6°C)
Fully encapsulating	14°F (-10°C)

Notes:
°C = degrees Celsius
°F = degrees Fahrenheit
WBGT = Wet Bulb Globe Temperature

Physiological. Physiological monitoring can be used in lieu of, or in addition to, WBGT. This monitoring can be self-performed once the health and safety representative demonstrates appropriate techniques to affected employees. Because individuals vary in their susceptibility to heat, this type of monitoring has its advantages. The following two parameters are to be monitored at the beginning of each rest period:

- **Heart Rate** – The maximum heart rate (MHR) is the amount of work (beats) per minute a healthy person's heart can be expected to safely deliver. Each individual will count his/her radial (wrist) pulse for 1 minute as early as possible during each rest period. If the heart rate of any individual exceeds 75% of his/her calculated MHR (MHR = 200 - age) at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work until his/her sustained heart rate is below 75% of his/her calculated MHR.
- **Temperature** – Each individual will measure his/her temperature with a thermometer for 1 minute as early as possible in the first rest period. If the temperature exceeds 99.6°F at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work if his/her temperature exceeds 100.4°F.

12.2.2.4 Training

Employees potentially exposed to heat stress conditions will be instructed on the contents of this procedure. This training can be conducted during daily tailgate safety meetings.

12.2.3 Inclement Weather

Observe the following procedures and practices regarding inclement weather:

- Stop outdoor work during electrical storms (lightning strikes), hailstorms, high winds, and other extreme weather conditions, such as extreme heat or cold.
- Take cover indoors or in a vehicle.
- Listen to local forecasts for warnings about specific weather hazards such as tornadoes, hurricanes, and flash floods.

13 MEDICAL SURVEILLANCE PROGRAM

This section describes the medical surveillance program that Anchor QEA field personnel must comply with when working on sites where there is a potential for exposure to hazardous wastes or other hazardous substances.

13.1 General Requirements

Anchor QEA employees shall be enrolled in a medical surveillance program in compliance with OSHA standards (29 CFR 1910.120(f)) under the following circumstances.

- If they are involved with any of the following operations:
  - *Cleanup operations* required by a governmental body, whether federal, state, local, or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites (including, but not limited to, the USEPA's National Priority List [NPL] sites, state priority list sites, sites recommended for the USEPA NPL, and initial investigation of government-identified sites that are conducted before the presence or absence of hazardous substances has been ascertained)
  - *Corrective actions* involving cleanup operations at sites covered by the Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 United States Code 6901 et seq.)
  - *Voluntary cleanup operations* at sites recognized by federal, state, local, or other governmental bodies as uncontrolled hazardous waste sites
  - *Operations involving hazardous wastes* that are conducted at treatment, storage, and disposal facilities regulated by 40 CFR Parts 264 and 265 pursuant to RCRA or by agencies under agreement with the USEPA to implement RCRA regulations
  - *Emergency response operations* for releases of, or substantial threats of releases of hazardous substances without regard to the location of the hazard
- And, if they meet the following criteria:
  - Are or may be exposed to hazardous substances or health hazards at or above the established PEL, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more per year

- In addition, employees are required to be enrolled in the medical surveillance program if they meet any of the following conditions:
  - Wear a respirator for 30 days or more per year
  - Are injured, become ill, or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operations
  - Are members of a Hazardous Materials team

Anchor QEA employees required to be enrolled in a medical surveillance program under 29 CFR 1910.120(f) shall have medical examinations and consultations made available to them by Anchor QEA on the following schedule:

- Prior to assignment
- At least once every 12 months unless the attending physician believes a longer interval (not greater than biennially) is appropriate
- At termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last 6 months
- As soon as possible upon notification that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the PEL or published exposure levels in an emergency situation
- At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary

The content of medical examinations or consultations made available to employees shall be determined by the attending physician but shall include, at a minimum, a medical and work history with special emphasis on symptoms related to the handling of hazardous substances and health hazards, and to fitness for duty including the ability to wear any required PPE under conditions (i.e., temperature extremes) that may be expected at the work site.

The attending physician shall provide Anchor QEA with a written opinion for each examined employee that contains the following information:

- Whether the employee has any detected medical conditions that would place the employee at an increased risk of impairment of the employee's health from hazardous waste operations work, emergency response, or respirator use
- Any recommended limitations on the employee's assigned work
- A statement that the employee has been informed of the results of the medical examination and any medical conditions that require further examination or treatment

The written opinion obtained by Anchor QEA shall not reveal specific findings or diagnoses unrelated to occupational exposures. Medical surveillance and other employee-related medical records shall be retained for at least the duration of employment plus 30 years.

13.2 Crew Self-monitoring

All personnel will be instructed to look for and inform each other of any deleterious changes in their physical or mental condition during the performance of all field activities. Examples of such changes include the following:

- Headaches
- Dizziness
- Nausea
- Blurred vision
- Cramps
- Irritation of eyes, skin, or respiratory system
- Skin chafing from damp or wet clothing
- Changes in complexion or skin color
- Changes in apparent motor coordination
- Increased frequency of minor mistakes
- Excessive salivation or changes in papillary response
- Changes in speech ability or speech pattern
- Symptoms of heat stress or heat exhaustion
- Symptoms of hypothermia

If any of these conditions develop, the affected person will be moved from the immediate work location and evaluated. If further assistance is needed, personnel at the local hospital will be notified, and an ambulance will be summoned if the condition is thought to be serious. If the condition is the result of sample collection or processing activities, procedures and/or PPE will be modified to address the problem.

14 REFERENCES

ACGIH, 2012. 2*012 TLVs and BEIs*. Publication 0112.

Anchor QEA, LLC, 2016. *Draft Remedial Action Plan, Northwest Portion of East Basin Sediments*. September 2016.

DDHS (Department of Health and Human Services), 2007. NOISH Pocket Guide to Chemical Hazards. DDHS (NOISH) Publication No. 2005-149. Prepared by the Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupation Safety and Health. September 2007.

APPENDIX A
HEALTH AND SAFETY LOGS AND FORMS

APPENDIX B
JOB SAFETY ANALYSIS DOCUMENTS

APPENDIX C
MATERIAL SAFETY DATA SHEETS

ATTACHMENT D
EXPONENT MARCH 2017 TECHNICAL MEMORANDUM
NORTHWEST PORTION OF EAST BASIN

Site Locations

Former Tow Basin Facility
T10000002642
3380 North Harbor Drive
San Diego, California 92101

Lockheed Marine Terminal and Railway
T10000002323
1160 Harbor Island Drive
San Diego, California 92101

Prepared by

Anchor QEA, LLC
27201 Puerta Real, Suite 350
Mission Viejo, California 92691

March 2017

ATTACHMENT D
EXPONENT MARCH 2017 TECHNICAL MEMORANDUM

Exponent®
15375 SE 30th Place, Suite 250
Bellevue, WA 98007

March 2017

Feasibility Analysis of East Basin Remediation

Objective

Investigations at both the former Tow Basin and Lockheed Marine Terminal and Railway (LMT) sites have indicated elevated levels of chemicals in surface sediments, as well as indications of possible benthic community impairment at some stations (Haley & Aldrich and Weston 2011; TetraTech and Weston 2012). Mercury and PCBs have been identified by the San Diego Regional Water Quality Control Board (the Board) as elevated chemicals, possibly site-related (RWQCB 2013). A stressor identification conducted according to California Sediment Quality Objective (SQO) guidance was unable to clearly establish chemical causation for the observed impairment (Exponent 2013). Rather than continue to a higher tier of assessment at these sites, including analysis of possible food-web risks, a decision was made to evaluate the feasibility of remediation to reduce surface sediment concentrations to background levels. The following is a summary of the feasibility of remediation to background on a Surface-Area Weighted Average Concentration (SWAC) basis. The primary remedial alternative assessed is placement of a 6" sand cover over areas of elevated contaminant concentration to reduce surface sediment concentration and associated exposure, combined with limited dredging of areas with elevated surface and sub-surface mercury. The thickness of the cover was set to insure a concentration attenuation factor sufficient to achieve SWACs that will be at or below the target background levels.

Remedial Footprint Determination

Study Area

This analysis is for the combined former Tow Basin and LMT sites, forming a contiguous area of approximately 4 acres at the extreme northwestern end of the East Basin—a shallow, artificial impoundment, created by the manmade peninsula known as Harbor Island (Figure 1). The study area is bordered by rip-rap shoreline to the north and west (toe of the rip-rap slope), by the Sunroad Resort Marina (SRM) to the southeast, and by a line parallel to and equidistant from the 4th and 5th finger piers from the west end of the SRM. This study area is consistent

with the spatial extent and focus of all previous in-water investigations at the two constituent sites.

Concentration Analysis

All evaluations of sediment concentrations that follow are based on SWACs for surficial sediments (either 0 to 10 cm or 0 to 6 in., depending on the source study). SWACs have been determined using Thiessen polygon analysis. Thiessen polygons are defined by orthogonal lines drawn through the midpoints of lines connecting adjacent sample locations. In this way, each point on the map is associated with and presumed to be represented by the nearest sample location, without interpolation or averaging between samples. SWAC values for total PCBs and heavy metals with elevated concentrations have been calculated for the study area from existing data. Target SWAC concentrations are based on regional background values (see below).

Background Concentrations

In 2012, the background concentration of PCBs in San Diego Bay was adjudicated as 84 parts per billion (ppb) (see Order No. R9-2012-0024 and accompanying Technical Report for Shipyard Sediment Site [RWQCB 2012a, 2012b] and the Final CAO No. R9-2014-0085 for TDY; [RWQCB 2014]). The Board confirmed this as the appropriate background concentration for the Site in a memo dated September 16, 2015 (RWQCB 2015). Background concentrations for all sediment constituents assessed here are taken from the Shipyard Sediment Site CAO.

Study Area Data Sources

The SWAC analysis is based on a pool of all available surficial sediment chemistry data from the study area, and includes the following sources:

- 2010 Former Tow Basin SQO study surface grabs (5 stations)
- 2011 LMT SQO study surface grabs (3 stations, with 1 duplicate)
- 2011 LMT vertical extent piston-core samples, 0 to 6 in. interval (7 stations, with 1 duplicate).

Data compiled from these sources are shown in Table 1. Figure 2 is the Thiessen polygon map resulting from the station distribution of this composite data set.

Current chemical of concern (COC) SWAC calculations and ratios of SWAC to background 95th percentile upper prediction limits (UPLs) are shown in Table 2. The copper SWAC is currently at background, and the zinc SWAC is only slightly above the background UPL (ratio of 1.09). PCBs and mercury SWACs are clearly elevated relative to background UPLs (ratios of 1.87 and 1.73 respectively). Several alternative approaches were evaluated for reducing PCB and mercury SWACs, including a strict "hill-topping" approach (highest concentration polygons remediated first) for PCBs and mercury. The selected remedial footprint (Figure 3) is a combination approach that places a sand cover over the highest PCB polygons and dredges the area with highest mercury concentrations. The final dredge and cover footprints were straightened to form a contiguous, implementable design, resulting in the subdivision of several polygons between cover types. If a cover is designed such that surficial sediment concentrations are reduced by 75%, this footprint will reduce the SWAC for all COCs well below the background UPL values, with 15 to 40 percent safety margins (see Table 3). Since a large fraction of the site is being dredged and/or covered in sand, the SWACs immediately after remediation should be below background UPLs. There will then be some equilibration between remediated areas and natural attenuation areas as the sand cover settles and stabilizes, which may cause any single point concentration to vary up or down in the period immediately after the remedy. Post-remedial monitoring will then be required to demonstrate that SWACs are below background after a year of equilibration. The area of the sand cover is 6,517 m^2 (39% of the study area). The dredge area footprint covers 2,032 m^2 (12% of the study area).

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Table 1. Study Area Data

Station	PCBs (µg/kg)	Cu (mg/kg)	Hg (mg/kg)	Zn (mg/kg)
2010 Former Tow Basin SQO Data [a,c]				
SQO1	419.8	141.0	0.143	140.0
SQO2	132.8	140.0	0.496	205.0
SQO3	148.2	156.0	0.680	269.0
SQO4	306.9	285.0	0.692	390.0
SQO5	42.8	42.9	0.133	71.7
2011 LMT Data [b,d]				
LM1	268.9	205.0	0.807	263.0
LM2 Avg [e]	192.0	230.5	1.660	332.5
LM3	123.3	214.0	0.946	301.0
LM-C-1	41.2	23.9	0.485	38.4
LM-C-2	18.8	24.8	2.380	43.2
LM-C-3	25.4	27.8	0.211	49.8
LM-C-4	50.7	57.3	13.000	181.0
LM-C-5	126.9	212.0	1.190	328.0
LM-C-6 Avg [e]	25.6	23.3	0.428	44.6
LM-C-7	197.9	212.0	1.070	303.0

Data Sources and Notes:

[a] Haley & Aldrich and Weston 2011

[b] Tetra Tech and Weston 2012

[c] Total PCBs estimated from sum of congeners 44, 87, 99, 105, 110, 118, 128, 138 (or 138/158), 149, 151, 153, 156, 170, 177, 180, 183, 187, 194, 206, with 1.82 adjustment factor

[d] Total PCBs estimated from sum of congeners 8, 18, 28, 44, 52, 66, 101, 105, 118, 128, 138 (or 138/158), 153, 170, 180, 187, 195, 206, 209, with 1.72 adjustment factor

[e] Duplicate results averaged

Table 2. Current SWAC Calculations

Station	Polygon Area (m2)	Fraction of Total Area	PCBs (µg/kg)	[PCBs] x Area Product	Cu (mg/kg)	[Cu] x Area Product	Hg (mg/kg)	[Hg] x Area Product	Zn (mg/kg)	[Zn] x Area Product
2010 Former Tow Basin SQO Data										
SQO1	1,412.4	8.5%	419.8	592,929	141.0	199,150	0.143	202.0	140.0	197,737
SQO2	2,337.8	14.0%	132.8	310,460	140.0	327,292	0.496	1,159.5	205.0	479,249
SQO3	1,439.3	8.6%	148.2	213,302	156.0	224,528	0.680	978.7	269.0	387,168
SQO4	2,694.9	16.2%	306.9	827,072	285.0	768,053	0.692	1,864.9	390.0	1,051,020
SQO5	3,188.2	19.1%	42.8	136,457	42.9	136,775	0.133	424.0	71.7	228,597
2011 LMT Data										
LM1	899.0	5.4%	268.9	241,764	205.0	184,286	0.807	725.5	263.0	236,425
LM2 Avg [a]	132.9	0.8%	192.0	25,523	230.5	30,637	1.660	220.6	332.5	44,195
LM3	608.7	3.7%	123.3	75,041	214.0	130,271	0.946	575.9	301.0	183,232
LM-C-1	556.7	3.3%	41.2	22,931	23.9	13,304	0.485	270.0	38.4	21,375
LM-C-2	303.0	1.8%	18.8	5,699	24.8	7,515	2.380	721.2	43.2	13,091
LM-C-3	419.0	2.5%	25.4	10,650	27.8	11,648	0.211	88.4	49.8	20,865
LM-C-4	612.6	3.7%	50.7	31,049	57.3	35,099	13.000	7,963.2	181.0	110,872
LM-C-5	173.8	1.0%	126.9	22,056	212.0	36,847	1.190	206.8	328.0	57,009
LM-C-6 Avg [a]	1,587.8	9.5%	25.6	40,682	23.3	36,995	0.428	679.6	44.6	70,815
LM-C-7	300.1	1.8%	197.9	59,370	212.0	63,615	1.070	321.1	303.0	90,921
Totals	**16,666.2**	**100.0%**		**2,614,984**		**2,206,016**		**16,401.4**		**3,192,571**
SWAC			**156.9**		**132.4**		**0.984**		**191.6**	
Background [b]			**84.0**		**121.0**		**0.570**		**192.0**	
Ratio SWAC/Background			**1.87**		**1.09**		**1.73**		**1.00**	

Notes:

[a] Duplicate results averaged

[b] Reference pool 95%UPL from shipyard CAO

Table 3. Predicted Post Remedial SWAC Calculations

Station	Polygon Area (m2)	Fraction of Total Area	Current [PCBs] (µg/kg)	[PCBs] x Area Product	Current [Cu] (mg/kg)	[Cu] x Area Product	Current [Hg] (mg/kg)	[Hg] x Area Product	Current [Zn] (mg/kg)	[Zn] x Area Product
Sand Cover Area [c]										
2010 Former Tow Basin SQO Data										
SQO1	732.17	4.39%	419.8	76,841	141.0	25,809	0.14	26.2	140.0	25,626
SQO2	788.45	4.73%	132.8	26,177	140.0	27,596	0.50	97.8	205.0	40,408
SQO3		0.00%	148.2	0	156.0	0	0.68	0.0	269.0	0
SQO4	2,694.89	16.17%	306.9	206,765	285.0	192,011	0.69	466.2	390.0	262,752
SQO5		0.00%	42.8	0	42.9	0	0.13	0.0	71.7	0
2011 LMT Data										
LM1	648.74	3.89%	268.9	43,618	205.0	33,248	0.81	130.9	263.0	42,654
LM2 Avg[a]	82.83	0.50%	192.0	3,976	230.5	4,773	1.66	34.4	332.5	6,885
LM3	379.92	2.28%	123.3	11,708	214.0	20,326	0.95	89.9	301.0	28,589
LM-C-1	158.27	0.95%	41.2	1,630	23.9	946	0.49	19.2	38.4	1,519
LM-C-2	139.26	0.84%	18.8	655	24.8	863	2.38	82.9	43.2	1,504
LM-C-3	104.16	0.62%	25.4	662	27.8	724	0.21	5.5	49.8	1,297
LM-C-4	544.91	3.27%	50.7	6,905	57.3	7,806	13.00	1,770.9	181.0	24,657
LM-C-5	22.23	0.13%	126.9	705	212.0	1,178	1.19	6.6	328.0	1,823
LM-C-6 Avg[a]		0.00%	25.6	0	23.3	0	0.43	0.0	44.6	0
LM-C-7	221.44	1.33%	197.9	10,953	212.0	11,736	1.07	59.2	303.0	16,774
Sub-total	**6,517.2**			**390,595**		**327,015**		**2,790**		**454,487**
Dredge Area (DMMU-2) [d]										
2010 Former Tow Basin SQO Data										
SQO1	680.24	4.08%	419.8	57,140	141.0	82,309	0.14	387.7	140.0	130,606
SQO2		0.00%	132.8	0	140.0	0	0.50	0.0	205.0	0
SQO3		0.00%	148.2	0	156.0	0	0.68	0.0	269.0	0
SQO4	0.03	0.00%	306.9	3	285.0	4	0.69	0.0	390.0	6
SQO5		0.00%	42.8	0	42.9	0	0.13	0.0	71.7	0
2011 LMT Data										
LM1	250.22	1.50%	268.9	21,018	205.0	30,276	0.81	142.6	263.0	48,042
LM2 Avg[a]	50.09	0.30%	192.0	4,208	230.5	6,061	1.66	28.6	332.5	9,617
LM3		0.00%	123.3	0	214.0	0	0.95	0.0	301.0	0
LM-C-1	398.38	2.39%	41.2	33,464	23.9	48,204	0.49	227.1	38.4	76,490
LM-C-2	152.27	0.91%	18.8	12,790	24.8	18,424	2.38	86.8	43.2	29,235
LM-C-3	170.79	1.02%	25.4	14,346	27.8	20,665	0.21	97.3	49.8	32,791
LM-C-4	67.64	0.41%	50.7	5,682	57.3	8,185	13.00	38.6	181.0	12,988
LM-C-5	151.58	0.91%	126.9	12,733	212.0	18,341	1.19	86.4	328.0	29,103
LM-C-6 Avg[a]	65.26	0.39%	25.6	5,482	23.3	7,897	0.43	37.2	44.6	12,530
LM-C-7	45.06	0.27%	197.9	3,785	212.0	5,452	1.07	25.7	303.0	8,651
Sub-total	**2,031.6**			**170,651**		**245,819**		**1,158**		**390,060**

Table 3 (Cont.) Predicted Post Remedial SWAC Calculations

Uncovered Area										
2010 Former Tow Basin SQO Data										
SQO1		0.00%	419.8	0	141.0	0	0.14	0.0	140.0	0
SQO2	1,549.35	9.30%	132.8	205,753	140.0	216,909	0.50	768.5	205.0	317,616
SQO3	1,439.28	8.64%	148.2	213,302	156.0	224,528	0.68	978.7	269.0	387,168
SQO4		0.00%	306.9	0	285.0	0	0.69	0.0	390.0	0
SQO5	3,188.24	19.13%	42.8	136,457	42.9	136,775	0.13	424.0	71.7	228,597
2011 LMT Data										
LM1		0.00%	268.9	0	205.0	0	0.81	0.0	263.0	0
LM2 Avg[a]		0.00%	192.0	0	230.5	0	1.66	0.0	332.5	0
LM3	228.83	1.37%	123.3	28,208	214.0	48,969	0.95	216.5	301.0	68,877
LM-C-1		0.00%	41.2	0	23.9	0	0.49	0.0	38.4	0
LM-C-2	11.51	0.07%	18.8	216	24.8	286	2.38	27.4	43.2	497
LM-C-3	144.04	0.86%	25.4	3,661	27.8	4,004	0.21	30.4	49.8	7,173
LM-C-4		0.00%	50.7	0	57.3	0	13.00	0.0	181.0	0
LM-C-5		0.00%	126.9	0	212.0	0	1.19	0.0	328.0	0
LM-C-6 Avg[a]	1,522.52	9.14%	25.6	39,010	23.3	35,475	0.43	651.6	44.6	67,904
LM-C-7	33.58	0.20%	197.9	6,644	212.0	7,119	1.07	35.9	303.0	10,174
Tot	**16,666.2**	**100.0%**		**1,194,497**		**1,246,899**		**7,081**		**1,932,554**
SWAC			**71.7**		**74.8**		**0.42**		**116.0**	
Background[b]			**84.0**		**121.0**		**0.57**		**192.0**	
Ratio SWAC/Background			**0.85**		**0.62**		**0.75**		**0.60**	

Notes:

[a] Duplicate results averaged

[b] Reference pool 95%UPL from shipyard CAO

[c] Sand cover concentration reduction assumed to be 75%

[d] Post dredge concentration is assumed to be background

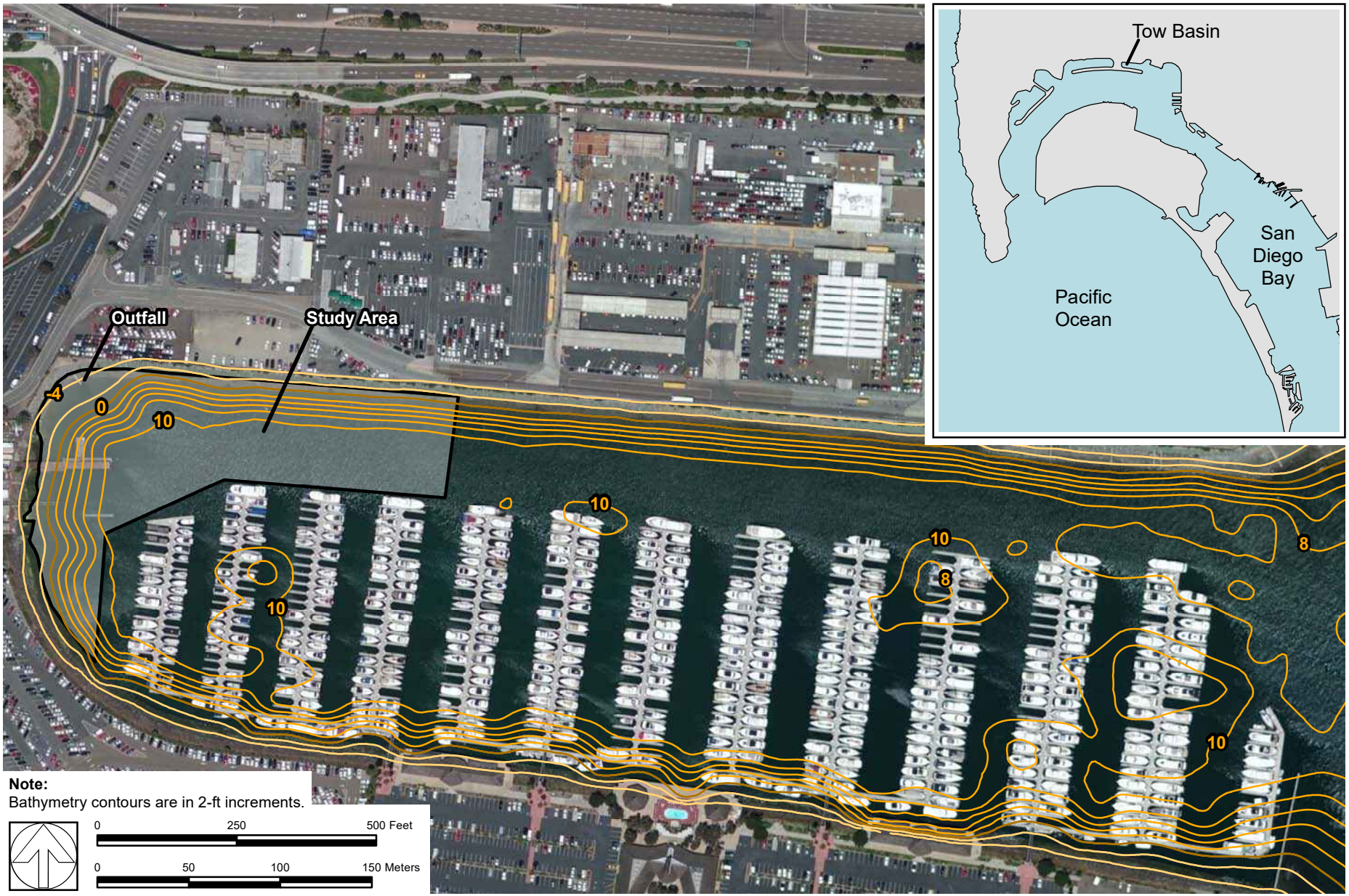

Figure 1. East Basin Bathymetry

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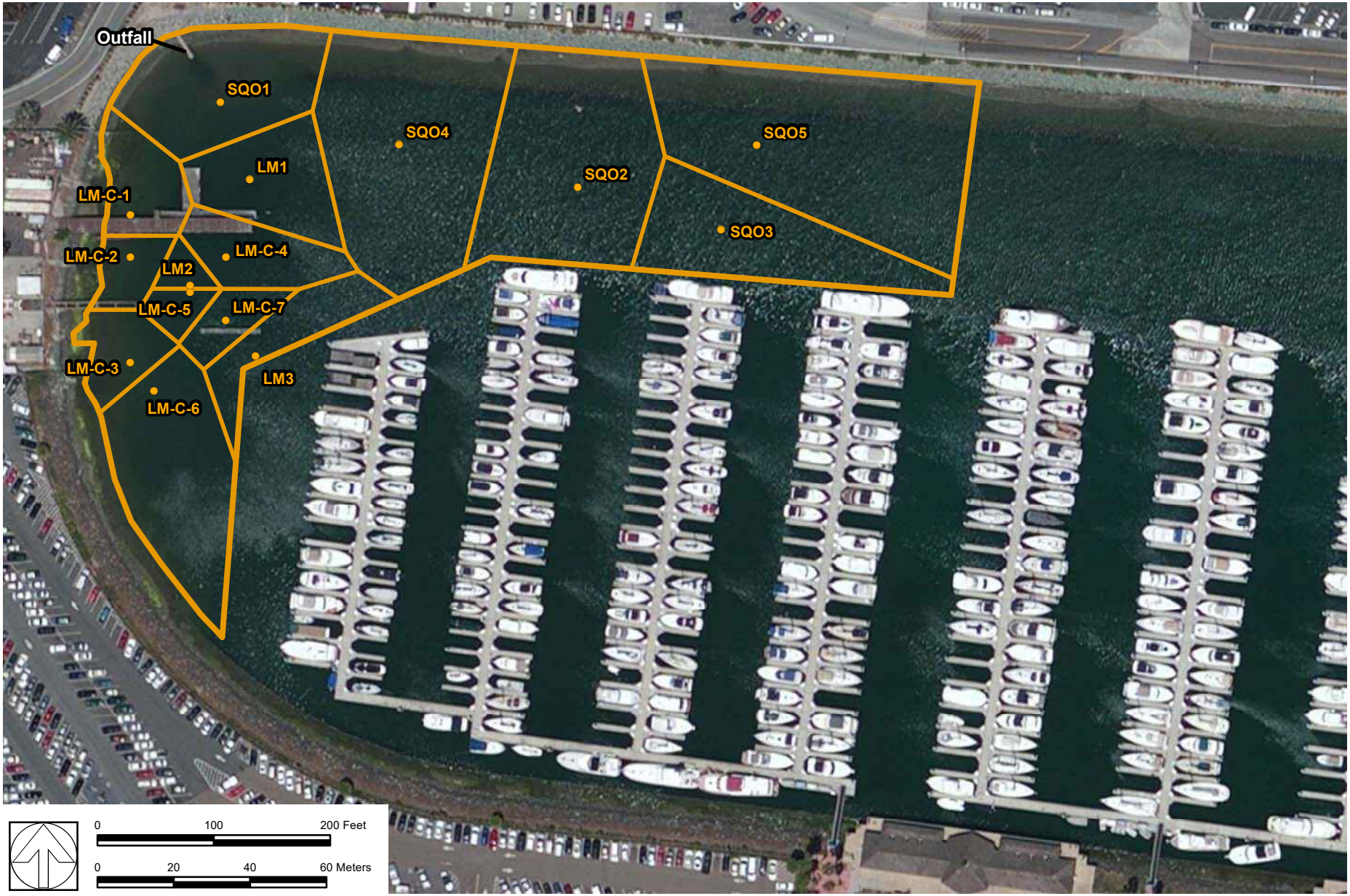

Figure 2. Thiessen Polygons

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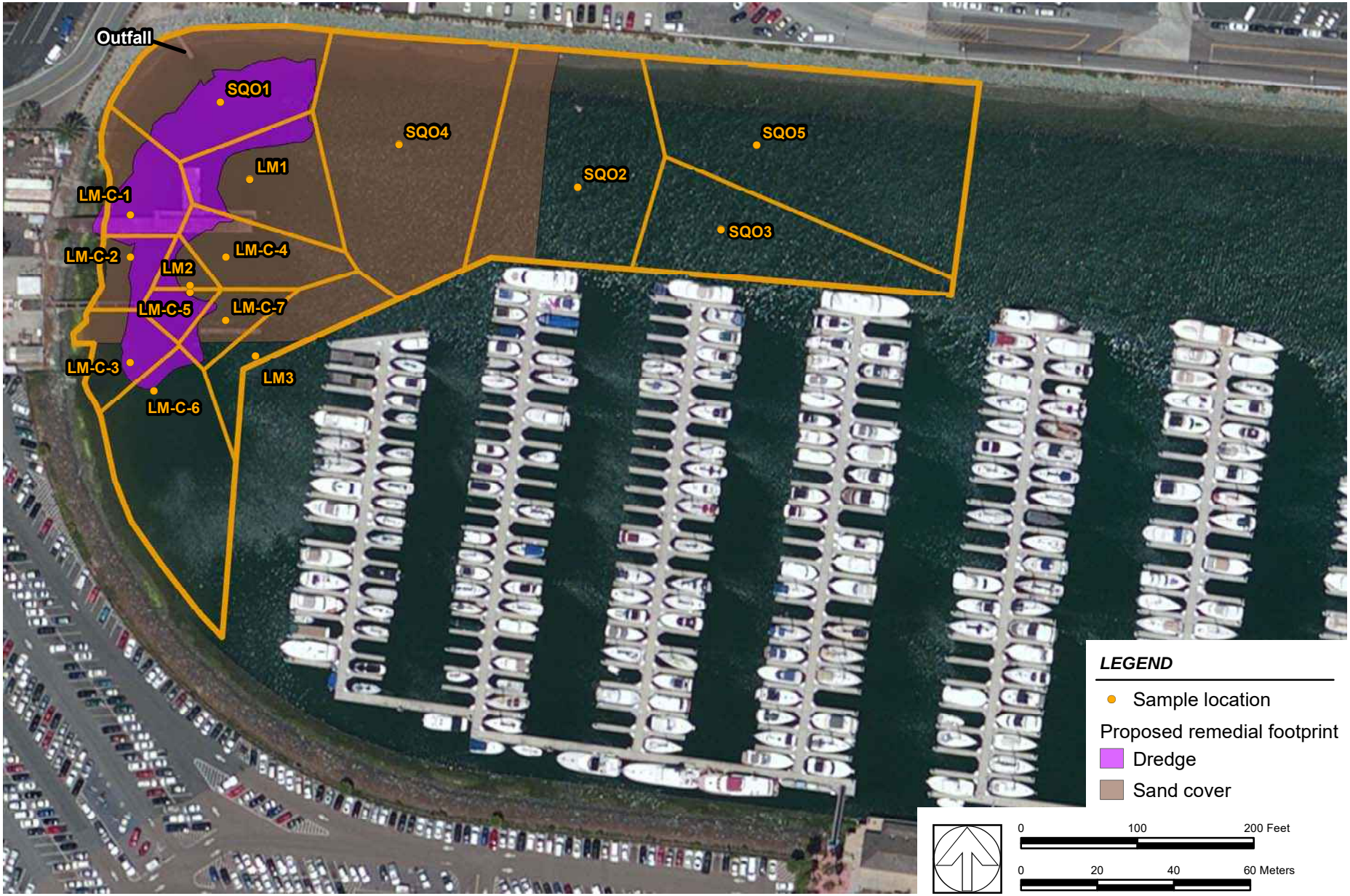

Figure 3. Proposed remedial footprints

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ATTACHMENT E
SAMPLING AND ANALYSIS PLAN

ATTACHMENT E
SAMPLING AND ANALYSIS PLAN
NORTHWEST PORTION OF EAST BASIN

Site Locations

Former Tow Basin Facility
T10000002642
3380 North Harbor Drive
San Diego, California 92101

Lockheed Marine Terminal and Railway
T10000002323
1160 Harbor Island Drive
San Diego, California 92101

Prepared by

Anchor QEA, LLC
27201 Puerta Real, Suite 350
Mission Viejo, California 92691

March 2017

ATTACHMENT E:
SAMPLING AND ANALYSIS PLAN
NORTHWEST PORTION OF EAST BASIN SEDIMENTS

Prepared by

Anchor QEA, LLC

27201 Puerta Real, Suite 350

Mission Viejo, California 92691

September 2016

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Figure 1 Site Plan and Sampling Location

LIST OF ACRONYMS AND ABBREVIATIONS

°C	degree Celsius
µg/kg	microgram per kilogram
CAO	Cleanup and Abatement Order
COC	contaminant of concern
DGPS	differential global positioning system
mg/kg	milligram per kilogram
MLLW	mean lower low water
PCB	polychlorinated biphenyl
ppb	part per billion
PPE	personal protective equipment
ppm	part per million
PSEP	Puget Sound Estuary Program
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RAP	Remedial Action Plan
SAP	Sampling and Analysis Plan
SWAC	surface-weighted average concentration
Site	Northwest Portion of East Basin Sediments
USEPA	U.S. Environmental Protection Agency

1 INTRODUCTION

This Sampling and Analysis Plan (SAP) is Attachment E to the Remedial Action Plan (RAP) and describes surface sediment sampling procedures associated with post-remedial monitoring within the East Basin of Harbor Island off shore of the Former Tow Basin and Lockheed Marine Terminal and Railway Sites, which will be referred to as the Northwest Portion of East Basin Sediments Site (Site; Figure 1). The RAP—by addressing elevated levels of site-related primary contaminants of concern (COCs) in the sediment (polychlorinated biphenyls [PCBs] and mercury) through active remediation—details a remedial option that targets the highest concentration areas to reduce site-related primary COCs to background concentrations as established by the Water Board (CAO; Water Board 2014). The RAP describes the process by which cleanup of the Site will be managed, designed, planned, implemented, and monitored in accordance with the CAO, and the remedial action is generally consistent with the U.S. Environmental Protection Agency's (USEPA's) National Contingency Plan. This SAP defines surface sediment sample collection methods to be used and a description of the analytical methods to be used, including an appropriate reference to each.

1.1 Post-remedial Monitoring

After the remediation work has been completed, a Final Cleanup and Abatement Completion Report will be prepared to verify completion of the remedial action. Once the San Diego Regional Water Quality Control Board staff determines that the RAP has been implemented, and the terms of the CAO have been achieved (other than post-remedial monitoring), the Final Cleanup and Abatement Completion Report will be approved. Chemistry sampling (for PCBs and mercury) will then be conducted approximately 1 year after sand cover is placed to ensure placement of the sand cover has achieved and maintained the target surface-weighted average concentration (SWAC) of 84 micrograms per kilogram (µg/kg) for total PCBs and 0.57 milligrams per kilogram (mg/kg) for total mercury (Table 1).

Table 1

Cleanup Objectives and Surface-weighted Average Concentrations

Primary COCs	Units (dry weight)	Pre-remedial SWAC	Targeted Post-remedial Area Concentrations[2]	Estimated Post-remedial SWAC [3]
Total Mercury	mg/kg	1.122	0.57	0.32
Total PCB Congeners[1]	µg/kg	147.3	84	50

Notes:
Table adapted from the San Diego Shipyard Site CAO (Water Board 2012).
µg/kg = micrograms per kilogram
COCs = contaminants of concern
mg/kg = milligrams per kilogram
PCB = polychlorinated biphenyl
SWAC = surface-weighted average concentrations
1 Total PCBs Congeners = sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206
2 Background as defined in the San Diego Shipyard Sediment Site CAO (Water Board 2012)
3 Post-remedial SWAC discussed in Section 2.1

If the post-remedial SWAC is greater than 84 parts per billion (ppb) but less than 169 ppb for total PCBs and greater than 0.57 parts per million (ppm) but less than 1.15 ppm for total mercury, then monitoring will be conducted again 4 years after the first sampling event to determine if natural attenuation (including sediment deposition) is continuing, such that the SWAC is approaching and will achieve background concentrations within a reasonable time. If the post-remedial SWAC is greater than 169 ppb for PCBs or 1.15 ppm for total mercury, then the Responsible Parties will submit a plan for additional actions needed to understand the Site conceptual model, including the possibility of post-remedial releases.

Surface samples will be collected from 15 stations of the locations used in the SWAC calculation (Figure 1) in and adjacent to the remedial footprint addressed by dredging and sand cover at the Site, and a site-wide SWAC will be re-calculated based on new data in the remedial footprint and existing data for stations outside the remedial footprint. The results of these analyses will be used to calculate a post-remedial SWAC to evaluate the post-remedial concentration compared with predicted performance across the area.

2 SURFACE SEDIMENT SAMPLE COLLECTION

This section describes the sediment sample collection activities as they pertain to post-remedial monitoring elements. As indicated in the Quality Assurance Project Plan (QAPP; Attachment B of the RAP), import material testing will be performed by the contractor and is also not included in this SAP. Station positioning, equipment, and laboratory analytical parameters are consistent for all sediment sampling methods.

2.1 Station Positioning

The objective of location control is to accurately determine horizontal and vertical positioning of sampling locations. To achieve this objective, each sampling location will be referenced to known survey control points using the methods described below.

The following parameters will be documented at each sampling location, if applicable:

- Location coordinates (California state plane, north zone, North American Datum 1983, international survey feet)
- Vertical elevation in feet National Geodetic Vertical Datum (mean lower low water [MLLW], including mudline and tidal elevation above mudline)
- Actual water depth
- Time and date
- Tidal elevation referenced to MLLW

These parameters will be measured using a differential global positioning system (DGPS), pre-surveyed, visual horizontal triangulation to known control points and/or landmarks on shore if necessary, and vertical control using weighted tape measures.

2.1.1 Differential Global Positioning System

Location control will be performed with a DGPS unit onboard the sampling vessel. DGPS coordinates for each sampling location will be recorded at the time of sampling.

2.1.2 Visual Horizontal Triangulation Methods

Visual horizontal triangulation methods will be used as a backup method to the DGPS. This system will use pre-surveyed markers and/or established on shore landmarks to determine sampling locations based on horizontal distances to survey control points and/or landmarks identifiable on base maps. Locations will be identified by measuring the horizontal distance from the actual sampling location to the known control point or landmark to the nearest foot using a tape measure. Horizontal measurements can be calculated from registered base maps to allow field measurements to be translated to state plane coordinates. Buoy markers may be used to mark the sampling location.

2.1.3 Vertical Control

The vertical control parameters measured will be depth to sediment (mudline) and tidal elevation. The depth to sediment will be measured during each sampling event using a hand-held weighted tape (lead line). The tape will be dropped from the work platform to the bottom, pulled taut, and read to the nearest 0.1 foot. This observation will be cross-checked against the onboard depth sounder.

Tidal readings will be taken periodically from a tide board installed on site and checked against daily tide charts for San Diego Bay. Tidal elevations and time will be monitored and recorded before each sample is collected to the nearest 0.1 foot. Sample elevations will then be corrected to MLLW.

2.2 Equipment List

The following general equipment will be required during sample collection procedures:

- Personal protective equipment (PPE), as required by the Health and Safety Plan (Attachment C to RAP)
- Navigation and site maps
- Camera
- Field notebook
- Aluminum-decked boat equipped with outboard motor
- Calibrated rod or ruler for sediment depth measurement
- Sampling device (van Veen grab or similar device)

- Weighted tape measure calibrated in 0.1-foot increments
- Decontamination supplies

2.3 Decontamination Procedures

Sample containers, instruments, working surfaces, technician protective gear, and other items that may come into contact with collected samples must meet high standards of cleanliness. All equipment that comes into contact with sampling media will be decontaminated prior to each day's use and between sampling locations. The decontamination procedure is as follows:

- Pre-wash rinse with site water
- Wash with solution of laboratory grade non-phosphate-based soap
- Rinse with site water
- Rinse three times with laboratory-grade distilled water
- Store in clean, closed container or wrap in aluminum foil for next use

Additionally, the laboratory will provide pre-cleaned and labeled sample containers.

2.4 Sample Identification

All sediment samples will be properly identified on their attached labels as well as in any forms or other documentation. All sample identifications will be consistent with the following identification scheme:

- The first two characters will be "EB" to identify the samples as East Basin samples.
- The next characters will identify the station location. Station location names will be determined during final preparation (e.g., NW).
- The next character will indicate whether the sediment sample is discrete ("D") or composite ("C").
- The next four characters will indicate the depth interval (in centimeters [cm]) of the sample:
  - 0005 (0 to 10 cm)
  - Or otherwise, per this numbering protocol
- The last six characters will indicate the sample date by YYMMDD.

For example, following this identification scheme, EB-NW-D-[Station ID]-D-0005-170607 indicates a discrete confirmatory sediment sample of the 0 to 10 cm interval collected at the Northwest Portion of the East Basin Sediments Site on June 7, 2017.

3 SAMPLE AND DATA COLLECTION METHODS

This section describes sampling methods and procedures specific for collecting and processing sediment samples and submitting samples for analytical analysis.

3.1 Sampling Methods

Sediment samples will be collected using van Veen methods. The project team will coordinate sample collection, sediment processing, and sample transport to the analytical laboratory. Samples will be collected at the locations identified on Figure 2.

3.1.1 Sample Acceptance Criteria

Sample acceptance criteria are listed below. If acceptance criteria are not achieved, the sample will be rejected and another collection attempt will be made.

The following are the sediment sample acceptance criteria:

- The van Veen penetrated to (and retained material to) the project depth.
- Sediment does not extend out of the top of the van Veen (not overfilled).
- Sediment surface is undisturbed.

In addition to photographic records, the following information will added to the field form:

- Sample recovery (recovered sediment depth relative to penetration depth)
- Physical soil description in accordance with the Unified Soil Classification System (soil type, density, color, etc.)
- Odor (hydrogen sulfide, petroleum, etc.)
- Presence of vegetation
- Presence of man-made debris (e.g., trash)
- Biological activity (shells, tubes, burrows, organisms, etc.)
- Presence and depth of the redox layer, if observed
- Depth and distinctness of geologic contacts, if observed
- Any other distinguishing characteristics or features

3.2 Sample Processing

Sediment processing will likely be conducted at an onshore processing area adjacent to the Site. For acceptable van Veen samples, the upper 10 cm will be removed (excluding sediments in contact with van Veen) and placed in a bowl for compositing. Samples will be offloaded from the sampling vessel and transferred to the onshore processing area. Sediment samples will be homogenized, labeled, and dispatched under chain-of-custody procedures to the analytical laboratory. Each container will be clearly labeled with the following information:

- Project name
- Sample identification number
- Type of analysis
- Date and time
- Initials of the person preparing the sample

This information will be recorded in the log book and on the chain-of-custody forms. Field quality control (QC) samples will also be documented and identified in the field logs. Following proper sealing and labeling, all sample containers will be placed on ice in a cooler and maintained at 4 degrees plus or minus 2 degrees Celsius (°C) during storage and transported to the analytical laboratory.

4 CHEMICAL ANALYSIS

Sediment samples will be analyzed for total PCBs and total mercury. The specific list of individual PCBs to be analyzed is noted in Table 1. Conventional analytes such as grain size, total organic carbon, and total solids will also be analyzed.

5 ANALYTICAL METHODS

All laboratories for this study will have established protocols and quality assurance (QA) procedures that meet or exceed any applicable USEPA or ASTM guidelines. A description of analytical methods to be used and an appropriate reference for each is provided in the subsequent subsections (Table 2).

5.1 Sediment Monitoring

5.1.1 Polychlorinated Biphenyl Congeners

PCB congeners will be analyzed by USEPA Method 8082. Samples will be extracted using sonication (USEPA Method 3550C). Sample extracts will be cleaned using sulfuric acid and, if necessary, potassium permanganate (USEPA Method 3665A). Additional cleanup procedures (e.g., gel permeation chromatography or Florisil column chromatography) will be used if necessary to remove interferences from the sample extracts. The surrogate hexabromobiphenyl will be used rather than decachlorobiphenyl to avoid potential coelution of PCB congeners with the surrogate. 2,4-Dibromobiphenyl will be used for the internal standard. Analyses for PCB congeners will be completed by simultaneous dual-column gas chromatography with electron capture detection. The temperature program will be modified and the run time extended to allow better separation of individual congeners. Calibration standards, laboratory control samples, and matrix spike/matrix spike duplicate spiking solutions will include all congeners of interest. A five-point initial calibration will be completed for each congener.

5.1.2 Mercury

Analyses for mercury in sediments will be completed by cold vapor atomic absorption (CVAA) spectrometry using USEPA Method 7471A or will be completed by cold vapor atomic fluorescence spectrometry (CVAFS) using USEPA Method 1631, Revision E (USEPA 2002).

5.1.3 Conventional Analytes

Total organic carbon and grain size will be completed according the 1986 Puget Sound Estuary Program (PSEP; PSEP 1986) guidelines.

Table 2
Analytical Methods

Analytes	Method
Title 22 Metals (Mercury)	USEPA Method 6010B/7471A
PCBs	USEPA Method 8082

Notes:
PCBs = polychlorinated biphenyls
USEPA = U.S. Environmental Protection Agency

6 DOCUMENTATION, SAMPLE HANDLING, AND CHAIN-OF-CUSTODY PROCEDURES

This section outlines the requirements for documentation, sample handling, and chain-of-custody procedures related to sample collection.

6.1 Documentation

Field activities and samples must be properly documented during the sample collection process. Documentation of field activities provides an accurate and comprehensive record of the work performed sufficient for a technical peer to reconstruct the day's activities and provide certification that all necessary requirements were met. General requirements include:

- Use of a field activity log to formally document activities and events. The field activity log can be a standard or project-specific form or a bound field book. Pre-printed standard forms are available for many activities and should be used whenever possible. These forms will provide prompts and request additional information that may be useful and/or needed. Project-specific field forms may be generated or existing forms may be modified to meet specific project needs. As required, client-supplied forms may be substituted.
- Appropriate header information documented on each page, including project name, project number, date, weather conditions, changes in weather conditions, other persons (if any) in the project team, and author. The specific information requested depends on the nature of the work being performed and on the form being used. Information fields that are not applicable should be noted "N/A" or with other appropriate notations.
- Field documentation entries using indelible ink.
- Legible data entries. A single line should be drawn through incorrect entries and the corrected entry should be written next to the strikeout. Strikeouts are to be initialed and dated by the originator.
- Applicable units of measurement with entry values.
- Field records maintained in project files unless otherwise specified by a client or stipulated by a contract.

6.1.1 Documentation Entries

A chronology of field events will be recorded. General entry requirements include:

- Visitors to the Site, including owner and regulatory representatives
- Summary of pertinent project communications with the client, regulators, or other site visitors
- Other contractors working at the Site
- A description of the day's field activities, in chronological sequence using military time notation (e.g., 9:00 am is 0900, and 5:00 pm is 1700)
- If applicable, calibration of measuring and test equipment, identification of the calibration standard(s), and use of a calibration log, if available, with cross-reference entered into the field book
- Field equipment identification, including type, manufacturer, model number, or other specific information
- General weather conditions, including temperature, wind speed, and direction readings, including time of measurement and units
- Safety and/or monitoring equipment readings, including time of measurements and units
- Reference in the field notebook to specific forms used for collection of data, if applicable
- Subcontractor progress and/or problems encountered
- Changes in the scope of work
- Other unusual events

6.1.2 Specific Requirements

6.1.2.1 Sample Collection

Sample collection data will be documented in a bound field book and/or on a sample collection form. Where both are being used, information contained in one is cross-referenced to the other. Entries requirements include:

- Sample identification number, location taken, depth interval, sample media, sample preservative, collection time, and date
- Sample collection method and protocol

- Physical description of the sample (standard classification system for soil)
- If a composite sample, the sample's make up, including number and location of samples incorporated
- QC-related samples collected (e.g., duplicates, blinds, trip blanks, field blanks)
- Container description and sample volume
- Length and depth intervals of each core section and estimated recovery for each sediment sample, as measured in MLLW
- Pertinent technical comments
- Location of each station, as determined by DGPS
- Elevation of each station sampled, as measured in MLLW
- Names of field supervisor and person(s) collecting and handling the sample
- Observations made during sample collection, including weather conditions, currents (if any), ship traffic, and other relevant field conditions
- Descriptions of apparent resistance of sediment column to sampling (i.e., sediment density and coring conditions)
- Any deviation from the approved SAP

6.1.2.2 Sample Labeling

Sample labels must be prepared and attached to sample containers. Labels will either be provided by the laboratory performing the analyses or will be generated internally. The information to be provided includes:

- Sample identification number
- Sample date and collection time
- Physical description of the sample (e.g., water, solid, gas)
- Analytical parameters
- Preservatives, if present
- Sampling location
- Client

6.2 Sample Handling

Sample handling procedures include correctly labeling and packing all sample containers prior to transport for laboratory testing. Sample containers will be obtained from the

analytical laboratory. Each container will be labeled appropriately with all relevant information, including at a minimum:

- Sample type
- Project number and site name
- Sample identification number
- Date and time
- Initials of the person preparing the sample

Samples will be stored and shipped in a properly packed container at 4°C. All samples will be delivered to the laboratory as soon as possible after the time of collection to facilitate a fast turnaround time.

6.3 Chain-of-Custody Procedures

An important component of data collection is the ability to demonstrate that samples were obtained from the stated locations and that they reached the laboratory or archive without alteration. Evidence of collection, shipment, laboratory receipt, and laboratory custody until disposal or archive must be properly documented. Documentation will be accomplished through the use of a chain-of-custody form that documents each sample and identifies the individuals responsible for sample collection, shipment, and receipt. A sample is considered in custody if at least one of the following criteria is met:

- The sample is in a person's actual possession
- The sample is in unobstructed view, after being in the person's actual possession
- The sample is locked and only accessible by the custodian after having been in the person's actual possession
- The sample is in a secured area, restricted to authorized personnel (e.g., laboratory)

A laboratory typically will not accept samples for analysis without a correctly prepared chain-of-custody form. The chain-of-custody form must be signed by each individual who has the sample in his or her custody. A chain-of-custody form is to be prepared for each sample shipped to the laboratory for analysis. Information on this form correlates with other supporting documentation, including sample labels and sample collection logs.

The chain-of-custody form accounts for the elapsed time and custodians of the sample from the time of its collection. The individuals who have physically handled the sample or witnessed initial sample collection and packaging (e.g., a project team member) must be identified on the form. A project team member relinquishes the sample by signing the chain-of-custody form. Individuals who either relinquish or receive samples must include their complete names, company affiliation, and the date and time the samples were relinquished and received. The times that the samples are relinquished and received by the next custodian should coincide, except for transfer by commercial carriers. Commercial carriers will not be required to sign the chain-of-custody form.

If a sample is to be stored for a period of time (e.g., overnight), measures are to be taken to secure the sample container in a manner that provides only the custodian of record with access. If samples are relinquished to a commercial carrier (e.g., UPS or Federal Express), the carrier waybill number will be recorded and a copy of the waybill will be attached to the chain-of-custody form. The original chain-of-custody form is sealed inside the shipping container with the samples. Extra copies of all documents will be maintained with other field documentation.

If a correction is made to the chain-of-custody form, the correction should be made by the originator of the change, who will draw a single line through the error, initial and date the correction, and if necessary, provide an explanation of the change. The documentation should have sufficient detail to clearly document the change to a third-party reviewer.

7 QUALITY ASSURANCE AND QUALITY CONTROL REQUIREMENTS

All analyses described in this SAP will be conducted in accordance with the standard QA/QC procedures. Analytical instruments will be maintained and calibrated regularly. Log books will be maintained for major field and laboratory instrumentation to document servicing, maintenance, and instrument modification.

7.1 Analytical Chemistry

The type and frequency of QA/QC samples analyzed by the laboratory will be according to the specified analytical method. Necessary corrective actions will be taken to address problems, according to the guidelines for a particular method. All corrective actions will be reported, along with any deviations from standard protocols.

Results of all laboratory QA/QC analyses and anything that might affect the integrity of the results will be reported. Any deviations from the standard testing guidelines, QA/QC limits, and acceptability criteria will be reported, including a discussion of their effect on data validity. All datasheets will be checked to ensure that test conditions are within the protocol specifications, and project data will be reviewed to determine their usability for making suitability determinations.

8 WASTE MANAGEMENT PLAN

This waste management plan presents the procedures that will be used to properly dispose of field-generated waste from the field work associated with sediment samples.

All disposable sampling materials and PPE used in sample processing (e.g., disposable coveralls, gloves, and tubing) will be placed in heavyweight garbage bags or other appropriate containers. Disposable materials will be placed in an on-site refuse container for disposal at a solid waste landfill.

9 REFERENCES

PSEP (Puget Sound Estuary Program), 1986 (with updates in 1989, 1991, 1995, and 1997). *Recommended Protocols for Measuring Conventional Sediment Variables in Puget Sound*. Prepared for the Puget Sound Estuary Program, U.S. Environmental Protection Agency, Region 10, Office of Puget Sound, Seattle, Washington.

USEPA (U.S. Environmental Protection Agency), 2002. Method 1631, Revision E: *Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry*. USEPA/821/R-02-012. USEPA, Office of Water.

Water Board (San Diego Regional Water Quality Control Board), 2012. Cleanup and Abatement Order R9-2012-0024 for the Shipyard Sediment Site. March 14, 2012.

Water Board, 2014. Tentative Cleanup and Abatement Order R9-2014-0085 for the TDY Site. August 2014.

FIGURES

EXHIBIT D

March 2017
San Diego, California

Lockheed Martin Marine Terminal Demolition Draft Work Plan

Prepared for
Lockheed Martin Corporation
100 South Charles Street, Suite 1400
Baltimore, MD 21201

This Draft Work Plan is comprised of information provided by Pacific National Group and R.E. Staite Engineering, Inc under contract to Lockheed Martin Corporation (LMCO). Specifically, this information was taken directly from the Documents for Application – LMCO Marine Terminal Demolition dated December 8, 2015 which includes a Narrative for LMCO Marine Terminal Demolition (Pacific National Group, December 15, 2015) and Marine Terminal Demolition Plan (R.E. Staite Engineering, Inc., December 14, 2014). This Work Plan will be updated as permitting/approvals and contracting for the Marine Terminal Demolition are finalized

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Figure 1 - Plan sheet C1.2

1 Overview

The Lockheed Martin Corporation (LMCO) Marine Terminal is located at 1160 N Harbor Island Dr. and involves the removal of the 5500 sq. ft. building, 165 ft. pier and a rail way and all support structures that extend into the bay. Removal also includes all site concrete, asphalt paving & utilities back to the source. Currently the building is unoccupied. The building was constructed in 1966 as a maintenance facility for deep water submersible. All work will be performed in accordance with applicable permits and approvals.

This Work Plan is divided into Upland and In-Water Demolition sections

2 Upland Demolition

2.1 Safety

LMCO and their Contractors are committed to ongoing worker and public safety. Worker on land safety measures will include PPE for all personal on site. Additionally any lifting by crane will require a dedicated spotter. Proper protection for all cutting, torching, breaking tasking will be mandatory. Job site hazard analysis will be performed daily by the site Superintendent. Weekly safety meetings will be held on site. Specific requirements are needed for in water work safety and will be documented in a Construction Health and Safety Plan.

Public will not be allowed on site. Site will remain fenced for the duration of the work.

2.2 Hazardous Material Removal

The building contains small amounts of both ACM flooring and lead based paint. See ACM report prepared by Allstate Services dated Feb. 20, 2012 and lead based paint report prepared by Allstate Services dated Feb. 20, 2012. Abatement of all ACM and lead paint will take place prior to any other demolition activities.

Currently it is unknown if soil is contaminated with any hazardous material or chemicals. There are currently 3 monitoring wells on the site. Those wells will remain undisturbed unless it is determined by the Authority having jurisdiction that they can be removed. Should it be determined that the soil is to be removed an amended plan will be submitted.

2.3 Building & Utility Removal

Building will be torn down using conventional methods. Power will be removed back to the SDGE transformer vault on site. Site gas will be removed to nearest valve box which is located in the pavement just outside the gate on the west side. Fire sprinkler water will be capped 6" above grade on the property unless another shut off valve can be located near the entrance to the property. Sewage tank and associated piping to the tank will be removed in its entirety. If an outlet to the tank that ties to the City's sewer system it will be capped at or near the property line. Water will be removed back to the back flow preventer on site. That will become the water supply for the irrigation of the grass/ plants.

2.4 Upland Site Work

The existing concrete and asphalt paving will be removed completely with the exception of a retaining wall just above the shore protection. The retaining wall will allow the site to be graded in such a way that slopes will be shallow to allow storm water to be absorbed and minimize erosion.

The existing mature trees will be left undisturbed. A rough grading plan is included with this application please refer to plan sheet C1.2 for additional information.

2.5 Solid Waste Disposal

Solid waste will be sent to various locations based on the type of material. It's estimated that amount of concrete removed will be 700 tons which is 100% recycled, this includes both land and in water amounts. Asphalt is estimated to be 770 tons which will be 100% recycled. Steel and other misc. metals are estimated to be 25 tons which will be all recycled. Mixed construction debris is estimated to be 115 tons and will be 50% recycled. Overall recycled amount by weight will be over 80%. Truck trips are estimated to be 170.

Landfill / recycling

- Ennis Inc. Lakeside Ca. – Concrete
- Vulcan Inc. Miramar Ca. - Asphalt
- Allan Recycling Miramar Ca.– Steel and Misc. metals
- EDCO Transfer Lemon Grove Ca.- Mixed C & D

2.6 Erosion Control

Erosion control measures during construction are shown on plan sheets EC1 and EC2. These include slit fences and measures to keep stockpiled debris from being transported by wind or water.

2.7 Shore Protection

The existing shore line is protected from erosion by rip rap permanently installed at the water's edge. We intend to leave the existing shore protection undisturbed. The existing concrete spillways will also remain and the site will be graded so that the excess water from storm events is directed to those spillways

2.8 Final Condition of Project

When all building, piers and hardscape have been removed an irrigation system will be installed and grass planted on the site. The Irrigation system will have manual valve(s) due to the lack of on-site power. It will be the responsibility of the Port of San Diego to schedule a maintenance crew to water the grass at levels appropriate to keep the grass alive and thriving.

3 In-Water Demolition

This Demolition Work Plan (Plan) was prepared for LMCO. The Contractor will be responsible for implementation of this Plan which will be reviewed by the Engineer/ Owner prior to the start of work. An updated copy this Plan will be kept on site always throughout construction.

This Demolition Plan specifically addresses the following activities:

1. Worker Safety
2. Protection of the public
3. Work sequence and schedule
4. Protection of the environment
5. Material identification, indicating anticipated types and quantities (by weight) of materials to be salvaged, recycled and disposed of properly. It also indicates whether materials will be sorted on site or co-mingled.
6. Major equipment including, cranes, barges, vessels, trucks and excavators to be used for demolition and hauling activities.
7. Off-site disposal sites for each classification of demolition and debris materials.
8. Floating containment boom details.

3.1 Worker Safety

LMCO and their Contractors are committed to providing a safe work environment for all personnel involved with the project. Demolition work involves many of the same hazards that arise during other construction activities. However, there may be increased hazards due to the nature of the demolition work. Personnel can be exposed to sharp or protruding objects, unstable footing with potential for slips, trips and falls and there is additional fall risk when working over the water. LMCO will require all personnel working over the water to wear personal flotation devices (PFD's). Additional Personal Protective Equipment (PPE) will be used on operation of specific tasks. For example, proper eyewear, face shields and gloves will be used when cutting, grinding and torching. Contractor personnel are trained to use the proper tools for the job and will be provided with such tools for safe operation. Crane pick planning will be implemented and communicated to all personnel prior to making heavy crane picks. Tag lines will be used to control suspended loads and personnel will be clear from underneath suspended loads prior to picking.

The Contractor will hold weekly onsite safety meetings to discuss job/operation specific risks. These meetings allow the crew to develop mitigation measures that need to be implemented to minimize identified hazards. These safety meetings also provide an open forum for various tool trainings and discussions. All work will be conducted in accordance with the HASP.

3.2 Protection of the Public

LMCO facilities are closed to members of the public; therefore, this plan is focused on other construction/demolition workers. The Contractors commitment to safety is expected to not stop with project personnel. Our commitment to safety translates to keeping safe the Lockheed Martin Marine facilities, subcontractors and all other workers on the site as well. Prior to beginning the demolition activities, a temporary safety/construction zone may be established as necessary to protect all onsite-workers from potential safety hazards. This zone will be a minimum radius of the swing of the crane and may extend further based on the activity being conducted. Entry into this zone is prohibited unless authorized by the Contractor's Health and Safety representative. This delineated area will limit access to the public and ensure that only personnel directly related to the demolition operation are in the area. Additionally, designated spotters or ground attendants will be used when making crane picks to communicate the travel and direction of suspended loads.

3.3 Work Sequence and Schedule

3.3.1 Pier Demolition

The demolition of concrete pile supported timber Pier will occur in tandem with the marine railway demolition. The demolition may occur in two phases. The first phase includes the demolition and disposal of the outer two thirds of the timber pier, with the second phase consisting of the demolition and disposal of the remaining portions of the pier (closer to the shoreline).

Prior to demolition activities, a site inspection will be conducted to identify hazards which may require abatement. Pipe, wire and other utility appurtenances will be removed and recycled as applicable. As part of this inspection, the Contractor will verify the dimensions, layout and details of the existing structure and bring any discrepancies or potential conflicts to the attention of the General Contractor/ Owner. If any abandoned conduits and utilities are encountered in this inspection, the Contractor will coordinate the disconnection of these items with the LMCO and their represenatatives.

The demolition of the Pier may be performed in the following sequence:

1. Confirm all utilities are out of service.
2. Set up containment boom and debris catchments.
3. Remove deck section.
4. Remove pile caps.
5. Remove pile.

6. Final cleanup.

The deck sections and other demolition debris may be placed onto an adjacent material barge then brought onshore at the Lockheed Martin marine facility on Harbor Island for further disassembly. In doing so, the risk of debris entering the Bay will be reduced. Additional measures will be implemented to prevent runoff and debris from entering the Bay such as performing the pier section disassembly in contained areas with fiber rolls and plastic lining to catch debris before it falls into the Bay.

Pilings will be removed using equipment staged on a barge and or from the landside. Removed pilings and other material will likely be placed on a barge for staging and handling for transport and disposal. While use of vibratory extraction is the preferred method to remove pilings, it is recognized that some of the piles may break and may need to be cut at or near the dredge elevations due to the deteriorated condition. Broken and damaged pilings that cannot be removed by either the vibratory hammer or direct pull may be removed with either a clamshell bucket or environmental clamshell in deeper areas. If the pile breaks at or near the existing substrate and cannot be removed by those or other methods, with the Port District's consent (which shall not be unreasonably withheld or delayed) and upon terms mutually agreed, the piles may be cut at an elevation that will not interfere with reasonably anticipated future uses.

3.4 Marine Rail Ways Demolition

The Contractor will remove the marine railway system. The marine railways will be removed in the following sequence:

1. Remove rails and caps
2. Remove pile

Similar to the Pier demolition, demolition debris may be loaded onto an adjacent material barge for recycling/disposal.

3.5 Demolition Schedule

As stated above, the in-water and over-water demolition activities will occur concurrently following the Least Tern nesting season – typically April 1 through September 15.

3.6 Equipment

The Contractor's floating equipment spread is capable of performing the required demolition, material storage and offloading activities. The following are a few examples of our equipment fleet made up of floating cranes and material barges that can be utilized for this project. Pile removal equipment may include:

1. jet pumps,

2. vibratory hammer, or
3. heavy clamshell bucket.

3.7 Protection of the Environment

To ensure that the in-water demolition activities do not impact the Bay, the following practices, consistent with all required permits and approvals and will be used in the demolition and other operations:

1. Deployment of booms around structures being demolished.
2. When pier demolition is occurring; large floats will be placed under the pier to catch any debris that could otherwise fall into the Bay.
3. During sawing operations, large plastic sheets will be attached to the pier deck to avoid debris (wood, slag, cutting torch sparks, etc.) from falling into the Bay.
4. During debris handling the Contractor will not allow material to pile up on the deck barge and flow or slip from the barge back into the water. The crane operator shall visually monitor for debris build-up and alert the support personnel on the barge to assist in clearing debris as necessary.
5. The demolition area will be cleaned on a daily basis.

3.8 Material Identification and Disposal

3.8.1 Debris Removal

Debris from the marine railway will be brought to the surface by a heavy clamshell bucket.

Any debris will be lifted off the Bay bottom and placed onto an adjacent deck barge. Once the marine railway debris removal has been completed, the barge will be transported to the Lockheed Martin Harbor Island shoreside marine facility. Once onshore, the debris will be placed in a separate containment area to prevent discharge into the Bay.

The containment area will be lined, bermed and large enough to sort the debris. The debris will be sorted according to its general classification and will be disposed of according to Tables 1 and 2. Any material that may be recycled will be segregated and recycled at an appropriate facility, which are also listed in Tables 1 and 2.

Treated wood debris will be handled under the Alternative Waste Management regulations.

Some debris may require hazardous waste disposal such as batteries. If these materials are encountered, they will be segregated from non-hazardous waste. The Contractor will work cooperatively with LMCO representatives to handle these aspects of waste removal should they arise.

3.9 Unidentified Debris

Given the long, industrial history of San Diego Bay, it is likely that additional bay-bottom debris will be encountered during the demolition activities. The debris that may be encountered during demolition activities will be identified, sorted, removed and separated. Once the debris is separated, the Contractor will arrange for proper disposal in accordance with Table 2. Measures will be taken to prevent discharges to the Bay such as: drip catchers, plastic sheeting, fiber rolls and administrative controls.

As stated above, debris (both known and unknown) and demolition material will be sorted according to general classification. Anticipated quantities of demolition debris and the anticipated disposal sites are shown on Table 1. The anticipated debris categories and anticipated disposal sites for known and unknown debris is presented on Table 2.

Table 1
Pier/Marine Railway Identification and Disposal

Anticipated Debris	Anticipated Quantities (tons)	Anticipated Disposal Site
Timber Decking	20 to 25	Otay Landfill
Concrete Piles	200 to 225 (length dependent)	Ennis, Inc.; Lakeside Land Company, Inc.;
General construction debris	5 to 10	Otay Landfill
Recyclable Material – Steel Rails	5 to 10	SA Recycling; SOS Metals, Inc.;

Table 2
Debris Identification and Disposal

Anticipated Debris	Anticipated Disposal Site
Recyclable material	SA, SOS, Lakeside, Ennis
General Construction Debris	Otay Landfill
Alternative Waste Management (timber decking)	Otay Landfill

3.10 Floating Containment Boom Details

The Contractor will deploy and maintain a floating containment boom during the demolition and debris removal activities. Any material that inadvertently falls into the water will be removed on an ongoing basis during all hours of operation and prior to stopping work on each given day. Breaches in the containment boom will be immediately repaired. The Contractor will notify the General Contractor / Owner by the fastest means possible of breeches that spill reportable quantities into the Bay.

The boom will be deployed and encapsulate all areas where demolition is taking place. This boom system will be constantly maintained and monitored to ensure that it is in good working condition as to prevent any debris from escaping outside of the demolition limits.

EXHIBIT E

SAN DIEGO UNIFIED PORT DISTRICT
Real Estate Development Department
Development Services
P.O. BOX 120488
SAN DIEGO, CA 92112-0488
(619) 686-6283
Fax: (619) 686-6508

COASTAL DEVELOPMENT PERMIT

Applicant: Lockheed Martin Corporation
Liaht Rosenstein
2550 N. Hollywood Way, Suite 406
Burbank, California 91505

Project: Marine Terminal Railway Facility Removal and East Basin Remediation

Location: 1160 Harbor Island Drive, San Diego, CA 92101 and Adjacent Submerged Lands

You are hereby granted a Coastal Development Permit. This permit is issued in conformance with the California Coastal Act of 1976 and the Coastal Permit Regulations of the San Diego Unified Port District, as adopted by the Board of Port Commissioners on July 1, 1980, Resolution No. 80-193, and as amended on December 2, 1980, Resolution No. 80-343, and on February 14, 1984, Resolution No. 84-62, in accordance with the provisions for the issuance of a [ ] Emergency [X] Non-Appealable [ ] Appealable Coastal Development Permit.

Date of Board Action:

Board of Port Commissioners Resolution Number:

Date of Permit:

Application Number:

Permit Number:

The project is located between the sea (as defined in the Coastal Act) and the first inland continuous public road paralleling the sea. The project is fully consistent with Public Resources Code Sections 30604(c), 30210-30224, and the Coastal Act public access and recreation policies referenced therein and the District's Coastal Permit Regulations.

This permit is limited to the development described below and set forth in material on

file with the San Diego Unified Port District (District), and subject to the terms, conditions, and provisions hereinafter stated:

DEVELOPMENT

The Project Applicant, Lockheed Martin Corporation (referred to herein as "Permittee"), proposes to remove all fixtures and structures from the former Marine Terminal Railway Facility, dredge contaminated sediments from the East Basin and place sand and/or carbon attenuated sand over portions of the East Basin as described in the Remedial Action Plan ("RAP") and Cleanup and Abatement Order ("CAO")(collectively, "Project").

The Project covered by this Coastal Development Permit (CDP) is the San Diego Bay East Basin Sediment Remediation and Marine Terminal Improvements Removal Project (Project). The Project includes the cleanup of contaminated sediments as required by draft Cleanup and Abatement Order (CAO) No. R9-2017-0021, issued for public comment by the California Regional Water Quality Control Board, San Diego Region in January 2017 and the removal of improvements including a 5,500 sq ft building, pier, and marine railway at the Marine Terminal located at 1160 Harbor Island Drive, San Diego, CA.

The Marine Terminal improvements removal will occur prior to the implementation of the sediment remedy. Building demolition and in-water improvements removal activities will commence after all required permits have been approved and utilities properly abandoned and will proceed in a manner to limit disturbance of sediment. All in-water activities will be scheduled outside the California least tern nesting season from April - September. The sediment remedy will be implemented after the Remedial Action Plan (RAP) is approved by California Regional Water Quality Control Board, San Diego Region and outside the least tern nesting season.

The sediment cleanup will be governed by the adopted CAO. Per the CAO, a feasibility study will be to inform the finalization of the RAP for approval by the San Diego Regional Water Quality Control Board (Water Board). The sediment remedy will proceed as described in the final RAP and will address contaminated sediments present within the San Diego East Basin of Harbor Island offshore of the Former Tow Basin and Lockheed Marine Terminal and Railway Sites. The RAP will describe the elements of the sediment remedy including the dredging, application of a clean sand cover over contaminated sediment; transportation, dewatering, stockpiling, and testing of dredge materials and effluent (water) at a landside stockpiling/dewatering location; treatment (if needed) and discharge of the effluent; and truck transport of dredge materials to appropriate landfill disposal facilities. Once dredging activities are completed, rock will be placed on slopes adjacent to existing bulkheads and piers to protect those structures (as defined in the RAP). The plans and specifications will be provided to the Water Board prior to construction of the RAP remedy. Post construction monitoring of the remedy will be performed as described in the approved RAP.

A. Demolition

Demolition will involve the removal of a 5,500 sq. ft. building, a 165 ft. pier, a rail way and all support structures that extend into the bay located at the 1160 N Harbor Island Drive former Lockheed Martin Facility. The building will be demolished using conventional methods. Power will be removed back to the SDGE transformer vault on site. Site gas will be removed to nearest valve box which is in the pavement just outside the gate on the west side. Fire sprinkler water will be capped 6" above grade on the property unless another shut off valve can be located near the entrance to the property. Sewage tank and associated piping to the tank will be removed in its entirety. Outlets to the tank that ties to the City's sewer system will be capped at or near the property line. Water will be removed back to the back flow preventer on site. That will become the water supply for the irrigation of the grass/ plants. The existing concrete and asphalt paving will be removed completely with the exception of a retaining wall just above the shore protection. The retaining wall will allow the site to be graded in such a way that slopes will be shallow to allow storm water to be absorbed and minimize erosion. The existing mature trees will be left undisturbed.

Pilings will be removed using equipment staged on a barge and or from the landside. Removed pilings and other material will likely be placed on a barge for staging and handling for transport and disposal. While use of vibratory extraction is the preferred method to remove pilings, it is recognized that some of the piles may break and may need to be cut at or near the dredge elevations due to the deteriorated condition. Broken and damaged pilings that cannot be removed by either the vibratory hammer or direct pull may be removed with either a clamshell bucket or environmental clamshell in deeper areas. If the pile breaks at or near the existing substrate and cannot be removed by those or other methods, with the Port District's consent (which shall not be unreasonably withheld or delayed) and upon terms mutually agreed, the piles may be cut at an elevation that will not interfere with reasonably anticipated future uses

The work surface on the barge deck will include a containment basin for all debris and any sediment removed during pulling. A floating surface debris boom equipped with absorbent pads to contain any oil sheens may be deployed to capture floating surface debris and to control potential sheen movement to the extent practicable. Collected debris will be disposed of, along with cut-off piling.

B. Remediation and Dredging

<u>STANDARD PROVISIONS</u>

1. Permittee shall adhere strictly to the current plans for the Project as approved by the District and the Project described in the Water Board-approved RAP for the Project.

2. Permittee shall notify the District of any changes in the Project and herein described. Such notification shall be in writing and be delivered promptly to the District.

3. Permittee and the Project shall meet all applicable codes, statutes, ordinances and regulations, and Permittee shall obtain all necessary permits from local, regional, state, and federal agencies.

4. Permittee shall conform to, and this permit is subject to, the permit rules and regulations of the District, including, but not limited to, the District's Coastal Development Permit Regulations.

5. Permittee shall be responsible for compliance with ADA and Title 24 specifications, if applicable.

6. Permittee shall commence development within two (2) years following the date of the permit issuance by the District. Construction shall be pursued in a diligent manner and completed within a reasonable period of time as outlined in the Water Board-approved RAP.

7. The permit is in no way intended to affect the rights and obligations heretofore existing under private agreements nor to affect the existing regulations of other public bodies.

8. This permit shall not be valid unless two copies have been returned to the Real Estate Development Department of the District, upon which copies the Permittee has signed a statement agreeing that the Permittee will abide by the terms, conditions, limitations, and provisions of the permit.

9. The Permittee and contractor shall perform all best management practices (BMPs) during construction and maintenance operations. This includes no pollutants in the discharges to storm drains or to Pacific Ocean, to the maximum extent practicable.

10. All District tidelands are regulated under Regional Water Quality Control Board Order No. R9-2013-0001, National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0109226, Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within the San Diego Region (Municipal Permit). The Municipal Permit prohibits any activities that could degrade stormwater quality.

    The Permittee shall ensure that post-construction / operational use of this Project site complies with the Municipal Permit and District direction related to permitted activities including the requirements found in the District's Jurisdictional Runoff Management Program (JRMP). The JRMP is available on the District website: https://www.portofsandiego.org/environment/clean-water.html or by contacting the Environmental & Land Use Management Department, (619) 686-6254.

11. This project may be subject to the District post-construction BMP requirements. If so, approval of the project by the District is necessarily conditioned upon submission by the Permittee of a project specific Stormwater Quality Management Plan (SWQMP) that meets District requirements and is compliant with the District BMP Design Manual (JRMP Appendix D). The Permittee shall implement all post-construction structural and non-structural BMPs throughout the life of the project.

    The implementation and maintenance of the post-construction BMPs constitute regulatory obligations for the Permittee, and failure to comply with the Municipal Permit, the JRMP, or the District approved SWQMP, including the specific BMPs contained therein, may be considered a violation of the permit and a violation of District Code.

12. In the discretion of the District, prior to commencement of construction, Permittee may be required to require that their contractor(s) furnish security, naming the District as a dual obligee, in the form of a performance bond and a payment bond, each in an amount deemed appropriate by the District to guarantee payment of the subcontractors, completion of the approved work under this permit, and compliance with the conditions and limitations upon which such permit is granted. Prior to commencement of construction, Permittee may also be required by the District to furnish security in the form of a payment bond in an amount deemed appropriate by the District to guarantee payment to the contractor(s) for work performed under this permit.

13. By accepting this permit, Permittee acknowledges and agrees (a) that the project site may be subject to environmental conditions and hazards; (b) to assume the risks to the Permittee of injury and damage from such conditions in connection with the implementation of the project; (c) to unconditionally waive any claim of damage or liability against the District, its Board of Port Commissioners, officers, agents and employees ("District" for purposes of this condition) for injury or damage from such conditions to persons performing the work for which this permit is issued (d) to defend, indemnify and hold harmless, and require that Permittee's contractor(s) engaged to perform the work on the project defend, indemnify and hold harmless, the District from any claim, demand, liability, loss, action, damage, cost, expense (including all attorneys' fees and consultant/expert fees), award, fine, penalty or judgment arising out of, resulting from, or in any way related to the performance of the work by Permittee's contractor(s) for which this permit is issued, with the exception of any claim, action, damages, liability or costs arising or resulting from the project caused by the gross negligence or willful misconduct of the District; (e) to defend, indemnify and hold harmless the District from any claim, demand, liability, loss, action, damage, cost, expense (including all attorneys' fees and consultant/expert fees), award, fine, penalty or judgment arising out of, resulting from, or in any way related to the District's issuance of the CDP or the performance of the work for which the CDP was issued and the District's adoption of the Final Mitigated Negative Declaration; and (f) that Permittee will require Permittee's contractors to name the District as an additional insured on all policies of insurance,

now in existence or to be obtained by them, for coverage required by the contracts for the work conducted pursuant to this permit.

14. Permittee acknowledges and agrees that: (a) it is the sole and exclusive responsibility of Permittee, and not the District, to ensure that all persons and/or entities who provide any labor, services and/or equipment in connection with the project, shall comply with the requirements of California's prevailing wage laws (the "PWL"), to the extent such laws are applicable; and (b) it is the sole and exclusive responsibility of Permittee, and not the District, to determine whether the project is subject to the PWL by obtaining a determination by means that do not involve the District. If the project is determined to be subject to the PWL, Permittee shall comply with all applicable provisions of the PWL, and shall take reasonable steps to ensure that all persons and/or entities who provide any labor, services, equipment and/or materials in connection with the project shall likewise comply with all applicable provisions of the PWL.

    Permittee further acknowledges and agrees that Permittee's failure to comply with all applicable provisions of the PWL, and/or their failure to take reasonable steps to ensure that all persons and/or entities who provide any labor, services, equipment and/or materials in connection with the project comply with all applicable provisions of the PWL, shall render Permittee, and not the District, liable for all remedies (inclusive of all applicable fines and penalties), afforded by law as a consequence of such non-compliance. Permittee expressly agrees to defend, indemnify and hold harmless the District, from any claim, demand, liability, loss, action, damage, cost, expense (including all attorneys' fees and consultant/expert fees), award, fine, penalty or judgment arising out of, resulting from, or in any way related to the PWL (collectively "PWL Claim") made against or incurred by the District in any capacity (including, without limitation, as a real party in interest), except for any PWL Claim arising out of the sole negligence or willful misconduct of the District.

15. The conditions of this permit are independent of, and in addition to, the obligations of the Permittee under any existing lease(s), Tidelands Use and Occupancy Permit(s), or other contractual agreement(s) with the District, and are binding upon Permittee and its agents, representatives, successors and permitted assigns.

<u>SHORT TERM CONSTRUCTION MEASURES</u>

1. To minimize noise during construction, the Permittee will require the construction contractor to (a) restrict normal construction activities from 7:00 am to 7:00 pm; (b) keep construction equipment as far as possible from sensitive receptors; and (c) provide acoustical shielding around equipment operating at night, from 10:00 pm to 7:00 am.

2. To minimize nuisance effects from lights or glare during construction, the Permittee will require the construction contractor to shield and direct night lighting away from adjacent areas.

3. All construction equipment shall be maintained in peak condition to reduce operational emissions.

4. Diesel equipment shall use low-sulfur diesel fuel.

5. Electric equipment shall be used to the maximum extent feasible during construction.

6. The Permittee shall require the construction contractor to provide construction employees with transit and ride share information.

7. The Permittee shall ensure that any site contamination is identified and a site restoration plan, acceptable to the appropriate regulatory agencies, is prepared and implemented to reduce any existing contamination to levels contemplated under the Cleanup and Abatement Order and Remedial Action Plan, or other workplan prepared by Permittee to address potential soil contamination encountered during removal of improvements at the site. If any potential exists for impacts to employee health from exposure to hazardous materials, workers shall be provided with adequate protective gear.

8. The Permittee shall require all employees that are exposed to noise levels in excess of Occupational Safety and Health Administration hearing protection thresholds, during construction or operation, to wear noise protection devices (ear plugs and covers) that are protective of individual hearing.

9. Permittee and/or contractor shall comply with State Water Resources Control Board Order No. 2009-0009-DWQ (NPDES General Permit No. CAS000002), and Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (commonly known as the “Construction General Permit”), as adopted, amended, and/or modified. Construction activity subject to the Construction General Permit requires development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The Permittee and/or contractor are responsible for submitting to the District a SWPPP that is compliant with the Construction General Permit and District required minimum BMPs. The District requires the use of District SWPPP templates. Once approved, the SWPPP document shall be maintained on the construction site at all times and made available for review by the District or other regulatory agencies.

   The Permittee and/or contractor is responsible for ensuring that the SWPPP document is maintained on the site, implemented, and amended as required throughout construction. No discharges of any material or waste, including potable water, wash water, dust, soil, trash, and debris, may contaminate stormwater or enter the stormwater conveyance system. Any such material that inadvertently contaminates stormwater or enters the stormwater conveyance system as part of site operations shall be removed immediately. All unauthorized discharges to the

stormwater conveyance system or the Bay or the ocean shall be reported immediately to the District Planning & Green Port Department, in order to address any regulatory permit requirements regarding spill notifications.

A project's total disturbed soil area (DSA) shall not exceed 5 acres during the rainy season (October 1 - April 30) and 17 acres during the non-rainy season (May 1 - September 30). The District may temporarily increase these limits if the individual site is in compliance with applicable stormwater regulations and the site has adequate control practices implemented to prevent stormwater pollution.

SPECIAL PROVISIONS

1. Permittee shall comply with all applicable Mitigation Monitoring and Reporting Program requirements (attached as Attachment A), as described in _____. The Mitigation Measures are provided in the following Special Provisions.

2. Permittee shall implement all resurfacing, paving, and stripping necessary to return promenade and parking amenities affected during construction activities to conditions suitable for public use.

3. Permittee shall implement the following Sustainability features:

4. Permittee shall implement mitigation measure Biological Resources BIO-1: If pile removal occur between April 1 and September 15, the contractor shall deploy a turbidity curtain around the pile removal areas to restrict the surface visible turbidity plume to the area of removal. It shall consist of a hanging weighted curtain with a surface float line and shall extend from the surface to 15 feet down into the water column. This measure is intended to minimize the area of the bay in which visibility of prey is obstructed. The applicant shall ensure that this measure is implemented for the duration of the pile-removal activity.

5. Permittee shall implement mitigation measure Biological Resources BIO-2: Should vibratory pile-removal activities be conducted between April 1 and September 15, a qualified biological monitor shall be retained by the contractor at its expense to conduct California least tern monitoring during the tern breeding season within 500 feet of construction activities. The monitor shall be empowered to delay work commencement and shall do so if terns are actively foraging (e.g., searching and diving) within the work area. Should adverse impacts to terns occur (e.g., agitation or startling during foraging activities), the biological monitor shall be empowered to delay or halt construction and shall do so until least terns have left the project area.

6. Permittee shall implement mitigation measure Biological Resources BIO-3: A biological observer or observers shall monitor pile removal with the authority to stop work if a green sea turtle or marine mammal approaches or enters the shutdown zones (500 meters for vibratory removal). The additional buffer is required because a marine mammal or green sea turtle spends much of its time underwater. A buffer

gives the observer time to observe the animal before it dives, and allows them to stop construction before it enters the shutdown zone. Prior to the start of pile-removal or pile-driving activities, the biological observers shall monitor the shutdown zones for at least 15 minutes to ensure that green sea turtles and marine mammals are not present. If a green sea turtle or marine mammal approaches or enters the shutdown zone during the pile-removal or driving activities, the biological observer(s) shall notify the construction contractor to stop the activity. The pile-removal delayed until either the biological observer(s) visually confirm that the animal has left the shutdown zone of its own volition, or 15 minutes have passed without re-detection of the animal. If the onsite biological observer(s) determine that weather conditions or visibility prevent the visual detection of green sea turtles or marine mammals in the shutdown zones, such as heavy fog, low lighting, or sea state, in-water construction activities with the potential to result in Level A Harassment (injury) or Level B Harassment (disturbance) shall not be conducted until conditions change. The following shutdown zones, and buffers, will avoid the potential for impacts.

For Demolition (assuming vibratory pile removal):

- A shutdown zone consisting of the area within 500 meters of work would be required to avoid potential injury and behavioral effects to green sea turtles, managed fish, and marine mammals.

Additional requirements:

- Observers will observe for 30 minutes after construction has ended.

- Construction activities requiring observers will commence 45 minutes after sunrise, and 45 minutes before sunset to provide the observers with enough visibility to observe marine species in the project area.

- Biological monitoring shall be conducted by qualified observers. The observers shall be trained in green sea turtle and marine mammal identification and behaviors, and would have no other construction-related tasks. The observers shall determine the best vantage point practicable to monitor and implement shut down/notification procedures, when applicable, by notifying the construction superintendent and/or hammer operator.

- During all observation periods, observers shall use binoculars and the naked eye to scan continuously for green sea turtles and marine mammals. As part of the monitoring process, the observers shall collect sightings data and behavioral responses to pile-removal from green sea turtles and marine mammals observed within 500 feet of the proposed project site of activity and shutdown zones during the period of construction. The observer shall complete a sighting form (paper or electronic) for each pile-removal day. The observer shall submit the completed forms to NMFS and the District within 60 days of the completion of the monitoring with a summary of observations.

7. Permittee shall implement mitigation measure Biological Resources BIO-4: Prior to the commencement of construction activities that would result in increased water coverage an amount equating to the loss of open water associated with the proposed project shall be offset by deducting an amount from the District's shading credit program established pursuant to Board Policy 735. Additionally, the project applicant shall implement design modifications, such as incorporating translucent areas over the water. The deduction to the District's shading credits shall be equivalent to that of the proposed project's final increase in shading (i.e., less any reductions achieved by design modifications) to the satisfaction of NMFS and USACE.

8. Permittee shall implement mitigation measure Hazards HAZ-1: Airport Land Use Commission (ALUC) formal review and determination on the proposed project shall be obtained prior to initiation of project construction.

9. Post-construction bathymetry shall be equal to or deeper than the post-construction depths set forth in the RAP. The Bathymetric survey shall be done using multi beam surveyors to achieve one-inch accuracy plotted at one-square foot data points in GIS compatible format.

10. The Permittee shall comply with the Clean Water Act Sections 401 and 404 Permits as well as any and all applicable laws and regulations for activities within the District CDP jurisdiction as described in this CDP.

Exhibits:

Attachment:

A. Mitigation Monitoring and Reporting Program

If you have any questions on this permit, please contact _____ of the San Diego Unified Port District at (619) 686-6291.

By:_____

I have read and understand the terms, conditions, limitations, and provisions of this permit and agree to abide by them.

_____ _____

Signature of Permittee Date

EXHIBIT F

EASEMENT

For valuable consideration, receipt of which is hereby acknowledged, the SAN DIEGO UNIFIED PORT DISTRICT, a public corporation, hereinafter called "Grantor," grants to Lockheed Martin Corporation, hereinafter called "Grantee," a non-exclusive easement for the purposes of placing, maintaining, inspecting, modifying, and, if necessary, monitoring, repairing or replacing sand cover required by the Parties' negotiated agreement under the CAO, which is defined below (the "Project").

Grantee acknowledges and agrees that it will perform the sediment remediation that is the subject of the San Diego Regional Water Quality Control Board Cleanup and Abatement Order No. x#-####-####, dated [date], attached hereto as Exhibit 1, as it may be amended (the "CAO"). In exchange for Grantee's agreement to be the sole performing party under the CAO, Grantor grants this Easement to allow Grantee to implement the remediation required by the CAO.

The property in which this Easement is granted is located in the County of San Diego, State of California, and is described as follows:

Approximately _____ square feet of submerged and tideland area located in the City of San Diego, California, more particularly described and delineated on Exhibit ____ (the "Easement Property").

1. Grantee is further granted the right of ingress and egress to, from, and along said Easement Property through such routes on the adjacent land of Grantor as approved by Grantor in writing, and described on Exhibit __, which routes may be modified as reasonably necessary, subject to Grantor's sole and absolute discretion, subject to the parties' obligations and commitments in the settlement agreement reached between Grantor and Grantee ("the Settlement Agreement").

2. The term of the Easement shall commence on _____, and end on _____[the date following the expiration of the time period in Section 2.1]_____. Grantor acknowledges that Grantee's agreement to be the sole performing party under the CAO is adequate consideration for this Easement and hereby foregoes any other rent charge or other additional consideration for the life of this Easement.

3. Grantor expressly reserves the right to grant easements in, upon, under, over, and across the Easement Property for any purpose. **Grantor acknowledges its obligation, during the term of the Easement, to undertake commercially reasonable efforts to coordinate the timing, sequence, and implementation of development activities, to the extent reasonably possible, to avoid compromising the performance or completion of remedial action required under the CAO. Grantor shall provide Grantee reasonable access of the Easement Property, without additional consideration.**

. Nothing herein contained shall be construed as limiting the powers of Grantor to convey, lease, or otherwise transfer or encumber during the term of this Easement the lands described herein for any purposes subject to the rights and privileges granted herein. The Easement granted herein shall be subject to all existing leases, permits, licenses, encumbrances, and any other property right, recorded and unrecorded, affecting said Easement Property.

5. Grantee shall share with Grantor any non-privileged, final information, data, analyses, sampling results, and results of investigation and/or remediation activities and any reports and/or work plans related thereto which Grantee compiles or obtains, or contracts with third parties to compile or obtain, regarding the Project or the condition of the Easement Property.

6. Grantee shall perform the Project in the manner describes in, and to the specifications of, the Remedial Action Plan as approved by the Regional Water Quality Control Board. Grantee shall perform the Project in such a manner as will cause the least disruption to the Easement Property and surrounding resources. In the event that Grantee fails to perform the Project in such a manner, Grantee shall restore the Easement Property and resources to the condition required by the CAO, or to substantially the same conditions as existed immediately prior to any such disturbance. This Easement and the Project conducted on the Easement Property shall be maintained in such a manner as not to interfere with navigation of vessels of any kind or character or with any improvements of the waterways or structures located on the Easement Property, whenever reasonably possible.

7. Grantor retains the right to construct, reconstruct, and maintain above and below ground structures on the Easement Property and to grant others the authority to do the same.

8. Grantee's execution of the Easement shall fully and finally constitute the following:

   a. **Grantee's Acknowledgment.** Grantee's acknowledgment that Grantor has given to Grantee sufficient opportunity to consider, inspect and review, to

Grantee's complete satisfaction: (1) any and all rights, appurtenances, entitlements, obligations, and liabilities concerning the Easement Property; (2) the physical condition of the Easement Property, including, without limitation, the condition of any improvement and the soils, subsoil media, and groundwaters at or under the Easement Property; (3) the effect upon the Easement Property of any and all applicable federal, state or local statutes, ordinances, codes, regulations, decrees, orders, laws or other governmental requirements (collectively, "Applicable Laws"); (4) the effect of all Applicable Laws concerning land use, environmental quality and maintenance, endangered species, and vessel regulation; and (5) all other facts, circumstances, and conditions affecting, concerning or relating to the Easement Property. The land use; the environmental, biological, physical and legal condition of the Easement Property; and such other facts, circumstances and conditions being collectively referred to herein as the "Condition of the Easement Property."

b. **Only Grantor's Express Written Agreements Binding.** Grantee acknowledges and agrees that no person acting on behalf of Grantor is authorized to make, and that except as expressly set forth in this Agreement, neither Grantor nor anyone acting for or on behalf of Grantor has made, any representation, warranty, statement, guaranty or promise to Grantee, or to anyone acting for or on behalf of Grantee, concerning the Condition of the Easement Property or any other aspect of the Easement Property.

c. **As-Is Agreement.** Grantee further acknowledges and agrees that Grantee's execution of this Easement shall constitute Grantee's representation, warranty and agreement that the Condition of the Easement Property has been independently verified by Grantee to its full satisfaction, and that, except to the extent of the express covenants of Grantor set forth in this Easement, Grantee will accept the Easement Property based solely upon and in reliance on its own inspections, evaluations, analyses and conclusions, or those of Grantee's representatives; and that GRANTEE ACCEPTS THE EASEMENT PROPERTY IN ITS "AS-IS, WITH ALL FAULTS" CONDITION AND STATE OF REPAIR INCLUSIVE OF ALL FAULTS AND DEFECTS, WHETHER KNOWN OR UNKNOWN, AS MAY EXIST AS OF THE GRANTEE'S EXECUTION OF THIS EASEMENT. Without limiting the scope or generality of the foregoing, and to the extent consistent with the parties' Settlement Agreement, Grantee expressly assumes the risk that the Easement Property does not or will not comply with any Applicable Laws now or hereafter in effect.

1) **Waivers and Disclaimers.** To the extent consistent with the parties' Settlement Agreement, Grantee hereby fully and forever waives, and Grantor hereby fully and forever disclaims, all warranties of whatever type or kind with respect to the Easement Property, whether expressed, implied or otherwise including, without limitation, those of fitness for a particular purpose, tenant ability, habitability or use.

2) **Grantee's Materials.** Grantee further acknowledges that any information and reports including, without limitation, any engineering reports, architectural reports, feasibility reports, marketing reports, soils reports, environmental reports, analyses or data, or other similar reports, analyses, data or information of whatever type or kind which Grantee has received or may hereafter receive from Grantor or its agents or consultants have been furnished without warranty of any kind and on the express condition that Grantee will make its own independent verification of the accuracy, reliability and completeness of such information and that Grantee will not rely thereon. Accordingly, except in circumstances of fraud, intentional misrepresentation, or gross negligent misrepresentation, Grantee agrees that under no circumstances will it make any claim against, bring any action, cause of action or proceeding against, or assert any liability upon Grantor or any of the persons or entities who prepared or furnished any of the above information or materials as a result of the inaccuracy, unreliability or incompleteness of, or any defect or mistake in, any such information or materials and Grantee hereby fully and forever releases, acquits and discharges Grantor and each person furnishing such information or materials of and from, any such claims, actions, causes of action, proceedings or liability, whether known or unknown.

9. This Easement and any covenants, conditions, and restrictions contained herein shall run with the land and be binding upon and inure to the benefit of the successors, heirs, executors, administrators, permittees, Grantees, agents, and assigns of Grantor and Grantee; provided, however, that Grantee shall not have the right to assign this Easement or otherwise permit the use of the Easement Property by any other person or entity, nor assign any right, privilege, duty or obligation of Grantee, without the prior express written consent of Grantor.

10. Any notice or notices provided for by this Easement or by law to be given or served upon Grantee may be given or served by certified or registered letter addressed to Grantee at [_____], and deposited in the United States mail, or may be served personally upon said Grantee or any person hereafter authorized by it in writing to receive such notice; and that any notice or notices provided for by this Easement or by law to be served upon Grantor may be given or served by

certified or registered letter addressed to Executive Director of Grantor at the Administrative Offices of the San Diego Unified Port District, Post Office Box 120488, San Diego, California 92112-0488, and deposited in the United States mail, or may be served personally upon said Executive Director or her duly authorized representative; and that any notice or notices given or served as provided herein shall be effectual and binding for all purposes upon the parties so served.

11. This Easement shall be governed by the laws of the State of California.

12. It is an express condition of this Easement that the Easement shall not be complete nor effective until signed by all parties.

APPROVED AS TO FORM AND LEGALITY
GENERAL COUNSEL

By: _____
Assistant/Deputy

SAN DIEGO UNIFIED PORT DISTRICT,
a public corporation

By: _____
Shaun D. Sumner
Assistant Vice President
Real Estate Development

Lockheed Martin Corporation

By: _____
Signature

PRINT NAME: _____

PRINT TITLE: _____

Attachments:
Legal Description
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- ☐ Other: _____

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- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: _____

Signer is Representing: _____

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EXHIBIT G

JACKSON GILMOUR & DOBBS, PC
William J. Jackson (Pending Pro Hac Vice Application)
Texas Bar No. 00784325
Micheal W. Dobbs (Pending Pro Hac Vice Application)
Texas Bar No. 24012533
3900 Essex Lane, Suite 700
Houston, Texas 77027
Telephone: 713-355-5000

BROWN & WINTERS
William D. Brown (Bar No.125468)
Wentzelee Botha (Bar No. 207029)
120 Birmingham Drive, Suite 110
Cardiff-by-the-Sea, CA 92007
Telephone: (760) 633-4485

SAN DIEGO UNIFIED PORT DISTRICT
OFFICE OF THE GENERAL COUNSEL
Thomas A. Russell, SBN 108607, Gen. Counsel
Ellen F. Gross, SBN 149127, Asst. Gen. Counsel
John N. Carter, SBN 246886, Dep. Gen. Counsel
3165 Pacific Highway
P.O. Box 120488
San Diego, CA 92112-0488
Telephone: 619-686-6219

Attorneys for Plaintiff San Diego Unified Port District

UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF CALIFORNIA

SAN DIEGO UNIFIED PORT DISTRICT, Plaintiff, v. LOCKHEED MARTIN CORPORATION, Defendant.	Case No.: 07-CV-1955- BAS (WVG) **ORDER CONFIRMING GOOD FAITH SETTLEMENT BETWEEN SAN DIEGO PORT DISTRICT AND LOCKHEED MARTIN CORPORATION**

The Joint Motion for Order Confirming Settlement between the San Diego Unified Port District ("Port District"), Lockheed Martin Corporation ("Lockheed") and General Dynamics Corporation ("GD") (collectively the "Parties") came on regularly for hearing before this Court on _____, the Honorable William V. Gallo, judge presiding.

After considering the moving and opposition papers, if any, and declarations of counsel, the Settlement Agreement submitted to the Court for approval (attached to the Declaration of _____), and the record as a whole, the **COURT HEREBY FINDS THAT** the Settlement Agreement entered into between the Parties was entered into in good faith and is fair, reasonable and consistent with the purposes of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9601, et seq., the Uniform Comparative Fault Act ("UCFA"), 12 U.L.A. 147, California Code of Civil Procedure §§ 877 and 877.6, and state law theories for the apportionment of liability among alleged joint tortfeasors.

The matter having been briefed, argued and submitted for decision, and good cause appearing,

IT IS HEREBY ORDERED that the Motion is **GRANTED and ITS IS FURTHER ORDERED** that:

1. The Settlement Agreement is hereby approved as a good faith settlement and afforded all the rights and protections that accompany this determination.

2. The Court further finds and determines that the Settlement Agreement has been entered into in good faith within the meaning of Section 6 of the Uniform Comparative Fault Act, 12 U.L.A. 147 (1996), which is adopted as federal common law in this case for purposes of determining the legal effect of the Settlement Agreement, under California Code of Civil Procedure §§ 877 and 877.6 and the rule of the *Tech-Bilt, Inc. v. Woodward-Clyde & Associates,* 38 Cal.3d 488 (1985), and consistent with the purposes of CERCLA.

3. Pursuant to Section 6 of the UCFA, Section 877.6 of California Code of Civil Procedure, and CERCLA section 113(f), any and all claims for contribution or equitable indemnity against the Parties arising out of the facts alleged in the Complaint, counterclaims, and cross-claims in this Action (except such claims which are specifically excluded under the Settlement Agreement as Excluded Matters), regardless of when such claims are asserted or by whom, relating to Covered Matters under the

Settlement Agreement are hereby **BARRED**. Such claims by any non-settling party are barred regardless of whether they are brought pursuant to any federal or state statute, common laws, or any other theory, as any such claims against the Parties arising out of the facts alleged in this Action are in the nature of contribution claims arising out of a common liability, whether framed in terms of federal or state statute or common law.

4. All claims, cross-claims and counterclaims and/or any other claims which have been made by and between the Parties, and each of them, in the Action are hereby dismissed with prejudice, except and subject to: (1) the Court retaining continuing jurisdiction to enforce the terms of the Settlement Agreement, (2) the rights of the parties under the Settlement Agreement to later assert any and all Claims related to Excluded Matters, which claims shall not be deemed barred by entry of judgment or dismissal pursuant to the Settlement Agreement or this Order, (3) other rights expressly reserved under the Settlement Agreement, and (4) upon this Order becoming final and effective.

5. The Court shall retain jurisdiction over both the subject matter of this Settlement Agreement and the Parties for the duration of the performance of the terms and provisions of this Settlement Agreement for the purpose of enabling the Parties, and each of them, to apply to the Court any time for such further order, direction, and relief as may be necessary or appropriate to construe, implement, or enforce compliance with the terms of the Settlement Agreement, which rights and obligations shall survive the dismissal of this Action.

6. The Parties shall each bear their own costs and expenses, including attorneys' fees in this Action, as between the Parties, through the date of this Order.

IT IS SO ORDERED.

Appendix C. Biological Technical Study and Essential Fish Habitat Assessment

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BIOLOGICAL TECHNICAL STUDY AND ESSENTIAL FISH HABITAT ASSESSMENT FOR THE LOCKHEED MARTIN HARBOR ISLAND FACILITIES DEMOLITION AND SEDIMENT REMEDIATION PROJECT SAN DIEGO, CA

Prepared for:

Harris & Associates
600 B Street, Suite 2000
San Diego, CA 92101

Prepared by:

Merkel & Associates, Inc.
5434 Ruffin Road
San Diego, CA 92123
Phone: (858) 560-5465
Fax: (858) 560-7779

July 2020

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BIOLOGICAL TECHNICAL STUDY AND ESSENTIAL FISH HABITAT ASSESSMENT FOR THE LOCKHEED MARTIN HARBOR ISLAND FACILITIES DEMOLITION AND SEDIMENT REMEDIATION PROJECT, SAN DIEGO, CA

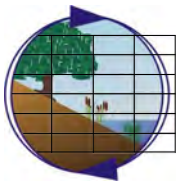
1.0 INTRODUCTION

The proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (Project) involves the demolition of the existing Lockheed Martin Company Marine Terminal improvements located at 1160 North Harbor Island Drive in San Diego (Figure 1). The existing land and waterside improvements were constructed in 1966 and were primarily used by the Lockheed Martin Company as a maintenance facility for deep water submersible vehicles. Lockheed Martin Company now proposes to demolish all existing land and waterside improvements to return the site to its original, undeveloped state. The project site is approximately 64,000 square feet (sf), with the landside comprising approximately 32,000 sf and the waterside leasehold area comprising approximately 32,000 sf.

Discharges of polychlorinated biphenyls (PCBs), metals, and other pollutant wastes to San Diego Bay throughout the years have resulted in the accumulation of contaminants in marine sediments along the northern shore of central San Diego Bay, in San Diego, California. This accumulation has resulted in conditions identified by the San Diego Regional Water Quality Control Board (RWQCB) as potentially impacting beneficial uses (aquatic life, aquatic-dependent wildlife, and human health).

A Remedial Action Plan (RAP) was developed and addressed contaminated sediments present within the east basin of Harbor Island offshore of the Former Tow Basin and Lockheed Marine Terminal and Railway Sites, which were referred to as the Northwest Portion of East Basin Sediments Site (Anchor 2017). Demolition of the Lockheed Marine Terminal would occur prior to implementation of the remedial action. Although elevated, observed concentrations of site related contaminants of concern (COCs) in the sediment (PCBs and mercury) were generally low compared to other sites in San Diego Bay, and are below the cleanup levels adopted for the nearby Shipyard Sediment Site. The RAP detailed a conservative remedial option that targeted the highest concentration areas to reduce site-related COCs to background concentrations as established by the RWQCB and the numeric cleanup objectives proposed by the Water Board in a Cleanup and Abatement Order (CAO).

This report documents biological conditions at the project site, and provides an analysis of potential impacts to habitats and sensitive species, as well as provides an Essential Fish Habitat (EFH) Assessment for the proposed Project.



Project Vicinity Map
Lockheed Martin Harbor Island Facilities
Demolition and Sediment Remediation Project

Figure 1

2.0 PROJECT LOCATION AND DESCRIPTION

2.1 PROJECT LOCATION

The east basin of Harbor Island is a relatively shallow embayment of San Diego Bay that is enclosed on three sides (Figure 1). It was formed by dredging in the early 1960s, with the dredged material used to create Harbor Island. The majority of the perimeter is bounded by rip-rap shoreline, and it has a narrow opening to the bay on the east side. Approximately two-thirds of the east basin is presently occupied by the Sunroad Resort Marina with docks accommodating approximately 550-slips, with the project site located on the western portion of the basin. The in-water habitat is primarily unvegetated soft bottom, and extends from the rip rap revetment to a depth of approximately -12 feet (ft) mean lower low water (MLLW) at the bayward edge of the leasehold area. The upland area of the project site consists of ornamental and ruderal landscaping surrounded by urban development.

2.2 PROJECT DESCRIPTION

Project demolition activities would include: (1) removal of the 5,500 sf building; (2) removal of all concrete, asphalt paving, and utilities; (3) removal of the 165-ft-long pier, 328-ft-long marine railway, and all support structures (i.e., piles) that extend into the bay; (4) minor dredging associated with removal of the in-water improvements; and (5) dredging of approximately 15,000 cubic yards (cy) of contaminated sediment from the waterside portion of the site. Specifically the Project includes two phases of work:

Phase 1

- Remove power to the San Diego Gas & Electric transformer vault
- Remove gas to the nearest valve box
- Cap the fire sprinkler water 6 inches above grade on the site
- Remove the sewage tank and associated piping to the tank
- Cap outlets to the sewage tank that tie to the City of San Diego's sewer system at or near the property line
- Remove water to the back-flow preventer on the site, which will become the water supply for the irrigation system that will be installed in Phase 2
- Disconnect and remove existing utilities located within the building
- Demolish the existing 5,500 sf marine terminal building (Figure 2)
- Remove the building foundation
- Keep the existing concrete and asphalt parking areas in place to be used as part of the Sediment Management Area (SMA) during the offshore remediation component of Phase 2
- Fill any depressions resulting from the demolition of the building with compactable clean fill
- Grade the site to match existing elevations.

Phase 2

In-water Demolition

- Deploy a floating surface debris boom equipped with skirts and absorbent pads to capture floating surface debris and control potential oil sheen movement
- Demolish the in-water 165-ft-long pier and marine railway structure (Figure 2)
- Remove piles (estimated up to 100 concrete piles) using equipment staged on a barge and/or from the landside
- Contain all debris during pile removal and any sediment on the work surface on the barge deck
- Monitor turbidity and use silt curtains as necessary to minimize the transport of suspended sediments
- Remove debris by utilizing a heavy clamshell bucket
- Dispose of collected debris and piles

Dredging

- Dredge up to 15,000 cy of contaminated sediments over an approximate area of up to 90,000 sf using mechanical dredging means via a barge-mounted derrick crane, an enclosed clamshell bucket or a standard clamshell bucket (Figure 2)
- Position each bucket using GPS software prior to each dredging cycle
- Install the following dredging measures and/or Best Management Practices (BMPs) prior to dredging:
    - Floating silt curtains with an oil boom component to contain resuspended sediment during dredging
    - Limit the speed of bucket movement in the water column of dredging to minimize the disturbance of sediments and resuspension of materials
    - Prohibit drag of the dredge bucket along the sediment surface
    - Prohibit underwater stockpiling
    - Conduct manual water quality monitoring in accordance with applicable regulations and as negotiated as part of the regulatory permitting process
    - Evaluate and modify dredging operations if water quality monitoring shows exceedance to numerical targets due to dredging operations
- Place dredged materials in a sealed scow adjacent to the dredge barge
- Decant water directly from the scow at the dredge area and keep it in storage tanks located on or adjacent to the dredge barge

Sediment Remediation

- Obtain clean sand from a local supplier
- Transport clean sand to the project site via haul truck or barge. If the material arrives via truck, it will be loaded onto barges and transported to the placement area.
- Place a silt curtain around the sand placement area to reduce turbidity caused by placement operations
- Place 4,500 cy of clean sand cover on up to 120,000 sf of the site (Figure 2). The clean sand cover will be placed on areas targeted for remediation and will mix into the underlying contaminated sediments, reducing the surface sediment contaminant load

through mixing. Equipment required for placement would be similar to the equipment used during dredging, but would be supplemented with a conveyor.

Sediment Management Area

- Convert the land portion of the site to a Sediment Management Area (SMA)
- Prepare site to prevent infiltration of decant water into the underlying soils or into the bay. Will likely include confining the existing asphalt and/or concrete paving areas with an impermeable barrier (potentially through an asphalt berm, or K-rails sealed at the base with an impervious fabric)
- Stockpile the sediment in the SMA or directly load it into trucks
- Prior to offloading sediments onto the stockpile area or directly into trucks, pump any ponded water within the scow into a water treatment system. Additive agents (e.g., cement) may be used to accelerate the drying process.
- Pump any water generated from processes, including but not limited to:
    - Pumped water from the barge
    - Water from a truck wash
    - Dewatered water from sediment stockpiling
- Transfer the water to the onsite water treatment system that will likely consist of a series of holding and weir tanks and would be sufficient to meet the discharge requirements into the City of San Diego's sewer system (through an Individual User Discharge Permit (IUDP))
- Prior to discharge, collect and sample water samples in accordance with the IUDP. If the effluent contains analytical concentrations that exceed IUDP standards, treat the water on site or remove the water from the site by a licensed waste hauler and disposed of in accordance with local, state, and federal requirements.
- Install sediment management measures and/or BMPs to minimize impacts to the environment including:
    - A truck wash to remove sediment from the outside of the truck prior to hauling operations to prevent track out of sediment
    - A spill apron, consisting of steel plates, plywood platforms, or a similar assembly with secondary containment will be placed between the barge and shore to collect drippings or spillage and direct it back into the barge or collection point
    - Stockpile management BMPs that follow the project's Construction BMP Plan
    - A paint filter test will be conducted at the landfill directed interval (expected to be one test per scow) to confirm that the sediment is dry enough for transport
    - A SMA area designed to prevent discharge into the San Diego Bay or into underlying soils
- Restore site within the SMA after the cleanup and disposal activities have been completed including:
    - Minor grading
    - Removal of the asphalt and concrete slabs

Sediment Disposal

- Test sediments based on selected upland disposal landfill's profile requirements
- Load all sediments into haul trucks

- Dispose of all dredged materials at an approved Class III (or Class II) landfill. The landfill is expected to be the Otay Landfill, located in Chula Vista, California.

Outfall Erosion Protection

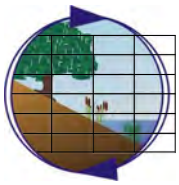
- Obtain up to 100 tons of riprap from a local supplier
- Transport the riprap to the project site via truck or barge
- Construct an outfall erosion protection along the northern shoreline of the site using riprap (approximately 20 ft by 20 ft in surface area) and gravelly sand.

Phase 3

- Demolish and dispose or recycle the asphalt and concrete paving areas
- Keep the existing retaining wall located just above the existing shoreline protection
- Remove any improvements made to the SMA to facilitate sediment offloading operations
- Conduct minor grading of the upland area to achieve shallow slopes that encourage infiltration and minimize erosion
- Install an irrigation system
- Plant drought tolerant grass

It is anticipated that the project would be completed in approximately 5 to 6 months, with Phase 1 occurring from November through December 2020, Phase 2 occurring from September through November 2021, and Phase 3 beginning in May 2022. In addition, the in-water construction window is constrained by California least tern nesting/foraging season which extends from March 31st to September 15th. All proposed work would take place within the Port District's jurisdiction.

The in-water construction activities require specific types of construction equipment including a floating crane barge used to remove concrete piles, dredging, and sand placement; deck barges for delivery and storage or materials or debris; jet pumps, vibratory hammer, or clamshell bucket; and tug boats for moving equipment. The landside construction activities would require the use of equipment such as a land-based mobile crane, trucks for delivery and removal of construction materials, heavy equipment (e.g., loader, bulldozer, forklift, and scraper), and onsite water treatment system.



Project Element Map
Lockheed Martin Harbor Island Facilities
Demolition and Sediment Remediation Project

Figure 2

3.0 PROJECT REGULATORY REQUIREMENTS

The proposed project is subject to the following regulations.

3.1 FEDERAL REGULATIONS

Clean Water Act

The federal Water Pollution Control Act Amendments of 1972 (33 United States Code [USC] 1251–1376), as amended by the Water Quality Act of 1987, and better known as the CWA, is the major federal legislation governing water quality. The purpose of the federal CWA is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Discharges into waters of the United States are regulated under CWA Section 404. Waters of the United States include: 1) all navigable waters (including all waters subject to the ebb and flow of the tide); 2) all interstate waters and wetlands; 3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, or natural ponds; 4) all impoundments of waters mentioned above; 5) all tributaries to waters mentioned above; 6) the territorial seas; and 7) all wetlands adjacent to waters mentioned above. Important applicable sections of the CWA are discussed below:

- Section 401 requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the CWA. Certification is provided by the respective RWQCB. A Section 401 permit from the SWRCB (State Water Resources Control Board) or RWQCB-SDR would be required for issuance of a permit by the U.S. Army Corps of Engineers (USACE).
- Section 404 regulates the discharge of dredged or fill materials to waters of the U.S. and provides for issuance of permits by the USACE.

Rivers and Harbors Appropriation Act

The Rivers and Harbors Appropriation Act of 1899 (33 USC 403), commonly known as the Rivers and Harbors Act (R&HA), prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without congressional approval. Under R&HA Section 10, the USACE is authorized to permit structures in or over navigable waters. Building or modifying wharves, piers, jetties, and other structures in or over the waters of the San Diego coastline requires USACE approval through the Section 10 permit process.

Endangered Species Act

The Endangered Species Act (ESA) protects plants and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). ESA Section 9 prohibits the taking of endangered wildlife, where taking is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). The term "harm" is defined as an "act which actually kills or injures wildlife," including through "significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife." The term "harass" means an act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding or sheltering (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or

destroying any endangered plant on federal land, as well as removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law. Under ESA Section 7, lead federal agencies are required to consult with the USFWS or NMFS if the lead agency determines that its actions, including permit approvals or funding, may adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS or NMFS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity, provided the action will not jeopardize the continued existence of the species. In cases where the federal agency determines its action may affect, but would be unlikely to adversely affect, a federally listed species, the agency may choose to informally consult with the USFWS and/or NMFS. This informal consultation typically involves incorporating measures intended to ensure effects would not be adverse. Concurrence from the USFWS and/or NMFS concludes the informal process. Without such concurrence, the federal agency may formally consult to ensure full compliance with the ESA.

Marine Mammal Protection Act

The Marine Mammal Protection Act of 1972 (MMPA) prohibits, with certain exceptions, the take of marine mammals in United States waters and by United States citizens on the high seas and the importation of marine mammals and marine mammal products into the United States. Under the MMPA, “take” is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal" (16 U.S.C. 1362) and further defined by regulation (50 CFR 216.3) as "to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal”. NMFS administers the MMPA. Under the 1994 Amendments to the MMPA, harassment is statutorily defined as any act of pursuit, torment, or annoyance which:

- ***(Level A Harassment)*** has the potential to injure a marine mammal or marine mammal stock in the wild; or,
- ***(Level B Harassment)*** has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits take of nearly all birds where members of the bird’s taxonomic family are considered to be migratory. This results in the inclusion of most species of birds afforded protection. Under the MBTA, take means only to kill, directly harm, or destroy individuals, eggs, or nests, or to otherwise cause failure of an ongoing nesting effort.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976 was established to promote domestic and commercial fishing under sound conservation and management principles. National Marine Fisheries Service (NMFS), as a branch of the National Oceanic and Atmospheric Administration (NOAA), implements the act via eight regional Fisheries Management Councils (FMCs). The FMCs in turn prepare and implement Fishery Management Plans (FMPs) in accordance with local conditions. The Pacific FMC is responsible for the Pacific region, in which the Project site is located. The FMPs also establish EFH for the species they manage and require consultation with NMFS for actions that may adversely affect EFH. Following receipt of an EFH,

NMFS will provide EFH Conservation Recommendations to the lead agency detailing measures that may be taken by the agency to conserve EFH. Within 30 days of receipt of EFH Conservation Recommendation, the project lead agency must respond in writing, including a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. These measures will be incorporated into the final project.

3.2 STATE REGULATIONS

California Coastal Act

The California Coastal Act (CCA) is intended to provide protection of the unique nature and public interest values of the state's coastal fringe. The CCA is implemented by the District for the land and water within its jurisdiction, subject to oversight by California Coastal Commission (CCC). The CCA recognizes California ports and harbors as primary economic elements of the national maritime industry. Within the Port of San Diego, the District administers the CCA under an adopted Port Master Plan and updates to the Port Master Plan that require concurrence from the CCC. Land and waters outside of the District's Port Master Plan are administered by the CCC or by local jurisdictions operating under adopted Local Coastal Programs that have been approved by the CCC.

California Endangered Species Act

The California Endangered Species Act (CESA) authorizes the California Fish and Game Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (California Fish and Game Code [FGC] Sections 2050–2098). The CESA defines endangered species as those whose continued existence in California is jeopardized. State-listed threatened species are those not presently facing extinction, but that may become endangered in the foreseeable future. FGC Section 2080 prohibits the taking of state-listed plants and animals. Unlike the federal ESA, the CESA does not include harassment within its take definition and as such, has a statutorily higher threshold standard for take than does the federal ESA. The California Department of Fish and Wildlife (CDFW) also designates fully protected or protected species as those that may not be taken or possessed without a permit from the California Fish and Game Commission and/or CDFW. Species designated as fully protected or protected may or may not be listed as endangered or threatened.

When a species is both state- and federally-listed, an expedited request for consistency with the USFWS biological opinion may be issued through a request for Section 2080.1 consistency determination, if take authorization under the CESA is required.

California Fish and Game Code

The FGC is implemented by the California Fish and Game Commission, as authorized by Article IV, Section 20, of the Constitution of the State of California. FGC Sections 3503, 3503.5, 3505, 3800, and 3801.6 protect all native birds, birds of prey, and nongame birds, including their eggs and nests, that are not already listed as fully protected and that occur naturally within the state. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs. As defined in the Fish and Game Code, "take" means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill (Fish and Game Code Section 86). The CDFW is the state agency that manages native fish, wildlife, plant species, and natural communities for their ecological value and their benefits to

people. The CDFW oversees the management of marine species through several programs, some in coordination with NMFS and other agencies.

3.3 LOCAL REGULATIONS

San Diego Unified Port District Port Master Plan

Through implementation of the Port Master Plan (PMP), the District maintains authority over tidelands and submerged lands conveyed in trust to the District by the California legislature. Any amendments to the PMP must be reviewed and certified by the CCC. Under the certified PMP, the District has the authority to issue Coastal Development Permits (CDPs) for projects within its jurisdiction.

San Diego Bay Integrated Natural Resources Management Plan

The District and U.S. Navy jointly implement the Integrated Natural Resources Management Plan (INRMP) (U.S. Navy 2013a). This long-term collaborative strategy for managing the Bay's natural resources provides planning guidance for good stewardship of the natural resources within San Diego Bay. The INRMP does not carry regulatory authority, but rather establishes a baywide plan for natural resource management that has been vetted by the regulatory agencies with land use authority over the Bay and a broad spectrum of stakeholders. The plan provides valuable guidance on siting of facilities, managing resources, and consideration of natural resource enhancement opportunities within the Bay.

4.0 ENVIRONMENTAL SETTING

The description of the environmental setting of the Project is based on existing biological information for San Diego Bay, including the San Diego Bay INRMP (U.S. Navy 2013a), and physical and biological surveys conducted for the proposed Project in March 2019. The upland area was surveyed on foot by an M&A biologist, documenting habitat types and representative species.

In-water work was completed using interferometric sidescan sonar (ISS), which provided an image of seafloor backscatter within the entire project area. Sidescan backscatter data were acquired at a frequency of 468 kHz, with a scanning range of 31 meters (102 feet) for both the starboard and port channels, resulting in a 62 meters (204-ft) wide swath. All data were collected in latitude and longitude using the North American Datum of 1983 (NAD 83). The survey was conducted by running transects spaced to allow for overlap between adjoining sidescan swaths. Transect surveys were performed until the entirety of the survey area was captured in the survey record. Following completion of the survey, the data were converted into a geographically registered mosaic through digital post-processing, and plotted on a geo-rectified aerial image of the project area. Resources of interest were then digitized to show their distribution within the survey area.

4.1 HABITATS WITHIN THE PROJECT SITE

The INRMP differentiates habitats by depth, with upland and supratidal habitat encompassing the area above +7.8 ft MLLW, intertidal habitat encompassing the area between +7.8 to -2.2 ft MLLW, shallow subtidal habitat between -2.2 and -12 ft MLLW, moderately deep subtidal habitat between -12 and -20 ft MLLW, and deep subtidal habitat deeper than -20 ft MLLW (U.S. Navy 2013a). Deep and moderately deep habitats maintain similar biological functions, while shallow habitat has the potential to support greater primary productivity, and overall greater diversity of habitats and ecological communities. Given the developed nature of the project site, the Upland Transition and Upland Area were considered any area greater than +7.8 ft MLLW. Habitats were delineated into two categories: upland and in-water (or marine), with sub-categories classified if present. A summary of the various habitat types within the project site with a buffer around project elements is provided in Table 1, depicted in Figure 3, and described in the following section.

Table 1. Habitat Summary in Project Area.

Category	Elevation	Habitat Type	Area (sq ft)
Upland	>+7.8 ft MLLW	Man-Made Structure (Pilings/Marine Rail/Pier/Outfall)	157
		Urban/Developed	39,562
Marine	Intertidal +7.8 to -2.2 ft MLLW	Rip-Rap Revetment	77
		Man-Made Structure (Pilings/Marine Rail/Pier/Outfall)	4,056
		Unvegetated Soft Bottom	31,580
	Subtidal Below -2.2 ft MLLW	Rip-Rap Revetment	5,433
		Man-Made Structure (Pilings/Marine Rail/Pier/Outfall)	898
		Unvegetated Soft Bottom	143,312
Total			225,075
Surface Cover*		Pier and Docks	1,991

*Surface cover is a habitat layer and does not add to the total habitat area

Unvegetated Habitat

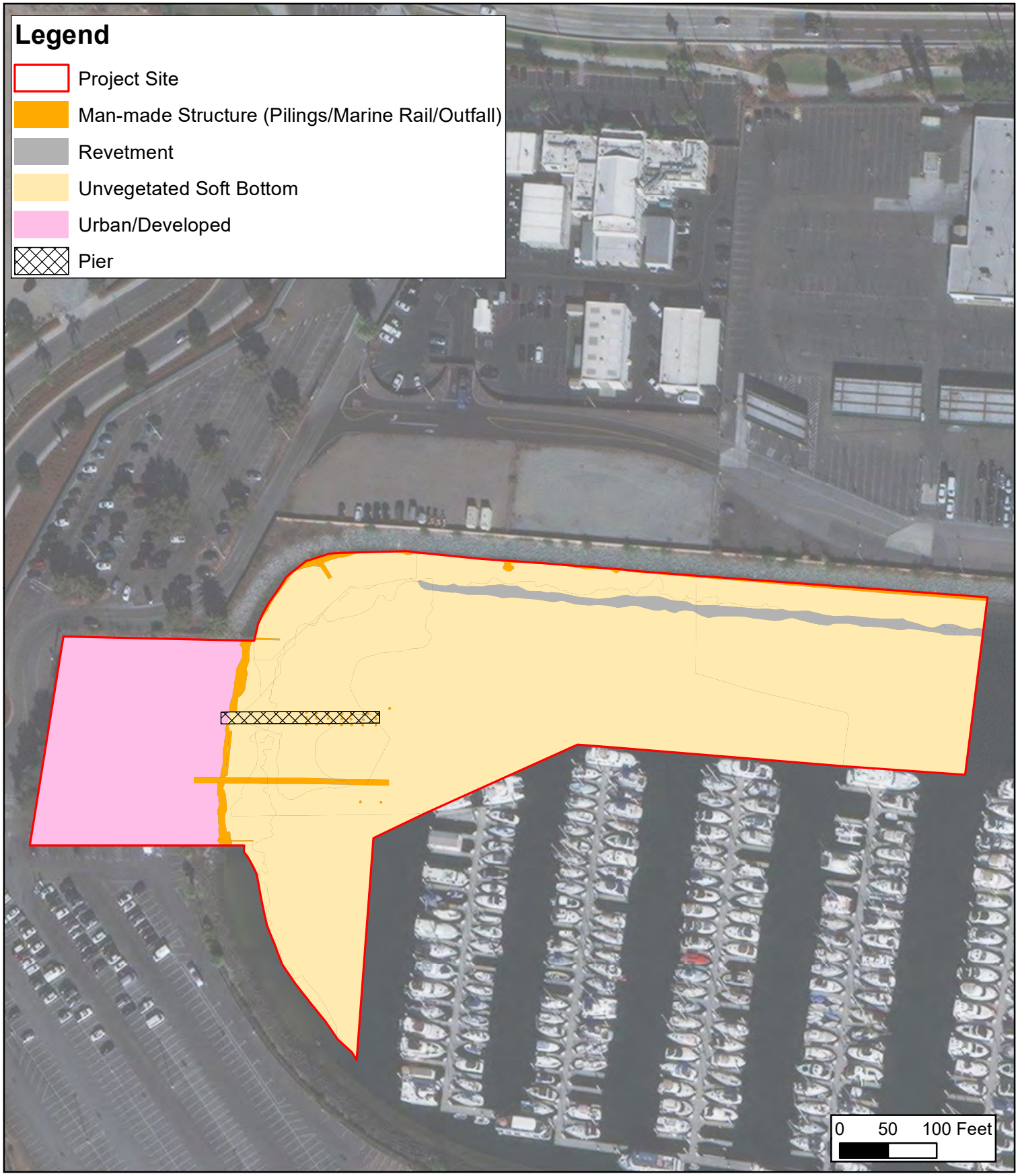
The majority of the project area is considered to be shallow subtidal unvegetated soft bottom habitat consisting of sand, gravel, mud and silt (Figure 3). Scattered within the soft bottom, particularly near the pier, are scattered patches of isolated debris supporting macroalgae and sessile invertebrates. Unvegetated soft bottom also occurs under the existing pier/rail structures, where shading and water depth prevent the growth of eelgrass.

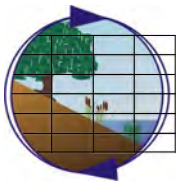
Rubble scattered in soft bottom habitat near existing structures supports a mix of native and non-native species. In exposed shallow water, algae are common, while under piers and in deeper water debris is generally covered with sessile macroinvertebrates and small mobile invertebrates. Fish such as the sandbass are commonly associated with rubble.

Although primarily bare, soft bottom in the shallow water area contains occasional clumps of red algae (*Gracilaria* spp., *Ceramium* spp.), loose clumps of green algae (*Ulva* spp.), and commonly a film of benthic diatoms forming mats over portions of the bottom. Patches of the invasive *Sargassum muticum* and *S. horneri* can also be found on debris, with *S. horneri* being found deeper and more scattered than *S. muticum*. Benthic algae, while providing little structure to the soft bottom habitat, provides a food source for many invertebrates, carbon enrichment for detritivores, and produces oxygen during daylight hours.

Unvegetated soft bottom habitat with evidence of burrowing invertebrates, solitary tube-dwelling anemones, amphipods, and molluscs.

Fish species typically found in this habitat include Round Stingrays (*Urobatis halleri*), Barred Sand Bass (*Paralabrax nebulifer*), Spotted Sand Bass (*Paralabrax maculatofasciatus*), Specklefin Midshipman (*Porichthys myriaster*), Black Croaker (*Cheilotrema saturnum*), and Gobies (Family Gobiidae). Invertebrates on the surface of this habitat are sparse, but evidence of burrowing invertebrate activity are apparent, likely from bivalves (*Chione* spp., *Macoma nasuta*), the amphipod (*Grandidierella japonica*), bay ghost shrimp (*Neotrypaea* spp.), burrowing anemones (*Harenactis attenuata*), and tube-dwelling anemones (*Pachycerianthus* spp.). Other invertebrates commonly observed within the shallow waters of San Diego Bay include the opisthobranch (*Navanax inermis*) and slender sea pen (*Stylatula elongata*), as well as calcareous bryozoans and the soft bryozoan *Zoobotryon verticillatum*. The occasional debris found on the bottom may support species more typical of hard substrates, including sponges (Phylum Porifera), scale worm (Family Polynoidae), golden gorgonion (*Muricea californica*), invasive non-native tunicates (*Styela plicata* and *Botrylloides* spp.), and spiny lobster *(Panulirus interruptus*).





Habitat Map of Project Site
Lockheed Martin Harbor Island Facilities
Demolition and Sediment Remediation Project

Figure 3

Subtidal Vegetated Habitat

Vegetated subtidal habitats are an essential component of southern California's coastal marine environment. Eelgrass (*Zostera marina*) beds function as important habitat for a variety of invertebrate, fish, and avian species. For many species, eelgrass beds are an essential biological habitat component for at least a portion of their life cycle, providing resting and feeding sites along the Pacific Flyway for avian species, and nursery sites for numerous species of fish. The survey of in-water habitats completed in March 2019 detected no eelgrass in the shallow waters of the project site, further supported by findings from previous bay-wide surveys conducted in the project area (M&A 2018).

Riprap Revetment

The shoreline along the perimeter of the project site is armored with riprap revetment in the upper intertidal zone where it transitions to unvegetated intertidal and shallow subtidal habitat. Note that the project elements involving dredging and sand placement are proposed to occur on the soft bottom habitat below the intertidal revetment (Figure 3).

The intertidal riprap was generally free of flora and fauna, but likely supports arthropods such as the lined shore crab (*Pachygrapsus crassipes*). A narrow fringe of shallow subtidal revetment along the northern portion of the project site supports invertebrates, predominantly belonging to the phylum Mollusca, as represented by the native oyster (*Ostrea lurida*) and non-native Pacific oyster (*Crassostrea gigas*) (Figure 3).

Open Water

Open water/water column habitat due to its three dimensional component, is the largest habitat type within the project site, and supports pelagic fishes and occasionally marine mammals. The most common schooling species known to occur within the project site are Topsmelt (*Atherinops affinis*) along with Northern and Deepbody Anchovy (*Engraulis mordax* and *Anchoa compressa*). The occurrence of these species in open water is important to several species of piscivorous birds including pelicans, terns, loons, grebes, cormorants, and mergansers. These fish also provide an important forage base for predatory fish species. Topsmelt are generally common around piers where they aggregate by the structures.

Shoreline of project area depicting revetment at upper intertidal area, with soft bottom habitat at lower intertidal zone.

Man-Made Structures

Pier pilings provide habitat for an assemblage of organisms known as the fouling community. This community appears to attract schooling fish, which feed on the attached invertebrates and algae, and obtain refuge from predation (Glasby 1999). The species present and the overall complexity of the fouling community on pier pilings are dependent upon a number of factors including tidal elevation and inundation time, light availability, wave exposure, and size and shape of the pilings themselves (Connell and Glasby 1999, Connell 2001). While several studies indicate that man-made marinas do not support the same complexity of organisms as do natural reefs, it is apparent that pier pilings in coastal marinas do provide habitat value for fouling communities and associated fish assemblages (Clynick 2008). Piles exposed to greater circulation and higher light levels tend to support the most complex and productive communities. This is generally not the case in the project area where piles within the project area are exposed to limited circulation given the location within the basin.

*The upper portion of the pier piles are dominated by barnacles (*Balanus *spp.), native and non-native Pacific oyster (*Ostrea lurida *and* Crassostrea gigas*), and mussel (*Mytilus galloprovincialis*). Below the intertidal zone fouling tunicates, sponges, and bryozoans become dominant. Dominant species include coralline and red algae, sponges (Phylum Porifera), and tunicates including* Styela clava*,* Styela plicata*, and* Botrylloides *spp.*

The pier piles in the project site support numerous species of sessile, or sedentary, invertebrates. At the highest tidal elevations, the pilings are dominated by barnacles (*Chthamalus* spp., *Balanus* spp.). At lower tidal elevations, the native oyster, and Mediterranean mussel (*Mytilus galloprovincialis*) are dominant. Other invertebrates include non-native oyster, sponges (Phylum Porifera), multiple species of tunicates including *Styela clava*, *Ciona* spp., and *Botrylloides* sp., hard and soft bryozoans, including the widespread invasive *Zoobotryon verticillatum*, and feather duster worms (Family Sabellidae). Mobile invertebrates associated with pilings include scale worms (Family Polynoidae), and brittle stars (Class Ophiuroidea). Fish species that typically occur around the pilings include Kelpfish, Topsmelt, and Barred Sand Bass. California Scorpionfish (*Scorpaena guttata*) are likely to be associated with the pile communities, although this species tends to be more common in outer northern San Diego Bay. California Scorpionfish is managed by the National Marine Fisheries Service under the Pacific Groundfish Fishery Management Plan (PFMC 2016).

Algal species associated with the piling community in San Diego Bay include green algae (*Ulva* sp.), coralline red algae (*Corallina* spp.), and brown algae including *Dictyota* spp. The non-native, invasive kelp species, *Undaria pinnatifida,* and the invasive *Sargassum muticum*, and *S. horneri* may also be present. When established, these species can form vigorous stands and forms a thick canopy over the native biota (IUCN Invasive Species Specialist Group 2007).

Urban/Developed Areas

The upland transition and upland areas of the project site consist of the original landscaping and opportunistic weedy species that are completely surrounded by urban development, with vegetation being limited to ornamental and non-native, ruderal species. No special status flora species are expected to occur in the upland areas. Observed vegetation is limited to ornamental

and landscaped species such as palm and eucalyptus trees (*Phoenix sp. and Eucalyptus sp.*), and non-native grasses and forbs common to developed areas such as bromes and sweetclover (*Bromus sp.* and *Melilotus sp*.). The five mature eucalyptus trees and one royal palm tree present on the property are to be left in place per the proposed demolition plan (Lockheed Martin Corporation 2017).

Upland area consists of urban development with several mature trees and ruderal species. The site is nearly fully paved with exception of small areas adjacent to building.

No special status wildlife species are expected to occur within the upland and transition areas of the project site. Wildlife species noted in the upland and transition areas consist primarily of common urban associated species and are dominated by avian fauna such as of mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), European starling (*Sturnus vulgaris*), American Crow (*Corvus brachyrhynchos*), rock pigeon (*Columba livia*), house sparrow (*Passer domesticus*) and western gull (*Larus occidentalis*). The western fence lizard (*Sceloporus occidentalis*) is the only reptile species likely to occur. Mammal species are limited to non-native rodent species such as house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), and black rat (*Rattus rattus*). Additionally, two other common mammals often associated with urban development, racoon (*Procyon lotor*) and Virginia opossum (*Didelphis virginiana*), are also likely to occur within the upland areas of the project site.

Some upland areas have a potential to be utilized by other regionally common migratory birds that are not designated as special status species under CEQA, but are protected under the federal MBTA and California Fish and Game Code Sections 3503 and 3513. Avian species classified as migratory under the MBTA have a potential to nest within the study area. These include mourning dove, house finch, and western gull. Mourning dove generally construct nests of small twigs on a horizontal limb, in the crotch of a tree, or on secluded areas within urban structures in the absence of suitable trees or shrubs, with breeding occurring from late January through September. House finch build nests of fine weed and grass stems and leaves, as well as items such as string and feathers, in a variety of urban and non-urban areas, with breeding occurring from March to July. Western gull often utilize urban structures at suitable nest locations when cliff edges and natural locations are limited. In southern California, western gull will nest mainly from April to July.

4.2 WETLANDS AND SENSITIVE HABITATS

Wetlands, as defined by the USACE, are not present within the developed project site. The nearest wetlands to the project site are located on Delta Beach on the west side of the bay from the site at a distance of approximately 4.6 miles and the marshes of the San Diego Bay Wildlife Refuge, located approximately 7.2 miles south of the project site.

Eelgrass is a rooted aquatic plant that inhabits shallow soft bottom habitats in quiet waters of bays and estuaries, as well as sheltered coastal areas. It can form dense beds that provide substrate, food, and shelter for a variety of marine organisms. Eelgrass is considered a Submerged Aquatic Vegetation (SAV), and a "special aquatic site" under the CWA. Pursuant to the MSA, eelgrass is designated as a Habitat Area of Particular Concern (HAPC) within EFH for various federally-managed fish species within the Pacific Coast Groundfish Fisheries Management Plans (FMP) (NMFS 2014). As noted in the Subtidal Vegetated Habitat section, eelgrass was not detected within the project site in March 2019.

4.3 WILDLIFE CORRIDORS

The project site does not provide any terrestrial movement corridors, and no marine mammal, reptile, or fish migratory corridors occur within the site. However, some marine fish species, such as Anchovy, Sardine, and Topsmelt, move into and out of the Bay for spawning, nursery, and foraging. The southern portions of San Diego Bay, including the South San Diego Bay National Wildlife Refuge and South Bay Salt Ponds further to the south, provide stopover habitat for migrating waterfowl and shorebirds. San Diego Bay, like all of California, is located within the Pacific Flyway.

Several whale species migrate along the coast of California, including the California gray whale (*Eschrichtius robustus*). The peak northward migration of male gray whales occurs in mid-March, followed two months later by the second migration wave, which is composed of cows and calves. Whales typically do not occur within the waters of San Diego Bay, and their occurrence in the bay is generally a rarity.

4.4 SENSITIVE WILDLIFE

Table 2 lists sensitive animal species known to occur in San Diego Bay, and identifies the likelihood of these species to occur within the project site. While several sensitive species are known to occur in San Diego Bay and in the marshes adjacent to the Bay, few species are known to regularly occur within or immediately adjacent to the project site. Only two species listed by USFWS and/or CDFW as federally or state endangered or threatened have an elevated potential to occur within the project site: the federally threatened green sea turtle (*Chelonia mydas*) which has not been documented in the study area but which is known to move in and out of San Diego Bay, and the federally and state endangered California least tern (*Sternula antillarum browni*) which is known to forage in the study area as it regularly cruises the shorelines of San Diego Bay and forages opportunistically when in the Bay.

South San Diego Bay supports a population of eastern Pacific green sea turtles of between 16 and 61 individuals that primarily remain in the warm waters of south San Diego Bay, though some are known to leave the bay to nest on the beaches of offshore islands of Mexico (Eguchi et al. 2010). Long-term acoustic tagging and GPS tracking studies by NMFS indicate that the population has historically congregated in the warm waters of the cooling water discharge channel at the now closed South Bay Power Plant in south San Diego Bay. The shutdown of the South Bay Power Plant has made movements of turtles harder to predict. Recent tracking studies have noted turtles utilizing areas of San Diego Bay much farther north than their historically recognized foraging areas,

Table 2. Sensitive Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Status	Occurrence in Project Site
Reptiles Green Sea Turtle	*Chelonia mydas*	FT	Low Potential – Resident population occurs in south San Diego Bay and individuals are known to leave the bay. They may travel through the project area or more likely travel along the eelgrass vegetated western side of the bay.
Birds California Brown Pelican	*Pelecanus occidentalis californicus*	CDFW FP	High Potential – No nesting, roosts on security barrier, rip rap, docks, pilings, etc. at project site infrequently and typically in low numbers.
Double-crested Cormorant (nesting)	*Phalacrocorax auritus*	CDFW WL	High Potential – Nests in South Bay Salt Works but forages in open waters throughout the bay.
Northern harrier (nesting)	*Circus cyaneus*	CDFW SSC	Low Potential –- Nests in marshes in south bay and is uncommon on the urbanized east shore.
Osprey (nesting)	*Pandion haliaetus*	CDFW WL	Low Potential – Nests in South San Diego Bay and typically forages in the South Bay.
American peregrine falcon (nesting)	*Falco peregrinus anatum*	CDFW FP, FWS BCC	Moderate Potential – Nests on tall structures such as the Coronado Bridge and may forage in the area on rare occasion.
California Least tern (nesting)	*Sternula antillarum browni*	SE, FE	High Potential – Nests on habitual colonies within San Diego Bay. The nearest colony is at Linberg Field located approximately 0.8 miles west of the project area. Least terns are a migratory species found in the area from approximately April 1 through September 1 of each year.
Caspian tern (nesting)	*Hydroprogne caspia*	FWS BCC	Moderate Potential – Nests in South Bay Salt Works and forages along project site occasionally.
Black skimmer (nesting)	*Rynchops niger*	CDFW SSC	Moderate Potential – Nests in South Bay Salt Works and forages along project site occasionally.
Elegant tern (nesting)	*Thalasseus elegans*	CDFW WL	High Potential – Nests in South Bay Salt Works and forages along the project site.
Mammals Pacific harbor seal	*Phoca vitulina richardsi*	MMPA	Low Potential – Forages in north bay and is uncommon in the mid bay.
California sea lion	*Zalophus californianus californianus*	MMPA	Moderate Potential – Forages and loafs in the north bay with uncommon occurrences in the mid bay.
Coastal bottlenose dolphin	*Tursiops truncatus*	MMPA	Low Potential – Uncommon forager in deep channels of the north bay. Rarely seen in mid and south SD Bay.
California gray whale	*Eschrichtius robustus*	MMPA	Very Low Potential – Regular migrant in offshore waters, but uncommon in bay and nearshore waters. Very rarely seen in San Diego Bay.

SE – State Endangered; **FE** – Federally Endangered; **FT** – Federally Threatened; **CDFW SSC** – CDFW Species of Special Concern; **CDFW-FP** – CDFW Fully Protected Species; **CDFW-WL** – CDFW Watch List; **FWS-BCC** – USFWS Bird of Conservation Concern; **MMPA** – species protected by the Marine Mammal Protection Act

but still primarily located south of the Sweetwater River Channel; recent tracking data indicates that turtles spend 95% of their time south of the Sweetwater River Channel (Bredvik et al 2015).

The California least tern nests along the west coast of North America, from Baja California, Mexico, north to the San Francisco Bay area. California least terns are seasonal residents of San Diego Bay, typically arriving in mid- to late-April to nest at several colonies adjacent to San Diego Bay, and are generally present through August, with September 15 marking the end of the season. Along the shores of the San Diego Bay, California least terns nest at multiple sites. The closest to the project site are Lindbergh Field, Naval Air Station North Island, and Delta Beach. These three sites are located approximately 0.8 miles, 2.7 miles, and 4.8 miles from the project site, respectively. California least terns actively forage for fish in the waters adjacent to nesting colonies in San Diego Bay, as well as in nearshore coastal waters outside of San Diego Bay. Given the duration of project, the construction schedule has been structured to minimize in-water work during the California least tern nesting/foraging season.

Finally, several species of marine mammals occur in the bay (Table 2). California sea lion (*Zalophus californianus californianus*) and, to a lesser extent, Pacific harbor seal (*Phoca vitulina richardsi*) are the two most common species of marine mammals that occur in San Diego Bay and adjacent coastal waters (U.S. Navy 2013a). Neither species breeds within San Diego Bay, and both are occasional visitors to north San Diego Bay. California sea lion may occasionally be observed adjacent to the project site, but Pacific harbor seal are not expected to occur (U.S. Navy 2013a). Dolphins and whales are rarely observed in San Diego Bay, and are not anticipated to be present within the project site (U.S. Navy 2013a).

5.0 ESSENTIAL FISH HABITAT

5.1 ESSENTIAL FISH HABITAT BACKGROUND INFORMATION

The MSA requires federal action agencies to consult with NOAA's NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH. The EFH Guidelines (50 CFR 600.05 - 600.930) outline the process for federal agencies, NMFS and the Fishery Management Councils to satisfy the EFH consultation requirement under Section 305(b(2)-(4)) of the Magnuson-Stevens Act. As part of the EFH Consultation process, the guidelines require Federal action agencies to prepare a written EFH Assessment describing the effects of that action on EFH (50 CFR 600.920(e)(1)). The EFH Assessment is a necessary component for efficient and effective consultations between a federal action agency and NMFS. In the case of the present project, work proposed would require permitting under section 404 of the Clean Water Act and section 10 of the Rivers & Harbors Act. For these permit actions, the Army Corps of Engineers is the lead federal action agency.

Definitions

EFH consist of those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity (16 U.S.C. 1802(10)). The following definitions apply to the sections of this document that address potential project impacts and protective measures:

- Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate (50 CFR 600.10).
- Substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities (50 CFR 600.10).
- Necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem (50 CFR 600.10).
- Healthy ecosystem means an ecosystem where ecological productive capacity is maintained, diversity of the flora and fauna is preserved, and the ecosystem retains the ability to regulate itself. Such an ecosystem should be similar to comparable, undisturbed ecosystems with regard to standing crop, productivity, nutrient dynamics, trophic structure, species richness, stability, resilience, contamination levels, and the frequency of diseased organisms (50 CFR 600.810(a)).
- Adverse effect means any impact that reduces quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810(a)).

Habitat Areas of Particular Concern

EFH guidelines published in Federal regulations identify HAPC as types or areas of habitat within EFH that are identified based on one or more of the following considerations:

- The importance of the ecological function provided by the habitat.

- The extent to which the habitat is sensitive to human-induced environmental degradation.
- Whether, and to what extent, development activities are or will be stressing the habitat type.
- The rarity of the habitat type (50 CFR 600.815(a)(8)).

HAPCs considered potentially present within the project site include estuarine and seagrass habitat (NMFS 1999). Estuaries are protected nearshore areas such as bays, sounds, inlets, and river mouths, influenced by ocean and freshwater. Because of tidal cycles and freshwater runoff, salinity varies within estuaries and results in great diversity, offering freshwater, brackish and marine habitats within close proximity (NMFS 1999). Given the large scale of San Diego Bay combined with the limited freshwater and highly punctuated influence associated with creeks and drainage, the region of the bay within which the project is strongly dominated by marine influences and maintains year-round oceanic salinities and does not meet the estuary definition and the areas is not considered to be an estuary HAPC. Seagrasses are vascular plants, not seaweeds, forming dense beds of leafy shoots in the lower intertidal and subtidal areas. Eelgrass (*Zostera marina*) is seagrass found on soft-bottom substrates in intertidal and shallow subtidal areas of bays and estuaries as well as some coastal nearshore areas. Eelgrass is considered to be an HAPC but is not present within the project area.

NMFS Managed Ichthyofauna Present in San Diego Bay

The ichthyofauna in San Diego Bay has been previously studied (M&A 2000, Allen 1999, Hoffman 2006). The first truly baywide seasonal study of fishes was published in April 1999 after five years of sampling (1994 to 1999). In subsequent years, multiple follow-up studies to Allen's have been performed by the Vantuna Research Group using identical methods (VRG 2006, 2009, 2012, 2015). The most recent survey was completed in 2016 with a specific focus to assess potential impacts of El Niño conditions on fisheries of San Diego Bay (VRG 2016). To date, these studies have identified a minimum of 115 species of fish in the Bay (U.S. Navy, 2013; VRG 2006, 2009, 2012, 2015, 2016). The following analysis makes extensive use of Allen's and VRG's baywide survey data sets because they are both recent and comprehensive (surveys were completed quarterly, at four stations throughout San Diego Bay, utilizing six sampling gear types). The other studies reviewed for this analysis are utilized primarily to confirm the presence of fish species and to identify any additional species not captured during the baywide surveys.

The NMFS currently manages pelagic and groundfish stock under FMPs, two of which – the Coastal Pelagics FMP and the Pacific Coast Groundfish FMP – specifically relate to species found in San Diego Bay (NMFS 2011, NMFS 2014). Six fish species and two invertebrate stocks (squid and krill) are managed under the Coastal Pelagics FMP. Of the 115 fish species known to occur in San Diego Bay, six are managed under the Coastal Pelagics FMP, including Northern Anchovy (*Engraulis mordax*), Pacific Sardine (*Sardinops sagax*), Pacific Mackerel (*Scomber japonicus*), Jack Mackerel (*Trachurus symmetricus*), Pacific Herring (*Clupea pallasii pallasii*), and Jacksmelt (*Atherinopsis californiensis*) (Table 3). The Northern Anchovy and Pacific Sardine (*Sardinops sagax*) are the most abundant pelagics identified by Allen, ranking 1st and 4th in abundance, and 3rd and 10th in biomass, respectively. Together, these two species accounted for 46.3% of the total abundance and 11.6% of the total biomass of fish enumerated by Allen (1999). Northern Anchovy has remained numerically dominant within the Bay, ranking 2nd and 4th in abundance and 3rd and 2nd in biomass during 2015 and 2016 surveys, respectively (VRG 2015, VRG 2016). However, Pacific Sardine has declined in

recent studies, and this species ranked 22nd and 30th in abundance, and 32nd and 37th in biomass during 2015 and 2016 surveys, respectively.

The Pacific Mackerel, Jack Mackerel, Pacific Herring, and Jacksmelt are the other four coastal pelagic species to potentially occur within the project site. All of these species are much less abundant than the Northern Anchovy and Pacific Sardine within the Bay. Jacksmelt has been captured during two of the last three survey years, ranking 15th and 18th in abundance, and 33rd and 12th in biomass during 2015 and 2016, respectively (VRG 2016). A single Pacific Mackerel was captured during 2012 surveys, and subsequently, Pacific Mackerel and Jack Mackerel were not captured during 2015 or 2016 survey efforts. These two species have historically been captured infrequently in the bay, and were ranked by Allen as 32nd and 52nd in total abundance and 24th and 73rd in total biomass, respectively (Allen 1999). Together these two species accounted for less than 1% of total abundance and fish biomass captured in Allen's study. Finally, there is a record of occurrence for Pacific Herring in the Bay (U.S. Navy 2013), but this species was not captured in Allen's fish surveys, or any of the subsequent VRG surveys.

Of the 89 species managed under the Pacific Coast Groundfish FMP (NMFS 2014), nine have a record of occurrence within the Bay (Table 3). Two species, California Scorpionfish (*Scorpaena guttata*) and English Sole (*Parophrys vetulus*) were captured in Allen's baywide fish surveys. However, these species were observed only rarely in the Bay during the five and a half years of Allen's study, ranking 41st and 76th by abundance and 24th and 73rd in biomass, respectively. Together these species accounted for less than 0.5% of the total abundance and fish biomass captured (Allen 1999). In eighteen years of sampling in the Bay, Hoffman (2006) never captured English Sole and captured only four California Scorpionfish, though the habitat sampled was not typical for these species. English Sole has not been captured in any of the recent VRG surveys; however, California Scorpionfish has been captured in small numbers in 2012 (eight individuals), 2015 (one individual), and 2016 (two individuals). Other rarely captured groundfish species include Grass Rockfish (*Sebastes rastrelliger*) (a single individual captured in 2005), Olive Rockfish (*Sebastes serranoides*) (a single individual captured in 2016), and Curlfin Sole (*Pleuronichthys decurrens*) (a single individual captured in 2012).

Finally, in addition to the species captured during Allen's study and the more recent Vantuna Research Group Studies, three shark species (Leopard Shark (*Triakis semifasciata*), Soupfin Shark (*Galeorhinus galeus*), and Spiny Dogfish (*Squalus acanthias*)) and Cabezon (*Scorpaenichthys marmoratus*) have also been reported for the Bay (U.S. Navy 2013). These species are also rarely captured and have been reported primarily as species taken by recreational fisherman.

Table 3. Table of NMFS Managed Fish Species previously found in San Diego Bay*

Common Name	Scientific Name
Coastal Pelagics FMP	
Northern Anchovy	*Engraulis mordax*
Pacific Sardine	*Sardinops sagax*
Pacific Mackerel	*Scomber japonicus*
Jack Mackerel	*Trachurus symmetricus*
Jacksmelt	*Atherinopsis californiensis*
Pacific Herring	*Clupea pallasii*
Pacific Groundfish FMP	
California Scorpionfish	*Scorpaena gutatta*
English Sole	*Parophrys vetulus*
Leopard Shark	*Triakis semifasciata*
Soupfin Shark	*Galeorhinus zyopterus*
Spiny Dogfish	*Squalus acanthias*
Cabezon	*Scorpaenichthys marmoratus*
Grass Rockfish	*Sebastes rastrelliger*
Olive Rockfish	*Sebastes serranoides*
Curlfin Sole	*Pleuronichthys decurrens*

* Data compiled from Allen (1999), Hoffman (2006), Merkel and Associates, Inc. (2000), VRG (2006, 2009, 2012, 2015, 2016).

Biological Descriptions for Managed Species

The following descriptions of the life histories of managed species provide the background information required to make a determination of the suitability of the project area to support and provide essential habitat for these species.

Northern Anchovy

Northern Anchovy historically ranged from the Queen Charlotte Islands, British Columbia south to Cape San Lucas, Baja California. More recently, populations have moved into the Gulf of California, Mexico. Larvae and juveniles are often abundant in nearshore areas and estuaries with adults being more oceanic. However, adults can be abundant in shallow nearshore areas and estuaries and eggs and larvae have been found offshore. Northern Anchovy are non-migratory but do make extensive inshore-offshore movements and along-shore movements. Spawning occurs throughout the year; in southern California, spawning occurs between January and May. Northern Anchovy are one of the most abundant fish in the California current and are important prey for a variety of fish, birds, and marine mammals (Emmett et al. 1991).

Pacific Sardine

Pacific Sardine is a pelagic species. Individuals can be found in estuaries, but are most common in open coastal habitats and offshore. The Pacific Sardine is wide ranging with sardines in the Alguhas, Benguela, California, Kuroshio, and Peru currents, and off New Zealand and Australia being considered the same species. Changes in distribution are common and linked to environmental conditions. In California, sardines are highly mobile and move seasonally. Older adults move from southern California and northern Baja spawning grounds to feeding grounds off the Pacific Northwest and Canada. Younger individuals (two to four years old) migrate to feeding grounds in

central and northern California. Juveniles occur in nearshore habitats off northern Baja and southern California. Although numbers vary greatly, at times sardines are the most abundant fish species in the California current. In southern populations spawning occurs year-round with a peak from April to August between Point Conception and Magdalena Bay. Eggs and larva are found everywhere adults are found. Sardines are planktivores consuming both phytoplankton and zooplankton. They are themselves prey for a variety of predators. Eggs and larvae are consumed by numerous planktivores with juvenile and adults being consumed by a variety of fish, birds, and mammals (NMFS 1998).

Pacific Mackerel

Pacific Mackerel is a pelagic species. In the northeastern Pacific, Pacific Mackerel range from Banderas Bay, Mexico to southeastern Alaska and usually occur within 20 miles of shore. Local populations spawn from Eureka, California south to Cabo San Lucas, Baja California with peak spawning occurring between late April and July. However, fecundity is more closely tied to sufficient food and environmental conditions than to season. Pacific Mackerel larvae are predated by numerous invertebrate and vertebrate planktivores. Juveniles and adults are important prey for many large fishes, marine mammals, and birds. Due to their larger size, they are likely less important as forage than Pacific Sardine or Northern Anchovy which are available to a wider variety of predators and are more abundant (NMFS 1998).

Jack Mackerel

Jack Mackerel is a schooling fish that ranges widely throughout the northeastern Pacific. Individuals are found along the mainland coasts to an offshore limit approximated by a line running from Cabo San Lucas, Baja California, to the eastern Aleutian Islands, Alaska. Typically, small Jack Mackerel (<6 years of age) are most abundant near the mainland coast and islands in the Southern California Bight. Older individuals fill out the geographic range and are generally found offshore in deep water and along the coastline north of Point Conception, California. Jack Mackerel spawn between February and October in California, with peak spawning activity between March and July. Larvae eat primarily copepods with the small Jack Mackerel found off southern California consuming large zooplankton, juvenile squid and anchovy. Jack Mackerel are prey items for large predators such as tunas and billfish. They are likely only of minor significance as prey for marine birds because of the large size of adults and their deep schooling (NMFS 1998).

Pacific Herring

Pacific Herring is a commercially important schooling fish species, with fisheries for both adults and roe (eggs). The species is found throughout the North Pacific Ocean, including from Baja California north to Alaska. Pacific Herring congregate in large schools and are found at depths of between one and 3,000 ft. Adults migrate inshore to bays and estuaries to spawn once per year, between November and August. Peak spawning in California estuaries is in December and January (Emmett et al. 1991). Eggs are laid on kelp, eelgrass, and other benthic structures. After spawning, adults return to their summer feeding areas, while juveniles remain in protected estuary waters for up to a year. Pacific Herring are planktivorous. The adults and eggs of Pacific Herring are consumed by a wide range of fish, marine mammals, and birds.

California Scorpionfish

The California Scorpionfish ranges from Santa Cruz, California south to Uncle Sam Bank, Baja California. It is a benthic species found in both sandy and rocky habitats. Individuals are predominantly solitary, but are known to aggregate near prominent features both natural and human-made. Young fish live in shallow habitats typically hidden within dense algae and bottom-encrusting organisms. Spawning occurs between May and September and peaks in July. Eggs are laid in a gelatinous mass that floats near the surface. The primary food items include juvenile crabs, small fishes (e.g. northern anchovy), octopus, isopods, and shrimps (NMFS 2016).

English Sole

English Sole range from central Baja California to Unimak Island, Alaska. They occur in greatest numbers north of Point Conception, California. Juveniles are found in all Pacific coast estuaries from San Pedro Bay, California to Puget Sound with Elkhorn Slough, California being the southernmost estuary where they are abundant. Adults make limited movements with a northward migration in the spring to summer feeding grounds, returning in the fall. Spawning occurs over soft-bottom substrates at depths of 50-70 m. Spawning occurs between December and April for southern stocks. Eggs are buoyant and larvae are pelagic. Adults and juveniles prefer soft sand and mud bottoms generally in less than 12 m of water. Larvae are likely eaten by larger fishes, with juveniles falling prey to larger fishes, marine mammals, and birds. Adults may be eaten by marine mammals, sharks and other large fishes.

Leopard Shark

Leopard Shark (*Triakis semifasciata*) are found from southern Oregon to Baja California, Mexico including the Gulf of California. They are most common in northern California bays and estuaries and along southern California beaches. They are also common in enclosed, muddy bays, and also reside in flat, sandy areas, mud flats, sandy and muddy bottoms, strewn with rocks near rocky reefs, and kelp beds. Leopard Sharks are most common on or near the bottom in waters less than 13 feet deep, but have been caught as deep as 300 ft. They spawn and pup in shallow water. Seasonally, pups are along sandy beaches and in protected bays. A large grouping of this species is known to occur during summer months at La Jolla Shores Beach, north of San Diego Bay. The maximum recorded length of a Leopard Shark is six feet, but most do not exceed five feet in length. Females may take 10 to 15 years to reach maturity, while males may only take 7 to 13 years. The maximum age is reported to be 30 years. This species feeds on a variety of prey including crabs, clams, fish, and octopus. Leopard Sharks are undoubtedly more common in San Diego Bay waters than capture data would suggest as this species commonly occurs in eelgrass beds and quiescent shallows and an aggregation of adult Leopard Sharks was observed along the Coronado First Avenue shoreline in 2005 (Merkel, pers. obs.).

Soupfin Shark

Soupfin Shark (*Galeorhinus zyopterus*) range from northern British Columbia to Abreojos Point, Baja California and the Gulf of California. This shark is an abundant coastal-pelagic species of temperate continental and insular waters. They are often associated with the bottom, inhabiting bays and muddy shallows. Males and females apparently segregate by gender; adult males occur in deeper water and adult females occur closer inshore. Females and young tend to be more common in southern California waters. Primary nursery grounds are in southern California inshore areas south of Point Conception, with females moving in to bays to bear live young. Soupfin Sharks are

opportunistic carnivores, preying upon moderate-sized bony fishes, echinoderms, shrimp, invertebrates and squid. This species is a rare species in San Diego Bay (U.S. Navy 2013).

Spiny Dogfish

Spiny Dogfish (*Squalus acanthias*) are found in temperate and subarctic latitudes in both the northern and southern hemispheres. In the northern and central Pacific Ocean, they occur from the Bering Sea to Baja California. Spiny Dogfish typically inhabit waters less than 350 m deep and occur from the surface and intertidal areas to greater depths. The species is commonly found in inland seas, such as San Francisco Bay and Puget Sound, and in shallow bays from Alaska to central California. Mating with internal fertilization occurs on the ocean bottom between September and January. Adult females move inshore to shallow waters during the spring to release their young. Spiny dogfish are carnivorous scavengers. They are important predators on many commercial fishes and invertebrates. Their diet consists primarily of fish, especially Sandlance, Herring, Smelts, Cods, Capelin, Hake, and Ratfish; and of invertebrates, particularly shrimp, crabs, worms, krill, squid, octopus, jellyfish, and sea cucumbers. Fish become a more important dietary source as the dogfish grow larger.

Cabezon

Cabezon (*Scorpaenichthys marmoratus*) are found in southeast Alaska to as far south as Punta Abreojos in central Baja California. They dwell primarily on hard bottoms in shallow water from intertidal pools to depths of 76 m. Cabezon are abundant all year in estuarine and subtidal areas, as well as to mid-depths along the continental shelf. They are most abundant in estuaries of the West Coast, where all life stages can be found. Juveniles first appear in kelp canopies, tide pools, and other shallow rocky habitats such as breakwaters from April to June. Cabezon do not migrate and spend most of their time sitting in holes on reefs, in pools, or on kelp blades beneath the canopy, but not actively swimming. In shallow water they move in and out with the tide to feed. Their habit of sitting can make them an easy target for recreational divers. The spawning season for Cabezon runs from late October to March and peaks in January in southern California. Juveniles and adults are carnivorous, feeding opportunistically. Small juveniles depend mainly on amphipods, shrimp, crabs, and other small crustaceans while adults consume crabs, small lobsters, mollusks (abalone, squid, octopus), small fish (including rockfishes), and fish eggs.

Grass Rockfish

Grass Rockfish is a common, shallow-water rockfish found from Playa Maria Bay, Baja California to Yaquina Bay, Oregon, although they are most common south of southern Oregon. Grass rockfish have become an important component of the live-fish fishery. Among rockfishes, they have one of the shallowest and narrowest depth ranges. They are found from the intertidal zone to 184 ft, and are commonly found from the intertidal to 20 ft. Grass Rockfish are common in nearshore rocky areas, along jetties, in kelp and in eelgrass. Around reef structures, adults may be found hiding in crevices. Larvae are released from January to March, with the peak release occurring in January. This species is expected to be very rare in San Diego Bay.

Olive Rockfish

Olive Rockfish is shallow-water rockfish species that occurs from the San Benito Islands, Baja California, to Redding Rock, California (CDFW, 2013). While this species has been captured in waters as deep as 480 ft, Olive Rockfish typically occur in nearshore waters less than 150 ft deep,

along reefs and kelp beds. Olive Rockfish eat primarily fish, but also consume crab, shrimp, and squid. This species is most often captured by recreational fishers along the kelp beds and nearshore rock reefs.

Curlfin Sole

Curlfin Sole is a right-eyed flatfish species with a range from Prince William Sound, Alaska in the north to San Quintín, Baja California in the south (Washington Department of Fish and Game, 2010). Curlfin Sole are demersal living on soft bottom habitat in waters that are typically less than 300 ft deep. They eat benthic invertebrates such as polychaete worms, crustacean eggs, and brittlestars. This species is most often captured as bycatch by trawlers, rather than as a targeted commercial species.

6.0 IMPACT ANALYSIS

The project site is similar to other industrialized areas within San Diego Bay with regard to distribution of habitats, biological features, and sediment characteristics. This analysis focuses on stressors associated with the proposed project elements (i.e., upland and in-water demolition, dredging, filling) and their potential impact to biological resources including in-water habitat (i.e., unvegetated subtidal habitat, open water, intertidal/shallow subtidal riprap revetments, and pier piles), upland habitat, wildlife corridors, and sensitive species within the project area.

Criteria for determining the significance of project-related impacts on biological resources are based on the resource's relative sensitivity and regional status, including the proportion of the resource that would be affected relative to its occurrence in the project region (San Diego Bay), the sensitivity of the resource to activities (e.g., noise or disturbance) associated with the proposed project, and the duration or ecological ramifications associated with the effect. Impacts are considered significant if they would results in:

- Degradation of critical habitat or reduction in the population size of a listed species (threatened or endangered);
- Degradation of rare or biologically valuable habitat;
- A measurable change in ecological function within the project vicinity;
- A measurable change in species composition or abundance beyond that of normal variability;
- A substantive loss of water surface area through fill or surface water coverage as a result of permanent structures such as docks, wharves, and permanently moored vessels. Small structures such as moorings, navigational aids, individual or widely spaced piles do not result in a substantive loss of water area; or
- An obstruction or alteration of circulation patterns that result in a discernable degradation of water mixing, circulation, or flushing to the extent that biota would be negatively affected in the system.

Impacts to habitats and wildlife can be measured as direct and/or indirect. Direct impacts are those that have a direct impact on habitats or wildlife and occur contemporaneously with the action. Direct impacts of in-water construction to wildlife include immediate physical and physiological impacts such as abrupt changes in behavior, flight response, diving, evading, flushing, cessation of feeding, and physical impairment or mortality. Direct impacts to habitats can include damage from construction activities, as well as permanent habitat loss due to project construction. In contrast, indirect impacts are effects that are caused by or will result from the proposed action at a later time, but are still reasonably certain to occur.

Project stressors (e.g., demolition and construction activities, dredge and fill activities, and pile removal) are similar in nature although the magnitude or duration may vary based on the project element (e.g., Phase 2 requires both dredging and filling, and while the method and equipment are expected to be similar, the duration and impacts may be different due to volume and type of material). Since elements of the project will be phased over several months, the impacts are analyzed by habitat type and based on the potential stressor.

6.1 IN-WATER HABITAT AND EFH IMPACTS

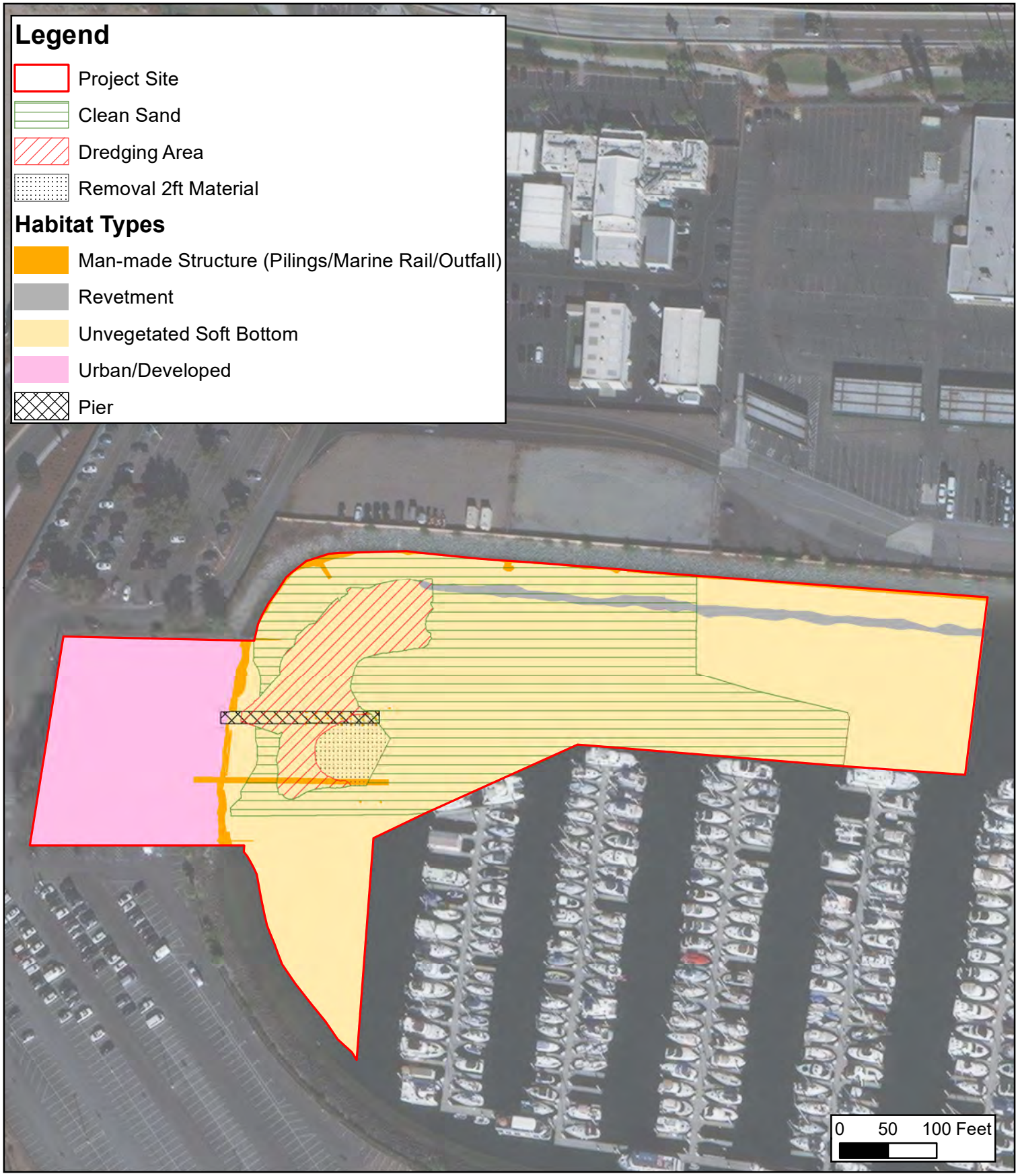
Unvegetated Habitat

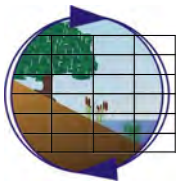
Two elements of the project (dredging and filling) would have direct impacts to intertidal and subtidal unvegetated habitat including the associated benthic community, and would result in the direct loss or mortality of any benthic infauna and epifauna within the respective footprints. Dredging would disturb approximately 21,800 sf of soft bottom habitat, while fill activities (i.e., placement of sand) would affect approximately 88,091 sf of soft bottom habitat within the project area (Figure 4 and Table 4). However, the impact area is relatively small compared to the amount of similar habitat within the bay (approximately 4,713 acres or 205,298,280 sf; U.S. Navy 2013). There is considerable similar soft bottom habitat immediately adjacent to the project area, as well as throughout the bay. These comparable adjacent areas would be expected to provide alternative foraging habitat for opportunistic motile species during the period immediately following bottom disturbance associated with dredging and filling, including removing piles.

While the grain size of the fill material is expected to be slightly coarser than ambient bay sediments, it is anticipated that the disturbed areas would be re-colonized immediately by adult migration from adjacent areas, as well as, the more protracted colonization by larval recruitment. A multi-year study completed in San Diego Bay concluded that the density and biomass of benthic infaunal invertebrates within a dredged area of San Diego Bay recovered within 5 months of dredging disturbance, with a full recovery of demersal fish and epibenthic species diversity being reached between 17 and 24 months post-disturbance (M&A 2009). As a result, the impact of dredging and filling on the soft bottom benthic community is considered temporary and minimal.

The proposed project would remove approximately 100 concrete piles, in addition to other in-water structures and would result in a decrease of hard substrate habitat and the creation of approximately 2,130 sf of soft bottom habitat (Table 4). Hard structures and piles can affect circulation patterns; however, given the location of the project site, it is anticipated that water velocities are low, and the removal of the structures would not meaningfully alter water velocities, sedimentation rates, or circulation patterns in the project area. The removal of piles and other hard structures would also result in a small decrease in the biological productivity of the area due to the loss of primary substrate and increased exposure of organisms to the water column. However, given the small area affected, the loss of the pilings and hard structures is not considered to be a significant impact. Noise impacts associated with the removal of piles are discussed in a separate section.

The removal of the pier would also result in a 1,991 sf decrease of bay surface area coverage; a decrease in bay surface cover would increase more open water habitat (Table 4). This would increase the foraging habitat available for piscivorous avian species, and be considered a benefit from the Project, since any increase in bay coverage would be considered a significant impact and would require mitigation.





Habitat Impact Map
Lockheed Martin Harbor Island Facilities
Demolition and Sediment Remediation Project

Figure 4

Table 4. Impact Summary Table for In-Water Elements

Project Element	Project Sub-Element	Category	Habitat Type	Area (sq ft)
Upland Demolition	Upland Demolition	Upland Habitat	Man-made Structure (Pilings/Marine Rail/Pier)	157
			Urban/Developed	39,562
			Total	39,719
	Pier Removal (Decking and up to 100 concrete piles)		Surface Cover*	+1,991
Dredging (15,000 cy)	Removal 2ft Material	Marine Habitat	Man-made Structure (Pilings/Marine Rail/Pier)	185
			Unvegetated Soft Bottom	3,798
			Total	3,983
	Other Dredge Area	Marine Habitat	Man-made Structure (Pilings/Marine Rail/Pier)	491
			Rip Rap Revetment	98
			Unvegetated Soft Bottom	18,002
			Total	18,591
Fill (4,500 cy)	Clean Sand	Marine Habitat	Man-made Structure (Pilings/Marine Rail/Pier)	1,455
			Rip Rap Revetment	2,633
			Unvegetated Soft Bottom	88,091
			Total	92,179

*Positive numbers indicate a reduction in bay coverage (or an increase in open water cover).

Of the managed fish species, unvegetated soft bottom habitat is only suitable for English Sole and Spiny Dogfish. Due to the rarity or absence of these species from San Diego Bay, the impacts on subtidal unvegetated EFH and managed fish species are considered to be minimal. The loss of structures would not be considered to be adverse alterations of the habitat with respect to California Scorpionfish which are commonly associated with manmade structures. However, this species would be expected to be uncommon in the project area.

Subtidal Vegetated Habitat

No eelgrass beds were detected during the March 2019 survey within the project footprint. However, potentially significant impacts to eelgrass beds, should they be identified through subsequent surveys required by the California Eelgrass Mitigation Policy (NMFS 2014b), could occur by direct physical disturbance from dredging activities or pile removal activities from the proposed project.

Open Water

As noted above, the proposed project would result in a decrease of approximately 1,991 sf of bay surface area coverage (Table 4). The permanent decrease in bay coverage is not considered significant, and is considered a benefit for piscivorous avian species.

Effects from dredging, fill activities, and pile removal include temporary and localized increases in turbidity and sedimentation within the water column, along with lowered dissolved oxygen levels associated with disturbance of anoxic sulfidic sediments during dredging activities and pile removal. These activities are anticipated to affect a relatively small area of water through increased turbidity which would be localized and dissipate quickly following bottom disturbance. It is anticipated that the effects of these construction-related turbidity impacts on fish would be temporary and minor. Some species of demersal and pelagic fish would avoid construction areas, resulting in the displacement of, followed by post-construction re-colonization by these species. Some sedentary demersal fishes may be affected by the temporary increase in sediment loads within the water column during construction, while more opportunistic fish species would be expected to temporarily move into the dredging area to take advantage of suspended benthic prey organisms. These temporary changes in fish distribution are not expected to result in substantial adverse effects. This elevated turbidity may also temporarily affect the local foraging success of fish-foraging avian species. Given the short-term nature of construction and the localized area of work, the temporary impacts to open water would be considered less than significant.

Riprap Revetment

Approximately 2,731 sf of intertidal and subtidal riprap revetment within the project site may ether be removed or buried (Figure 4 and Table 4), and would therefore result in permanent loss of riprap substrate to be replaced by soft bottom habitat. However, approximately 400 sf of this loss may be offset by the installation of riprap as outfall erosion protection along the northern shoreline of the site. The riprap revetment within the northern portion of the project footprint appears to serve as a secondary shoreline stabilization structure, and consists of small, low-relief rock that supports limited encrusting invertebrates or algae. Because of the relatively low quality habitat function of the existing riprap, impacts to intertidal and subtidal riprap revetment are not considered to be significant.

Impacts to the riprap fish community would occur during riprap burial. Some fish would temporarily avoid the work area and move to adjacent riprap during construction due to turbidity. More opportunistic fish species would be expected to temporarily move just outside of the effective range of the impact, then immediately return to forage on the released or damaged biota. These temporary impacts are not considered to be significant given the continued wide availability of comparable intertidal and subtidal riprap habitat in the vicinity of the project site that would serve as a temporary refuge.

Man-Made Structures

The proposed project would result in the removal of approximately 100 existing concrete piles (Table 4). The potential project-related impacts associated with removal of pier piles are temporary loss of habitat and forage opportunity for fish, and the physical effects of pile removal on fish. Impacts to other sensitive species are discussed in subsequent sections.

Despite the loss of piles, impacts are not anticipated to structure-oriented species, including California Scorpionfish, which are generally associated with pile and hard bottom communities. This species is managed by NMFS under the Pacific Groundfish FMP (NMFS 2014); however, it is expected to be uncommon to rare in the vicinity of the project and thus work would not substantively affect scorpionfish, positively or negatively. The mud surrounding the bottom of the piles also supports a fish community comprised of Black Croaker, Barred Sandbass, Spotted Sandbass, Kelp Bass, and Round Stingrays (non-managed species). Mud bottom would be disturbed during pile removal, but It is anticipated that this impact would be temporary.

Hydroacoustics

- *Biological In-water Noise Thresholds*

Ensonification can result in temporary and or permanent impacts to organisms in the water and may result in impacts to marine organisms where sound pressure levels are elevated either acutely or repetitively. Sound energy dissipates with distance from the source and the spread of the transmission. As the acoustic wave front passes, it creates a variation in pressure that can affect biological organisms through physiological sensations that trigger behavioral response, or in more severe cases through tissue and organ damaging concussive forces (Hastings and Popper 2005). Sound pressures are generally expressed as metrics of peak pressure (L_{peak}), root mean squared (rms), and sound exposure level (SEL). L_{peak} is the maximum sound pressure level reached from the passage of a single energy pulse. The RMS is the square root of the sum of squares of the pressure contained within the period of time containing 90 percent of the sound energy. The SEL is the constant sound level in one second that has the same amount of acoustic energy as the original time-varying sound (i.e., the total energy of an event). For pile driving, SEL is calculated by summing the cumulative pressures of a single energy pulse squared over the time of the event (Caltrans 2015). To calculate the total exposure from repeated events (e.g., multiple hammer blows), the Accumulated SEL (SEL_{cum}) is used and is largely a function of the defined time period and the number of ensonification events occurring during the time period and is calculated as SEL_{cum}= SEL + 10*log(# hammer strikes).

The MMPA regulates the "take" of marine mammals, including take through exposure to sound. For the purposes of the present analysis, there are two levels of take that are relevant. Take with the potential for injury is considered Level A take. Exposure to high intensity or prolonged sound at lower intensity may result in auditory threshold shifts (TS) wherein animals suffer from noise-induced loss of hearing over a portion or all of the animal's auditory range. The effects may be temporary threshold shifts (TTS) or permanent (PTS). Level B take may result in behavioral disruption but not injury. NMFS has developed technical guidance on sound characteristics that are likely to cause injury in marine mammals (NMFS 2016).

Dual criteria have been used to assess auditory injury (Level A harassment) within the NMFS Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS 2016). Under the technical guidance, differences in auditory frequency ranges and hearing sensitivity between marine mammals have been used to define five different hearing groups. These include low-frequency cetaceans (baleen whales), mid-frequency cetaceans (toothed whales and dolphins), high-frequency cetaceans (true porpoises, river dolphins, other), phocid pinnipeds (true seals), and otariid pinnipeds (sea lions and fur seals). For the present project, four of the hearing group thresholds are relevant. The gray whale, which is expected to be very rare within the bay, is

considered to a low-frequency cetacean. Gray whales are expected to have PTS onset thresholds at peak sound pressure levels of 219 dB re: 1 µPa or 183 dB re: 1µPa^{2}s for cumulative sound exposure level (SEL_{cum}) over a 24-hour period. Exposure to non-impulsive sounds (e.g,. vibratory pile driving) is expected to result in onset of PTS at 199 dB re: 1µPa^{2}s. The bottlenose dolphin, a mid-frequency cetacean, is expected to experience the onset of PTS with impulsive noise (e.g., impact hammering) at peak sound pressure levels of 230 dB re: 1 µPa or 185 dB re: 1µPa^{2}s for cumulative sound exposure level (SEL_{cum}) over a 24-hour period. Exposure to non-impulsive sounds (e.g., vibratory pile driving) is expected to result in onset of PTS at 198 dB re: 1µPa^{2}s. For phocid pinnipeds, including harbor seal, the onset of PTS is expected with impulsive peak sound pressure levels of 218 dB re: 1 µPa or 185 dB re: 1µPa^{2}s SEL_{cum}. Sound levels resulting in the onset of PTS from non-impulsive underwater noise are assumed to be 201 dB re: 1µPa^{2}s. For otariid pinnipeds, including the California sea lion, the onset of PTS is expected with impulsive peak sound pressure levels of 232 dB re: 1 µPa or 203 dB re: 1µPa^{2}s. Sound levels resulting in the onset of PTS from non-impulsive underwater noise are assumed to be 219 dB re: 1µPa^{2}s (NMFS 2016 and 2018a) (Table 5). For calculation of distances from noise source to the outer boundary within which the PTS threshold is expected to be exceeded, NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) Spreadsheet Tool was employed (NMFS 2018b).

The onset of behavioral disturbance from anthropogenic noise depends on multiple factors including both extrinsic and intrinsic factors. Further, marine mammals are known to rapidly habituate to noise and cease behavioral response rapidly once the threat level of the sound has been ascertained. This makes establishment of behavioral thresholds more complicated than establishment of physiological thresholds that drive Level A take definition. For this reason, the current NMFS recommended levels of 160 dB_{rms} re 1 µPa for impulse noises (impact pile driving), and 120 dB_{rms} re 1 µPa for continuous noises (vibratory pile driving and removal) have been adopted as the acoustic level for onset of behavioral harassment (Table 5). Level B impact thresholds are the same for cetaceans and pinnipeds but differ by type of sound generation.

Other marine species of high concern may also be impacted by in water noise. These include green sea turtles. Green sea turtles would not commonly occur near the project area; however, should they be present at any time, they may be potentially exposed to construction related hydroacoustic impact. NMFS has not established specific in-water acoustic thresholds for green sea turtles; however, the U.S. Navy, in coordination with NOAA, developed standards for assessment of sound impacts to turtles for purposes of the Hawaii-Southern California Training and Testing Final EIS/OEIS (U.S. Navy 2013b). The document examined sound effects and sea turtle physiological literature in developing criteria for non-impulsive and impulsive noise sources. For sea turtles, the Navy established a threshold for injury from vibratory pile driving and impact driving at 190 dB_{rms}. Behavioral effects thresholds were noted to be more complex to establish than injury as there are limited data on turtle behavioral response to sound. In review of the literature, the lowest sound intensity stimulus that resulted in a behavioral response was 166 dB_{rms} that resulted in increased swimming activity in caged green and loggerhead sea turtles (McCay et al. 2000, as reported in U.S. Navy 2013b). However, it also appears from the literature that turtles become habituated to

Table 5. Thresholds of Hydroacoustic Sound Pressure Level Exposure

Resource	Level of Effect	Impulsive Threshold Level*	Non-Impulsive Threshold Level*
Marine Mammal	Gray Whale – Low-frequency Cetacean (Level A – potential for injury) exposure	219 dB_{peak} 183 dB_{SELcum}	199 dB_{SELcum}
	Bottlenose Dolphin – Mid-frequency Cetacean (Level A – potential for injury) exposure	230 dB_{peak} 185 dB_{SELcum}	198 dB_{SELcum}
	Harbor Seal – Phocid Pinniped (Level A – potential for injury) exposure	218 dB_{peak} 185 dB_{SELcum}	201 dB_{SELcum}
	California Sea Lion – Otariid Pinniped (Level A – potential for injury) exposure	232 dB_{peak} 203 dB_{SELcum}	219 dB_{SELcum}
	Cetacean/Pinniped (Level B – behavioral) exposure	160dB_{rms}	120**dB_{rms}
Green Sea Turtle	Adaptive action trigger for impulsive noise exposure	160dB_{rms}	
	Potential harassment take from exposure	166dB_{rms}	
	Injury from sound exposures	190 dB_{rms}	190 dB_{rms}
Fish	Peak sound pressure levels at 10 m from source	206dB_{peak}	
	Daily accumulated sound exposure levels (fish ≥ 2 grams)	187dB_{SELcum}	
	Daily accumulated sound exposure levels (fish < 2 grams)	183dB_{SELcum}	

*Peak re: 1µPa, SEL re: 1µPa2sec, SELcum (SEL_{cum}= SEL + 10*log(# hammer strikes)
**The 120 dB threshold may be slightly adjusted if background noise levels are at or above this level.

repeated exposures to sound. Under such circumstances, noises even as high as 179 dB_{rms} were tolerated by turtles without behavioral response when exposure became regular (Moein Bartol et al. 1995, as reported in U.S. Navy 2013b). Based on the available information, behavioral response by turtles to environmental ensonification is triggered at higher sound intensities than for marine mammals. Further, turtles exhibit a low frequency hearing range typically below 2kHz such that higher frequency sounds (such as from sonar) are generally omitted from audiologic sensors and thus would not be expected to result in behavioral response (U.S. Navy 2013b). As a result, the potential for behavioral response to sound is further limited to sounds at both elevated intensity and low frequency.

There are no widely adopted behavioral thresholds for sound impacts to turtles; however, during consultation on acoustic impacts associated with the BAE Pier 1 North Drydock, two thresholds below "injury" were developed for application to turtle presence in the work area (M&A 2017a). Because the occurrence of green sea turtles in the central portion of San Diego Bay would be considered rare and the anticipated sound thresholds for behavioral impacts to green sea turtles are higher than for marine mammals, for expedience, a conservative standard for monitoring for the presence of turtles was adopted to employ the marine mammal behavioral harassment standards of 160 dB_{rms} to turtles, as well as, mammals. While monitoring for turtle presence would apply the lower sound pressure level threshold, avoidance of take of turtles was still based on the lack of turtle presence within the 166 dB_{rms} pressure level identified as having demonstrated behavioral response in green sea turtles (Table 5). The 166dB_{rms} sound pressure level would not be

expected to be achieved much beyond the existing northern shore and deep channel environments of north bay

In 2008, NOAA Fisheries, USFWS, CDFW, and transportation agencies of California, Oregon, and Washington agreed to assess project effects using Interim Criteria for Injury to Fish from Pile Driving Activities (Fisheries Hydroacoustics Working Group 2008). The interim criteria for assessment include both peak noise levels and accumulated sound exposure levels (SEL_{cum}), and are summarized in Table 5. The interim criteria for fish were generally developed for endangered salmonids and are considered to be conservative indicating that the criteria are based on a potential for effect rather than a likelihood of effect. It should be noted that while the current interim criteria have not been replaced and stand as the only adopted standards, they were widely criticized at the time of adoption for being too conservative and not based on the best available science at the time (Carlson et al. 2007). Presently, there is considerable quantitative study data that suggests that for physiological effects, the cumulative exposure thresholds are lower than necessary to be protective. In studies of the effects of pile driving on the onset of physiologic injury to Chinook Salmon (Halvorsen et al., 2011a, b) and other species (Casper et al. 2011) it has been demonstrated that an SEL_{cum} below approximately 207 dB re 1µPa2·s do not result in the onset of injury and that SEL_{cum} as high as 210 dB re 1µPa2·s produced physiological effects that were considered by the researchers as inconsequential. While the interim criteria remain the standard against which the present project is analyzed, it is important to acknowledge the extremely conservative nature of the thresholds as relevant to their establishment in the context of the "may affect" standard of the Endangered Species Act and has principally been used as a standard for consultation when endangered fish species are involved.

- *In-water Project Noise Levels*

The project proposes to remove up to 100 concrete piles (24-in octagonal), and it's assumed that these piles would be removed by vibratory driver/extractor hammer. The Navy generated considerable sound data on pile removal using pile clippers and wire saws to cut piles at the mudline; however, no vibratory extraction data were generated (NAVFAC SW 2018). No other sources of data were located on which to base the sound levels generated by vibratory extraction. Based on a lack of surrogate data, it has been conservatively assumed for the purposes of this analysis that extraction of piles via vibratory means would generate equal noise to the initial driving of the piles via impact means where vibratory data does not exist.

Assumptions on pile driving activities were based on values from the BAE Pier 1 North Drydock Project to develop cumulative SELs for the project against which sound exposure level impact thresholds could be evaluated. Across all pile types, an average of 525.1 blows/pile were required to set the piles, and as a result, an average of 9.6 piles per day was assumed for the analysis (5,022 blows/day divided by 525.1 blows per pile) (M&A 2017a and b). However, observations made during the removal of fender piles and steel piles while construction of the Pier 1 North Drydock project was underway suggested that vibratory extraction of piles was very rapid and much quieter than was the driving of similar piles (M&A 2017b). Further, it is expected that pile removal may also employ hydraulic jetting to assist in pile removal, which would reduce overall noise and diminish cumulative sound exposure levels.

Each pile type and driving method results in expected differing sound conditions in the water. These are also greatly influenced by the nature of the sediment into which the piles are driven, the depth of the water, the mass of material attached to the pile, the extent of pile embedment, and sound focusing or dissipation associated with the environment or surrounding media through which sound propagates. However, for the purpose of assessing potential impacts of construction on sensitive marine receptors, a pile driving hydroacoustic assessment has been undertaken. This assessment has derived data from surrogate pile driving data derived from measurements taken at Berth 22 and Berth 30 in Oakland Harbor and Parson Slough in Monterey as reported in Appendix I of the Caltrans Technical Guidance on assessment of pile driving noise (Caltrans 2015). This appendix is generally referred to as the Caltrans Compendium and provides information on hydroacoustics of pile driving projects that have been completed for which there are measured noise levels. The application of surrogate project data with similar pile types, sizes, hammers, and water conditions allows for predictions of noise effects from a project prior to the physical implementation of the project. Compendium derived data provides a good basis for unmitigated sound generation. These data have been presented for each pile type expected to be removed during the course of the project (Table 6).

Table 6. Potential Noise Generation Levels for Impact Pile Driving

PILES AND DRIVING DETAILS				**SOUND PRESSURE LEVELS (dB) (Caltrans Compendium 2015) (Data from Oakland Berths 22 and 30 and Parson Slough Monterey)**		
PROJECT PILING MATERIAL	**SIZE (Dia or Depth)**	**HAMMER SIZE**	**PROJECT WATER DEPTH**	**PEAK (L_{peak}@10m)**	**ROOT MEAN SQUARE (rms@10m)**	**SOUND EXPOSURE LEVEL (SEL@10m)**
Square Pile (Concrete)	18"	Delmag D42-22	5m - 10m	185	166	154
Octagonal Pile (Concrete)	24"	Delmag D62-22	5m - 10m	187 (AVG)	175 (AVG)	165 (AVG)

- *In-water Noise Impacts*

Table 5 summarizes the noise exposure thresholds for impacts to various marine organisms of concern within the project area, while Table 6 summarizes noise levels anticipated to be generated from the types of piles to be driven and the methods of pile driving to be implemented within the project area based on the Caltrans Technical Guidance Appendix 1 noise compendium (Caltrans 2015). Using these noise impact thresholds and anticipated noise levels, the distance from pile driving source to the outer limits at which noise impacts would potentially occur was calculated using the inverse square law to calculate sound transmission loss using a practical spreading loss model.

By applying transmission loss to the surrogate noise levels it was possible to determine at what distance impact thresholds would be exceeded for sensitive receptors of concern. The companion User Spreadsheet Tool to Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS 2018b) was employed to simplify calculations of PTS employed as a

metric for Level A take for marine mammal calculations. For other resources, the transmission loss equation was applied to define the distance from sound sources at which the impact threshold would be exceeded. These were identified as the Zones of Influence (ZOI). ZOIs vary by resource, pile type, and driving methods. Table 7 identifies the ZOIs for sensitive receptors. Where noise levels at the source are expected to be lower than the threshold of impact, no impact is expected and the table reflects a value of LOWER. Where the nature of sound generated is not applicable to the threshold metric, the table reflects a value of NA.

For injury to fish from cumulative sound exposure levels, the initial SEL for all piles is below the impact threshold for fish with masses of less than 2 grams (183 dB_{SELcum}) and fish over 2 grams (187 dB_{SELcum}). However, the cumulative SEL from 5,022 blows drives the ZOI outward to the distances reported for fish in Table 7. Using surrogate sound data from the compendium, no cumulative SEL impact thresholds for fish are met until after 63 blows on 24-inch concrete piles which would be expected to affect fish under 2 grams. For fish over 2 grams, initial ZOI for impacts would begin to emerge only after 158 blows on 24-inch concrete piles.

With the relationship of noise thresholds to noise generation and the identification of activities within which ZOIs have been defined, potential impacts characterized as the potential to exceed sound thresholds concurrent with biological receptors include:

1. Potential Level A and B Impact to Marine Mammals
2. Potential Harassment Take of Green Sea Turtle
3. Potential cumulative injury of fish, including managed species

Table 7. Noise Threshold Zones of Influence (ZOI) in Meters for Different Receptors

Pile Type	Nature of Impact (Behavioral or Injurious) (Marine Mammals Definition is Level B or Level A)	Gray Whale	Bottlenose Dolphin	Harbor Seal	California Sea Lion	Green Sea Turtle Harrassment Take	Adaptive Action Trigger*	All Fish	Fish (≥2 gms)	Fish (<2 gms)
Vibratory Pile Extraction										
18" Square Concrete Piles	Potential Behavioral Impacts (Marine Mammals - Level B)	25	25	25	25	10	25	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	34.2	1.2	18.3	1.3	Lower	Lower	Lower	Lower	Lower
24" Octagonal Concrete Piles	Potential Behavioral Impacts (Marine Mammals - Level B)	100	100	100	100	40	100	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	185.2	6.6	99.1	7.2	Lower	Lower	Lower	100	184

Where noise levels at the source are expected to be lower than the threshold of impact, no impact is expected and the table reflects a value of LOWER. Where the nature of sound generated is not applicable to the threshold metric, the table reflects a value of NA

Potential impacts in the form of Level B harassment of marine mammals and harassment take of green sea turtles would be considered significant biological impacts. This is due to the low level

standard for harassment impact to species under the Marine Mammal Protection Act and the Endangered Species Act. Impacts to fish are not considered to be significant due to the fact that only cumulative sound exposure levels would affect fish and exposure to impactive sound levels would be anticipated to behaviorally mitigated by fish moving away from potentially damaging sound sources. No singular peak acoustic event would be expected to generate potential for injury to fish and thus behavioral mitigation would be possible under all circumstances.

Recall that the analysis conservatively assumes that the extraction of piles via vibratory means would generate equal noise to the initial driving of the piles via impact means and that observations from the BAE Pier 1 North Drydock Project suggested that vibratory extraction of piles was very rapid and much quieter than was the driving of similar piles (M&A 2017b).

Marine Mammals and Green Sea Turtles

Table 7 indicates a range of ZOIs for differing species and types of pile driving/removal activities. For an impact to occur, the animal receptor must be present within the ZOI at the time of pile removal and the pile removal noise must exceed the thresholds identified in Table 5. As indicated previously, marine mammal and turtles are not commonly observed in north San Diego Bay, and perhaps less common within the confined east basin of Harbor Island. As such, it is anticipated that acoustic impacts to marine mammals and turtles may be readily avoided by avoidance of pile removal during periods when marine mammals and turtles are present within the defined ZOIs. Further, because the principal triggers for adverse effect are based on cumulative exposure rather than peak sound levels, sensitive receptor animals would need to remain present within the ZOIs for a period of time in order to accumulate threshold sound exposure levels. This combined with the relatively limited numbers of mammals or turtles in this area of the bay make exposure avoidance a very practical mitigation measure for the project, and would effectively mitigate impacts to a less than significant level

Fish and Managed Fish Species

For fish, avoidance is not fully possible because fish are ubiquitously present within the project area and would be expected to be within the influence area of pile removal activities. However, cumulative sound exposure levels would be expected to be self-mitigated behaviorally by fish moving away from sound sources or into acoustic shadows. It is anticipated that most fish would not be exposed to high accumulated sound levels as a result of behavioral response to undesirable noise levels. This would allow fish to escape potential injury from sustained presence within impulsive noise environments. No mitigation of impacts to fish is considered to be required due to the lack of significant impacts to fish being expected from the project.

The effects of intense sound from pile removal activities are expected to be temporary behavioral avoidance of habitat. The extent and duration of avoidance will depend upon many factors including the intensity of sound energy, frequency of energy, duration of driving, and species of fish, among others. For species managed under the Coastal Pelagics FMP, it is anticipated that schooling Northern Anchovy and Pacific Sardine have a potential to be displaced from the area during pile removal. However, these fish within the Family Clupeidae are considered to have relatively poor sensitivity to sound (Mann et al. 2001). For species managed under the Pacific Groundfish FMP, species are expected to be uncommon to very rare in the area and would be expected to be similarly displaced if present. However, unlike the Coastal Pelagics that would be more exposed to

direct propagated noise, groundfish near the bottom may not be fully displaced from the area, but rather may seek refuge in acoustic shadows within the local area such as remaining below surrounding bottom terrain that blocks and absorbs sound. For cartilaginous fish, including the managed Spiny Dogfish that may occur in the area, the lack of a swim bladder and low sensitivity to sound makes these species less susceptible to noise impacts although very little else is known about noise impacts to elasmobranchs (Casper et al. 2003).

The displacement of managed species is not expected to result in substantial impacts due to the generally poor habitat quality, limited duration and temporary nature of impacts, and capacity for behavioral avoidance and minimization of impacts by fish.

6.2 Upland Transition and Upland Area Impacts

The proposed Project consists of construction/demolition in a highly urban setting which supports no special status wildlife or flora species and no sensitive upland habitats. Therefore, no impacts from the proposed Project on upland habitat are expected. No significant impacts to biological resources are anticipated from the implementation of the proposed Project.

6.3 Impacts to Wetlands and Sensitive Habitats

As described above, the nearest adjacent wetlands to the project site are wetlands located across the bay at Delta Beach on the Naval Amphibious Base 4.6 miles to the southwest, and within the marshes of the San Diego Bay Wildlife Refuge located over 7 miles to the south. The proposed Project would not alter water flow or water quality to marsh habitat, and is not anticipated to degrade marshlands in any way. Therefore no significant impacts to wetlands are anticipated to occur.

Eelgrass beds are considered to be a sensitive habitat and “special aquatic site” under the CWA and are designated as EFH, and as noted in the Subtidal Vegetated Habitat section, no eelgrass was present within the project site and therefore, no impacts to eelgrass habitat are anticipated to occur.

6.4 Impacts to Wildlife Corridors

As described above, the project site is located within the Pacific Flyway but does not provide any specific terrestrial movement corridors, and no marine mammal, reptile, or fish migratory corridors occur within it. Construction will be phased over six months, with the schedule structured to minimize in-water work during the California least tern nesting/foraging season. Protective measures will be in place during times when construction activities occur that may result in increased disturbance activity such as pile removal and dredging (see Mitigation Section). Consequently, impacts of the proposed Project on wildlife corridors, movement of resident and migratory species, and usage of nursery sites are considered to be less than significant.

6.5 Impacts to Sensitive Wildlife

Table 2 provides a summary of sensitive animal species that have potential to occur within the project site. The following text expands on the likelihood of occurrence for these species, and describes potential impacts to sensitive species that may result from Project implementation.

Reptiles

Environmental threats to turtle populations include contamination from coastal runoff, fueling facilities, marina and dock construction, dredging, aquaculture, oil and gas exploration and extraction, and increased underwater noise and boat traffic that can degrade marine habitats used by marine turtles. Turtles swimming or feeding at or just beneath the surface of the water are particularly vulnerable to boat and vessel strikes, which can result in serious propeller injuries and death. Potential impacts to green sea turtle from the proposed project are primarily related to construction activities associated with pile removal, vessel traffic, and bottom-disturbing activities.

As described previously, south San Diego Bay supports a resident population of federally threatened eastern Pacific green sea turtle. Historically, this population resided primarily within the warm water discharge channel for the South Bay Power Plant. The closure of the plant in 2010 resulted in turtles utilizing areas of the Bay much farther north; however, tracking studies indicate that turtles still spend 95% of their time south of the Sweetwater River Channel (Bredvik et al 2015).

The proposed Project has been determined to have limited potential to affect green sea turtles based on a number of factors. These include, first and foremost, the anticipated low occurrence of turtles within the industrialized north bay, as well as, the limited potential for adverse interactions between turtles and vessels. However, it was determined that, if turtles were to occur within the immediate project area, then they would be potentially exposed to construction related hydroacoustic impact with still lesser risk of injury from direct impact with vessels or in-water equipment due to avoidance behavior.

The potential impacts to green sea turtles from noise impacts have been discussed previously. These impacts have been determined to be significant for pile removal activities (Table 7). Potential impacts to green sea turtles are anticipated to be harassment impacts from exposures of turtles to impulsive sound pressures above 166 dB_{rms}.

With the implementation of the protective measure of monitoring for green sea turtles to ensure that turtles do not enter applicable ZOIs when pile removal is underway, impacts would be less than significant. Other protective measures included in the Project to minimize impacts to turtles included maintenance of no wake boat speeds within and adjacent to the project site. These measures will reduce the likelihood of striking and injuring turtles. Therefore, with protective measures incorporated, impacts to eastern Pacific green sea turtle are considered to be less than significant.

Birds

Of the sensitive avian species with potential to occur within or adjacent to the project site, six are listed as federally or California state endangered or threatened, or California Department of Fish and Wildlife fully protected. These include California brown pelican (*Pelecanus occidentalis californicus*), American peregrine falcon (*Falco peregrinus anatum*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern, and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*).

Two of these species – light-footed Ridgway's rail and Belding's savannah sparrow – nest and forage in marshes, including the E Street Marsh within the San Diego Bay National Wildlife Refuge. Neither

of these two species is expected to occur in the project site, and impacts to these species from the proposed Project are not anticipated.

California brown pelican is protected at nesting colonies and communal roosting areas. American peregrine falcon is also protected at nesting locations. These two species have a similarly low likelihood of occurrence within the project site. California brown pelicans roost in small groups throughout the Bay, particularly along Zuniga jetty, rip rap shorelines, and docks and piers within the Bay; however, the species does not nest in the Bay. Peregrine falcon has historically nested in Point Loma, on downtown San Diego buildings, and on the Coronado Bridge, but nesting sites near the project site are not documented. Based on this low likelihood of occurrence of these species at the project site, impacts are not anticipated.

Western snowy plover and California least tern both nest seasonally within San Diego Bay. During its breeding season, April to October, the endangered California least tern is observed in San Diego Bay, nesting at Lindbergh Field, North Island Naval Station, the Naval Amphibious Base Delta Beach, D Street Fill, the Chula Vista Wildlife Reserve, and the South Bay Saltworks in the South San Diego Bay Unit of the San Diego National Wildlife Refuge. The nesting colonies nearest to the project site are located at Lindbergh Field, North Island Naval Station, and the Naval Amphibious Base Delta Beach. These three sites are located approximately 0.8 miles, 2.7 miles, and 4.8 miles from the project site, respectively. California least terns actively forage for fish in the waters adjacent to nesting colonies in San Diego Bay, as well as, in nearshore coastal waters outside of the Bay. Given the duration of project, the construction schedule has been structured to minimize in-water work during the California least tern nesting/foraging season. If dredging or in-water construction occurs during the nesting season, mitigation measures such as have a monitor for the presence and activity of terns, as well as water quality BMPs would reduce impacts to less than significant. Noise generation from pile removal activity would not be considered a significant impact on terns.

In San Diego Bay, nesting for western snowy plover occurs from March through July along the beach at NAS North Island (3 miles from the project site), at NAB Coronado (5 miles from the project site), and further south along the Silver Strand Training Complex and the beaches of the Tijuana River National Estuary Research Reserve (TRNERR) (11 miles from the project site). This species has not nested at the D Street Fill/Sweetwater Marsh NWR since 2000 (R. Patton, pers. comm). This species has a low likelihood to occur based on limited foraging habitat and the distance of the project site from active nesting colonies and impacts to this species are therefore not anticipated.

Other sensitive avian species with low or moderate potential to occur in the vicinity of the project site include double crested cormorant (*Phalacrocorax auritus*), elegant tern (*Thalasseus elegans*), Caspian tern (*Hydroprogne caspia*), and black skimmer (*Rynchops niger*) (Unitt 2004), all of which nest within San Diego Bay at the South Bay Salt Works. Sensitive raptors include osprey (*Pandion haliaetus*), and northern harrier (*Circus cyaneus*). Osprey is known to nest within San Diego Bay, with recent nests located at NAS North Island, the National City shoreline, and at the Chula Vista Wildlife Reserve. Northern harrier nests on the ground, within marshes and grasslands. This species has been known to nest in south San Diego Bay, within the TRNERR, and the Sweetwater Marsh NWR (Unitt 2004). While all of these species may be occasional visitors to the project site, none nest within the project site and impacts to these avian species are not anticipated.

Marine Mammals

Harbor seals and California sea lions are observed commonly in northern San Diego Bay and less commonly in central and southern portions of the Bay. There are no established haul-out, foraging, or breeding areas used by these or other marine mammals within the project site or vicinity, although they may make occasional transient use of the area. Project construction is anticipated to last six months, and any marine mammals would be expected to leave the site for adjacent waters if disturbed by Project construction. However, the MMPA prohibits "take" of marine mammals. The definition of "take" under the Act, like that of the ESA, includes "harassment". For this reason, a potentially significant impact to marine mammals could occur if animals are disturbed during construction activities, even if they are not harmed by the activities.

Similar to sea turtles, potential impacts to marine mammals from the proposed Project are primarily related to construction activities associated with pile removal, vessel traffic, and bottom-disturbing activities. Marine mammals could be struck by boats or boat motors at the project site but of greatest concern would be if marine mammals were to occur within the immediate project area, then they would be potentially exposed to construction related hydroacoustic impact with still lesser risk of injury from direct impact with vessels or in-water equipment due to avoidance behavior.

Hydroacoustic impacts have been previously discussed and impacts were considered to be significant. Therefore, with the implementation of protective measures such as monitoring to ensure marine mammals remained outside of ZOIs during pile removal, impacts would be less than significant. Other protective measures included in the Project to minimize impacts to marine mammals included maintenance of no wake boat speeds within and adjacent to the project site. With protective measures incorporated, impacts to marine mammals are considered to be less than significant.

6.7 CUMULATIVE IMPACTS

Cumulative effects are defined by CEQA as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Cumulative impacts can be derived from a single project or a number of separate projects, and is further defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions." The San Diego Bay INRMP identifies specific concerns related to cumulative effects of all types of activities within San Diego Bay. These include piecemeal habitat loss and fragmentation within the Bay despite the intent of cumulative effects analysis under CEQA and the National Environmental Policy Act (NEPA). Based on the definitions provided under CEQA and the issues identified in the INRMP, the following analysis assumes that a significant adverse cumulative biological resources impact would occur where the construction or operation of the cumulative projects would encroach into areas containing sensitive biological resources, affect the movement of wildlife species, result in loss or fragmentation of sensitive habitats, or affect the functionality of a planned conservation area.

As discussed above, no significant biological resource impacts from the proposed project are anticipated. In fact, pier removal would be considered a benefit for piscivorous avian species since it would result in a direct increase of bay surface cover and therefore increase potential foraging

habitat. Impacts to sensitive animals are reduced to less than significant by incorporation of protective measures during construction.

7.0 MITIGATION AND PROTECTIVE MEASURES

7.1 BAY COVERAGE MITIGATION

Based on current project design, no mitigation would be required for bay coverage since the Project would result in an increase in bay coverage of approximately 1,991 sf due to the removal of the pier.

7.2 MARINE RESOURCE MITIGATION

Subtidal Vegetated Communities

Although no eelgrass beds were found during the March 2019 survey within the project footprint, there is potential for it to occur. The following measures would reduce impacts:

1. Eelgrass Surveys. Prior to the start of any in-water construction activities, a qualified marine biologist who would be retained by the project proponent and approved by the San Diego Unified Port District shall conduct a preconstruction eelgrass survey per the California Eelgrass Mitigation Policy (NMFS 2014b). Surveys for eelgrass shall be conducted during the active eelgrass growing season (March–October), and results shall be valid for 60 days, unless completed in September or October; if completed in September or October, results shall be valid until resumption of the next growing season. The qualified marine biologist shall submit the results of the preconstruction survey to the San Diego Unified Port District and resource agencies within 30 days. If preconstruction eelgrass surveys identify eelgrass, the qualified marine biologist shall demarcate the distribution of eelgrass to allow tug and barge operators to maintain a safe distance to avoid impacts to eelgrass during construction.

   If eelgrass is found during the preconstruction survey, within 30 days of completion of in-water construction activities, a qualified marine biologist retained by the project proponent and approved by the San Diego Unified Port District shall conduct a post-construction eelgrass survey. The post-construction survey shall evaluate potential eelgrass impacts associated with construction. Upon completion of the post-construction survey, the qualified marine biologist shall submit the survey report to San Diego Unified Port District and resource agencies within 30 days.

2. Eelgrass Mitigation. In the event that the post-construction survey identifies any impacts on eelgrass, the project proponent shall implement the following:
   - A qualified marine biologist retained by the project proponent and approved by the San Diego Unified Port District shall develop a mitigation plan for in-kind mitigation. The qualified marine biologist shall submit the mitigation plan to the San Diego Unified Port District and resource agencies within 60 days following the post-construction survey.
   - The Eelgrass Mitigation Plan shall specify that the contractor/entity harvesting eelgrass to implement the required mitigation would need to obtain a scientific collecting permit

for eelgrass harvest and a letter of authorization at least 30–60 days prior to implementation.

- Mitigation for eelgrass impacts shall be at a ratio of no less than 1.2:1, as required by the California Eelgrass Mitigation Policy (NMFS 2014b). Mitigation shall commence within 135 days of any noted impacts on eelgrass such that mitigation commences within the same eelgrass growing season that impacts occur.
- Upon completing mitigation, the qualified biologist shall conduct mitigation performance monitoring per the California Eelgrass Mitigation Policy (NMFS 2014b)**,** at performance milestones of 0, 12, 24, 36, 48, and 60 months. The qualified biologist shall conduct all mitigation monitoring during the active eelgrass growing season and shall avoid the low growth season (November–February). Performance standards shall be in accordance with those prescribed in the California Eelgrass Mitigation Policy (NMFS 2014b).
- The qualified biologist shall submit the monitoring reports and spatial data to the San Diego Unified Port District and resource agencies within 30 days after the completion of each monitoring period. The monitoring reports shall include all the specific requirements identified in the California Eelgrass Mitigation Policy (NMFS 2014b).

3. Avoidance of Eelgrass Due to Anchored Barges, Boat Navigation, and Propeller Wash. If eelgrass is found during the preconstruction survey, tug and barge operators shall ensure that anchored construction barges are outside of eelgrass beds. Additionally, tugboat operators shall be instructed that propeller wash can damage eelgrass. No anchoring (and other bottom-disturbing activities) shall occur within eelgrass beds, and propeller wash shall not be directed toward eelgrass beds.

4. Prior to commencing any in-water work, a survey for the invasive algae, *Caulerpa taxifolia* and other nuisance species, will be conducted in accordance with the *Caulerpa* Control Protocols (NMFS 2004).

Open Water

Prior to dredging, filling, or pile removal operations, features would be implemented to contain the contaminated sediments and turbidity generated from in-water construction activities. The turbidity curtain will consist of geotextile fabric curtain suspended from a floatation boom at the upper hem and have ballast weights at the lower hem. This is to be achieved with the following measure:

5. Throughout pile removing and dredging operations, silt curtains would be used to contain suspended sediment. Each silt curtain would include an oil boom component contained within the silt curtain, which would float on the water surface. Silt curtains would be weighted and positioned using anchors or marine structures or by being connected to shoreline locations. In addition, a floating surface debris boom would be deployed equipped with skirts and absorbent pads to capture floating surface debris and to control potential oil sheen movement.

6. The water's turbidity levels would be monitored during demolition activities. Manual water quality monitoring to include measurements for pH, dissolved oxygen, and turbidity would

be conducted to confirm compliance with the San Diego Basin Plan and Section 401 Water Quality Certification requirements. Dredging operations would be evaluated and modified as necessary if water quality monitoring shows exceedance of predetermined numerical targets due to dredging operations.

7. The speed of bucket movement would be limited in the water column of dredging to minimize the disturbance of sediments and the resuspension of materials. In addition, the drag of the dredge bucket would be prohibited along the sediment surface.

In addition, the placement and transfer of contaminated sediments from the scow to the SMA may result in unexpected discharges into the bay. To avoid any discharge of sediments or water, BMPs to consider include:

8. A spill apron, consisting of steel plates, plywood platforms, or a similar assembly with secondary containment, would be placed between the barge and shore to collect drippings or spillage and direct it back into the barge or collection point.

9. Prior to removal from the SMA, haul trucks would be washed at an on-site truck wash to prevent track out of sediment.

10. Pump any ponded water within the scow or SMA into a water treatment system and dispose of in accordance with local, state, and federal requirements. Additive agents (e.g., cement) may be used to accelerate the drying process.

EFH

To address anticipated impacts to EFH, the following protective measures associated with construction activities have been incorporated into the proposed work.

11. To avoid injury to managed fish species, prior to pile removal activities the contractor shall implement a soft-start procedure. The soft-start procedure would require contractors to initiate noise from the vibratory hammer with a short pulse, followed by a 1-minute period of no activity, prior to commencing full pile removal. This would be expected to result in behavioral avoidance of the area in the immediate vicinity of the pile. Subsequent repetitive pile removal would be expected to result in continued repulsion of fish from the proximity of the project area with avoidance distances being established by the individual sound energy levels and tolerance of individual fish. If pile removal activity ceases for greater than an hour then the soft-start procedures shall be reinitiated.

7.3 SENSITIVE SPECIES MITIGATION

Reptiles

To mitigate potential impacts to eastern Pacific green sea turtles to a less than significant level, the following construction measures are recommended.

12. During pile removal activity, the contractor, under the direction of a qualified biologist, shall conduct monitoring within applicable ZOIs of any vibratory pile removal (does not include pile jetting) for turtles surfacing to breathe. The contractor shall halt work if any

observations of turtles are made. Work shall not re-commence until it has been determined that the turtle(s) have left the area or have not been seen on the surface within the ZOIs for a period of 15 minutes.

13. When performing vibratory pile removal, the contractor shall commence work with a few short pulses followed by a 1-minute period of no activity, prior to commencing full pile removal activities. The purpose of this activity is to encourage turtles in the area to leave the project site prior to commencement of work. The contractor, under the direction of a qualified biologist, shall then commence monitoring as described above to determine if turtles are in the area. This process should be repeated if pile removal ceases for a period of greater than an hour.

14. Construction vessel traffic shall not exceed existing ambient speed for the marina.

Birds

Should dredging or fill activities occur during the least tern nesting season, to mitigate potential impacts to least terns to a less than significant level, the following construction measures are recommended:

15. The contractor, under the direction of a qualified biologist, shall conduct monitoring within 500 feet of construction activities. The contractor shall delay commencing work if terns are present and actively foraging (e.g., searching and diving) within the work area.

16. The contractor shall deploy a turbidity curtain around the dredging areas to restrict the surface visible turbidity plume to the area of construction and dredging. It shall consist of a hanging weighted curtain with a surface float line and shall extend from the surface to twenty feet down into the water column. The goal of this measure is to minimize the area of the bay in which visibility of prey by terns is obstructed.

17. The contractor, under the direction of a qualified biologist, shall be retained to identify presence of terns displaying foraging behavior (e.g., searching and diving) and assess adverse impacts, if any, to least terns. Should adverse impacts to terns occur (e.g., agitation or startling during foraging activities), construction shall cease until least terns have left the project site.

Mammals

To mitigate potential impacts to marine mammals to a less than significant level, the following construction measures are recommended.

18. During construction activities involving pile removal, the contractor, under direction of a qualified biologist, shall conduct monitoring within the applicable ZOIs defined for the activities as documented in Table 7. The contractor shall halt in water pile removal work if any observations of marine mammals are made within the defined ZOI for the mammal species encountered. Work shall not re-commence until it has been determined that the mammal(s) have left the area or have not been seen on the surface within the ZOIs for a period of 15 minutes.

19. When performing pile removal, the contractor shall commence work with a few short pulses followed by a 1-minute period of no activity, prior to commencing full pile removal activities. The purpose of this activity is to encourage mammals in the area to leave the project site prior to commencement of work. The contractor, under the direction of a qualified biologist, shall then commence monitoring as described above to determine if mammals are in the area.

20. Construction vessel traffic shall not exceed existing ambient speed for the marina.

8.0 CONCLUSIONS

The proposed project would be expected to result in a number of construction period impacts to local biota and habitats found in the project site (e.g., habitat disturbance, increased turbidity, noise). The majority of these impacts are anticipated to be of a short-term, temporary nature and are not expected to have permanent or population-level impact to sensitive habitat or species, EFH or managed fish species. Given the limited size of the dredge footprints, the general lack of high value habitat resources in the project area (i.e., eelgrass beds), and the anticipated rapid recovery of resource values by reestablishment of similar communities, impacts associated with dredging and other in-water construction activities in soft-bottom habitat are not considered to be significant. The proposed project would also result in a net decrease of bay surface area coverage with the removal of the pier, which would be considered a benefit for piscivorous avian species.

Potential indirect impacts associated with the project include increased turbidity associated with dredging, filling, and pile removal; however, construction-period BMPs would minimize the risk of these impacts.

While construction-related impacts would result in temporary impacts to local biota in the project footprints, of greatest concern is the protection of fish, marine reptiles, and marine mammals from substantive injury associated with acoustic pressure generated from pile removal. To address this concern, protective measures such as a soft-start procedure and having a monitor present during construction are recommended to provide protection from injury and would reduce any impacts to less than significant.

Impacts from the proposed project would be minor for the pelagic fish species identified in Table 3. The coastal pelagics by nature have low site fidelity. Given the small area affected, interruptions causing pelagics to move into other areas would not cause biologically significant increases in competition due to habitat loss. The project would not impede the spawning success of the coastal pelagics, nor cause disturbances that increase predation. Similarly, impacts from the project would be minor for the groundfish species in Table 3. Although California Scorpionfish are rare compared to the pelagics, this species' high fidelity to structured habitats such as pile fields and reefs means it is likely underrepresented in most fish sampling efforts. From the information available and the habitat characteristics of this species, impacts to California Scorpionfish would be probable but minimal. Construction could cause fish to flee the immediate disturbance, yet the fish will likely remain in the area to capitalize on the exposure of forage resources by construction disturbance. Spawning success would not be affected due to the pelagic spawning and buoyancy of the eggs.

Other demersal species considered in this analysis are extremely rare in San Diego Bay and are not affiliated with pile fields. Should individuals of these species occur, they would likely be temporarily displaced from the area during construction and impacts are considered minimal.

Other potential impacts to marine reptiles (e.g., turtles), birds, and marine mammals could also occur as a result of the proposed project. Turtles could be struck by boats or boat motors at the project site and impacts to marine mammals (e.g., California sea lion and harbor seal) would be similar to those anticipated for turtles. Any disturbance of marine mammals is considered harassment and would be significant. While it is unlikely that marine mammals would occur in the project site, incorporation of the protection measures listed above would reduce any impacts to less than significant. Similarly, no impacts to sensitive avian species are anticipated with implementation of protective measures such as monitoring if in-water construction activity occurred during the nesting season. No significant impacts to wetlands, upland habitat, wildlife migration or corridors are anticipated. Cumulative impacts are considered to be less than significant.

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Appendix D. Historic Resource Assessment Report

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Final Historic Resource Assessment Report for Lockheed Marine Terminal, San Diego, San Diego County, California

Prepared for:

Ryan Binns
Director, Environmental Planning + Compliance
Harris & Associates
600 B Street, Suite 2000
San Diego, California 92101

Prepared by:

Laura Taylor Kung, M.A.
Architectural Historian
and
Shannon Davis, M.A.
Director, Architectural History

ASM Affiliates, Inc.
2034 Corte Del Nogal
Carlsbad, California 92011

PN 32460
June 2020

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EXECUTIVE SUMMARY

This report is an evaluation of the Lockheed Marine Terminal and associated pier and marine railway at 1160 Harbor Island Drive in San Diego, San Diego County, California, for eligibility for the California Register of Historical Resources (CRHR). It has been prepared pursuant to the California Environmental Quality Act (CEQA) prior to the demolition of the building (Project), demolition of the waterside resources (Alternative 2), or demolition of the waterside resources and rehabilitation of the building (Alternative 3).

ASM Affiliates, Inc. (ASM) evaluated the industrial building, pier, and railway constructed on one parcel at 1160 Harbor Island Drive. The Lockheed Marine Terminal was constructed in 1966 on Harbor Island in San Diego to house the research submersible *Deep Quest*. The building is an example of the Contemporary style incorporating elements such as the use of natural materials and hidden windows and doors.

The Lockheed Marine Terminal and associated pier and railway are recommended eligible as an individual resource under CRHR criteria 1 and 3. The property is a good representation of the theme of Industry: Maritime Research and Exploration through its close association with *Deep Quest*, a submersible vessel internationally recognized in the late 1960s and is therefore eligible under Criterion 1. It is also eligible under Criterion 3 because it was designed by Frank Hope, Jr., an architect listed on the City of San Diego's list of Master Architects. Additionally, it is a unique and rare representation of the Contemporary style applied to an industrial building. No historically significant individuals were found to be associated with the property and it is not recommended as a contributor to a potential historic district. The building has not been altered since its original construction and has very good integrity although it is in fair condition.

As it is eligible for the CRHR, the Lockheed Marine Terminal is a historical resource as defined by CEQA and its demolition will result in a substantial adverse change pursuant to CEQA Section 15064.5. For the preferred project alternative, the Project would result in the loss of a historical resource and while mitigation measures could lessen the impact, complete demolition cannot be mitigated to a less-than-significant impact. Alternatives 2 and 3 propose the demolition of the pier and marine railway, contributing resources to the property. ASM recommends archival documentation following the Historic American Buildings Survey Level II standard, and installation of an interpretative sign at this location in an area with public access as appropriate mitigation measures. With implementation of the proposed mitigation, Alternatives 2 and 3 would result in a less-than-significant impact.

1.0 INTRODUCTION

This report provides an historical assessment of the Lockheed Marine Terminal and associated pier and marine railway at 1160 Harbor Island Drive in San Diego, San Diego County, California, for eligibility for the California Register of Historical Resources (CRHR). The property contains one industrial building and its associated pier and railway. The property owners propose to demolish the building at this location (Project) or consider possible alternatives.

This assessment was prepared by ASM to determine the historical and architectural significance of the Lockheed Marine Terminal. Section 21084.1 of the California Environmental Quality Act (CEQA) defines a historical resource as any resource listed in, or eligible for listing in, the CRHR. This property is not currently listed in the CRHR, it is not a California Point of Historical Interest (CPHI), and it is not a California State Historical Landmark (CSHL). Furthermore, it is not listed in the NRHP.

In this report, the Lockheed Marine Terminal at 1160 Harbor Island Drive is evaluated for its eligibility for the CRHR as an individual resource and as a contributor to a potential historic district, in accordance with CEQA guidelines. The results of this analysis will assist the San Diego Unified Port District in determining whether the property needs to be considered as historically significant for future planning purposes in compliance with CEQA, or if the Project has the potential to cause any adverse effects.

This section of the report provides a Project location, description, and current setting. Chapter 2 addresses the study's archival research and field survey methodology. The property's historic context is addressed in Chapter 3 and an architectural description is provided in Chapter 4. Finally, the historical evaluation is detailed in Chapter 5. Chapter 6 provides an assessment of Project impacts, Chapter 7 is recommended mitigation, and Chapter 8 provides the conclusion. The Department of Parks and Recreation (DPR) 523 site record forms for the property are provided in Appendix A, resumes of key personnel are found in Appendix B, and the original building plans are found in Appendix C. The response from the California Native American Heritage Commission (NAHC) can be found in Appendix D and the records search summary from the South Coastal Information Center (SCIC) of the California Historical Resources Information System (CHRIS) is included in Appendix E.

1.1 PROJECT LOCATION

The Project is located on the eastern shoreline of the connector leading from San Diego International Airport to Harbor Island peninsula on a parcel west of the East Basin at 1160 Harbor Island Drive in San Diego County, California (Figure 1). It is located south of Mission Hills and north of Coronado Island. It can be found on the Point Loma USGS 7.5-minute topographic quadrangle in an unsectioned area on the east side of Harbor Island Drive (Figure 2). Harbor Island is a man-made narrow strip of land located south of the airport in San Diego Bay. The Assessor's parcel number for the property is 760-010-07-00.

1.2 PROJECT DESCRIPTION

The proposed Project involves the demolition of the existing Lockheed Martin Company Marine Terminal improvements located at 1160 North Harbor Drive in San Diego. The Project site is located within the East Basin Industrial Subarea of Planning District 2 (Harbor Island/Lindbergh Field) of the certified Port Master Plan. The existing land and waterside improvements were constructed in 1966 and were primarily used by the Lockheed Martin Company as a maintenance facility for deep water submersible vehicles. Lockheed Martin Company now proposes to demolish all existing land and waterside improvements to return the site to its original, undeveloped state. The Project site is approximately 64,000 square feet (sf), with the landside comprising approximately 32,000 sf and the waterside comprising approximately 32,000 sf.

Figure 1. Project vicinity map.

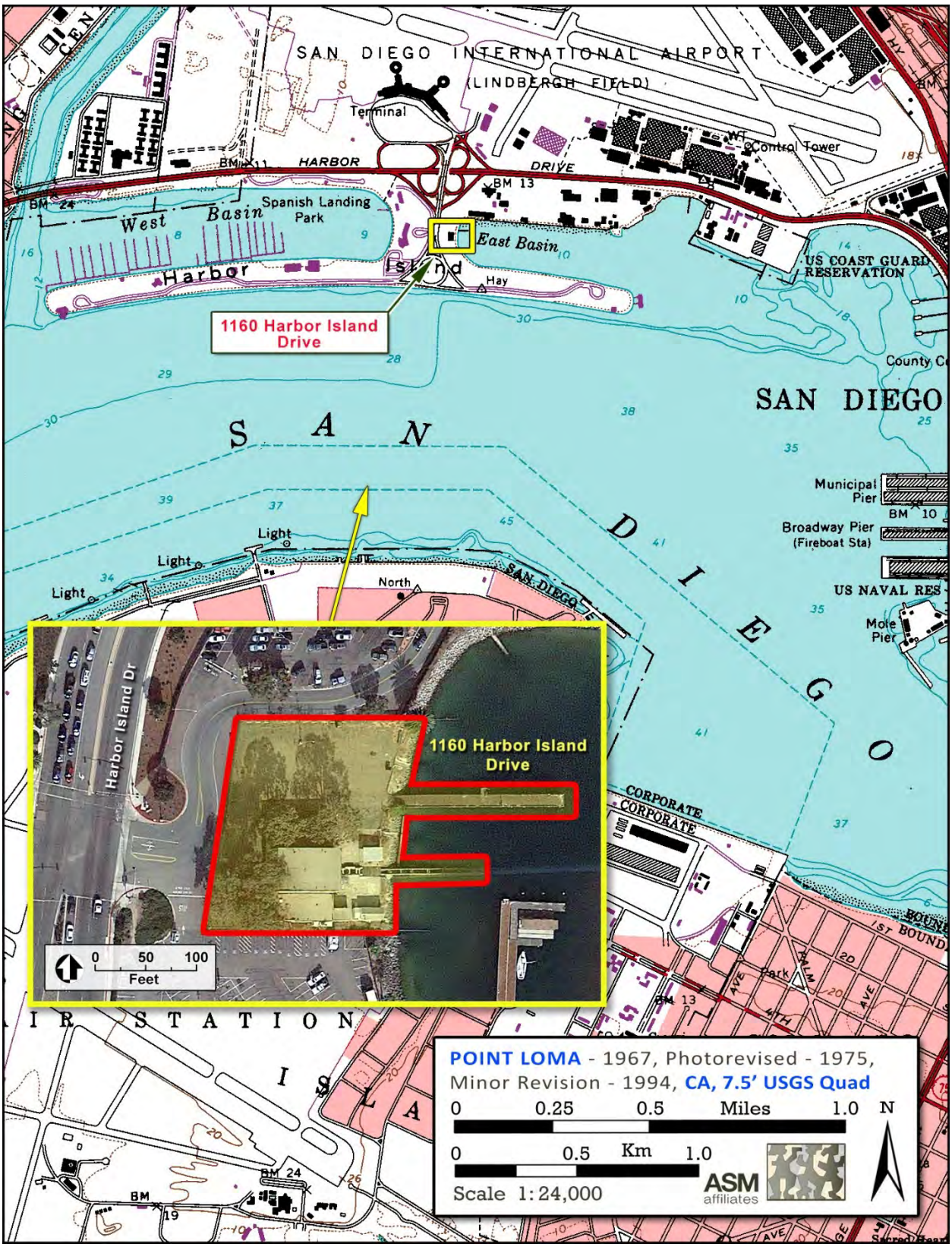


Figure 2. Point Loma USGS map.

Project demolition activities would include: (1) removal of the 5,500 sf building; (2) removal of all concrete, asphalt paving, and utilities; (3) removal of the 165-foot-long pier, 328-foot-long marine railway, and all support structures (i.e., piles) that extend into the bay; (4) minor dredging associated with removal of the in-water improvements; and (5) dredging of approximately 15,000 cubic yards of contaminated sediment from the waterside portion of the site. Alternative 1 is the no project alternative. Alternative 2 would not include the demolition of the building, just the removal of the pier and marine railway structures, dredging of the waterside contaminated sediments and placement of clean sand. Alternative 3 is similar to Alternative 2 except it would include renovation activities such as the removal of asbestos-containing material, lead surfaces and other potentially hazardous materials to make the Marine Terminal Building available for leasing in the future.

1.3 CURRENT SETTING

The Lockheed Marine Terminal is located on the east side of the connecting land between Harbor Island peninsula and the mainland (Figure 3). The property is enclosed by a chain link fence with a parking area to the south and an access road to the north. The east side of the property is adjacent to the East Basin with a pier and marine railway extending from the property in that location. A large hotel is located to the west of the property on the west side of Harbor Island Drive. The surrounding area includes the Harbor Police Building and airport to the north and the narrow strip of land known as Harbor Island to the south. Harbor Island is a maritime development consisting of marinas, hotels, and some restaurants leased from the San Diego Unified Port Authority.

Figure 3. Aerial Map showing 1160 Harbor Island Drive.

2.0 METHODOLOGY

2.1 ARCHIVAL RESEARCH

To develop the appropriate historic context from which to evaluate the property, ASM Architectural Historian Laura Taylor Kung, M.A., conducted archival research for information on the history of the property. Plans for the original building and alterations were obtained through the Port Authority to determine the architect and original floorplan. ASM consulted aerial photos to further understand the development of the property and neighborhood (Historicaerials.com 1953, 1964, 1966, 1972, 1981, 1989, 1994, 2012). Additional sources consulted to develop the appropriate site-specific history and architect biographies include the United States Census, Ancestry.com, San Diego and national newspaper archives, obituaries, and death records.

In addition, a records search was requested from the SCIC in order to identify any buildings, structures, or objects that have been previously documented within the Project area and a 0.5-mile (mi.) buffer around it. Records search results are pending.

2.2 FIELD SURVEY METHODS

ASM conducted a historical resource field survey on April 4, 2019, to document the Lockheed Marine Terminal. The intensive-level field survey was conducted by ASM Director Shannon Davis and Architectural Historian Laura Taylor Kung. During the survey, multiple photographs were taken of the building's interior and exterior to document the resource and its setting. The building's plans, architectural features, condition, and historical integrity were noted. In order to determine whether the building might be associated with a historic district, particular attention was paid to the surrounding area, including a brief windshield survey. An architectural description of the building, including photos, is provided in Chapter 4. A DPR 523 site record form was prepared to document this field survey and is provided in Appendix A.

3.0 HISTORIC CONTEXT

3.1 DEVELOPMENT OF SAN DIEGO

Although the earliest historical exploration of the San Diego area can be traced to 1542 with the arrival of the first Europeans, particularly the exploration of San Miguel Bay by Juan Rodriguez Cabrillo, the widely accepted start of the historical period is 1769 with the founding of the joint Mission San Diego de Alcalá and Royal Presidio. The Hispanic period in California's history includes the Spanish Colonial (1769-1820) and Mexican Republic (1820-1846) periods. This era witnessed the transition from a society dominated by religious and military institutions consisting of missions and presidios to a civilian population residing on large ranchos or in adobes (Chapman 1925).

The first intensive encounter of Spanish explorers and coastal villages of Native Americans was in 1769 with the establishment of Mission San Diego de Alcalá. The Mission of San Juan Capistrano was subsequently established in 1776, followed by San Luis Rey de Francia in 1798. The missions "recruited" the Native Americans to use as laborers and converted them to Catholicism. Local Native Americans rebelled briefly against Spanish control in 1775. Most of the individuals that participated in the attack were from Tipai settlements south of the San Diego River Valley. The Ipai to the north apparently did not participate in the rebellion, reflecting possible political affiliations at the time of the attack (Carrico 1981).

The effects of missionization, along with the introduction of European diseases greatly reduced the Native American population of southern California. Many of the local Kumeyaay were incorporated into the Spanish sphere of influence at a very early date. Most villagers, however, continued to maintain many of their aboriginal customs and simply adopted the agricultural and animal husbandry practices learned from Spaniards.

By the early 1820s, California came under Mexico's rule, and in 1834, the missions were secularized. This resulted in political imbalance and Indian uprisings against the Mexican rancheros. Many of the Kumeyaay left the missions and ranchos and returned to their original village settlements (Shipek 1991). When California became a sovereign state in 1850, the Kumeyaay were heavily recruited as laborers and experienced even harsher treatment. Conflicts between Native Americans and encroaching Anglos finally led to the establishment of reservations for some villages, such as Pala and Sequan. Other Mission groups were displaced from their homes, moving to nearby towns or ranches. The reservation system interrupted the social organization and settlement patterns, yet many aspects of the original culture still persist today. Certain rituals and religious practices are maintained and traditional games, songs, and dances continue, as well as the use of foods such as acorns, yucca, and wild game.

The subsequent American period (1846 to present) witnessed the development of San Diego in various ways. This time period includes the rather rapid dominance over Californio culture by Anglo-Victorian (Yankee) culture and the rise of urban centers and rural communities. A Frontier period from 1845 to 1870 saw the region's transformation from a feudal-like society to an aggressive capitalistic economy in which American entrepreneurs gained control of most large ranchos and transformed San Diego into a merchant-dominated market town. Between 1870 and 1930, the city of San Diego became firmly established. Development stalled during the depression years of the 1930s, but World War II (WWII) ushered in a period of growth based on expanding defense industries.

San Diego County's greatest population growth period in the first half of the twentieth century was between 1940 and 1950 when the county population grew to 556,808 (U.S. Census Bureau 1950:5-12, 5-16, 5-21). At more than half a million people, San Diego had become a metropolis with attractive rural areas transitioning into new suburban communities. However, the population of the county remained largely

concentrated in and around the City of San Diego. Wartime industries such as aircraft production and government, trade, and service industries created a 62 percent labor increase in the city and a 63 percent increase in the county (Day and Zimmerman Report 1945:87-90). San Diego solidified its importance in aeronautic advancements with the production of Reuben H. Fleet's advanced B-24 Liberator in the San Diego Bay area (Consolidated Aircraft 2004). More defense contract workers in San Diego also meant an increased need for housing, often around defense centers, such as Linda Vista and Oceanside (*Oceanside Blade-Tribune* 11 August 1941:6, 25 September 1941:1, 6).

Infrastructure improvements to both roadways and railroads became necessary to accommodate new residents, again primarily near defense centers (*Oceanside Daily Blade-Tribune* 25 February 1941:1, 20 August 1941:1). In 1956, President Eisenhower authorized an interstate system with the Federal-Aid Highway Act, an act that further interconnected multiple state routes for increased interstate traffic flow. According to University of San Diego Professor Iris Engstrand (2005:165), "[t]he automobile affected almost every major decision regarding the direction taken by San Diego planners during the post-WWII decades." A new trend of constructing retail stores outside the city center developed as more houses filled in the outskirts of the city (Engstrand 2005:165-166). By 1960, the population of the County had risen to 1,033,011, and between 1950 and 1970, bedroom communities such as El Cajon, Escondido, Chula Vista, and Oceanside experienced a tremendous growth rate (Engstrand 2005:166; U.S. Census Bureau 1960).

3.2 MILITARY IN SAN DIEGO

(Excerpted from the *San Diego Modernism Historic Context Statement*)

By the end of the 1930s, tensions on the international scene deepened. The invasion of Poland in September 1939 by Adolf Hitler triggered the beginning of WWII in Europe. President Franklin D. Roosevelt recognized the need for continued expansion of the nation's defense system and a new wave of activity commenced at bases around the world and in bases within the city. The bombing of Pearl Harbor on December 7, 1941 increased the activity to an all-time high as the nation entered WWII. The bases on the West Coast, specifically San Diego, became the launching points for the Pacific fleets and assumed major strategic importance.

New recruits swelled the ranks of the military and within a very short time, there were thousands of new sailors to train, house, and send to the war zones. New construction and expansion of existing bases helped to alleviate overcrowding using funds from the 1941 Appropriation Act passed by Congress to address defense needs. At the Naval Training Center, the Navy expanded their facilities to accommodate 10,000 more men. One hundred forty-nine buildings were constructed of temporary and semi-permanent designs using concrete and stucco. By the end of the war, nearly 300 temporary wooden frame and stucco buildings were completed.

The military also began to temporarily lease public and private properties for the war effort, such as Camp Callan near La Jolla. Camp Callan was built in November of 1940 as a Coast Artillery Corps replacement training center for new inductees. By 1942, the post had over 297 buildings, covered 23 blocks, and included five post exchanges, three theaters, and five chapels. About 15,000 men went through a 13-week training cycle with a strong emphasis on modern coast artillery and antiaircraft defense weapons. The Anti-Aircraft training program was moved to Ft. Bliss, Texas, in 1944 and Camp Callan was declared surplus in November 1945. Most of the buildings were purchased by the city of San Diego and sold for salvage.

3.3 AEROSPACE IN SAN DIEGO

The aerospace industry in San Diego began in 1910 when Glenn Curtiss brought his airplane to town and decided to open an aviation school on Coronado Island. Shortly thereafter, Curtiss began training military

personnel establishing the military's presence in San Diego. In 1922, T. Claude Ryan opened a flying service which led to the opening of a manufacturing plant that developed some of the most creative designs in aviation history, including the Spirit of St. Louis, which carried Charles Lindbergh on his 1927 nonstop solo flight from New York to Paris. However, the greatest impact to San Diego's aerospace industry was the transfer of Consolidated Aircraft.

On October 20, 1935, San Diego took a giant step toward industrialization and inaugurated the city's Golden Age of the aerospace industry when Consolidated Aircraft president Reuben H. Fleet transferred his plant, $9 million in contracts, and 800 employees from Buffalo, New York to San Diego (Engstrand 2005).

With the manufacturing operations in San Diego getting underway, Consolidated Aircraft received one of its largest and most important contracts by the Navy—60 twin engine PBY-1 patrol bombers (Wagner 1971:182). Agents were sent throughout the Southwest to recruit more workers. Construction of plant additions was underway almost immediately. The tremendous expansion of Consolidated Aircraft facilities (still existing along Pacific Coast Highway, north of Lindbergh Field) and employment brought parallel growth and problems to the entire city with the greatest need being family housing. The aircraft industry soon became to San Diego what the Model-T had been to Detroit (Davis 2003:59)

By the end of the Depression, 9,000 employees worked for Consolidated, and by 1941, Consolidated Aircraft boasted 25,000 workers on its payroll. The city would receive 35 percent of California's aircraft contracts and had the highest per capita share of war contracts in the state (Engstrand 2005:156). The contribution of the aircraft industry to San Diego's economy was now as large as that of the military.

3.4 LOCKHEED

(Excerpted from "Lockheed Martin Corporation" by Amir R. Amir and Stanley I. Weiss)

Lockheed Corporation dates to 1912 when Allan Loughead, his brother Malcolm, and Max Mamlock, who at the time was head of Alco Cab Company, founded Alco Hydro-Aeroplane Company to build the Loughead brothers' floatplane design, the Model G. After a year the company became dormant, but in 1915 the Loughead brothers bought out the interests of other investors to acquire control of the Model G and successfully flew paying passengers at the Panama-Pacific Exposition in San Francisco that year. Using their profits and capital from investors, the brothers organized Loughead Aircraft Manufacturing Company in 1916. Although its F-1 flying boat was well designed, sales were poor, and in 1921 the company was liquidated.

In 1926 Allan Loughead returned to aviation and established the Lockheed Aircraft Company (the spelling of Loughead was changed to match its pronunciation) with brick and tile manufacturer Fred E. Keeler as president and majority stockholder. The next year, with John K. Northrop as chief engineer, Lockheed developed the trend-setting Vega, a four-passenger, wooden monoplane. This highly successful aircraft achieved several records including completion of the first successful solo flight around the world (by Wiley Post in 1933). In 1929 Keeler sold the company to Detroit Aircraft Corporation, which made it a division. While Lockheed itself remained profitable during the Great Depression, the rising losses of its parent company drained its own profits, and in 1932 Detroit Aircraft was liquidated. Within a short time, four investors led by the banker Robert Ellsworth Gross acquired Lockheed's assets for $40,000 and revived Lockheed Aircraft Company. In 1934 the company delivered its first Electra, a twin-engine, all-metal airliner whose sales brought the business to profitability.

With the advent of WWII, Lockheed began its close association with the U.S. military by producing the twin-engine, twin-tailboom P-38 Lightning fighter interceptor, the only American pursuit plane to remain in continuous production throughout the war. In 1943, under the leadership of the aircraft engineer and designer Clarence L. ("Kelly") Johnson, Lockheed established a highly secret section, Advanced Development Projects (ADP), to design a fighter around a British De Havilland jet engine. The result was the P-80 Shooting Star, the first American jet aircraft to enter operational service (1945).

After the war, ADP—popularly known as the Skunk Works—became the American aerospace industry's leading military aircraft developer. It produced the F-104 Starfighter (first flown as the XF-104 in 1954), the first operational aircraft capable of sustained speeds more than twice that of sound; the U-2 high-altitude spy plane (1955); and the twin-engine reconnaissance plane SR-71 Blackbird (1964), capable of more than three times the speed of sound. In 1977 ADP flew the first stealth aircraft, an experimental prototype code-named Have Blue, which was designed to be almost invisible to radar. Its stealth research culminated in the development of the F-117A Nighthawk, which first flew in 1981. In 1991 ADP became a separate company within Lockheed, and, after the merger of Lockheed with Martin Marietta in 1995, its official name was changed to Lockheed Martin Skunk Works.

In the decades after WWII, Lockheed also produced several transport aircraft for the military. In 1955 the production version of the C-130 Hercules, a tactical troop and cargo transport plane, made its maiden flight. With manufacturing continuing into the early twenty-first century, the Hercules family of military and civil transports became the most successful and long-lived series of cargo lifters in the world. Lockheed also built the world's first turbojet airlifter, the C-141 StarLifter (first flown in 1963), and the C-5 Galaxy military cargo plane (first flown in 1968), which at the start of the twenty-first century remained the heaviest and largest American aircraft. In the late 1950s the company developed the four-turboprop P-3 Orion, a land-based antisubmarine patrol aircraft derived from an airliner design.

In the civilian sector following WWII, Lockheed introduced several propeller-driven airliners, including the famous triple-tailed Constellation (entered commercial service in 1946) and Super Constellation (entered commercial service in 1951), and the first business jet, the four-engine JetStar (first flown as a twin-engine craft in 1957). Although it missed entering the commercial jetliner field in the formative years, the advent of wide-bodied airliners in the 1960s provided the company with a new opportunity to penetrate the market. Its L-1011 TriStar began development in 1966 and made its first flight in 1970. To power the TriStar, Lockheed selected the British engine maker Rolls-Royce's new RB211 turbofan. In 1971, however, several poor business decisions related to the RB211 forced Rolls-Royce into bankruptcy. Lockheed considered it too costly to modify the TriStar for a different engine, and it, too, was on the verge of bankruptcy because of delays with the L-1011, cost overruns on its C-5 program, and reduced military contracts in the waning years of the Vietnam War. The L-1011 and its manufacturer were saved only through coordinated efforts of the U.S. government (with a massive loan guarantee), the British government (by nationalizing Rolls-Royce), other consolidated lenders, and committed customers.

Lockheed lagged behind other aerospace companies (e.g., Douglas and the Convair division of General Dynamics) in entering the field of missile development, and a missile systems division was not formed until late 1953. Organized later as Lockheed Missiles & Space Company, it was responsible for the development of several generations of U.S. Navy submarine-launched strategic ballistic missiles—the Polaris (deployed in 1960), Poseidon (1971), Trident I (1979), and Trident II (1990). Lockheed's space activities included the development in the late 1950s of the Agena rocket, which served as a second stage and a spacecraft for numerous space missions. In the late 1970s and 1980s the company was responsible for the construction and systems integration of the Hubble Space Telescope, which was carried by space shuttle into orbit in 1990. During the late 1950s Lockheed also expanded into electronics with the formation of an electronics and avionics division and branched out into marine systems with its purchase of a major construction, shipbuilding, and ship-repair firm. By 1977, when the company changed its name to Lockheed Corporation, aircraft and related services accounted for little more than 50 percent of sales.

3.5 DEEP QUEST

On May 18, 1965, Lockheed Aircraft Corporation announced plans to expand further into the field of ocean research. Company president Daniel J. Haughton stated that Lockheed believed "mankind's progress in meeting the challenge of the skies will be matched in the years immediately ahead by equally spectacular breakthroughs in the almost limitless realms of oceanography" (*Valley News* 1965a). Lockheed had started

its ocean exploration with its floating research laboratory called *Sea Quest* launched in 1961 (*Santa Maria Times* 1961). This new phase was centered on a manned submersible vehicle called *Deep Quest*.

In 1965, manned submersible vehicles were a relatively new concept. The term submersible is generally applied to a submarine designed for surveying, scientific research, salvage, rescue, or underwater engineering (Haddock 1979:15). Military submarines operate at relatively shallow depths. Until 1934 the record for depth was not held by a vessel, but by divers who had reached 180 meters. In 1934 the first spherical steel bathysphere was used to reach a depth of 923 meters. The first modern submersible was built by Auguste Piccard in 1939. The bathyscaphe he developed was designed for depths up to 4,000 meters and was powered by an external battery. It had limited maneuverability and a maximum speed of .2 knots. Until 1960, the field of submersible research was dominated entirely by Piccard, culminating in the bathyscaph Trieste which was launched in 1953. The Trieste eventually reached the deepest known part of the ocean, the Challenger Deep, 10,912 meters into the Pacific Ocean (Haddock 1979:24).

Several factors came together in the early 1960s which led to a boom in submersible technology. In addition to Piccard's achievements, the need for deep recovery vehicles was realized when the nuclear submarine Thresher was lost at 2560 meters in the North Atlantic. Public interest in ocean science was also at its peak with multiple television shows and feature films focused on undersea exploration such as Disney's *20,000 Leagues Under the Sea* (1954), *Voyage to the Bottom of the Sea* (1961), Voyage to the Bottom of the Sea (television 1964-1968), and Journey to the Bottom of the Sea and Johnny Quest (television 1964-1965). Large corporations such as General Dynamics, Reynolds Aluminum, General Mills, and Lockheed began to invest heavily in submersible programs, and between 1960 and 1968 more than 50 submersibles were constructed (Haddock 1979:25). San Diego became the epicenter of this boom as many of the companies already established in the area for aviation and naval research realized San Diego was well-suited for this new industry. Aerospace companies and their subcontractors viewed ocean projects as a logical outlet for their technical talent. Many also viewed ocean technology as an alternative if space or defense programs lost momentum (*Los Angeles Times* 1965b).

Lockheed was no exception and began to invest heavily in *Deep Quest*. In September of 1965 the company conducted tests using a smaller scale model at its plant in Sunnyvale. The hull of the scale model had previously passed proof tests that it could withstand a pressure equivalent of 12,000 feet. The next round of tests involved the effects of the vertical fin, the skegs (after part of the keel), and various ballasting combinations on the stability of the vehicle. Meanwhile, a full-scale model was being built at Sun Ship Building and Dry Dock Company in Chester, Pennsylvania (*Valley News* 1965b).

In May of 1967, *Deep Quest* arrived at its home at the Lockheed Marine Terminal. Delivered by barge from Redwood City, there was much interest surrounding the 50-ton vessel and its 108-foot mother ship *TransQuest* which was built in Portland, Oregon (*Los Angeles Times* 1967). Local and national papers covered its June 4th launch and provided the public with all the technical capabilities of the unique submersible vehicle (Figure 4). The free-floating shark-shaped aluminum hull measured 39 feet 10 inches long (*Casper Star-Tribune* 1967). The inner pressure hull consisted of two intersecting 7-foot spheres made of a special alloy maraging steel developed by the International Nickel Company for use in rockets (Figure 5). The steel was twice as strong as that used in any other submersible with a 200,000 psi and thickness of .895 inches. The combination meant it could be strong without a significant increase in weight (*San Bernardino County Sun* 1968). The pressure hull could hold two pilots and two observers with 48 hours of life support. Battery operated propulsion was provided by two 7.5 horsepower motors that gave it a top speed of 4.5 knots. *Deep Quest* could "hover" in a .5 knot current with vertical motion provided by a pair of identical motors and water jet thrusters used to move the vessel laterally (Figures 6 and 7).

Figure 4. Photo of launch day of Deep Quest, June 4, 1967 from San Diego Historical Society Photograph Collection.

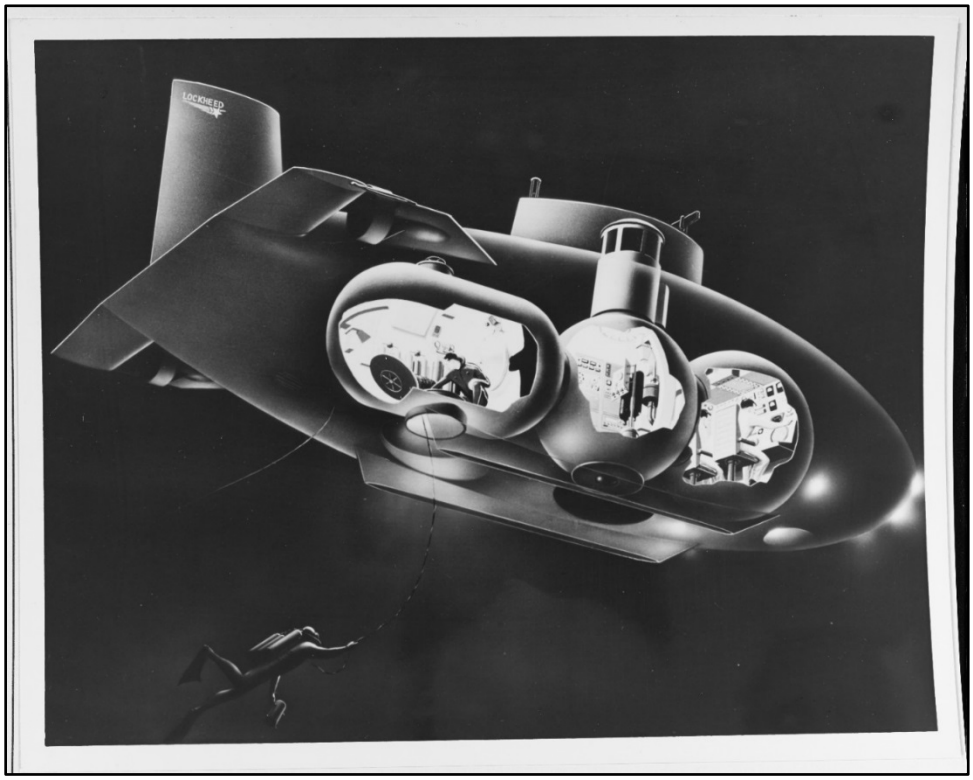
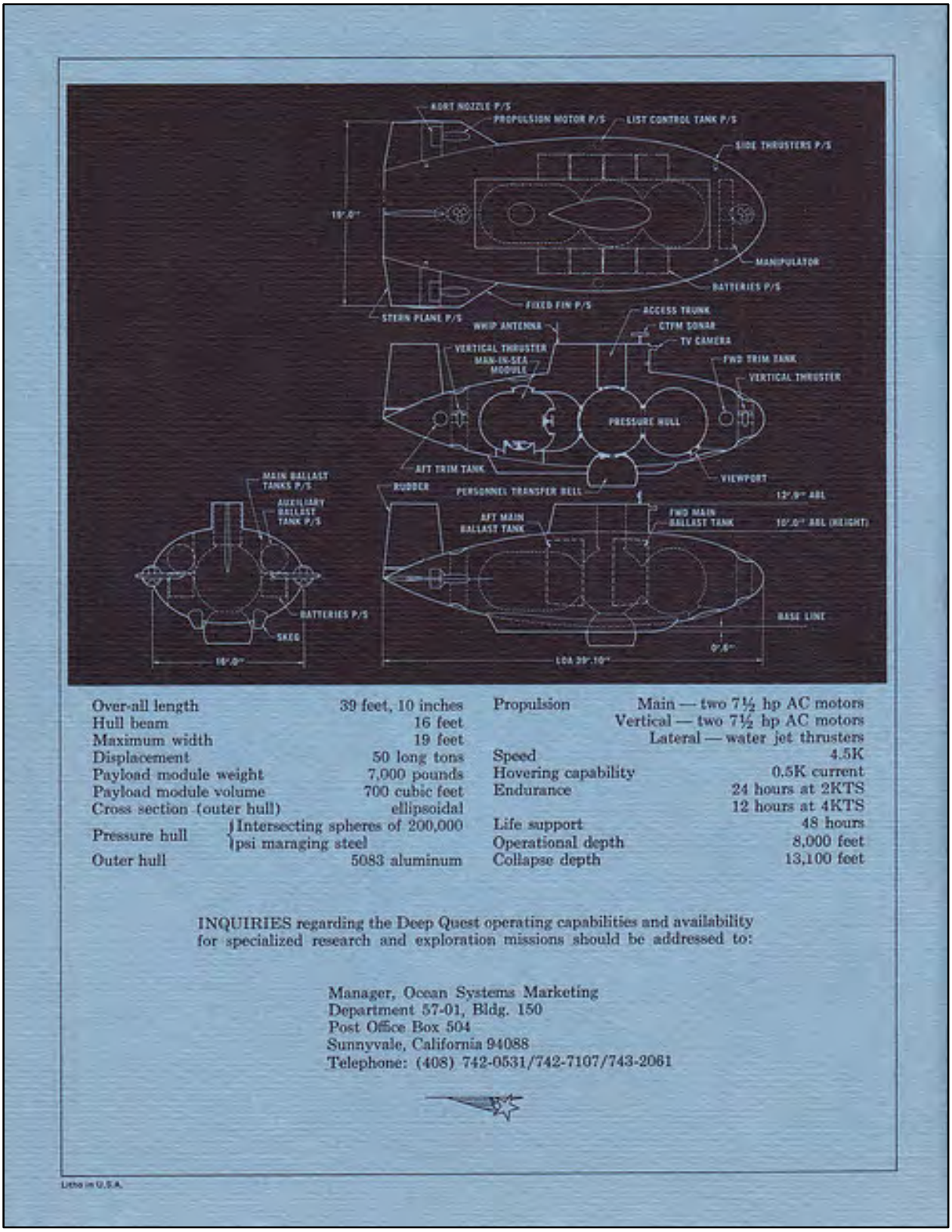


Figure 5. Rendering of interior of Deep Quest which appeared in many newspapers.



Over-all length	39 feet, 10 inches	Propulsion	Main — two 7½ hp AC motors Vertical — two 7½ hp AC motors Lateral — water jet thrusters
Hull beam	16 feet		
Maximum width	19 feet		
Displacement	50 long tons	Speed	4.5K
Payload module weight	7,000 pounds	Hovering capability	0.5K current
Payload module volume	700 cubic feet	Endurance	24 hours at 2KTS 12 hours at 4KTS
Cross section (outer hull)	ellipsoidal		
Pressure hull	Intersecting spheres of 200,000 psi maraging steel	Life support	48 hours
		Operational depth	8,000 feet
Outer hull	5083 aluminum	Collapse depth	13,100 feet

INQUIRIES regarding the Deep Quest operating capabilities and availability for specialized research and exploration missions should be addressed to:

Manager, Ocean Systems Marketing
Department 57-01, Bldg. 150
Post Office Box 504
Sunnyvale, California 94088
Telephone: (408) 742-0531/742-7107/743-2061

Litho in U.S.A.

Figure 6. Diagram of Deep Quest distributed by Lockheed.

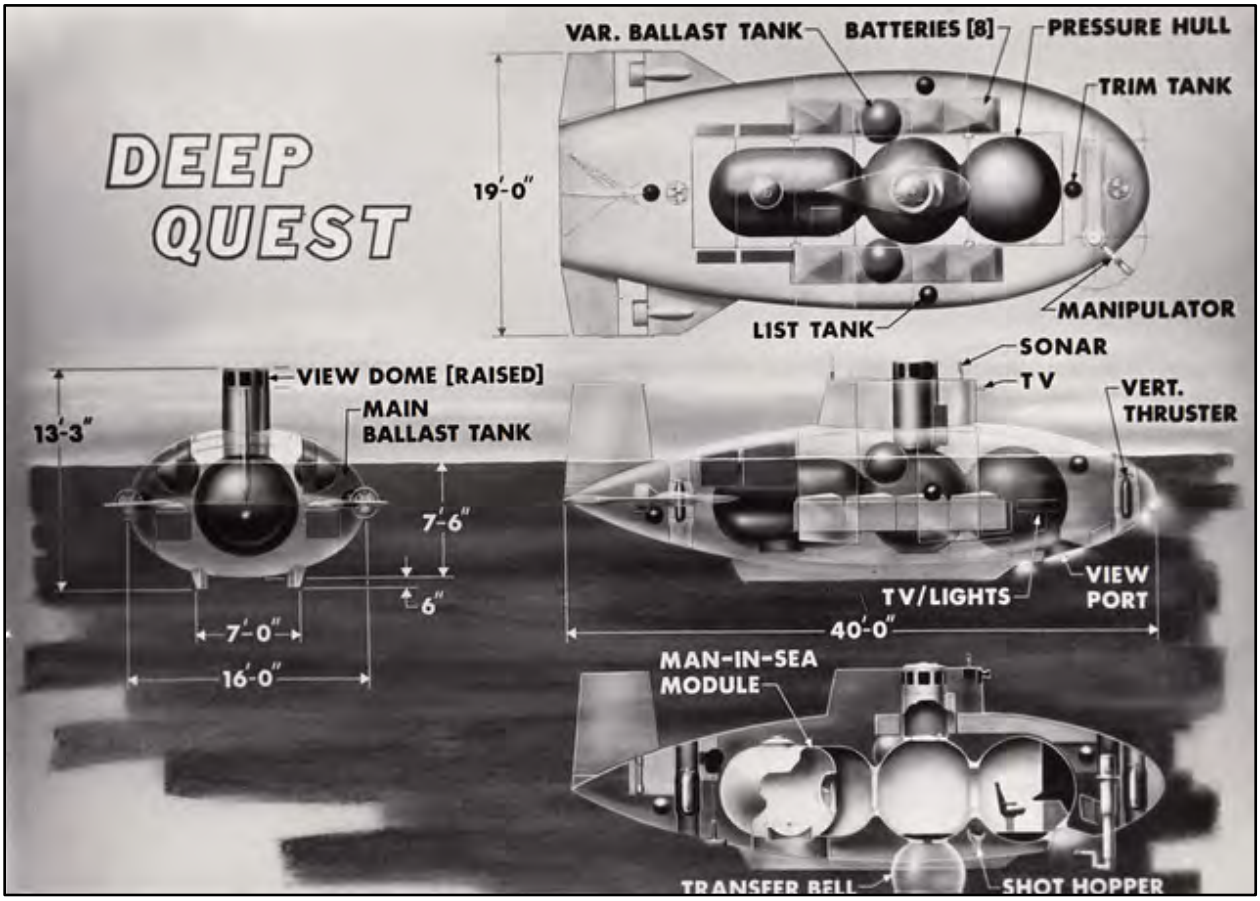


Figure 7. Illustration of Deep Quest interior reprinted in many newspapers.

After its official launch, Lockheed began an extensive testing phase. In October of 1967, a two-week series of trials took place in the open water off San Diego Bay (Figure 8). These tests focused on the electrical hydraulic communications and life support systems. Larry A. Schumaker and Glenn F. Minard were the pilots during these tests (*Van Nuys News* 1967). By January of 1968, *Deep Quest* had reached a depth of 6,300 feet (*Oakland Tribune* 1968). In February, Lockheed announced that WWII vet and bathyscaphe pilot Donald E. Saner would be the pilot of *Deep Quest*. Saner was on the commissioning crew for the *USS Theodore Roosevelt*, the first Polaris submarine built on the west coast (*Van Nuys News* 1968a). That same month, a new device to facilitate emergency surfacing was tested. A jettison system enabled the sub to rise from a depth of 4,200 feet by dropping its forward battery, thereby losing 3,000 pounds (*Baltimore Sun* 1968).

In April of 1968, *Deep Quest* set a depth record of 8,310 feet. Pilots Glenn Minard and Don Saner along with Larry Shumaker and Pete Summers, placed a flag on the ocean bottom 93 miles southwest of San Diego. They spent approximately eight hours under water (*Van Nuys News* 1968b). Because of this accomplishment, the Navy awarded Lockheed with a contract to build a prototype of a rescue sub that could "piggyback" on a conventional sub and then safely detach to explore deeper. There was considerable excitement around the new technology, and Shumaker envisioned a time when the bottom of the ocean would be the next frontier of claim-jumping and cattle rustling (*Anderson Daily Bulletin* 1968). Lockheed used images of the vessel in many of its advertisements, indicative of the public interest in the *Deep Quest* program at that time (Figure 9).

Figure 8. Image of Deep Quest on the back of TransQuest during a testing mission from San Diego Historical Society Photograph Collection.

Figure 9. Ad for Lockheed that appeared in magazines, 1966.

Despite the excitement for *Deep Quest*, practical applications for the vessel were not readily apparent. In January of 1969, it located and retrieved wreckage and victims from a Scandinavian Airlines flight that had crashed off the Santa Monica bay (*Independent* 1969). But during practice trip later that year, a polypropylene cable used to retrieve heavy objects wrapped around one of the propellers and jammed it, stranding the crew of four at a depth of 430 feet. The story captured the nation's attention as people wondered how a crew could escape when the pressure was so great, and few other vehicles were able to reach those depths. Three undersea rescue vehicles were dispatched: *Nekton*, based in Torrance; *Roughneck* by North American Rockwell; and *Gear*, a Navy underwater salvage vehicle (*Los Angeles Times* 1969). It was the designer of the *Nekton* who attached a diver's knife onto one of the mechanical arms of the small two-person sub and sawed through the line. The crew had been trapped for 12 hours at that point (*Florida Today* 1969).

In January of 1970, the *Deep Quest*-inspired DSRV-1 *Mystic* was completed by Lockheed for the Navy at a cost of 41 million (Figure 10). It was christened at the Lockheed Ocean Laboratory and was designed to rescue up to 24 submariners. The Navy said it would be available for use anywhere in the world on 24 hours' notice, traveling by plane and nuclear submarine (*Hartford Courant* 1970). However, the DSRV-1 *Mystic* was decommissioned in 2008 without ever completing a mission (Naval Undersea Museum 2014).

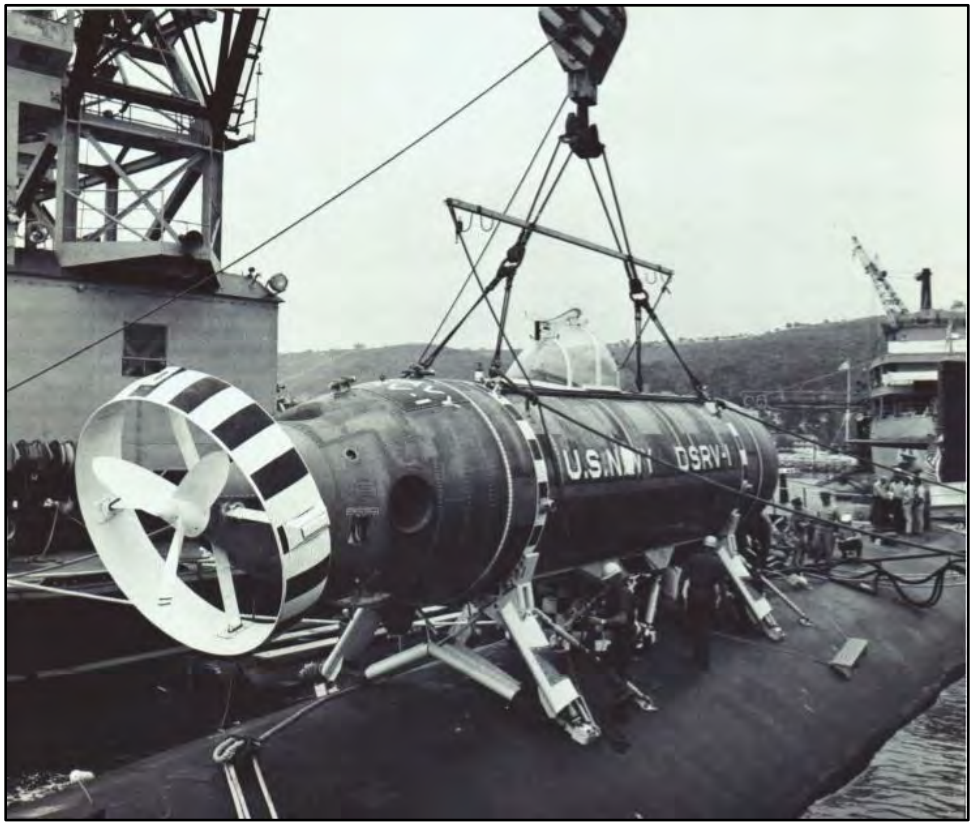


Figure 10. DSRV Mystic on the back of a support submarine, from All Hands magazine, 1978.

During a training dive in March of 1970, Larry Shumaker spotted a Navy F6F Grumman Hellcat on the sea floor. The plane had crashed in January of 1944 and the pilot had safely escaped. No salvage mission was attempted at that time, but the crew noted the location and planned a later trip to attach nylon cables to the plane and pull it to a depth where divers could remove the still active ammunition (*Springfield News Leader* 1970). In 1975 the pilot, Robert F. Thomas, made a trip to Arizona where it was on loan to the Pima County Air Museum so he could see the Hellcat he never thought he would see again (*Tucson Daily Citizen* 1975).

Aside from the story about the Hellcat, news about the *Deep Quest* seemed to subside considerably after the 1969 incident that left the crew trapped. The *Deep Quest* continued missions through the 1970s, mostly focused on research on sediments in collaboration with Lehigh University (*The Morning Call* 1973). *Deep Quest* remained active until 1980, conducting floor studies, inspections of underwater dump sites, and fuel cell research in its later years (Naval Undersea Museum 2014). It was also in 1980 that a replica of the *Deep Quest* was built as a prop for the movie *Raise the Titanic*. This prop brought attention to the *Deep Quest* once again when in 2003 a collector purchased the vehicle believing it was the original (Figure 11). At that time the original *Deep Quest* was on display at the Navy Undersea Museum in Keyport, Washington. Despite this fact, the collector turned the prop into a boat and docked it along the eastern seaboard claiming it was the original *Deep Quest* (*The Day* 2010).

Figure 11. Image of fake Deep Quest built as a movie prop, printed in The Day, 2010.

In November of 2017, *Deep Quest* made its last journey from the Naval Undersea Museum to the Platypus Marine Shipyard in Port Angeles, Washington, where it was dismantled and recycled (Figure 12). The museum said its condition was deteriorating and would require substantial financial resources to restore. As the vehicle was never used by the Navy, it was also not in line with the museum's mission (*Peninsula Daily News* 2017).

3.6 PROPERTY HISTORY: LOCKHEED MARINE TERMINAL

When Lockheed announced that it planned to expand further into the field of oceanography, the first step of that plan was the lease of 2.7 acres from the Port of San Diego. They also planned to purchase a facility built as the San Diego office of the American Institute of Aeronautics and Astronautics in the same location (Figure 13). They remodeled the building for use as the ocean laboratory while they developed plans for a new structure to house *Deep Quest*. The acreage included parcels on Harbor Island, a strip of land created by the Navy in 1961. When plans for the building were approved in March of 1966, it was noted that this would be the first new building on the newly created island (*San Diego Union* 1966a). The marine laboratory would provide space for a corporate office and operating bases for other Lockheed divisions, but the most important purpose of the facility was to house *Deep Quest*, their new research submersible being built at their Sunnyvale plant (*Valley News* 1965b).

Figure 12. Photo of Deep Quest on its way to be dismantled, from Peninsula Daily News, 2017.

Figure 13. Photo of the former American Institute of Aeronautics and Astronautics building after it was remodeled by Lockheed, circa 1966.

The architectural plans for the building were prepared by Frank L. Hope and Associates and stamped and signed by architect Frank Hope, Jr. According to his California license number, this is the son of the founder of the firm who also went by Frank Hope, Jr. for most of his career but had retired in 1965 (*Los Angeles Times* 1992). The structural engineer for the building was Charles B. Hope, Frank Hope, Sr.'s other son. The plans were prepared for Lockheed Missiles and Space Company and approved by the San Diego Unified Port Authority on April 20, 1966. The site plan includes a 6,108-square-foot building with a 165-foot marine railway and 50-foot pier (see Appendix C). The north side of the building provided administration and office space with a central reception area flanked by two offices to the west and two offices to the east with a Lounge in the northeast corner. Restrooms and storage rooms were located along the south side of the offices. The largest space is the Maintenance Shop where the marine railway enters the building through a 30-x-24-foot roll-up metal door on the east wall. The exposed redwood ceiling was equipped with a 5-ton moving crane and hook running parallel to the marine railway. A mezzanine with a railing was placed above an Instrument Shop, Alcove, and Battery Charging Room along the west wall. The south end of the building contained a Machine Shop with an Electronics Shop in the southeast corner. A Diver Gear Storage and Compressor Area was located in the southwest corner.

Most of the building had a concrete floor with vinyl asbestos in the offices and vinyl sheeting used in the restrooms. Doors were a mixture of steel and wood, depending on the location, with exterior doors on the east and west façades designed with redwood slats to blend in with the 1-x-4-inch rustic waterproof redwood siding that covered the entire structure on three façades. The elevations indicate the intentional and very specific use of the material to give the building an organic uniformity uninterrupted by fenestration on two sides (see Appendix C). Jalousie windows were used on the north and south façades with redwood louvers carefully hiding the glass but allowing light to pass through on the south side. On the west side, the redwood louvers were intended to hide a glass fiber screen.

A future addition is indicated on the plans, north of the reception area. At the time the building was announced, Lockheed indicated they planned to expand the building in 1968, but those plans were never realized (*San Diego Union* 1966b). It is not clear exactly when construction of the building was completed, but photos dating to the time the *Deep Quest* was launched in June of 1967 indicate that the building was complete (Figure 14). In 1968 Arevalo and Deardorff and Dunphy Construction added the storage building on the southeast corner of the site as well as new conduits and a new underground fire sprinkler main. In May of 1969, additional parking was added for the facility and a chain link fence was built around the property. In October of 1969, Creegan and D'Angelo were consulting engineers on project to raise the rail on the marine railway. The mezzanine was also reconfigured at this time with a portion of it removed and railings replaced.

Photographs from 1971 show the building much as it looks today (Figure 15). The building continued to be used as a base for research experiments associated with *Deep Quest* and *TransQuest* through 1980. In 1984, Lockheed transferred ownership of the building internally from Lockheed Missiles and Space Company to Advanced Marine Systems (Burns 2016). In 1989, ownership was transferred back when they absorbed Advanced Marine Systems. In 1995, Lockheed merged with Martin Marietta and the current sign was added to the building sometime after that.

3.7 FRANK L. HOPE AND ASSOCIATES

(Partially excerpted from *Modern San Diego.com*)

Architect Frank Lewis Hope, Jr. (1901-1994) (now more commonly referred to as the senior Hope) was born to Frank Lewis Hope, Sr. (1873-1943) in 1901 in San Bernardino and arrived in San Diego in 1913 when his father moved to the city as a traffic agent for the Santa Fe Railway. Hope attended San Diego High School up to his sophomore year, dropping out that year to work in the Navy shipyards during World War I (WWI). Mr. Hope later went on to attend California University (now University of California [U.C.] Berkeley) for two years, and the Carnegie Institute of Technology in Pittsburgh for one year but stopped short of earning a degree.

Figure 14. Aerial photograph of building prior to 1968, from San Diego Historical Society Photograph Collection.

Figure 15. Photo of building with Deep Quest on railway circa 1971.

When Frank Jr. opened his business in 1928, San Diego was still small (the 1930 census counted a population of 148,000), and the scale of development was modest compared to today. He built his business mostly by designing houses and churches in traditional styles, including a Mediterranean mode he learned during his years in the offices of San Diego architects Richard Requa, Herbert Jackson, Lillian Rice, and William H. Wheeler between 1925 and 1928. It is likely that much of his architecture education came under Requa and Jackson, with whom he began his career as an architect after working in the design department of a shipbuilding company during WWI (*Los Angeles Times* 1992).

After passing the state exam, Hope launched his own firm in 1928, Frank L. Hope & Associates, Architects & Engineers, located in the Spreckels Building. While he was informed by his mentors of Mediterranean stylings, Hope also had a modern side. By the late 1930s, he began designing Streamline Modern houses as well as buildings including a Ford-Lincoln automobile outlet that once stood at 12th Avenue and Broadway downtown, and Grossmont Union High School's auditorium-gymnasium. In 1940, the firm secured the remodeling of the First National Trust & Savings Bank of San Diego in order to give the building a more streamlined appearance. Many of the ornamental features of the building were removed from the exterior and replaced with a sleek tile-covered exterior atop a ceramic and black granite base.

During the Great Depression Hope focused on remodeling and renovating storefronts. In 1930 Hope was hired to design the Spanish-styled Carmelite Monastery in Normal Heights. From this point forward, Frank Hope Jr. worked closely with the San Diego Roman Catholic Diocese designing several buildings. These projects included the Sacred Heart Catholic Church in Ocean Beach (1946), Our Lady of the Sacred Heart Catholic Church in City Heights (1947), the San Diego College for Women (1950), and the Immaculata at the University of San Diego (1964).

Hope was one of the few surviving direct links to a great era of modern architecture. He knew Irving Gill, San Diego's most influential architect, who died in 1936, and once showed Frank Lloyd Wright around town when he visited. Frank Hope, Sr. never considered himself a gifted designer. His son Frank Hope III, who graduated with an architecture degree from U.C. Berkeley, was "far ahead of me," according to the Hope patriarch. Some of the modern buildings completed after Hope III began working at the firm in 1955 include The May Company Building (1959) (Figure 16), The Travelodge Corporation International Headquarters (1962) (Figure 17), the Timken Museum in Balboa Park (1962-1965) (Figure 18), and Scripps Hydraulic Lab (1964).

When Hope retired in 1965 the next generation, Frank Hope III (more commonly referred to as Frank Hope, Jr.) and Charles "Chuck" B. Hope, a structural engineer, took over ownership of the company and expanded it. The Hope firm peaked in size in the 1980s with 150 employees. Noted designers Gary Allen (who designed San Diego Jack Murphy Stadium, now known as SDCCU Stadium), C.W. Kim, and Robert Bell all cut their teeth under the Hope banner. While Hope Jr. only caught the beginning of San Diego's modern building boom, Frank III headed the company during the city's 1970s and 1980s explosion. Some of the notable works completed in the San Diego area during his time were: Cabrillo National Monument Visitors Center (1966), Donald M. Sharp Memorial Community Hospital (1967-1975), Oceanside Savings and Loan (1967), Children's Hospital, Diagnostic Treatment Center and Child Guidance Clinic (1968), McGill Hall at the John Muir Campus at U.C. San Diego (1969), National Cash Register Company Electronic Facility (1969), Coronado Hospital (1972), Ranch Bernardo Scripps Clinic Molecular Biology Building (1983), and La Jolla Cancer Research Center (1985). A 1965 addition for the Hemet Hospital displays some characteristics similar to the Lockheed Marine Terminal (Figure 19).

Frank Hope, Jr. died in 1994 at the age of 93. In addition to taking over the firm, his son, Frank Hope III was involved in various professional and civic organizations in San Diego and California. In addition to serving as President of the San Diego Chapter of the AIA, he was also named to the AIA Board of Directors in 1973 (*Los Angeles Times* 1973). He was elected as President of the Board of the San Diego Chamber of Commerce in 1980 (*Los Angeles Times* 1980) and was also appointed by the governor to the California Board of Regents in 1984 (*Los Angeles Times* 1984). In the early 1990s, management and ownership of the

company transitioned to architect F. Lee Hope (Frank Hope III's son) and civil engineer Chuck Hope, Jr. (Chuck Hope's son). However, the decade saw the company, now known as the Hope Design Group, facing increasing competition from firms outside of its home base of San Diego and outside San Diego for projects in the city (*Los Angeles Times* 1992). The company closed its doors in 1993.

MAJOR PROJECT LAUNCHED—At front of this picture is shown design of the 388,000-sq.-ft. building that is to house the May Co. store in the $25 million May Department Stores Co. Mission Valley Center, on 80-acre site, San Diego. The model of the project shown above, indicates how extensive project will look when ready for opening by February, 1961. Another department store, specialties and service shops also will be located there. Architects for development are Albert C. Martin & Associates and Frank L. Hope & Associates. Among other unique details the plans provide for a "floating mall" with surface parking directly beneath it. Ground breaking took place in week just ended.

Figure 16. May Company store in Mission Valley, Los Angeles Times 1959.

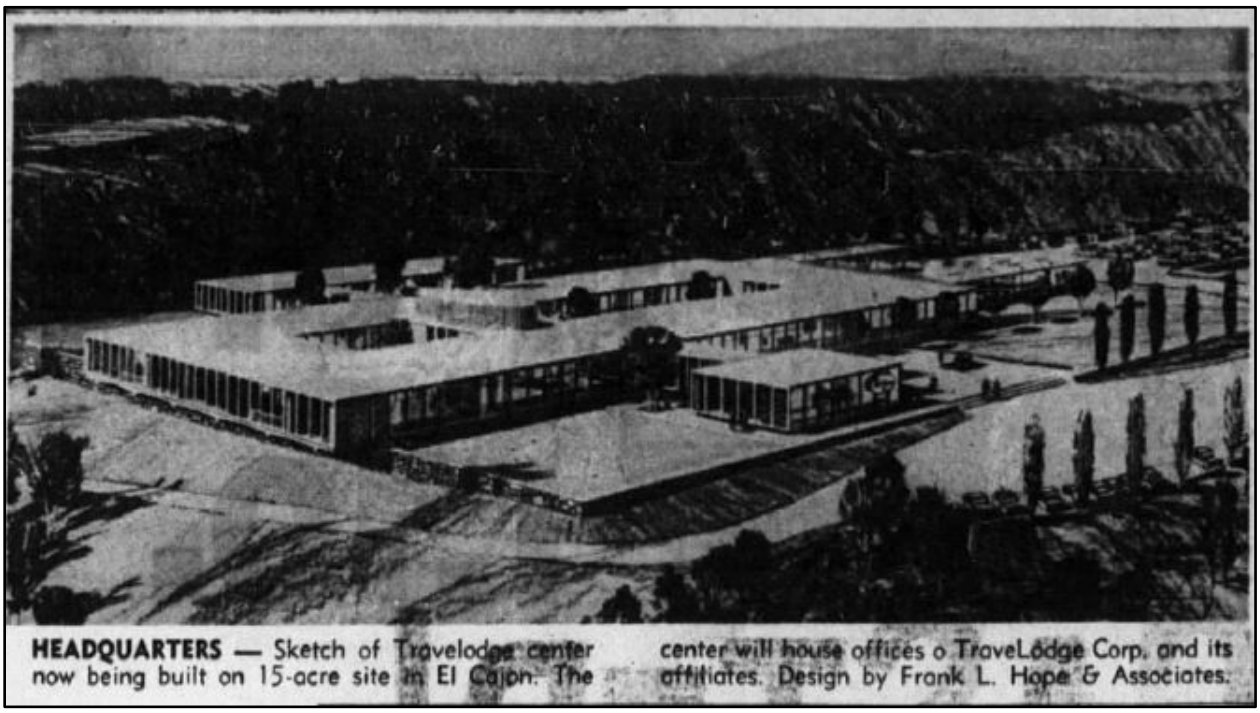


Figure 17. Sketch of TraveLodge center from Los Angeles Times, 1962.

Figure 18. Photo of Timken Museum.

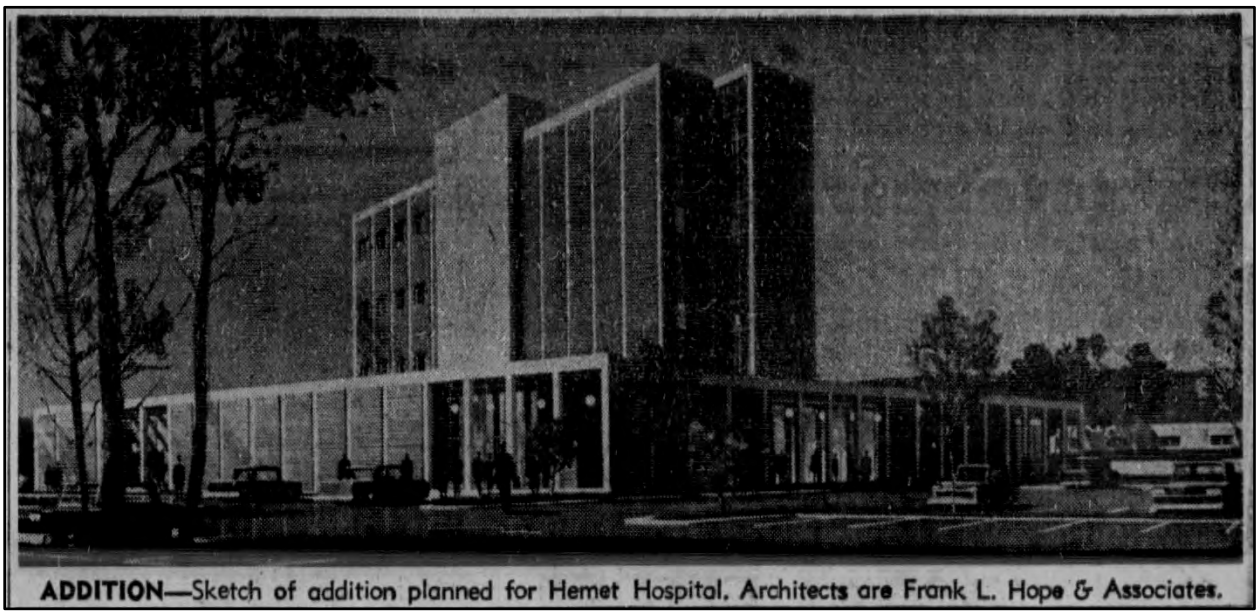


Figure 19. Proposed addition to Hemet Hospital, from Los Angeles Times, 1965a.

4.0 ARCHITECTURAL DESCRIPTION OF LOCKHEED MARINE TERMINAL

The Lockheed Marine Terminal consists of a central two-story block with one-story wings to the north and south (Figure 20). The building has a flat built-up roof with no overhanging eaves or fascia. Most of the building is clad in distinctive narrow redwood clapboards with narrow corner and edge boards (Figure 21). The west façade of the building faces Harbor Island Drive and appears to have no doors or fenestration (Figure 22). However, there are a pair of doors hidden behind the same redwood cladding in the center of the central block (Figure 23). Additionally, open louvered vents projecting slightly from the wall blend into the cladding on this façade (Figure 24). The south façade also has little visible fenestration (Figure 25). There is a door near the west corner and an additional door hidden on the second story of the central block. Projecting louvered vents like those located on the west façade line most of the first story and hide jalousie windows (Figure 26).

The east façade is dominated by a central steel roll-up door that provided access for vessels using the marine railway (Figure 27). A small one-story shed added in 1968 is attached to the south end of the façade and has one wood door on its north façade (Figure 28). An additional square utility shed with double steel doors is located on the north end of the building (Figure 29). There is another set of hidden double doors just south of the central door (Figure 30).

The north façade of the building has the most architectural detailing and only visible fenestration on the building (Figure 31). A row of 18 fixed sash ribbon windows line the second story of the central block illuminating the maintenance shop area. There is a hidden door near the west corner of the building (Figure 32). The first story is divided into 18 bays by wood beams with an entrance located slightly off center with nine windows to the east and eight to the west. The entrance is a simple wood door and the jalousie windows have been damaged in some locations (Figure 33).

There is a portable structure located on the east side of the building that was added after the initial construction based on historic photographs (Figure 34). The pier extends from the site on this façade and is built of redwood supported by hexagonal cast concrete posts (Figure 35). The marine railway is constructed of concrete with metal rails supported by cast concrete posts (Figures 36 and 37).

The interior of building contains offices and a lounge to the north, a machine shop to the south, an instrument shop, diving storage area, and battery charging room to the south, and a central maintenance shop area. The office area is divided by partitions with a drop ceiling and carpeting throughout (Figure 38). There are multiple restrooms and lavatories along the south wall (Figures 39 and 40). The battery charging and diving storage rooms on the west side have green fiberglass over the windows in place of glass (Figure 41). The machine shop on the south side has jalousie windows that are hidden behind the exterior redwood louvers (Figure 42). The central maintenance shop has a mezzanine area on the west side (Figure 43). The redwood ceiling is supported by a thick redwood beam that spans the space from north to south (Figure 44). The concrete floor has a built-in track leading from the marine railway (Figure 45).

Figure 20. Distant view of west façade of Lockheed Marine Terminal.

Figure 21. Detail of siding on west façade, looking east.

Figure 22. Oblique view of west façade showing hidden fenestration.

Figure 23. Door hidden by cladding on west façade.

Figure 24. Detail of hidden door and redwood louvers on west façade.

Figure 25. South façade looking northeast.

Figure 26. Redwood louvers on south façade.

Figure 27. East façade looking west.

Figure 28. View of 1968 addition looking southwest.

Figure 29. East façade showing storage area at northeast corner.

Figure 30. East façade with open hidden door.

Figure 31. North façade of Lockheed Marine Terminal.

Figure 32. Oblique view of north façade looking southeast.

Figure 33. Detail of jalousie window on north façade.

Figure 34. Portable outbuilding at southeast corner of parcel.

Figure 35. View of pier looking northeast.

Figure 36. View of marine railway looking east.

Figure 37. Railway and pier looking northeast from San Diego Historical Society Photograph Collection.

Figure 38. Interior office partitions.

Figure 39. Interior hall with storage and restrooms to the south.

Figure 40. Restroom sink detail.

Figure 41. Green fiberglass in west windows.

Figure 42. Jalousie windows in south machine shop.

Figure 43. Mezzanine in maintenance shop looking southwest.

Figure 44. Ceiling and door in maintenance shop.

Figure 45. Detail of floor in maintenance shop.

5.0 EVALUATION OF ELIGIBILITY

In evaluating Lockheed Marine Terminal, ASM considered a number of factors relevant to making a recommendation of eligibility, including:

- the history of San Diego and Harbor Island;
- the history of the building's construction, use, and associations;
- the history of the surrounding community and the building's relationship to that community;
- the building's association with important people or events;
- whether the building is the work of a master architect, craftsman, artist, or landscaper;
- whether the building is representative of a particular style or method of construction; and
- whether the building has undergone structural alterations over the years, the extent to which such alterations have compromised its historical integrity, and the current condition of the property.

5.1 REGULATORY FRAMEWORK AND ELIGIBILITY CRITERIA

5.1.1 California Register of Historical Resources Significance Criteria

The CRHR program encourages public recognition and protection of resources of architectural, historical, archaeological, and cultural significance; identifies historical resources for state and local planning purposes; determines eligibility for state historic preservation grant funding; and affords certain protections under CEQA. The criteria established for eligibility for the CRHR are directly comparable to the national criteria established for the NRHP.

In order to be eligible for listing in the CRHR, a building must satisfy at least one of the following four criteria:

1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
2) It is associated with the lives of persons important to local, California, or national history.
3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.
4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Historical resources eligible for listing in the CRHR must also retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. For the purposes of eligibility for the CRHR, integrity is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California Office of Historic Preservation 2001). This general definition is generally strengthened by the more specific definition offered by the NRHP—the criteria and guidelines on which the CRHR criteria and guidelines are based upon.

Integrity

In order to be eligible for listing in the NRHP and CRHR, a property must retain sufficient integrity to convey its significance. The NRHP publication *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin 15, establishes how to evaluate the integrity of a property: "Integrity is the ability of a property to convey its significance" (National Park Service, National Register of Historic Places 1991).

The evaluation of integrity must be grounded in an understanding of a property's physical features and how they relate to the concept of integrity. Determining which of these aspects are most important to a property requires knowing why, where, and when a property is significant. To retain historic integrity, a property must possess several, and usually most, aspects of integrity:

1. Location is the place where the historic property was constructed or the place where the historic event occurred.
2. Design is the combination of elements that create the form, plan, space, structure, and style of a property.
3. Setting is the physical environment of a historic property and refers to the character of the site and the relationship to surrounding features and open space. Setting often refers to the basic physical conditions under which a property was built and the functions it was intended to serve. These features can be either natural or manmade, including vegetation, paths, fences, and relationships between other features or open space.
4. Materials are the physical elements that were combined or deposited during a particular period or time, and in a particular pattern or configuration to form a historic property.
5. Workmanship is the physical evidence of crafts of a particular culture or people during any given period of history or prehistory and can be applied to the property as a whole, or to individual components.
6. Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, when taken together, convey the property's historic character.
7. Association is the direct link between the important historic event or person and a historic property.

5.1.2 California Environmental Quality Act Significance

CEQA Section 15064.5 *Determining the Significance of Impacts to Archeological and Historical Resources* requires that all private and public activities not specifically exempted be evaluated against the potential for environmental damage, including effects to historical resources. Historical resources are recognized as part of the environment under CEQA. It defines historical resources as "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California."

Lead agencies have a responsibility to evaluate historical resources against the CRHR criteria prior to making a finding as to a proposed Project's impacts to historical resources. Mitigation of adverse impacts is required if the proposed Project will cause substantial adverse change to a historical resource.

Substantial adverse change includes demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired. While demolition and destruction are fairly obvious significant impacts, it is more difficult to assess when change, alteration, or relocation crosses the threshold of substantial adverse change. The CEQA Guidelines provide that a Project that demolishes or alters those physical characteristics of an historical resource that convey its historical significance (i.e., its character-defining features) can be considered to materially impair the resource's significance. The CRHR is used in the consideration of historical resources relative to significance for purposes of CEQA. The CRHR includes resources listed in, or formally determined eligible for listing in, the NRHP, as well as some California State Landmarks and Points of Historical Interest. Properties of local significance that have

been designated under a local preservation ordinance (local landmarks or landmark districts), or that have been identified in a local historical resources inventory, may be eligible for listing in the CRHR and are presumed to be significant resources for purposes of CEQA unless a preponderance of evidence indicates otherwise.

Generally, a resource shall be considered by the lead agency to be a "historical resource" if it:

- Is listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (PRC Section 5024.1, Title 14 CCR, Section 4850 et seq.).
- Is included in a local register of historical resources or is identified as significant in an historical resource survey meeting the requirements Section 5024.1(g) of the PRC.
- Is a building or structure determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

5.2 STATEMENT OF SIGNIFICANCE

5.2.1 California Register of Historical Resources Evaluation

Individual Assessment

ASM carefully considered whether the Lockheed Marine Terminal and associated marine railway and pier are individually eligible under any CRHR criteria. The property is recommended eligible for the CRHR under Criterion 1 under the theme of Industry: Maritime Research and Exploration. The Lockheed Marine Terminal is closely associated with *Deep Quest*, a submersible research vehicle that set the depth record in 1968. The Marine Terminal was built specifically to house *Deep Quest*, its support vehicle *TransQuest*, and the oceanographic vessel *Sea Quest*. The Marine Terminal served as the primary marine research headquarters and maintenance facility for Lockheed during the years that *Deep Quest* was recognized as a nationally significant maritime program. It represents an era when San Diego was transitioning from the aircraft missile industry to ocean research and exploration. The period of significance under Criterion 1 is 1966-1969, when interest in the program waned after the incident that left the crew trapped, and after which Lockheed had decided not to expand the *Deep Quest* program as originally intended (also reflected in the decision not to expand the building to the north).

The Lockheed Marine Terminal is recommended not eligible for the CRHR under Criterion 2. Although it was associated with naval pilots such as Larry A. Schumaker, Glenn F. Minard, and Donald E. Saner, they are not considered historically significant individuals. No other significant individuals were found associated with the property. Therefore, the Lockheed Marine Terminal is recommended not eligible under CRHR Criterion 2.

ASM considered whether the property is individually eligible under CRHR Criterion 3 for having distinctive characteristics of a type, period, region, or method of construction, or representing the work of a master or possessing high artistic values. Plans for the building indicate that it was designed by Frank Hope, Jr. of Frank L. Hope and Associates. Frank Hope, Jr. is included on the list of established masters created by the Historical Resources Board for the City of San Diego (HRB San Diego 2011). He is also listed as a Contributing Designer of Modern San Diego in the *San Diego Modernism Historic Context* (City of San Diego 2007). In addition to a number of residential projects, Frank L. Hope and Associates designed several well recognized Modern landmarks in San Diego including San Diego Stadium (now SDCCU Stadium), the Timken Museum, the May Company in Mission Valley, and several buildings on the U.C. San Diego campus.

Additionally, the building has a unique modernist style and character-defining features that indicate it possesses high artistic values and elements of multiple styles popular in San Diego in 1966, as outlined in the *San Diego Modernism Historic Context* (Context). The Lockheed Marine Terminal is best classified as Contemporary style, even though the Context places an end date of 1965 to that style. The Lockheed Marine Terminal displays many characteristics of this style including the strong roof form, large windows (on the north façade), and non-traditional exterior finish listed as the primary character-defining features of the Contemporary. Under secondary features the Context notes that commercial buildings are horizontally oriented, and although this is an industrial building, the horizontal focus is clear on the north façade and in the louvers and cladding across the building. Additionally, although intended for houses, McAlester's *Field Guide to American Houses* indicates that broad expanse of uninterrupted wall surface built with natural material, in this case redwood, is a character-defining feature of the Contemporary style (McAlester 2013:628). Obscured entry doors and windows, like those found on the Lockheed Marine Terminal, are also noted as an identifying feature of the style. The Context states that examples of this style that retain a high degree of integrity are rare, and it appears that industrial buildings with a Contemporary style were even more rare as they were not addressed in the Context. As it was designed by a master architect and possesses high artistic value and distinctive characteristics of the Contemporary style, the Lockheed Marine Terminal is recommended eligible for the CRHR under Criterion 3. The period of significance under Criterion 3 is 1966, the year of its construction.

The Lockheed Marine Terminal is not recommended eligible under CRHR Criterion 4. It is a common property type that does not have the potential to provide information about history or prehistory that is not available through historic research.

The integrity of the building is excellent, as it retains its original location, design, materials, workmanship, feeling, and association. There have been some changes in setting since the building was initially constructed, but not so much as to detract from overall integrity.

Historic District Contributor Assessment

ASM carefully considered whether the Lockheed Marine Terminal and associated pier and railway are eligible as a contributor to a potential historic district on Harbor Island. As the first building built on Harbor Island, there are no buildings that date to same time period on the island. There are other buildings associated with Lockheed and other companies involved in ocean research between Liberator Way and Harbor Drive, such as the building currently used as the San Diego Harbor Police Department, but most do not have integrity sufficient to represent the theme of Marine Research and Exploration. As such, ASM recommends that the Lockheed Marine Terminal is not eligible as a contributing resource to any historic district.

6.0 IMPACTS ASSESSMENT

Project

CEQA Guidelines Section 15064.5(b)(1) define a substantial adverse change as one that would materially impair the significance of an historical resource. Projects that are found to be in conformance with the *Secretary of the Interiors'* (SOI) *Standards for the Treatment of Historic Properties (Standards)* will not result in a substantial adverse change in the significance of a historical resource. According to Section 15064.5(2)(C), "the significance of a historic resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA." As a result of ASM's evaluation, Lockheed Marine Terminal is recommended eligible for the CRHR and therefore is a historical resource for the purposes of CEQA. The Project will result in demolition of the building, which is considered a substantial adverse change to the historical resource pursuant to CEQA Section 21084.1. **Therefore, according to CEQA guidelines, ASM recommends that this action constitutes a significant adverse impact on the environment and material impairment on a historical resource pursuant to CEQA Section 15064.5(b).**

Alternative 1: No Project

The No Project/No Remediation Alternative is required by CEQA to discuss and analyze potential impacts that would occur if the proposed project was not implemented. Under this alternative the Marine Terminal building and its associated pier and railways, would remain. However, over time the building and associated resources may become dilapidated, resulting in the inability to document and photograph them in the form of Historic American Building Survey (HABS) documentation. But because the No Project Alternative would avoid demolishing a historical resource, impacts related to cultural resources under the No Project Alternative would be less than the proposed Project and there would be **no adverse impact**.

Alternative 2: Removal of Waterside Resources

This alternative retains the Marine Terminal Building but calls for the removal of the pier and the marine railway, as well as dredging of contaminated sediment and placement of clean sand. The pier and marine railway constitute two of the three contributing elements to the Lockheed Marine Terminal. CEQA states that an adverse impact occurs when the physical characteristics that justify the inclusion of the resource on the CRHR are demolished or materially altered. Although the pier and railway are important components of the Marine Terminal's eligibility under Criteria 1, the Marine Terminal Building retains eligibility under Criteria 3 even if the waterside components are removed, as required by the Regional Water Quality Control Board's abatement order. Thus, the building would still be eligible after the demolition of these contributing resources. Although the removal constitutes a significant adverse impact to contributing resources under Criteria 1, the **proposed alternative would result in a less than significant impact with respect to the Marine Terminal Building under Criteria 3**. Unless the building is rehabilitated and reused, however, this alternative has the potential to result in continued deterioration, resulting in the inability to document and photograph them in the form of Historic American Building Survey (HABS) documentation.

Alternative 3: Reuse of Building and Removal of Waterside Resources

This alternative is similar to Alternative 2 as it would include demolition of the pier and marine railway structures, dredging of the waterside contaminated sediments, and the placement of the clean sand. Instead of demolition, this alternative would restore and renovate the Marine Terminal Building to be available for lease in the future. Renovation activities would include the removal of asbestos-containing material, lead-

containing surfaces, and other potentially hazardous building materials. It is assumed that any renovation work would follow the SOI *Standards* and that all identified character-defining features of the Marine Terminal Building would be repaired and maintained to the highest degree feasible. Furthermore, work would be completed under the review of an architectural historian or historic architect who meets the *Secretary of the Interior's Professional Qualifications Standards*. Although the removal of the pier and railway still constitutes an adverse impact to the Marine Terminal Facility under Criteria 1, the renovation of the building and the **proposed alternative would result in a less than significant impact to the Marine Terminal Building under Criteria 3**.

In conclusion, the Project would result in the loss of a historical resource that cannot be mitigated to a less-than-significant impact. Alternatives 2 and 3 would change the significant impact by eliminating the Marine Terminal Facility's eligibility under Criteria 1, while retaining the Marine Terminal Building's eligibility under Criteria 3. Provided the SOI *Standards* are followed, Alternative 3 is the preferred alternative, as it plans for the continued use of the Marine Terminal building.

7.0 RECOMMENDED MITIGATION

According to Section 15126.4 of CEQA Guidelines, feasible measures should be considered that minimize the significant adverse impacts to the Lockheed Marine Terminal. Project redesign is always the first option to consider to minimize adverse impacts. California case law has consistently found that the demolition of a historical resource is an unmitigated significant impact because documentation and recording of historic-period buildings that are Historical Resources and that will be demolished will not reduce impacts to less than significant. Notable cases supporting this finding include: *League for Protection of Oakland's Architectural and Historic Resources v. City of Oakland* [1997] 52 Cal. App. 4th 896 and *Architectural Heritage Association v. County of Monterey* [2004] 19 Cal. Rptr. 3d 469.

The following mitigation measures would minimize impacts to the Project but would not reduce impacts to less than significant. For Alternatives 2 and 3, if the mitigation measures focus primarily on the documentation of the pier and marine railway and their relationship to the Marine Terminal Building, ASM recommends that the impacts will be less than significant.

Mitigation Measure 1: Prior to any demolition, the terminal building, marine railway, and pier will be documented to Historic American Buildings Survey (HABS) Level 2 standards, according to the outline format described in the *Historic American Building Survey Guidelines for Preparing Written Historical Descriptive Data.* Photographic documentation should follow the Photographic Specification–Historic American Building Survey, including 10-20 archival quality, large-format photographs of the exterior and interior of the building and its architectural elements. Construction techniques and architectural details should be documented, especially noting the measurements, hardware, and other features that tie architectural elements to a specific date. If feasible, views of the pier and/or railway and their association with the building should be documented from the water with views towards the west. The original architectural plans should be archivally reproduced, following HABS standards. Three copies of the HABS documentation package, with one copy including original photo negatives, will be produced, with at least one copy placed in an archive or history collection accessible to the general public.

Mitigation Measure 2: Develop an interpretative opportunity that would communicate the significance of the Lockheed Marine Terminal to the San Diego community. This could consist of a permanent interpretive exhibit that would incorporate information from historic photographs, HABS documentation or other materials in a location accessible to the public. The minimum size of the exhibit should be 2 feet by 3 feet, and could be mounted on a pedestal at an angle, or mounted vertically on a building or structure. The interpretive exhibit should be developed by a qualified team including a historian and graphic designer. If the exhibit cannot be located at the current location, another appropriate venue on Harbor Island should also be considered.

8.0 CONCLUSION

After documentation and evaluation of the history of the Lockheed Marine Terminal located at 1160 Harbor Island Drive, and careful consideration of its ability to reflect the historic contexts and individuals with which it is associated, the Lockheed Marine Terminal is recommended eligible for the CRHR under criteria 1 and 3 as an individual resource. As such, the building is a *historical resource for the purposes of CEQA compliance.*

The Project would result in the loss of a historical resource that cannot be mitigated to a less-than-significant impact. Alternatives 2 and 3 could be mitigated to less than significant with the proposed mitigation. Provided the SOI *Standards* are followed, Alternative 3 is the preferred alternative, as it plans for the continued use of the Marine Terminal building.

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APPENDICES

APPENDIX A

DPR 523 Form

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

 ***Resource Name or #:** Lockheed Marine Terminal
P1. Other Identifier:
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**
***a. County:** San Diego **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Point Loma **Date** 1975 S.B. **B.M.**
c. Address 1160 Harbor Island Drive City San Diego Zip 92101
d. UTM: (give more than one for large and/or linear resources) Zone mE/ mN;
e. Other Locational Data: (e.g. parcel#, directions to resource, elevation, etc.) APN 760-010-07-00

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The Lockheed Marine Terminal consists of a central two-story block with one-story wings to the north and south. The building has a flat built-up roof with no overhanging eaves or fascia. Most of the building is clad in distinctive narrow redwood clapboards with narrow corner and edge boards. The west façade of the building faces Harbor Island Drive and appears to have no doors or fenestration. However, there are a pair of doors hidden behind the same redwood cladding in the center of the central block. Additionally, open louvered vents projecting slightly from the wall blend into the cladding on this façade. The south façade also has little visible fenestration. There is a door near the west corner and an additional door hidden on the second story of the central block. Projecting louvered vents like those located on the west façade line most of the first story and hide jalousie windows.

The east façade is dominated by a central steel roll-up door that provided access for vessels using the marine railway. A small one-story shed added in 1968 is attached to the south end of the façade and has one wood door on its north façade. An additional square utility shed with double steel doors is located on the north end of the building. There is another set of hidden double doors just south of the central door.

(continued on pg. 3)

***P3b. Resource Attributes:** (List attributes and codes) HP8. Industrial Building
***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)
P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

P5b. Description of Photo: (view, date, accession#)
View of north façade looking southeast.
Photo taken on April 4, 2019.

***P6. Date Constructed/Age and Source:**
☒ Historic ☐ Prehistoric ☐ Both
1966
Original Plans

***P7. Owner and Address:**

***P8. Recorded by:** (Name, affiliation, and address)
Laura Taylor Kung
ASM Affiliates, Inc.
20 North Raymond Avenue, Suite 220
Pasadena, CA 91103

***P9. Date Recorded:** April 4, 2019

***P10. Survey Type:** (Describe) Intensive
***P11. Report Citation:** (cite survey report and sources or enter "none.") **Historic Resources Assessment Report for Lockheed Marine Terminal, San Diego, San Diego County, California (2019),** ASM Affiliates, Inc.
***Attachments:** ☐ NONE ☐ Location Map ☐ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☒ Photograph Record ☐ Other (List):

***NRHP Status Code** 3S

***Resource Name or #** (Assigned by recorder) Lockheed Marine Terminal

B1. Historic Name:
B2. Common Name:
B3. Original Use: Marine research laboratory
B4. Present Use: Vacant
***B5. Architectural Style:** Contemporary
***B6. Construction History:** **(Construction date, alterations, and date of alterations)** Constructed in 1966; Minor alterations in 1968

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features:**
B9a. Architect: Frank L. Hope and Associates b. Builder:
***B10. Significance: Theme** Industry: Marine Research and Exploration **Area:** City of San Diego

Period of Significance: 1966-1968 **Property Type:** Industrial **Applicable Criteria:** A, C

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

ASM carefully considered whether the Lockheed Marine Terminal and associated marine railway and pier are individually eligible under any CRHR criteria. The property is recommended eligible for the CRHR under Criterion 1 under the theme of Industry: Maritime Research and Exploration. The Lockheed Marine Terminal is closely associated with *Deep Quest*, a submersible research vehicle that set the depth record in 1968. The Marine Terminal was built specifically to house *Deep Quest*, its support vehicle *TransQuest*, and the oceanographic vessel *Sea Quest*. The Marine Terminal served as the primary marine research headquarters and maintenance facility for Lockheed during the years that *Deep Quest* was recognized as a nationally significant maritime program. It represents an era when San Diego was transitioning from the aircraft missile industry to ocean research and exploration. The period of significance under Criterion 1 is 1966-1969, when interest in the program waned after the incident that left the crew trapped, and after which Lockheed had decided not to expand the *Deep Quest* program as originally intended (also reflected in the decision not to expand the building to the north).

The Lockheed Marine Terminal is recommended not eligible under Criterion 2. Although it was associated with naval pilots such as Larry A. Schumaker, Glenn F. Minard, and Donald E. Saner, they are not considered historically significant individuals. No other significant individuals were found associated with the property. Therefore, the Lockheed Marine Terminal is recommended not eligible under CRHR Criterion 2.

(continued on page 7)

B11. Additional Resource Attributes: (List attributes and codes) None

***B12. References:** See report

B13. Remarks: None

***B14. Evaluator:** Laura Taylor Kung and Shannon Davis
ASM Affiliates, Inc.

***Date of Evaluation:** May 2019

(This space is reserved for official comments)

Sketch Map with north arrow required.

P3a. Description (continued from page 1)

The north façade of the building has the most architectural detailing and only visible fenestration on the building. A row of 18 fixed sash ribbon windows line the second story of the central block illuminating the maintenance shop area. There is a hidden door near the west corner of the building. The first story is divided into 18 bays by wood beams with an entrance located slightly off center with nine windows to the east and eight to the west. The entrance is a simple wood door and the jalousie windows have been damaged in some locations.

There is a portable structure located on the east side of the building that was added after the initial construction based on historic photographs. The pier extends from the site on this façade and is built of redwood supported by hexagonal cast concrete posts. The marine railway is constructed of concrete with metal rails supported by cast concrete posts.

The interior of building contains offices and a lounge to the north, a machine shop to the south, an instrument shop, diving storage area, and battery charging room to the south, and a central maintenance shop area. The office area is divided by partitions with a drop ceiling and carpeting throughout. There are multiple restrooms and lavatories along the south wall. The battery charging and diving storage rooms on the west side have green fiberglass over the windows in place of glass. The machine shop on the south side has jalousie windows that are hidden behind the exterior redwood louvers. The central maintenance shop has a mezzanine area on the west side. The redwood ceiling is supported by a thick redwood beam that spans the space from north to south. The concrete floor has a built-in track leading from the marine railway.

Site-Specific History: Lockheed Marine Terminal

Deep Quest

On May 18, 1965, Lockheed Aircraft Corporation announced plans to expand further into the field of ocean research. Company president Daniel J. Haughton stated that Lockheed believed “mankind’s progress in meeting the challenge of the skies will be matched in the years immediately ahead by equally spectacular breakthroughs in the almost limitless realms of oceanography” (*Valley News* 1965a). Lockheed had started its ocean exploration with its floating research laboratory called *Sea Quest* launched in 1961 (*Santa Maria Times* 1961). This new phase was centered on a manned submersible vehicle called *Deep Quest*.

In 1965, manned submersible vehicles were a relatively new concept. The term submersible is generally applied to a submarine designed for surveying, scientific research, salvage, rescue, or underwater engineering (Haddock 1979:15). Military submarines operate at relatively shallow depths. Until 1934 the record for depth was not held by a vessel, but by divers who had reached 180 meters. In 1934 the first spherical steel bathysphere was used to reach a depth of 923 meters. The first modern submersible was built by Auguste Piccard in 1939. The bathyscaphe he developed was designed for depths up to 4,000 meters and was powered by an external battery. It had limited maneuverability and a maximum speed of .2 knots. Until 1960, the field of submersible research was dominated entirely by Piccard, culminating in the bathyscaph Trieste which was launched in 1953. The Trieste eventually reached the deepest known part of the ocean, the Challenger Deep, 10,912 meters into the Pacific Ocean (Haddock 1979:24).

Several factors came together in the early 1960s which led to a boom in submersible technology. In addition to Piccard’s achievements, the need for deep recovery vehicles was realized when the nuclear submarine Thresher was lost at 2560 meters in the North Atlantic. Public interest in ocean science was also at its peak with multiple television shows and feature films focused on undersea exploration such as Disney’s *20,000 Leagues Under the Sea* (1954), *Voyage to the Bottom of the Sea* (1961), Voyage to the Bottom of the Sea (television 1964-1968), and Journey to the Bottom of the Sea and Johnny Quest (television 1964-1965). Large corporations such as General Dynamics, Reynolds Aluminum, General Mills, and Lockheed began to invest heavily in submersible programs, and between 1960 and 1968 more than 50 submersibles were constructed (Haddock 1979:25). San Diego became the epicenter of this boom as many of the companies already established in the area for aviation and naval research realized San Diego was well-suited for this new industry. Aerospace companies and their subcontractors viewed ocean projects as a logical outlet for their technical talent. Many also viewed ocean technology as an alternative if space or defense programs lost momentum (*Los Angeles Times* 1965b).

Lockheed was no exception and began to invest heavily in *Deep Quest*. In September of 1965 the company conducted tests using a smaller scale model at its plant in Sunnyvale. The hull of the scale model had previously passed proof tests that it could withstand a pressure equivalent of 12,000 feet. The next round of tests involved the effects of the vertical fin, the skegs (after part of the keel), and various ballasting combinations on the stability of the vehicle. Meanwhile, a full-scale model was being built at Sun Ship Building and Dry Dock Company in Chester, Pennsylvania (*Valley News* 1965b).

(continued on page 4)

P3a. Description (continued from page 3)

In May of 1967, *Deep Quest* arrived at its home at the Lockheed Marine Terminal. Delivered by barge from Redwood City, there was much interest surrounding the 50-ton vessel and its 108-foot mother ship *TransQuest* which was built in Portland, Oregon (*Los Angeles Times* 1967). Local and national papers covered its June 4th launch and provided the public with all the technical capabilities of the unique submersible vehicle (Figure 4). The free-floating shark-shaped aluminum hull measured 39 feet 10 inches long (*Casper Star-Tribune* 1967). The inner pressure hull consisted of two intersecting 7-foot spheres made of a special alloy maraging steel developed by the International Nickel Company for use in rockets (Figure 5). The steel was twice as strong as that used in any other submersible with a 200,000 psi and thickness of .895 inches. The combination meant it could be strong without a significant increase in weight (*San Bernardino County Sun* 1968). The pressure hull could hold two pilots and two observers with 48 hours of life support. Battery operated, propulsion was provided by two 7.5 horsepower motors that gave it a top speed of 4.5 knots. *Deep Quest* could "hover" in a .5 knot current with vertical motion provided by a pair of identical motors and water jet thrusters used to move the vessel laterally (Figures 6 and 7).

After its official launch, Lockheed began an extensive testing phase. In October of 1967, a two-week series of trials took place in the open water off San Diego Bay (Figure 8). These tests focused on the electrical hydraulic communications and life support systems. Larry A. Schumaker and Glenn F. Minard were the pilots during these tests (*Van Nuys News* 1967). By January of 1968, *Deep Quest* had reached a depth of 6,300 feet (*Oakland Tribune* 1968). In February, Lockheed announced that WWII vet and bathyscaphe pilot Donald E. Saner would be the pilot of *Deep Quest*. Saner was on the commissioning crew for the *USS Theodore Roosevelt*, the first Polaris submarine built on the west coast (*Van Nuys News* 1968a). That same month, a new device to facilitate emergency surfacing was tested. A jettison system enabled the sub to rise from a depth of 4,200 feet by dropping its forward battery, thereby losing 3,000 pounds (*Baltimore Sun* 1968).

In April of 1968, *Deep Quest* set a depth record of 8,310 feet. Pilots Glenn Minard and Don Saner along with Larry Shumaker and Pete Summers, placed a flag on the ocean bottom 93 miles southwest of San Diego. They spent approximately eight hours under water (*Van Nuys News* 1968b). Because of this accomplishment, the Navy awarded Lockheed with a contract to build a prototype of a rescue sub that could "piggy back" on a conventional sub and then safely detach to explore deeper. There was considerable excitement around the new technology, and Shumaker envisioned a time when the bottom of the ocean would be the next frontier of claim-jumping and cattle rustling (*Anderson Daily Bulletin* 1968). Lockheed used images of the vessel in many of its advertisements, indicative of the public interest in the *Deep Quest* program at that time (Figure 9).

Despite the excitement for *Deep Quest*, practical applications for the vessel were not readily apparent. In January of 1969, it located and retrieved wreckage and victims from a Scandinavian Airlines flight that had crashed off the Santa Monica bay (*Independent* 1969). But during practice trip later that year, a polypropylene cable used to retrieve heavy objects wrapped around one of the propellers and jammed it, stranding the crew of four at a depth of 430 feet. The story captured the nation's attention as people wondered how a crew could escape when the pressure was so great, and few other vehicles were able to reach those depths. Three undersea rescue vehicles were dispatched: *Nekton*, based in Torrance; *Roughneck* by North American Rockwell; and *Gear*, a Navy underwater salvage vehicle (*Los Angeles Times* 1969). It was the designer of the *Nekton* who attached a diver's knife onto one of the mechanical arms of the small two-person sub and sawed through the line. The crew had been trapped for 12 hours at that point (*Florida Today* 1969).

In January of 1970 the *Deep Quest*-inspired DSRV-1 *Mystic* was completed by Lockheed for the Navy at a cost of 41 million (Figure 10). It was christened at the Lockheed Ocean Laboratory and was designed to rescue up to 24 submariners. The Navy said it would be available for use anywhere in the world on 24 hours' notice, traveling by plane and nuclear submarine (*Hartford Courant* 1970). But the DSRV-1 *Mystic* was decommissioned in 2008 without ever completing a mission (Naval Undersea Museum 2014).

During a training dive in March of 1970, Larry Shumaker spotted a Navy F6F Grumman Hellcat on the sea floor. The plane had crashed in January of 1944 and the pilot had safely escaped. No salvage mission was attempted at that time, but the crew noted the location and planned a later trip to attach nylon cables to the plane and pull it to a depth where divers could remove the still active ammunition (*Springfield News Leader* 1970). In 1975 the pilot, Robert F. Thomas, made a trip to Arizona where it was on loan to the Pima County Air Museum so he could see the Hellcat he never thought he would see again (*Tucson Daily Citizen* 1975).

Aside from the story about the Hellcat, news about the *Deep Quest* seemed to subside considerably after the 1969 incident that left the crew trapped. The *Deep Quest* continued missions through the 1970s, mostly focused on research on sediments in collaboration with Lehigh University (*The Morning Call* 1973). *Deep Quest* remained active until 1980, conducting floor studies, inspections of underwater dump sites, and fuel cell research in its later years (Naval Undersea Museum 2014).

(continued on page 5)

P3a. Description (continued from page 4)

It was also in 1980 that a replica of the *Deep Quest* was built as a prop for the movie *Raise the Titanic*. This prop brought attention to the *Deep Quest* once again when in 2003 a collector purchased the vehicle believing it was the original (Figure 11). At that time the original *Deep Quest* was on display at the Navy Undersea Museum in Keyport, Washington. Despite this fact, the collector turned the prop into a boat and docked it along the eastern seaboard claiming it was the original *Deep Quest* (*The Day* 2010).

In November of 2017 *Deep Quest* made its last journey from the Naval Undersea Museum to the Platypus Marine Shipyard in Port Angeles, Washington, where it was dismantled and recycled (Figure 12). The museum said its condition was deteriorating and would require substantial financial resources to restore. As the vehicle was never used by the Navy, it was also not in line with the museum's mission (*Peninsula News* 2017).

Building History

When Lockheed announced that it planned to expand further into the field of oceanography, the first step of that plan was the lease of 2.7 acres from the Port of San Diego. They also planned to purchase a facility built as the San Diego office of the American Institute of Aeronautics and Astronautics in the same location. They remodeled the building for use as the ocean laboratory while they developed plans for a new structure to house *Deep Quest*. The acreage included parcels on Harbor Island, a strip of land created by the Navy in 1961. When plans for the building were approved in March of 1966, it was noted that this would be the first new building on the newly created island (*San Diego Union* 1966a). The marine laboratory would provide space for a corporate office and operating bases for other Lockheed divisions, but the most important purpose of the facility was to house *Deep Quest*, their new research submersible being built at their Sunnyvale plant (*Valley News* 1965b).

The architectural plans for the building were prepared by Frank L. Hope and Associates and stamped and signed by architect Frank Hope, Jr. According to his California license number, this is the son of the founder of the firm who also went by Frank Hope, Jr. for most of his career but had retired in 1965 (*Los Angeles Times* 1992). The structural engineer for the building was Charles B. Hope, Frank Hope, Sr.'s other son. The plans were prepared for Lockheed Missiles and Space Company and approved by the San Diego Unified Port Authority on April 20, 1966. The site plan includes a 6,108-square-foot building with a 165-foot marine railway and 50-foot pier (see Appendix C). The north side of the building provided administration and office space with a central reception area flanked by two offices to the west and two offices to the east with a Lounge in the northeast corner. Restrooms and storage rooms were located along the south side of the offices. The largest space is the Maintenance Shop where the marine railway enters the building through a 30-x-24-foot roll-up metal door on the east wall. The exposed redwood ceiling was equipped with a 5-ton moving crane and hook running parallel to the marine railway. A mezzanine with a railing was placed above an Instrument Shop, Alcove, and Battery Charging Room along the west wall. The south end of the building contained a Machine Shop with an Electronics Shop in the southeast corner. A Diver Gear Storage and Compressor Area was located in the southwest corner.

Most of the building had a concrete floor with vinyl asbestos in the offices and vinyl sheeting used in the restrooms. Doors were a mixture of steel and wood, depending on the location, with exterior doors on the east and west façades designed with redwood slats to blend in with the 1-x-4-inch rustic waterproof redwood siding that covered the entire structure on three façades. The elevations indicate the intentional and very specific use of the material to give the building an organic uniformity uninterrupted by fenestration on two sides. Jalousie windows were used on the north and south façades with redwood louvers carefully hiding the glass but allowing light to pass through on the south side. On the west side, the redwood louvers were intended to hide a glass fiber screen.

A future addition is indicated on the plans, north of the reception area. At the time the building was announced, Lockheed indicated they planned to expand the building in 1968, but those plans were never realized (*San Diego Union* 1966b). It is not clear exactly when construction of the building was completed, but photos dating to the time the *Deep Quest* was launched in June of 1967 indicate that the building was complete. In 1968 Arevalo and Deardorff and Dunphy Construction added the storage building on the southeast corner of the site as well as new conduits and a new underground fire sprinkler main. In May of 1969 additional parking was added for the facility and a chain link fence was built around the property. In October of 1969 Creegan and D'Angelo were consulting engineers on project to raise the rail on the marine railway. The mezzanine was also reconfigured at this time with a portion of it removed and railings replaced.

(continued on page 6)

P3a. Description (continued from page 5)

Photographs from 1971 show the building much as it looks today. The building continued to be used as a base for research experiments associated with *Deep Quest* and *TransQuest* through 1980. In 1984 Lockheed transferred ownership of the building internally from Lockheed Missiles and Space Company to Advanced Marine Systems (Burns 2016). In 1989 ownership was transferred back when they absorbed Advanced Marine Systems. In 1995 Lockheed merged with Martin Marietta and the current sign was added to the building sometime after that.

Frank L. Hope and Associates

Architect Frank Lewis Hope, Jr. (1901-1994) (now more commonly referred to as the senior Hope) was born to Frank Lewis Hope, Sr. (1873-1943) in 1901 in San Bernardino and arrived in San Diego in 1913 when his father moved to the city as a traffic agent for the Santa Fe Railway. Hope attended San Diego High School up to his sophomore year, dropping out that year to work in the Navy shipyards during World War I (WWI). Mr. Hope later went on to attend California University (now University of California [U.C.] Berkeley) for two years, and the Carnegie Institute of Technology in Pittsburgh for one year but stopped short of earning a degree.

When Frank Jr. opened his business in 1928, San Diego was still small (the 1930 census counted a population of 148,000), and the scale of development was modest compared to today. He built his business mostly by designing houses and churches in traditional styles, including a Mediterranean mode he learned during his years in the offices of San Diego architects Richard Requa, Herbert Jackson, Lillian Rice, and William H. Wheeler between 1925 and 1928. It is likely that much of his architecture education came under Requa and Jackson, with whom he began his career as an architect after working in the design department of a shipbuilding company during WWI (*Los Angeles Times* 1992).

After passing the state exam, Hope launched his own firm in 1928, Frank L. Hope & Associates, Architects & Engineers, located in the Spreckels Building. While he was informed by his mentors of Mediterranean stylings, Hope also had a modern side. By the late 1930s, he began designing Streamline Modern houses as well as buildings including a Ford-Lincoln automobile outlet that once stood at 12th Avenue and Broadway downtown, and Grossmont Union High School's auditorium-gymnasium. In 1940, the firm secured the remodeling of the First National Trust & Savings Bank of San Diego in order to give the building a more streamlined appearance. Many of the ornamental features of the building were removed from the exterior and replaced with a sleek tile-covered exterior atop a ceramic and black granite base.

During the Great Depression Hope focused on remodeling and renovating storefronts. In 1930 Hope was hired to design the Spanish-styled Carmelite Monastery in Normal Heights. From this point forward, Frank Hope Jr. worked closely with the San Diego Roman Catholic Diocese designing several buildings. These projects included the Sacred Heart Catholic Church in Ocean Beach (1946), Our Lady of the Sacred Heart Catholic Church in City Heights (1947), the San Diego College for Women (1950), and the Immaculata at the University of San Diego (1964).

Hope was one of the few surviving direct links to a great era of modern architecture. He knew Irving Gill, San Diego's most influential architect, who died in 1936, and once showed Frank Lloyd Wright around town when he visited. Frank Hope, Sr. never considered himself a gifted designer. His son Frank Hope III, who graduated with an architecture degree from U.C. Berkeley, was "far ahead of me," according to the Hope patriarch. Some of the modern buildings completed after Hope III began working at the firm in 1955 include The May Company Building (1959), The Travelodge Corporation International Headquarters (1962), the Timken Museum in Balboa Park (1962-1965), and Scripps Hydraulic Lab (1964).

When Hope retired in 1965 the next generation, Frank Hope III (more commonly referred to as Frank Hope, Jr.) and Charles "Chuck" B. Hope, a structural engineer, took over ownership of the company and expanded it. The Hope firm peaked in size in the 1980s with 150 employees. Noted designers Gary Allen (who designed San Diego Jack Murphy Stadium, now known as SDCCU Stadium), C.W. Kim, and Robert Bell all cut their teeth under the Hope banner. While Hope Jr. only caught the beginning of San Diego's modern building boom, Frank III headed the company during the city's 1970s and 1980s explosion. Some of the notable works completed in the San Diego area during his time were: Cabrillo National Monument Visitors Center (1966), Donald M. Sharp Memorial Community Hospital (1967-1975), Oceanside Savings and Loan (1967), Children's Hospital, Diagnostic Treatment Center and Child Guidance Clinic (1968), McGill Hall at the John Muir Campus at U.C. San Diego (1969), National Cash Register Company Electronic Facility (1969), Coronado Hospital (1972), Ranch Bernardo Scripps Clinic Molecular Biology Building (1983), and La Jolla Cancer Research Center (1985). A 1965 addition for the Hemet Hospital displays some characteristics similar to the Lockheed Marine Terminal.

(continued on page 7)

P3a. Description (continued from page 6)

Frank Hope, Jr. died in 1994 at the age of 93. In addition to taking over the firm, his son, Frank Hope III was involved in various professional and civic organizations in San Diego and California. In addition to serving as President of the San Diego Chapter of the AIA, he was also named to the AIA Board of Directors in 1973 (*Los Angeles Times* 1973). He was elected as President of the Board of the San Diego Chamber of Commerce in 1980 (*Los Angeles Times* 1980) and was also appointed by the governor to the California Board of Regents in 1984 (*Los Angeles Times* 1984). In the early 1990s, management and ownership of the company transitioned to architect F. Lee Hope (Frank Hope III's son) and civil engineer Chuck Hope, Jr. (and Chuck Hope's son). However, the decade saw the company, now known as the Hope Design Group, facing increasing competition from firms outside of its home base of San Diego and outside San Diego for projects in the city (*Los Angeles Times* 1992). The company closed its doors in 1993.

***B10. Significance** (continued from page 2)

ASM considered whether the property is individually eligible under CRHR Criterion 3 for having distinctive characteristics of a type, period, region, or method of construction, or representing the work of a master or possessing high artistic values. Plans for the building indicate that it was designed by Frank Hope, Jr. of Frank L. Hope and Associates. Frank Hope, Jr. is included on the list of established masters created by the Historical Resources Board for the City of San Diego (HRB San Diego 2011). He is also listed as a Contributing Designer of Modern San Diego in the *San Diego Modernism Historic Context* (City of San Diego 2007). In addition to a number of residential projects, Frank L. Hope and Associates designed several well recognized Modern landmarks in San Diego including San Diego Stadium (now SDCCU Stadium), the Timken Museum, the May Company in Mission Valley, and several buildings on the U.C. San Diego campus.

Additionally, the building has a unique modernist style and character-defining features that indicate it possesses high artistic values and elements of multiple styles popular in San Diego in 1966, as outlined in the *San Diego Modernism Historic Context* (Context). The Lockheed Marine Terminal is best classified as Contemporary style, even though the Context places an end date of 1965 to that style. The Lockheed Marine Terminal displays many characteristics of this style including the strong roof form, large windows (on the north façade), and non-traditional exterior finish listed as the primary character-defining features of the Contemporary. Under secondary features the Context notes that commercial buildings are horizontally oriented, and although this is an industrial building, the horizontal focus is clear on the north façade and in the louvers and cladding across the building. Additionally, although intended for houses, McAlester's *Field Guide to American Houses* indicates that broad expanse of uninterrupted wall surface built with natural material, in this case redwood, is a character-defining feature of the Contemporary style (McAlester 2013:628). Obscured entry doors and windows, like those found on the Lockheed Marine Terminal, are also noted as an identifying feature of the style. The Context states that examples of this style that retain a high degree of integrity are rare, and it appears that industrial buildings with a Contemporary style were even more rare as they were not addressed in the Context. As it was designed by a master architect and possesses high artistic value and distinctive characteristics of the Contemporary style, the Lockheed Marine Terminal is recommended eligible for the CRHR under Criterion 3. The period of significance under Criterion 3 is 1966, the year of its construction.

The Lockheed Marine Terminal is not recommended eligible under CRHR Criterion 4. It is a common property type that does not have the potential to provide information about history or prehistory that is not available through historic research.

The integrity of the building is excellent, as it retains its original location, design, materials, workmanship, feeling, and association. There have been some changes in setting since the building was initially constructed, but not so much as to detract from overall integrity.

Historic District Contributor Assessment

ASM carefully considered whether the Lockheed Marine Terminal and associated pier and railway are eligible as a contributor to a potential historic district on Harbor Island. As the first building built on Harbor Island, there are no buildings that date to same time period on the island. There are other buildings associated with Lockheed and other companies involved in ocean research between Liberator Way and Harbor Drive, such as the building currently used as the San Diego Harbor Police Department, but most do not have integrity sufficient to represent the theme of Marine Research and Exploration. As such, ASM recommends that the Lockheed Marine Terminal is not eligible as a contributing resource to any historic district.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPH SHEET

Primary #
HRI #
Trinomial

 ***Resource Name or # (Assigned by recorder)** Lockheed Marine Terminal
Recorded by: Laura Taylor Kung **Date:** May 2019
☒ Continuation ☐ Update

Image 1. West façade looking southeast.

Image 2. East façade looking west.

Image 3. Marine railway and pier looking east.

Image 4. Jalousie windows on south facade.

Image 5. View of maintenance shop interior.

Image 6. Historic photograph of Deep Quest and east facade.

APPENDIX B

Resumes of Key Personnel

STAFF RESUMES

Shannon Davis, M.A., RPH

Project Manager/Senior Architectural Historian

Total Years of Experience: 20

Education:

M.A.	1998/Historic Preservation/George Washington University, Washington, D.C.
B.A.	1993/American History/University of Southern California, Los Angeles (Cum laude with honors)

Professional Profile:

Ms. Davis has over 20 years of experience in the field of historic preservation. She has an M.A. in Historic Preservation/American Studies from George Washington University, and a B.A. in American History from the University of Southern California. As an Architectural Historian at ASM, Ms. Davis has documented and evaluated numerous cultural resources for CEQA and NHPA compliance and completed HSRs, HRERs, HABS, and NRHP review. Ms. Davis manages ASM's History Group and all historic preservation projects throughout California. She exceeds the *Secretary of the Interior's Professional Qualification Standards* for Architectural History and History.

Selected Project Experience:

Los Angeles County Historic Preservation and Mills Act On-Call, Los Angeles County, CA
Project Manager and Senior Architectural Historian
CLIENT: County of Los Angeles Department of Regional Planning
Under an on-call contract with the County of Los Angeles, conducted Mills Act inspections and provided review and feedback on proposed work programs, assessing each work program for adherence with the SOI's Treatment Standards. Reviewed and assisted with the first two local landmark nominations for the County. To date has conducted over 15 task orders under this contract.

Los Angeles County Landmark Evaluation Report: The Doumakes House, 4918 Angeles Vista Boulevard, View Park, California
Project Manager and Senior Architectural Historian
CLIENT: Los Angeles County Department of Regional Planning
Prepared landmark evaluation report for Doumakes House as the first Los Angeles County Register of Landmarks under the new County Historic Preservation Ordinance. Prepared under our on-call contact as the Planning Department's historic preservation consultants. The Doumakes House is single family residence built in 1928, eligible because of its association with the Doumakes family and as a good example of a typical Spanish Colonial Revival single family residence.

City of LA On-Call Section 106 Historic Preservation Services Contract, Los Angeles County, CA
Project Manager and Senior Architectural Historian
CLIENT: Los Angeles Housing and Community Investment Department
Under an on-call contract with the City of Los Angeles Department of Housing and Urban Development (HUD), have been providing Section 106 historic preservation services to advise and assist the HCIDLA in conducting research, preparing all federal and state required documentation on the extent, condition, and status of potential historically-significant properties, and coordinate with the SHPO, the HUD and the Advisory Council, and prepare a work plan and a Programmatic Agreement to fulfill the purposes of the NHPA. Created a database to manage the work, track the status and findings of each project, and assist with the bi-annual reporting required under the PA. Completed Section 106 review for several properties

throughout Los Angeles including an apartment complex set for demolition, the Old Junipero Serra Library, and the Algin Sutton Pool.

HRER for James A. Foshay Learning Center, Los Angeles County, CA
Senior Architectural Historian
CLIENT: Impact Sciences and Los Angeles Unified School District
Completed an HRER for possible eligibility for the CRHR under eligibility criteria established by the LAUSD Historic Context Statement based on closely followed parallel criteria established for NRHP and CRHR significance. Conducted archival research for property information, including the architect, chain of title and history of the property as well as a records search at the local information center. An intensive field survey was then undertaken including photographic documentation of the interior and exterior of the building to document the resources and its setting.

City of Monrovia HCS, Los Angeles County, CA
Architectural Historian
CLIENT: City of Monrovia
Prepared a HCS for the City of Monrovia, based on reconnaissance-level surveys of the city to identify and define potential historic districts. Developed themes and identified associated property types, character-defining features, and registration requirements for historic districts comprising late 19th-century to early 20th-century residential properties, commercial districts, ethnic enclaves, and institutional properties. Organized public outreach and meetings with City personnel.

HRER for 880 Stone Canyon, Los Angeles County, CA
Project Manager
CLIENT: City of Los Angeles Office Historic Preservation
Surveyed, documented, and evaluated 1936 single-family residence built in the Hollywood Regency style by architect Douglas Honnold for screenwriter Stanley Rauh. Evaluated within the City of Los Angeles's Survey LA historic context statements for Residential Development and Suburbanization, 1850-1980 and Architecture and Engineering, 1850-1980, with the theme/subtheme of the Hollywood Regency, 1850-1980. Conducted in compliance with CEQA by request of the City of Los Angeles's Office of Historic Resources.

Ontario International Airport HCS and Survey, San Bernardino County, CA
Project Manager/Architectural Historian
CLIENT: City of Ontario, California
Conducted an intensive-level survey and completed documentation for numerous buildings and structures within the ONT. Prepared a HCS for the ONT, informed by background research and an intensive-level survey. Developed themes, contexts, registration requirements, and features for identification of a range of property types. Conducted interviews for oral histories with individuals associated with ONT and prepared a short video reviewing the history, findings, and stories gathered for the project.

Mt. San Antonio College Cultural Resources Evaluation Report, Walnut, Los Angeles County, CA
Project Manager and Senior Architectural Historian
CLIENT: Mt. San Antonio College
Prepared cultural resources evaluation report for Supplemental EIR for the Facilities Master Plan Update. Evaluated more than 20 historic resources within the school's project area, and to assess potential direct and indirect visual impacts to the Mt. SAC Historic District. Conducted intensive pedestrian-level survey of potentially significant historic buildings on campus, as well as the Wildlife Sanctuary, and archival research.

Supplemental HRER for Roosevelt Senior High School, Los Angeles County, CA
Senior Architectural Historian
CLIENT: Impact Sciences and LAUSD
Reviewed previous evaluations of the Roosevelt Senior High School campus and prepared a Supplemental HRER addressing Criteria A/1 and B/2 for its association with the Chicano Civil Rights Movement in 1968 and Sal Castro, a teacher who was a leader in the movement. Defined a historic district comprising all the extant buildings on campus at the time of student protests that spread through schools in East L.A.

Laura Taylor Kung, M.A.

Architectural Historian

Total Years of Experience: 10

Education:

M.F.A.	2011/Fiction and Literature/Bennington College
M.A.	1998/Historic Preservation Planning/Cornell University
B.A.	1993/Art History/DePaul University

Professional Profile:

Ms. Kung has over 10 years of experience in historic preservation and planning, including the completion of local and state building surveys, Historic Building Inventory and Evaluation documents, NRHP nominations, HABS submissions, Historic Structure Reports and Cultural Resources management plans.

Selected Project Experience:

City of Monrovia HCS and Identification of Potential Historic Districts, Los Angeles County, CA
Architectural Historian
CLIENT: City of Monrovia
Assisted in the development a citywide historic context statement for Monrovia, including recommendations for historic districts. Contexts and themes were identified and defined based on a windshield survey of the city, archival research using primary and secondary resources, and review of previous evaluations.

Ontario International Airport HCS, Intensive Survey and Video Documentary, San Bernardino County, CA
Architectural Historian
CLIENT: City of Ontario
Prepared an HCS for the ONT, informed by extensive background research and an intensive-level survey. Developed themes, contexts, registration requirements, and character-defining features for identification of a range of property types, from World War II aircraft hangars to Cold War-era administration buildings. Assisted in conducting interviews for oral histories with individuals associated with the airport and preparation of a short video reviewing the history, findings, and stories gathered for the project.

On-Call Preservation Services for County of Los Angeles, Los Angeles County, CA
Architectural Historian
CLIENT: County of Los Angeles
Currently working with the County under its new Preservation Ordinance to review of proposed projects at specific residential sites. Work is performed to ensure compliance with the Secretary of the Interior's Standards for property owners to determine eligibility for Mills Act tax credits. Several of the properties reviewed are in the County's first designated historic district, the View Park Historic District.

Historic Resource Evaluation Memo for 1019 North Orange Grove Avenue, Los Angeles County, CA
Architectural Historian
CLIENT: 1019 North Orange Grove, LLC
Prepared an evaluation for a property located in the City of West Hollywood. Reviewed previous surveys, assessor's building records, and chain of ownership for the properties. Conducted an intensive pedestrian survey of the property and a reconnaissance survey of the neighborhood to consider a potential historic district. The evaluation was conducted to consider the eligibility of the properties under NRHP, CRHR, and City of West Hollywood eligibility criteria and in compliance with CEQA

Historic Resources Survey of the Works of Architect Loch Crane, San Diego County, CA
Architectural Historian
CLIENT: HELIX Environmental Planning
Researched and surveyed the work of San Diego architect Loch Crane. Developed a context based on survey findings, archival research of reviews of previous evaluations. The report included Department of Parks and Recreation (DPR) primary forms for 30 identified properties.

Historic Resource Evaluation Memo for 110 and 132 East Crowther Avenue, Orange County, CA
Architectural Historian
CLIENT: HELIX Environmental Planning
Prepared an evaluation for two industrial properties located in the City of Placentia. Reviewed previous surveys, assessor's building records, and chain of ownership for the properties. Conducted an intensive pedestrian survey of the properties and a reconnaissance survey of the neighborhood to consider a potential historic district. The evaluation was conducted to consider the eligibility of the properties under NRHP, CRHR, and City of Placentia eligibility criteria and in compliance with CEQA.

Historic Resource Evaluation Memo for 1019 North Orange Grove Avenue, Los Angeles County, CA
Architectural Historian
CLIENT: 1019 North Orange Grove, LLC
Prepared an evaluation for a property located in the City of West Hollywood. Reviewed previous surveys, assessor's building records, and chain of ownership for the properties. Conducted an intensive pedestrian survey of the property and a reconnaissance survey of the neighborhood to consider a potential historic district. The evaluation was conducted to consider the eligibility of the properties under NRHP, CRHR, and City of West Hollywood eligibility criteria and in compliance with CEQA.

Historic Resource Study at Muroc Joint United School District Facilities, Kern County, CA
Architectural Historian
CLIENT: Muroc Joint Unified School District
Prepared a technical report as part of a cultural resources study of five MJUSD campuses located on Edwards Air Force Base, based on an intensive-level pedestrian survey of the five schools and archival research. Included in the work effect was preparation of DPR district and primary forms. The report was prepared in compliance with Section 106 of the NHPA, NEPA, and CEQA.

Cultural Resources Evaluation Clairemont High School, San Diego County, CA
Architectural Historian
CLIENT: BRG Consulting
Prepared a historic evaluation report for eight buildings on the Clairemont High School campus in advance of modernization projects. Efforts included a site visit, photographic documentation of the buildings, and archival research. The evaluation included preparation of California DPR forms

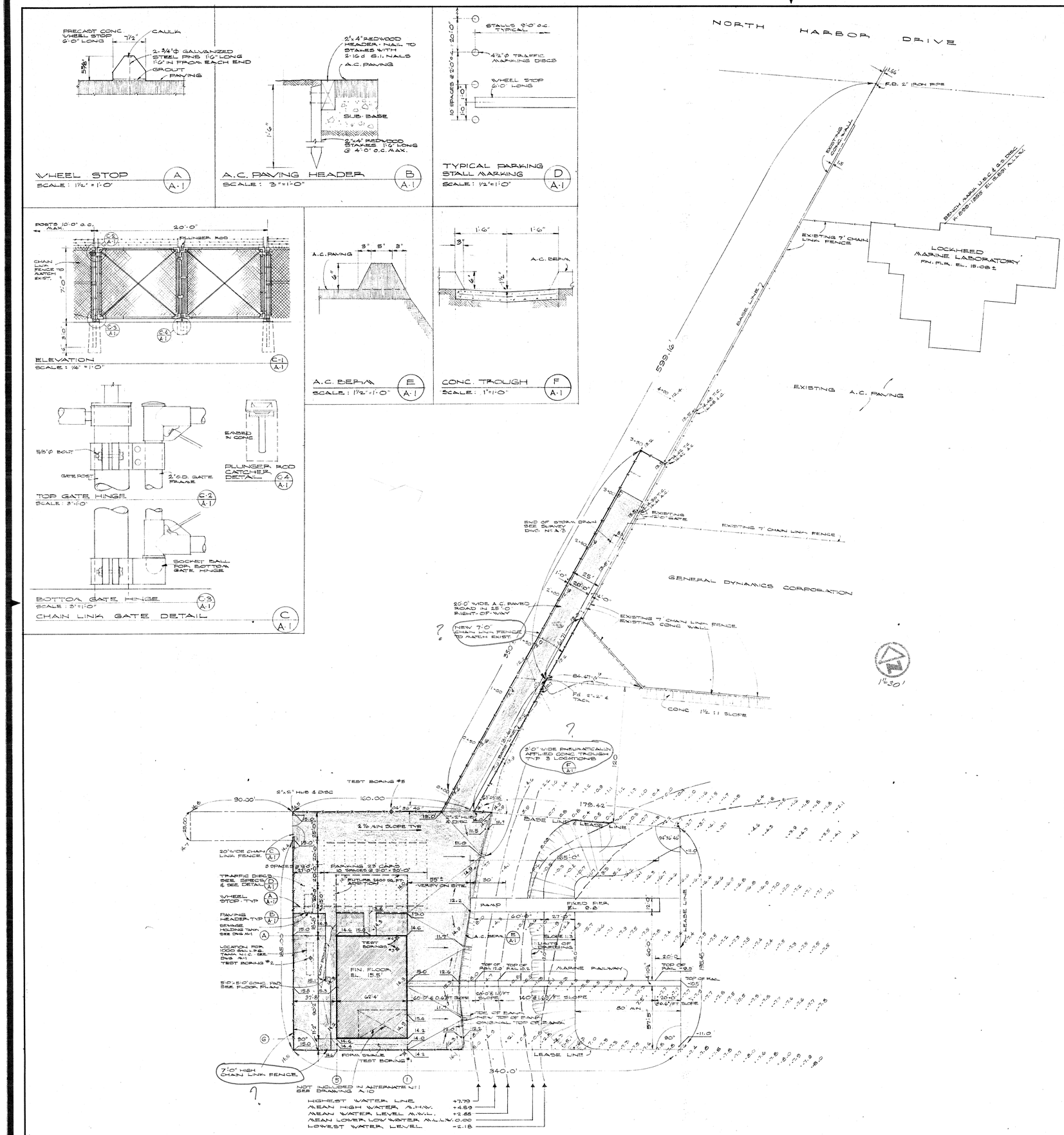
Historic Context Report, San Bernardino County, CA
Historian
CLIENT: BNSF Railway Company
At a previous firm, wrote detailed history and significance of railroad construction.

State Inventory and Evaluation Forms, Los Angeles County, CA
Architectural Historian
CLIENT: City of Monrovia
At a previous firm, wrote building descriptions for 150 domestic and commercial buildings.

Historic American Building Survey, Los Angeles County, CA
Architectural Historian
CLIENT: Walt Disney Company
Research and wrote descriptive section of submission for Grand Central Terminal building.

APPENDIX C

Original Plans



LEGEND

- CONCRETE WALL
- WOOD STUD WALL — 2"x4" UNLESS OTHERWISE NOTED
- ONE HOUR WOOD STUD WALL
- MOVABLE OFFICE PARTITION
- WIRE MESH PARTITION
- PLASTER, GROUT, CONCRETE, SAND AS NOTED
- ACOUSTICAL TILE
- ROUGH WOOD FRAMING MEMBER
- WOOD - FINISH MEMBER
- STEEL
- METAL IN ELEVATION
- METAL 1/8" OR SMALLER
- 102 ROOM NUMBER
- 18 DOOR NUMBER
- B WINDOW NUMBER
- L 4 LOUVER NUMBER
- E DETAIL NUMBER
- A 8 LOCATED ON SHEET NUMBER
- E-3 A 8 SUB DETAIL REFERENCE
- B A-7 CP-055 - SECTION
- D A-5 REFERENCE TO MAIN DETAIL SHOWN ON ELEVATION OR PLAN
- A-9 REFERENCE TO SHEET NUMBER FOR INTERIOR ELEVATION
- 15.5 FINISH FLOOR ELEVATION
- 14.3 EXISTING ELEVATION
- 12.0 NEW FINISH GRADE ELEVATION
- 7.73 EXISTING GRADE OR WATER LEVEL CONTOUR
- 11.00 NEW GRADE CONTOUR (NOTE: DREDGING WORK TO BE DONE BY PORT DISTRICT AUTHORITY)
- F.D. FLOOR DRAIN
- F.S. FLOOR SINK
- D.S. DOWNSPOUT
- R.D. ROOF DRAIN
- ASPHALTIC CONCRETE PAVED AREA
- TOPSOIL
- FENCE
- SLOPE
- EQUIPMENT NOT IN CONTRACT (N.I.C.)

ABBREVIATIONS

A.C.	ASPHALT CONCRETE				
A.C.P.	Asphaltic Concrete Pavement	FLR.	Floor	OPP.	Opposite
A.D.	Area Drain	F.P.	Fire Proof	PL.	Plate
A.T.	Asphalt Tile	F.S.	Full Size	PLGL.	Plate Glass
AUTO.	Automatic	FTG.	Footing	PLT.	Planter
BLDG.	Building	FURR.	Furring	R.	Riser
BR.	Brick	GA.	Gauge	RAD.	Radius
CAB.	Cabinet	G.I.	Galvanized Iron	R.C.	Reinforced Concrete
C.A.R.	Cold Air Return	GL.	Glass	RD.	Round
C.B.	Chalkboard or Chalkboard	G.B.	Grab Bibbs	REG.	Register
		H.M.	Hollow Metal	REINF.	Reinforced-Reinforcing
CLG.	Ceiling	HOR.	Horizontal	R.H.	Round Head
CEM.	Cement	H.P.	High Point	RM.	Room
C.I.	Cast Iron	H.R.	Hose Rack	S.	Sink
C.J.	Cold Joint or Construction Joint	H.T.	Hollow Tile	SC.	Scale
		H.W.	Hot Water	S.C.	Self Closing
C.O.	Clean Out	I.D.	Inside Diameter	SCR.	Screen
COL.	Column	INSUL.	Insulation	SCUP.	Scupper
CONC.	Concrete	INT.	Interior	SECT.	Section
CONT.	Continuous	LAV.	Lavatory	SH.	Sheet
CSK.	Countersunk	LINO.	Linoleum	SHF.	Shelf
CTR.FL.	Counterflashing	LKR.	Locker	SHVS.	Shelves
C.W.	Cold Water	L.P.	Low Point	SPEC.	Specification
DET.	Detail	MAX.	Maximum	S.S.	Service Sink
D.F.	Drinking Fountain	M.C.	Medicine Cabinet	STD.	Standard
DIA.	Diameter	MECH.	Mechanical	STWY.	Stairway
DIAG.	Diagonal	MET.	Metal	SUP.	Supply
DN.	Down	M.H.	Man Hole	T.	Tread
D.S.	Downspout	MIN.	Minimum	T.B.	Tackboard
DWG.	Drawing	MIR.	Mirror	TC.	Terra Cotta
E.	East	MISC.	Miscellaneous	T&G	Tongue & Groove
E.G.	Existing Grade	M.O.	Masonry Opening	THERM.	Thermostat
E.J.	Expansion Joint	M.T.	Metal Threshold	THR.	Threshold
EL.	Elevation	N.G.	Natural Grade	TYP.	Typical
EXH.	Exhaust	N.I.C.	Not in Contract	VERT.	Vertical
EXIST.	Existing	NO.	Number	V.T.R.	Vent Thru Roof
EXT.	Exterior	N.T.S.	Not to Scale	WAINSC.	Wainscot
F.D.	Floor Drain	OBS.	Obsolete	W.C.	Water Closet
F.G.	Finish Grade	OBSC.	Obscure	W.D.	Window Dimension
F.H.	Flat Head	O.C.	On Centers	W.GL.	Wire Glass
FIN.	Finish or Finished	O.D.	Outside Diameter	W.H.	Water Heater
FIXT.	Fixture	O.H.	Oval Head	W.I.	Wrought Iron
FL.	Flashing or Flush	OPNG.	Opening	W.P.J.	Weakened Plain Joint
F.W.	Field Weld	P.S.I.	Pounds per square inch	WK.	Work
		P.S.F.	Pounds per square foot	WD.	Wood

A.B.	ANCHOR BOLT	ACOUST.	ACOUSTICAL
℄	CENTER LINE	DR.	DRYER
E.W.C.	ELECTRIC WATER COOLER	G.L.L.	GLUE-LAMINATED
F.O.S.	FACE OF STUD	L.A.	LAMINATED
A.L.W.	MEAN LOWER LOW WATER	M.B.	MACHINE BOLT
P.S.I.	POUNDS PER SQUARE INCH	P.A.	PLASTER AIR
R.O.	ROUGH OPENING	R.W.D.	REDWOOD
REQD.	REQUIRED	R.O.	ROUGH OPENING
SCHED.	SCHEDULE	SQ.	SQUARE
SIM.	SIMILAR		
STRUCT.	STRUCTURE		
TEL.	TELEPHONE		
U.	URINAL		
BM.	BEAM	ADJ.	ADJACENT
B.N.	BOUNDARY NAILING	BLKG.	BLOCKING
DBL.	DOUBLE	LG.	LONG
JST	JOIST		

NOTES

SAN DIEGO UNIFIED PORT DISTRICT
ENGINEERING AND OPERATIONS SERVICES DIVISION
☑ APPROVED
☐ APPROVED AS NOTED
SUBJECT TO ALL LAWS AND REGULATIONS
JOHN BATE
PORT DIRECTOR
Date APR 20 1966
THIS IS NOT A BUILDING PERMIT

OFFICE COPY #408

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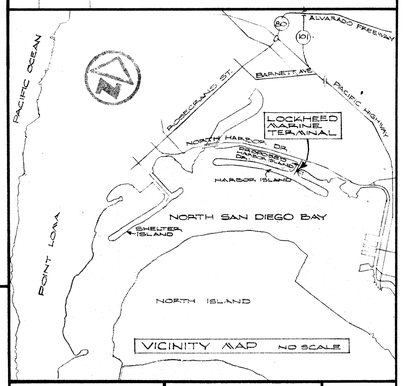
REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT

SHEET INDEX

A&E NO	LOCKHEED NO	
		ARCHITECTURAL
A-1	721-100A	SITE PLAN & DETAILS, VICINITY MAP, SHEET INDEX, LEGEND & ABBREVIATIONS
A-2	721-101A	TOPO SURVEY - 1
A-3	721-102A	TOPO SURVEY - 2
A-4	721-103A	FIRST FLOOR PLAN - INTERIOR FINISH SCHEDULE
A-5	721-104A	LOW ROOF & MEZZANINE PLAN & DETAILS
A-6	721-105A	ELEVATIONS
A-7	721-106A	SECTIONS AND DETAILS
A-8	721-107A	SCHEDULES AND DETAILS
A-9	721-108A	REFLECTED CEILING PLAN INTERIOR ELEVATIONS & DETAILS
A-10	721-109A	ALTERNATE ITEM #1
		STRUCTURAL
S-1	721-2005	TYPICAL STRUCTURAL DETAILS
S-2	721-2015	FOUNDATION PLAN, SECTIONS & DETAILS
S-3	721-2025	HIGH ROOF FRAMING PLAN, LOW ROOF AND MEZZANINE FRAMING PLAN.
S-4	721-2035	SECTIONS AND DETAILS
S-5	721-2045	SECTIONS AND DETAILS ALTERNATE FOUNDATION PLAN
S-6	721-2055	MARINE RAILWAY PLANS & ELEVATIONS
S-7	721-2065	MARINE RAILWAY DETAILS
S-8	721-2075	FIXED PIER FRAMING AND PILE PLANS AND ELEVATIONS
S-9	721-2085	FIXED PIER DETAILS
		ELECTRICAL
E-1	721-3005	ELECTRICAL PLOT PLAN, SINGLE LINE DIAGRAM, SWITCHBOARD ELEVATIONS & SCHEDULES
E-2	721-3015	FIRST FLOOR PLAN - ELECTRICAL
		MECHANICAL
M-1	721-400A	PLOT PLAN - MECHANICAL, LEGENDS & DETAILS
M-2	721-401A	FIRST FLOOR PLANS, PLUMBING & HEATING



TYPE CONSTRUCTION	V
OCCUPANCY	F-2
FIRE ZONE NO.	3
NO. STORIES	1

AREA DATA

LEASE AREA (SITE)	78,015 S.F.
FIRST FLOOR	5,660 S.F.
MEZZANINE	523 S.F.
TOTAL BUILDING	6,183 S.F.

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
FRANK L. HOPE JR.
REGISTERED ARCHITECT - C8849

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
1475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB NO 66-22 | SHEET NO A-1 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE

ORGN.

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY LOCKHEED MARINE TERMINAL
SAN DIEGO CALIFORNIA

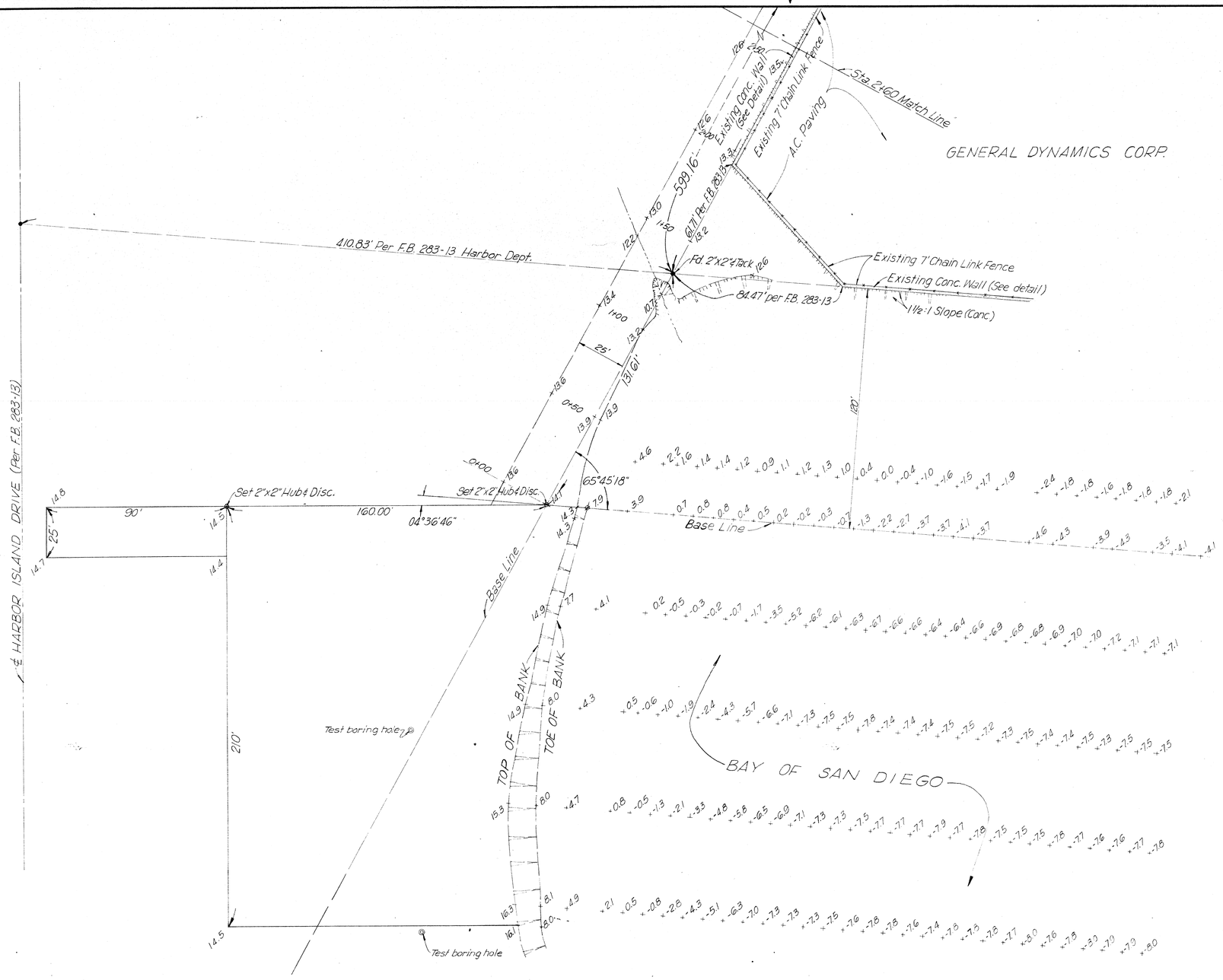
DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REG. NO.	REV.
P.G.	APR 8 1966			AS NOTED	OF	721-100A	

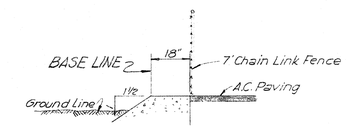
FORM LMSC 8997-3

THE INFORMATION AND DESIGN DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF LOCKHEED AIRCRAFT CORPORATION. LOCKHEED RESERVES ALL PATENT, PROPRIETARY, DESIGN, MANUFACTURING, REPRODUCTION, USE AND SALES RIGHTS THERETO, AND TO ANY ARTICLE DISCLOSED THEREIN, EXCEPT TO THE EXTENT RIGHTS ARE EXPRESSLY GRANTED TO OTHERS. THE FOREGOING DOES NOT APPLY TO VENDOR PROPRIETARY PARTS.

REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT





DETAIL - CONC. WALL
NO SCALE

TOPOGRAPHIC SURVEY
OF
LOCKHEED MARINE TERMINAL

SURVEYED FOR:
FRANK L. HOPE & ASSOCIATES
1475 SIXTH AVE.
SAN DIEGO, CALIF.

BY:
RICK ENGINEERING CO.
3557 KENYON ST.
SAN DIEGO, CALIF.
2-10-66
J-1767 2-18-66 T.M.

BENCH MARK:
U.S.C.&G.S. Disc. K899-1955 located on front wall of Lockheed Bldg.
EL. 15.851 M.L.L.W. Datum.

NOTE:
F.B. 283-13 indicates reference to San Diego Unified Port District Field Book 283 page 13.

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
FRANK L. HOPE JR.
REGISTERED ARCHITECT - C9440

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
1475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB No 66-22 | SHEET No A-2 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE TOPO. SURVEY - 1

ORGN.

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY LOCKHEED MARINE TERMINAL SAN DIEGO CALIFORNIA

REG. NO. 721-101 A

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.
T.M. 2-24-66	APR 8 1966			1"=20'	1 OF 2

FORM LMSC 8887-3

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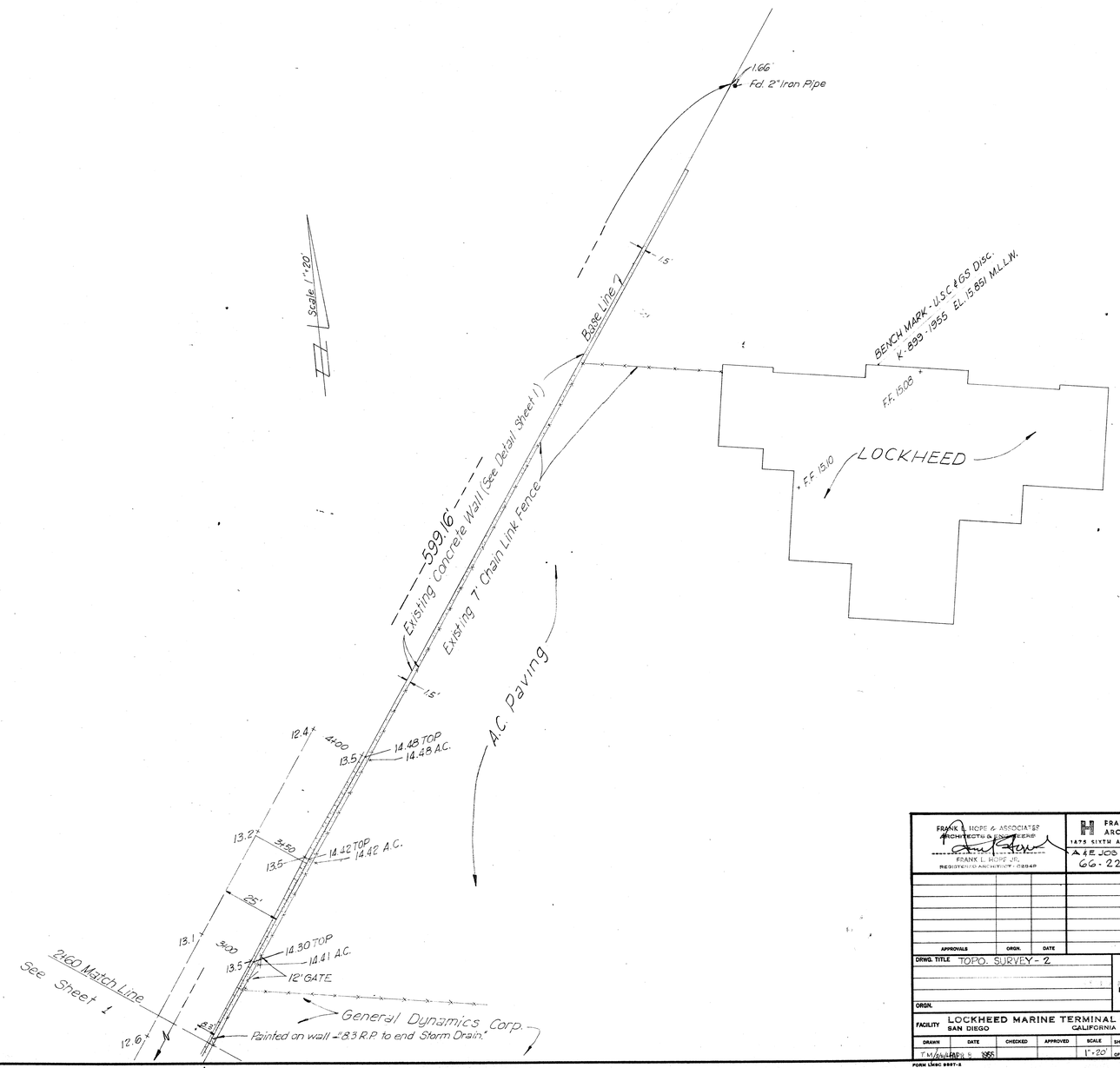
REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT



FRANK L. HOPE & ASSOCIATES
ARCHITECTS & ENGINEERS
FRANK L. HOPE JR.
REGISTERED ARCHITECT - 02848

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
1475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB No	SHEET No
66-22	A-3 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE TOPO. SURVEY - 2

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

ORGN.

FACILITY LOCKHEED MARINE TERMINAL
SAN DIEGO CALIFORNIA

REG. NO. 721.102 A

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.
TM/[illegible]	APR 5 1955			1"=20'	2 OF 2

REV.

FORM LMSC 8887-2

PRINTED ON 100% CLEARPRINT

INTERIOR FINISH SCHEDULE

ROOM NO	ROOM NAME	FLOOR: VINYL ASBESTOS TILE	FLOOR: SHEET VINYL	FLOOR: CONCRETE	FLOOR: CONCRETE SEALER	FLOOR: WOOD SEALER	FLOOR: NOTES	FLOOR: COLOR	BASE: RUBBER TOE BELT	BASE: PLASTIC TOP PARTITION	BASE: WOOD	BASE: SHEET VINYL COVED	BASE: NOTES	BASE: COLOR	VANSCOT: REDWOOD SIDING	VANSCOT: PLASTIC LINE 300	VANSCOT: NOTES	VANSCOT: HEIGHT	VANSCOT: COLOR
101	MAINTENANCE SHOP		●								●				●			7'-11"	
102	MEN'S TOILET		●									●							
103	LOUNGE	●							●	●									
104	OFFICE	●							●	●									
105	OFFICE	●							●	●									
106	PASSAGE	●							●	●									
107	MEN'S TOILET	●										●							
108	JANITOR	●							●										
109	RECEPTION	●							●	●									
110	OFFICE	●							●	●									
111	OFFICE	●							●	●									
112	STORAGE	●							●	●									
113	PASSAGE	●							●	●									
114	WOMEN'S TOILET	●										●							
115	HEATER	●							●										
116	INSTRUMENT SHOP		●								●								
117	ALCOVE		●								●								
118	BATTERY CHARGING RM			●				GREY			●		1	GREY	●		3'-4"		GREY
119	DRIVE GEAR STORAGE & COMPRESSOR RM		●								●								
120	TELEPHONE RM	●							●										
121	MACHINE SHOP		●								●								
122	ELECTRONICS SHOP		●								●								
123	PASSAGE		●								●								
124	ELECTRICAL EQUIPMENT		●								●								
125	MEZZANINE				●						●								

ROOM NO	WALLS: NORTH: GYPBOARD	NORTH: REDWOOD SIDING	NORTH: WIRE MESH PARTITION	NORTH: EXPOSED STRUCT	NORTH: NOTES	NORTH: COLOR	EAST: GYPBOARD	EAST: REDWOOD SIDING	EAST: WIRE MESH PARTITION	EAST: EXPOSED STRUCT	EAST: NOTES	EAST: COLOR	SOUTH: GYPBOARD	SOUTH: REDWOOD SIDING	SOUTH: WIRE MESH PARTITION	SOUTH: EXPOSED STRUCT	SOUTH: NOTES	SOUTH: COLOR	WEST: GYPBOARD	WEST: REDWOOD SIDING	WEST: WIRE MESH PARTITION	WEST: EXPOSED STRUCT	WEST: NOTES	WEST: COLOR	CEILING: ACOUSTICAL TILE	CEILING: GYPSUM BOARD	CEILING: EXPOSED STRUCT	CEILING: NOTES	CEILING: HEIGHT	CEILING: COLOR
101	●			●	7		●			●	7		●			●			●							●			10'-0"	
102	●						●						●						●						●				8'-0"	
103	●						●						●				4		●				4		●				9'-0"	
104	●						●				4		●				4		●				4		●				9'-0"	
105	●						●				4		●				4		●				4		●				9'-0"	
106	●				4		●						●						●						●				9'-0"	
107	●						●						●						●						●				8'-0"	
108	●						●						●						●						●				8'-0"	
109	●						●				4		●						●				4		●				9'-0"	
110	●						●				4		●				4		●				4		●				9'-0"	
111	●						●				4		●				4		●						●				9'-0"	
112	●						●						●						●							●			9'-0"	
113	●				4		●						●						●						●				9'-0"	
114	●						●						●						●							●			8'-0"	
115	●						●						●						●							●			9'-0"	
116		●			7				●					●						●						●			10'-0"	
117		●							●					●			7			●						●			10'-0"	
118		●			7				●		7			●			3			●			2		●				9'-0"	
119		●							●		7			●						●					●				10'-0"	
120	●						●						●						●						●				8'-0"	
121									●					●						●			7		●				10'-0"	
122				●					●					●						●					●				10'-0"	
123									●		8			●						●					●				10'-0"	
124				6					●		6			●			6						6		●				10'-0"	
125				●					●					●									●		●					

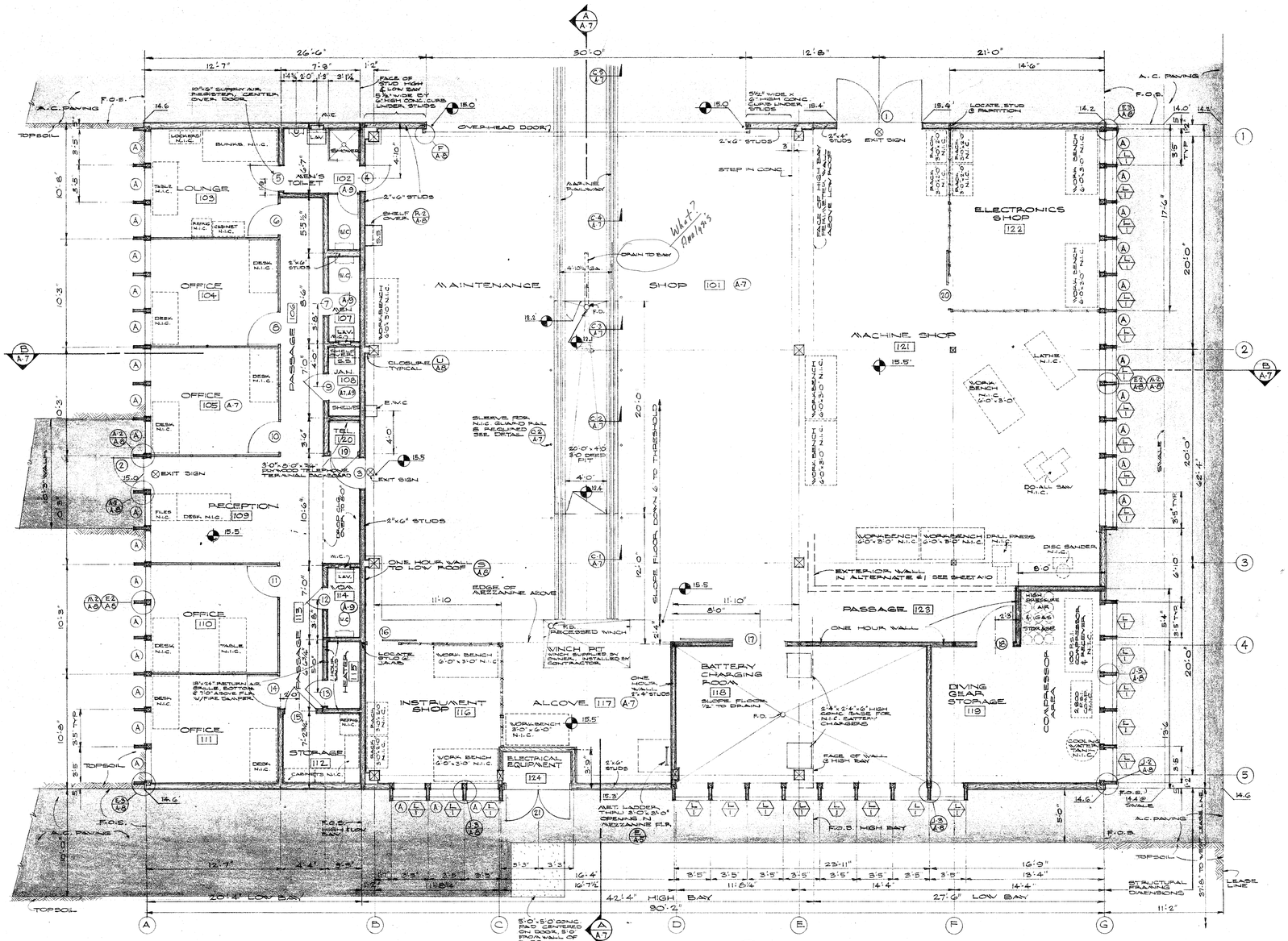
NOTES:

1. PAINT WOOD BASE IN ROOM 118 WITH CANSOLINE PHENOLENE 300.
2. WEST WALL OF ROOM 118 IS REDWOOD LOUVER FLOOR TO CEILING - SEE DETAIL 1/A8. PAINT LOUVERS W/LIONOIL & JAMES W/CANSOLINE PHENOLINE 300 INT. SIDE ONLY TO HEIGHT OF 3'-4". REMAINDER OF LOUVERS TO BE TYPICAL FIN.
3. SOUTH WALL OF ROOM 118 IS MADE UP MOSTLY OF REDWOOD LOUVERS WHICH WILL BE STAINED TO MATCH EXTERIOR FINISH.
4. MOVABLE GYPBOARD PARTITIONS 1/A8
5. ENAMEL ALL CROSS BRACING & STRUCTURAL STEEL CONNECTIONS.
6. ½" PLYWOOD WALL SHEATHING & FINISH.
7. 5/8" GYPSUM WALLBOARD UNDER REDWOOD SIDING
8. REDWOOD SIDING ON EAST WALL UNDER ALT #1 SEE A-10
9. GYPSUM WALLBOARD TO BE ENAMELLED IN ROOMS 101, 107, 108, 112 & 114. REMAINDER OF WALLBOARD TO BE PAINTED

THE INFORMATION AND DESIGN DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF LOCKHEED AIRCRAFT CORPORATION. LOCKHEED RESERVES ALL PATENT, PROPRIETARY, DESIGN, MANUFACTURING, REPRODUCTION, USE AND SALES RIGHTS THERETO, AND TO ANY ARTICLE DISCLOSED THEREIN, EXCEPT TO THE EXTENT RIGHTS ARE EXPRESSLY GRANTED TO OTHERS. THE FOREGOING DOES NOT APPLY TO VENDOR PROPRIETARY PARTS.

REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT



FIRST FLOOR PLAN
SCALE : 1/4" = 1'-0"

NOMINAL FINISH FLOOR ELEVATION = 15.5'

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
FRANK L. HOPE JR.
REGISTERED ARCHITECT - C2848

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
175 SIXTH AVENUE • SAN DIEGO, CALIFORNIA
A/E JOB NO 66-22
SHEET NO A-4 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: FIRST FLOOR PLAN
INTERIOR FINISH SCHEDULE

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

ORGN.

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REG. NO.	REV.
R.G.	APR 8 1966			1/4"=1'-0"	OF	721-103A	

PRINTED ON 1000H CLEARPRINT

FORM LMSC 8997-2

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REVISIONS

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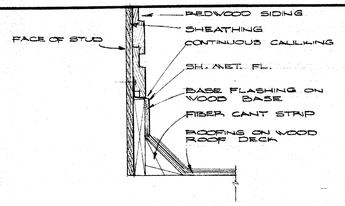
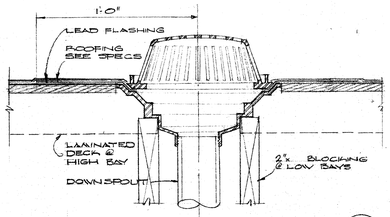
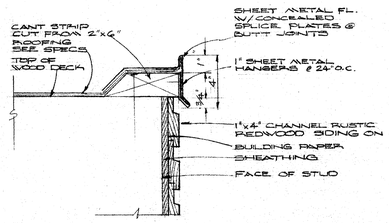


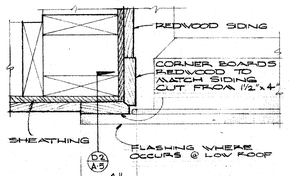
CANT DETAIL (A / A-5)
SCALE: 3"=1'-0"



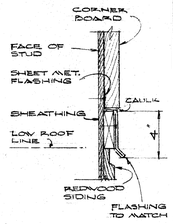
ROOF DRAIN (B / A-5)
SCALE: 3"=1'-0"



EAVE DETAIL (C / A-5)
SCALE: 3"=1'-0"

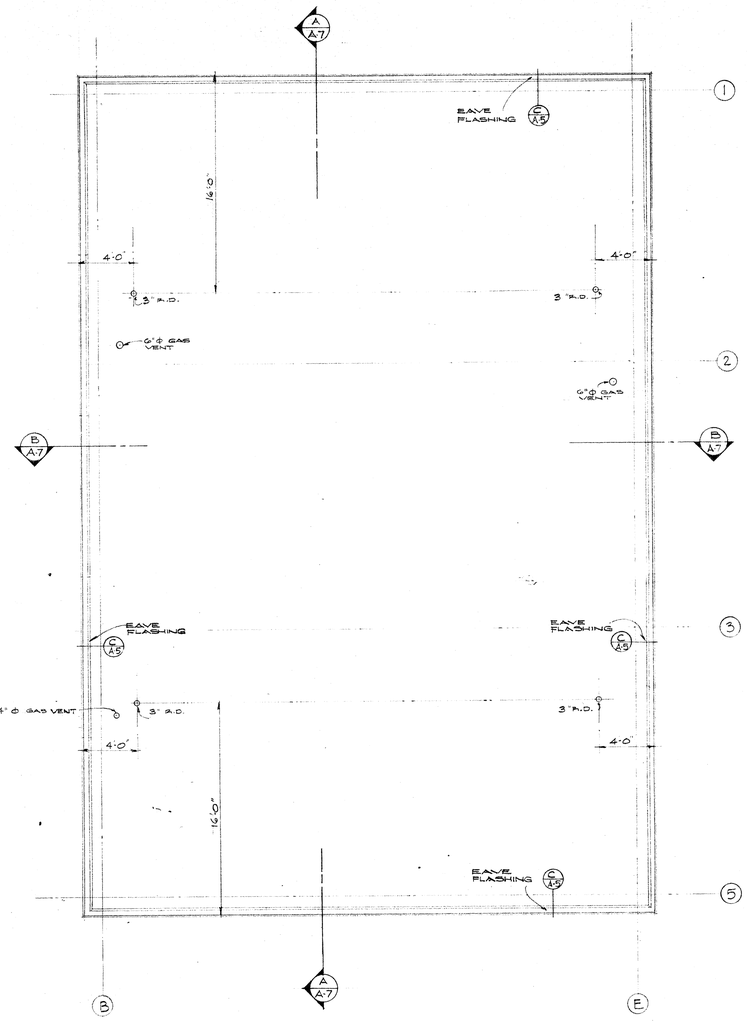


PLAN (D1 / A-5)

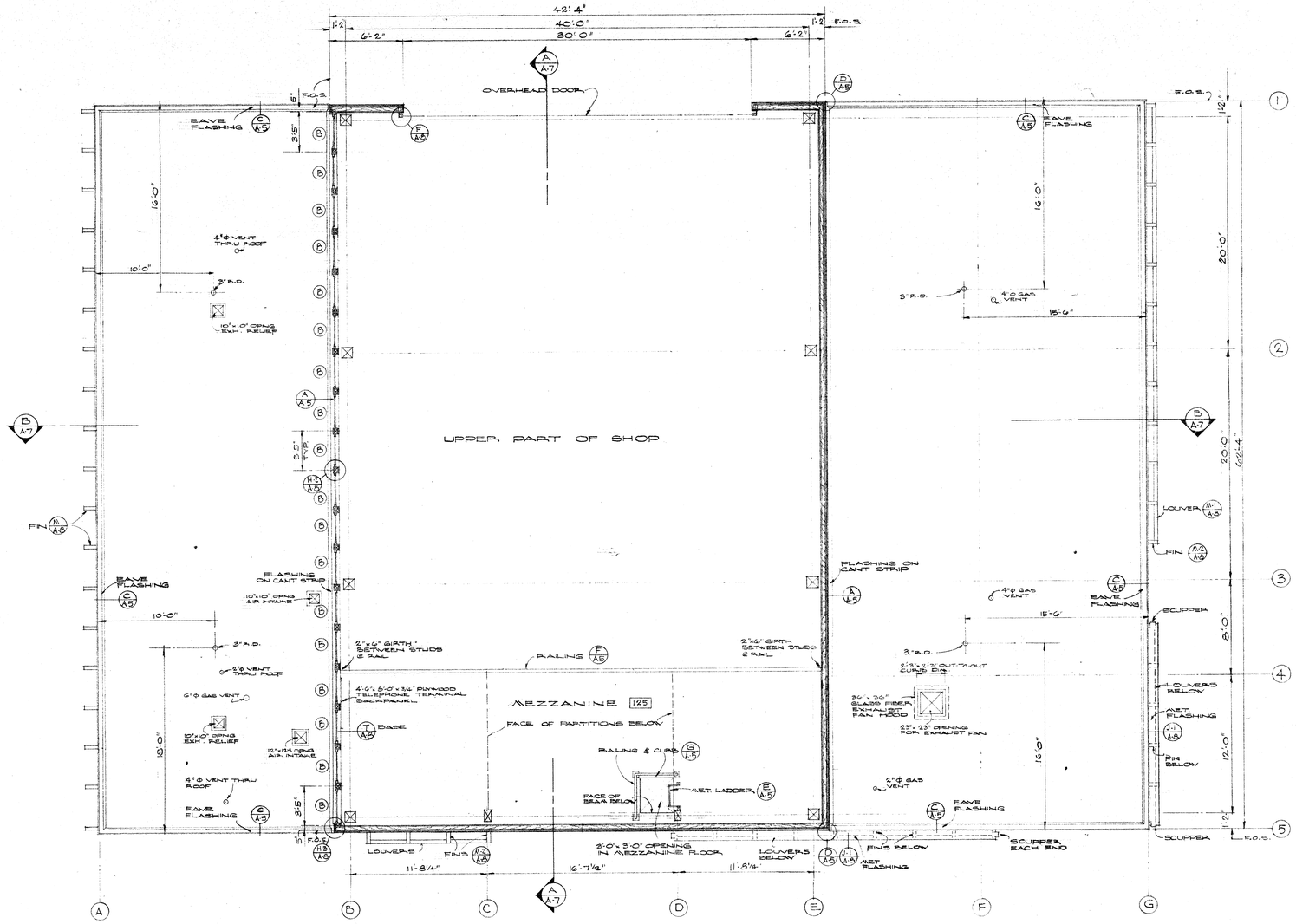


SECTION (D2 / A-5)

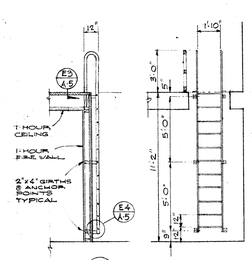
EXTERIOR CORNER DETAILS (D / A-5)
SCALE: 3"=1'-0"



HIGH ROOF PLAN
SCALE: 1/4"=1'-0"

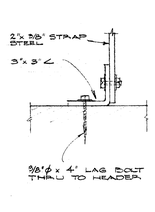


LOW ROOF & MEZZANINE PLAN
SCALE: 1/4"=1'-0"

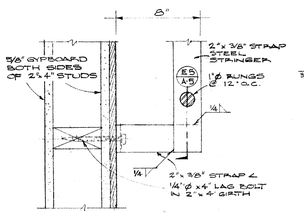


SECTION (E1 / A-5)
SCALE: 1/4"=1'-0"

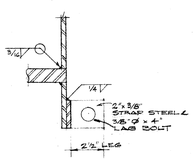
ELEVATION (E2 / A-5)
SCALE: 1/4"=1'-0"



DETAIL (E-3 / A-5)
SCALE: 3"=1'-0"

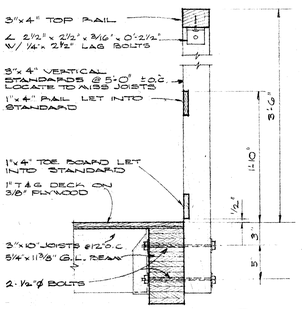


DETAIL (E-4 / A-5)
SCALE: 3"=1'-0"

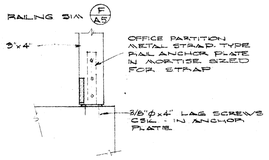


DETAIL (E-5 / A-5)
SCALE: 3"=1'-0"

MEZZANINE LADDER DETAILS (E / A-5)



MEZZANINE RAILING (F / A-5)
SCALE: 1½"=1'-0"



RAILING @ LADDER (G / A-5)
SCALE: 1½"=1'-0"

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
FRANK L. HOPE JR.
REGISTERED ARCHITECT - C2848

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
1420 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB NO 66-22 | SHEET NO A-5 OF 23

DRWG. TITLE: LOW ROOF & MEZZANINE PLAN AND DETAILS

ORGN.

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

REQ. NO.

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REV.
P.G.	APR 8 1966			AS NOTED	OF	

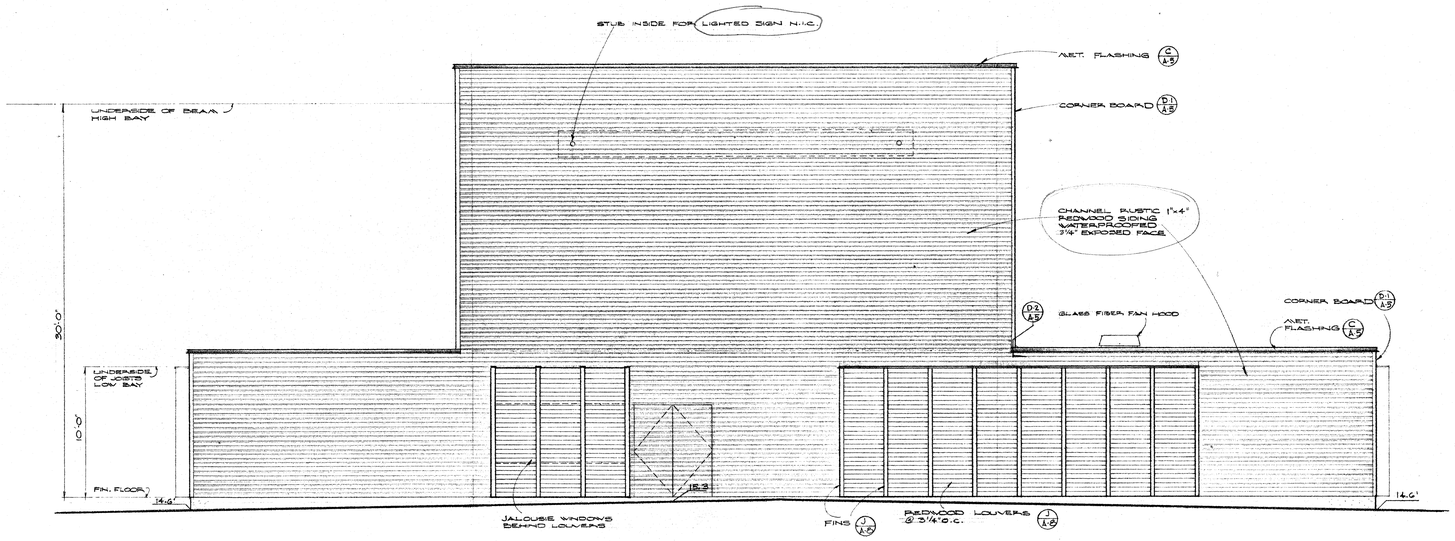
721-104 A

FORM LMSC 8897-2

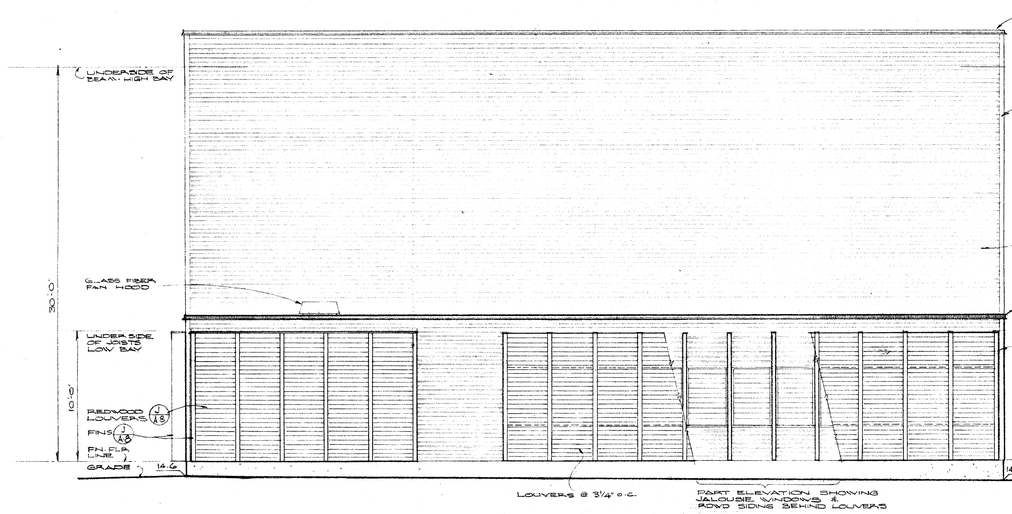
THE INFORMATION AND DESIGN DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF LOCKHEED AIRCRAFT CORPORATION. LOCKHEED RESERVES ALL PATENT, PROPRIETARY, DESIGN, MANUFACTURING, REPRODUCTION, USE AND SALES RIGHTS THERETO, AND TO ANY ARTICLE DISCLOSED THEREIN, EXCEPT TO THE EXTENT RIGHTS ARE EXPRESSLY GRANTED TO OTHERS. THE FOREGOING DOES NOT APPLY TO VENDOR PROPRIETARY PARTS.

REVISIONS

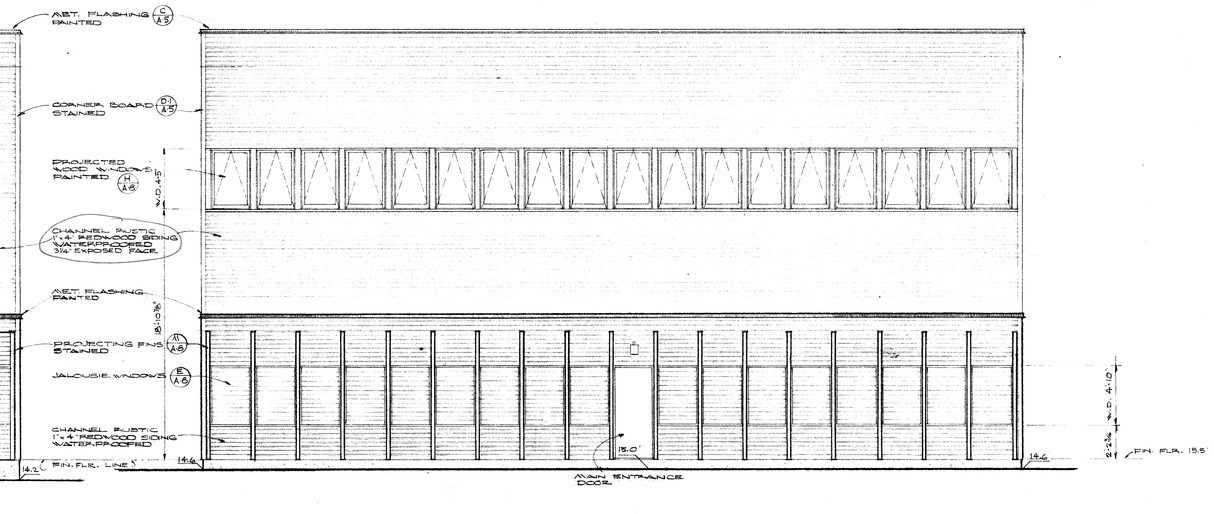
REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT



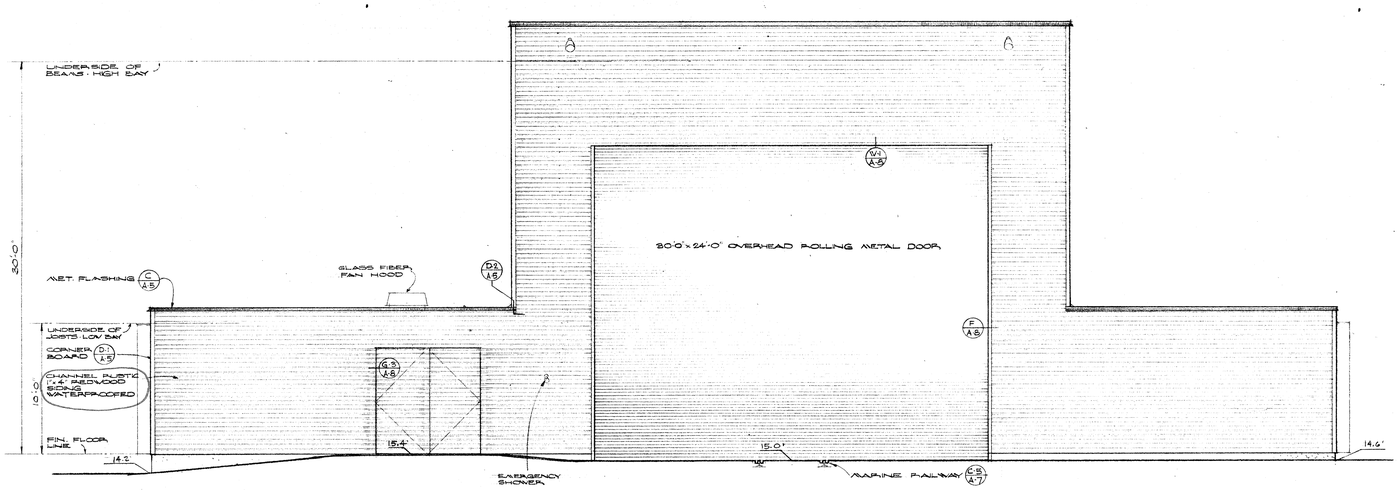
WEST ELEVATION



SOUTH ELEVATION



NORTH ELEVATION



EAST ELEVATION

FRANK L. HOPE & ASSOCIATES ARCHITECTS & ENGINEERS
FRANK L. HOPE JR.
REGISTERED ARCHITECT - C8849

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
1475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB Nº 66-22 | SHEET Nº A6 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE ELEVATIONS

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

ORGN.

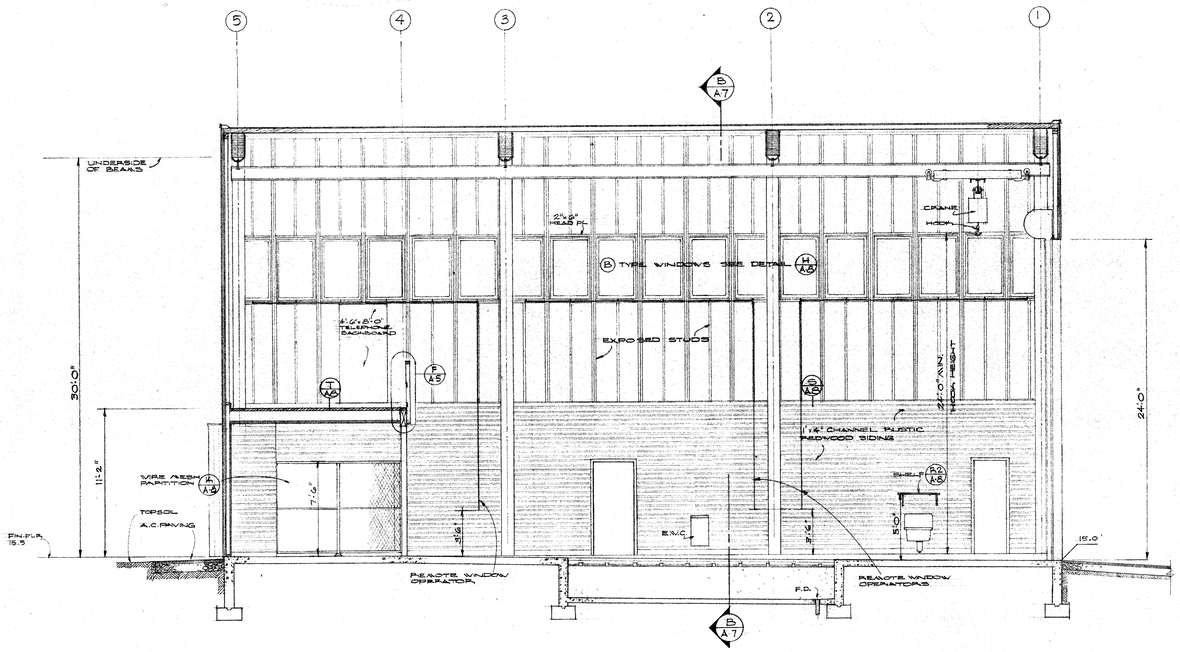
FACILITY LOCKHEED MARINE TERMINAL
SAN DIEGO CALIFORNIA

REG. NO. 721-105 A

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REV.
P.G.	APR 8 1966			1/4"=1'-0"	OF	

FORM LMSC 8897-2

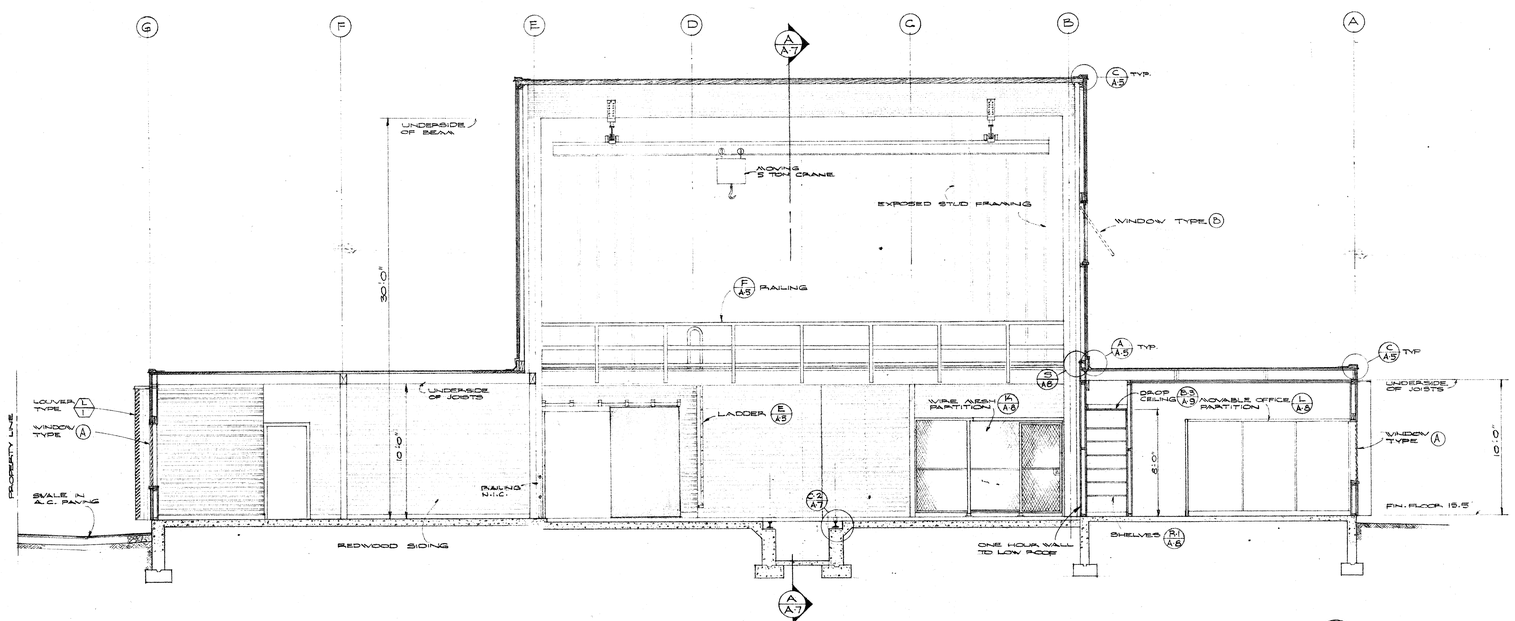
PRINTED ON 100% CLEARPRINT



CROSS SECTION @ HIGH BAY

SCALE: 1/4" = 1'-0"

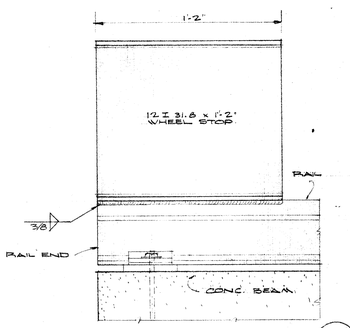
A A-7



LONGITUDINAL SECTION

SCALE: 1/4" = 1'-0"

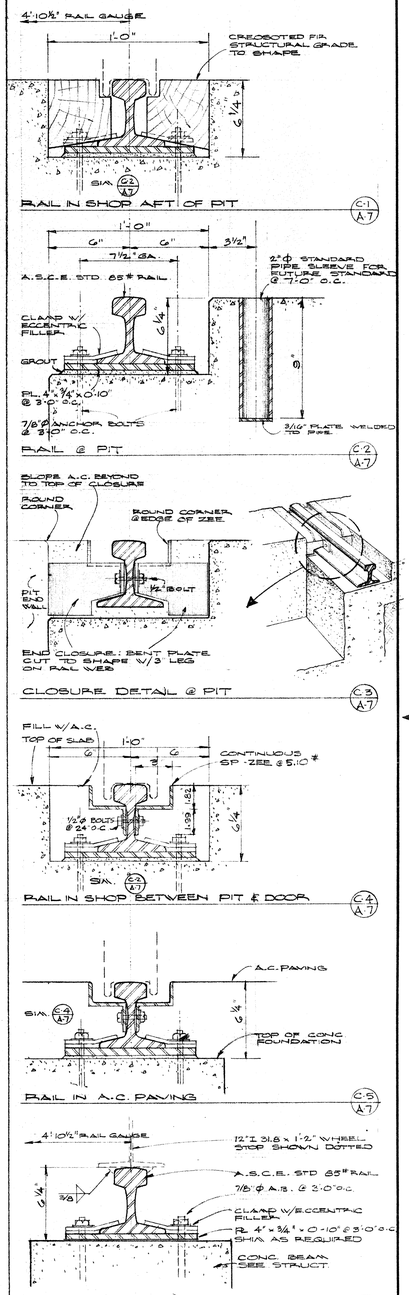
B A-7



RAIL END WHEEL STOP

SCALE: 3" = 1'-0"

D A-7



MARINE RAILWAY

SCALE: 3" = 1'-0"

C A-7

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REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
FRANK L. HOPE JR.
REGISTERED ARCHITECT - C.S.A.P.

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
5475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB No 66-22 | SHEET No A-7 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: SECTIONS & DETAILS

ORGN.

LOCKHEED MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

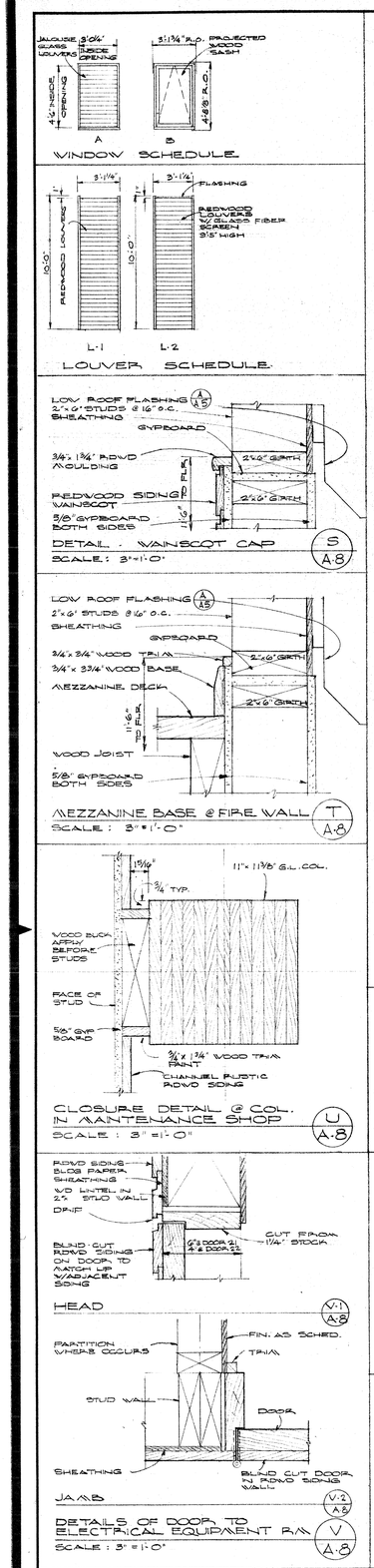
REG. NO.

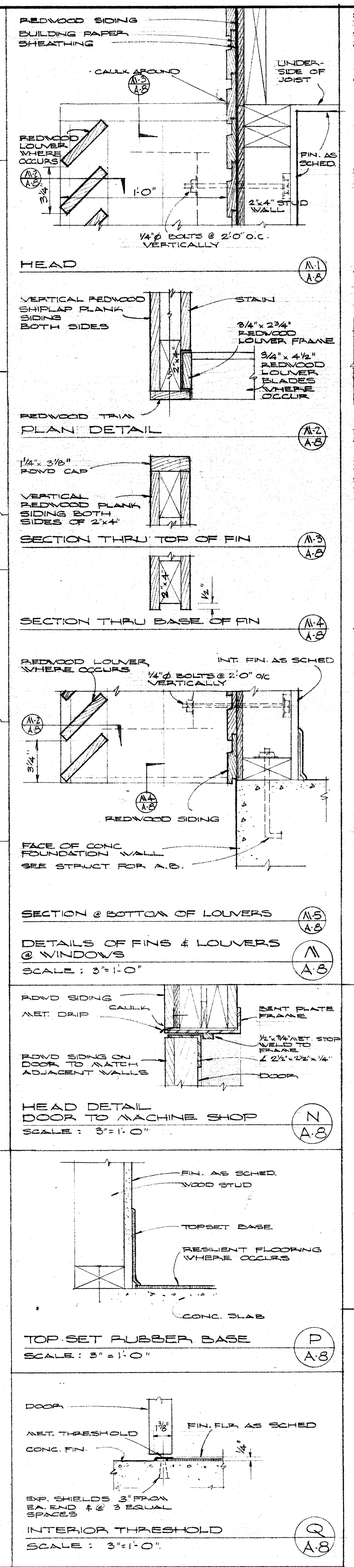
DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REV.
R.G.	APR 8 1966	-		AS NOTED	OF	

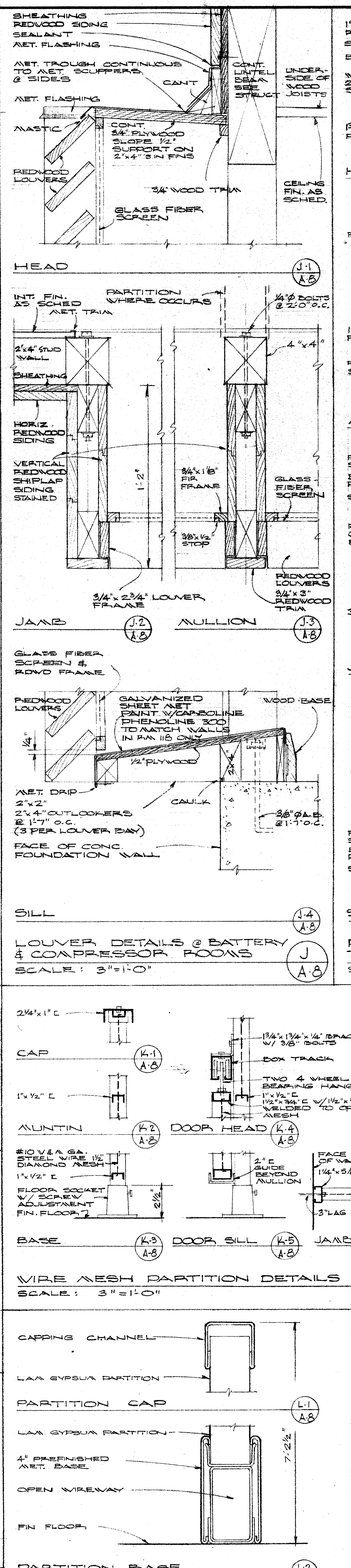
721-106A

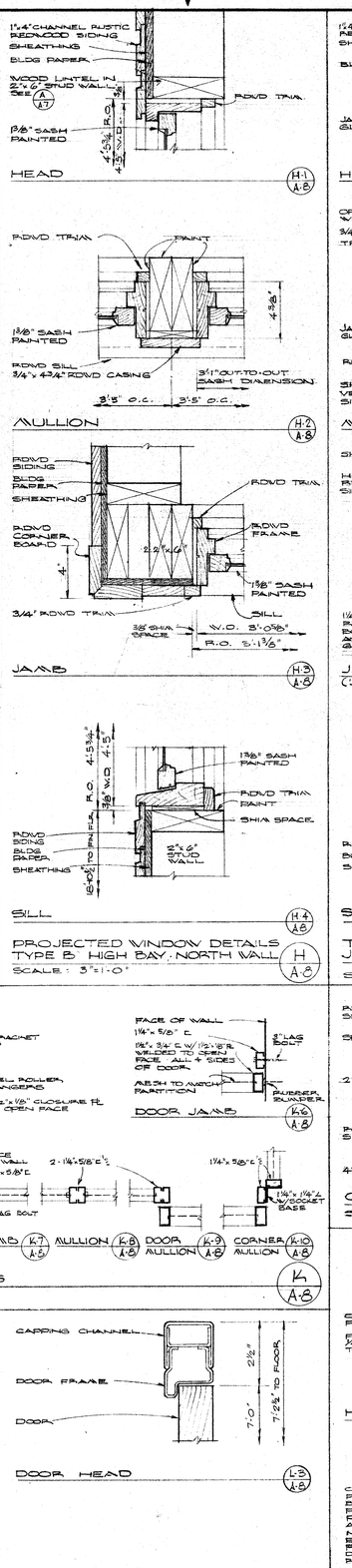
FORM LMSC 8897-2

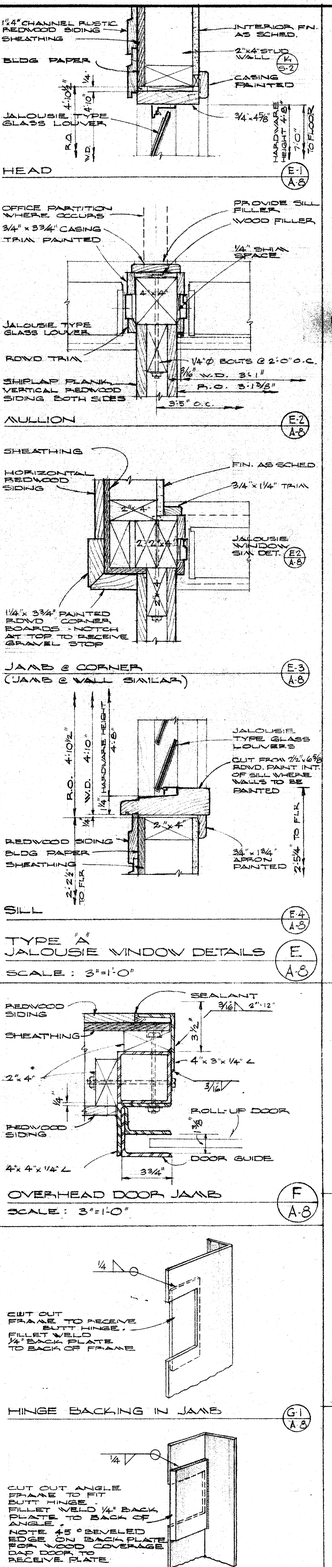
PRINTED ON 100OH CLEARPRINT

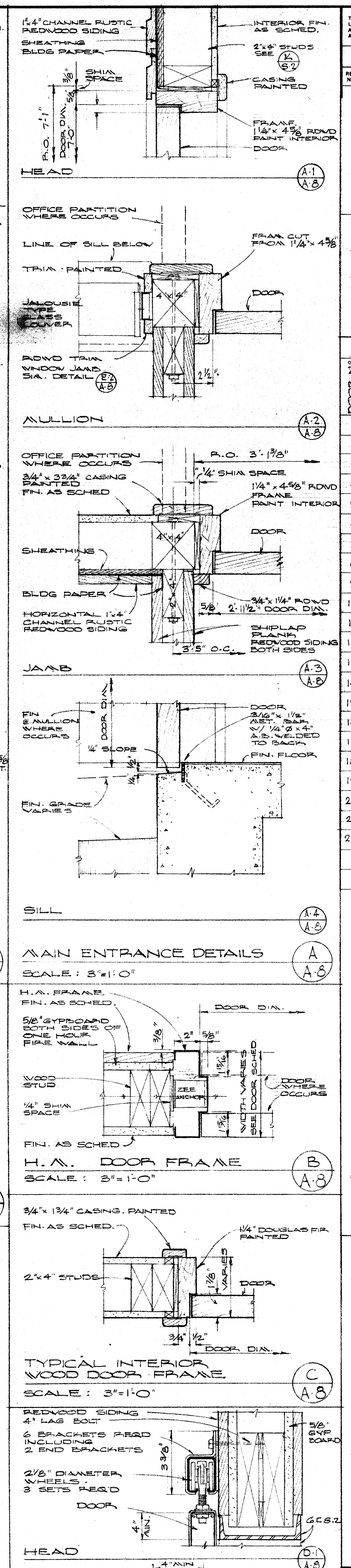


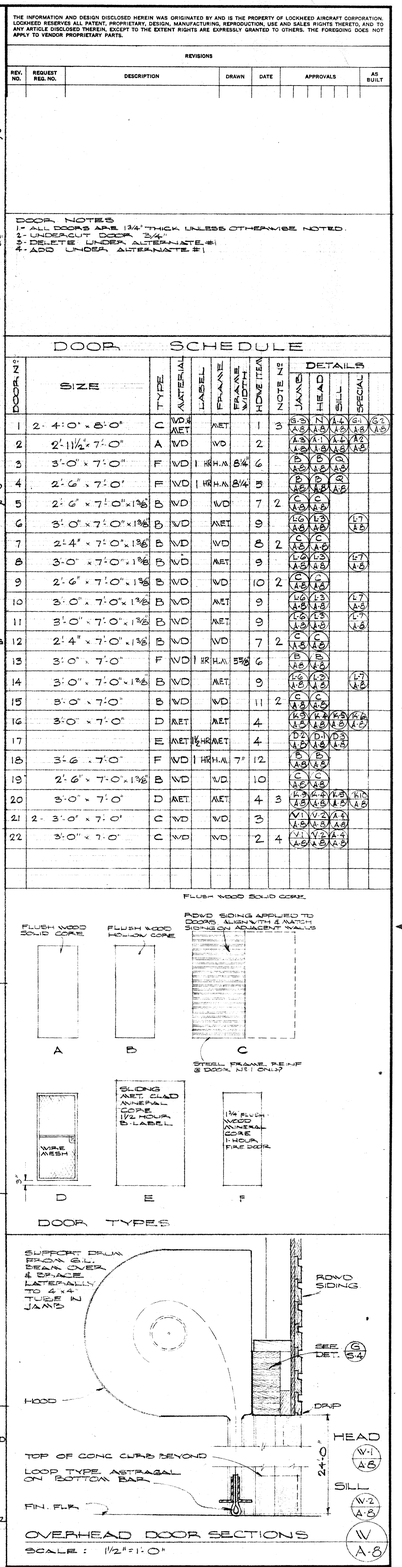












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REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT

DOOR NOTES
1. ALL DOORS ARE 1¾" THICK UNLESS OTHERWISE NOTED.
2. UNDER-CUT DOOR 3/4"
3. DELETE UNDER ALTERNATE #1
4. ADD UNDER ALTERNATE #1

DOOR SCHEDULE

DOOR NO.	SIZE	TYPE	MATERIAL	LABEL	FRAME	FRAME MATERIAL	HOME TEAM	NOTE	DETAILS HEAD	JAMB	SILL	JAMB
1	2'-4'-0" × 8'-0"	C	WD & MET				1	3	G-3 A-8	N-1 A-8	G-3 A-8	G-3 A-8
2	2'-11½" × 7'-0"	A	WD		WD		2		J-3 A-8	J-1 A-8	J-3 A-8	
3	3'-0" × 7'-0"	F	WD	1 HR	H.M.	8¾	6		D-2 A-8	D-1 A-8	D-2 A-8	
4	2'-6" × 7'-0"	F	WD	1 HR	H.M.	8¾	5		P-2 A-8	P-1 A-8	Q-2 A-8	
5	2'-6" × 7'-0" × 1⅜"	B	WD		WD		7	2	C-2 A-8	C-1 A-8		
6	3'-0" × 7'-0" × 1⅜"	B	WD		MET.		9		L-2 A-8	L-1 A-8		L-2 A-8
7	2'-4" × 7'-0" × 1⅜"	B	WD		WD		8	2	C-2 A-8	C-1 A-8		
8	3'-0" × 7'-0" × 1⅜"	B	WD		MET.		9		L-2 A-8	L-1 A-8		L-2 A-8
9	2'-6" × 7'-0" × 1⅜"	B	WD		WD		10	2	C-2 A-8	C-1 A-8		
10	3'-0" × 7'-0" × 1⅜"	B	WD		MET.		9		L-2 A-8	L-1 A-8		L-2 A-8
11	3'-0" × 7'-0" × 1⅜"	B	WD		MET.		9		L-2 A-8	L-1 A-8		L-2 A-8
12	2'-4" × 7'-0" × 1⅜"	B	WD		WD		7	2	C-2 A-8	C-1 A-8		
13	3'-0" × 7'-0"	F	WD	1 HR	H.M.	5⅜	6		D-2 A-8	D-1 A-8		
14	3'-0" × 7'-0" × 1⅜"	B	WD		MET.		9		L-2 A-8	L-1 A-8		L-2 A-8
15	3'-0" × 7'-0"	B	WD		WD		11	2	C-2 A-8	C-1 A-8		
16	3'-0" × 7'-0"	D	MET.		MET.		4		A-2 A-8	A-1 A-8	A-2 A-8	A-2 A-8
17		E	MET.	½ HR	MET.		4		D-2 A-8	D-1 A-8	D-2 A-8	
18	3'-6" × 7'-0"	F	WD	1 HR	H.M.	7"	12		B-2 A-8	B-1 A-8		
19	2'-6" × 7'-0" × 1⅜"	B	WD		WD		10		C-2 A-8	C-1 A-8		
20	3'-0" × 7'-0"	D	MET.		MET.		4	3	A-2 A-8	A-1 A-8	A-2 A-8	A-2 A-8
21	2 - 3'-0" × 7'-0"	C	WD		WD		3		V-1 A-8	V-2 A-8		
22	3'-0" × 7'-0"	C	WD		WD		2	4	V-1 A-8	V-2 A-8		

FLUSH WOOD SOLID CORE.

ROVD SIDING APPLIED TO DOORS ALIGN WITH & MATCH SIDING ON ADJACENT WALLS

FRANK L. HOPE & ASSOCIATES ARCHITECTS & ENGINEERS
FRANK L. HOPE JR.
REGISTERED ARCHITECT - CSEAD

FRANK L. HOPE & ASSOCIATES ARCHITECTS & ENGINEERS
1675 SIXTH AVENUE - SAN DIEGO, CALIFORNIA
A/E JOB NO. 66-22 | SHEET NO. A 8 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: SCHEDULES & DETAILS

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

ORGN.

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

REG. NO. 721-107A

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT. OF	REV.
P.L.G.	APR 8 1960			AS NOTED		

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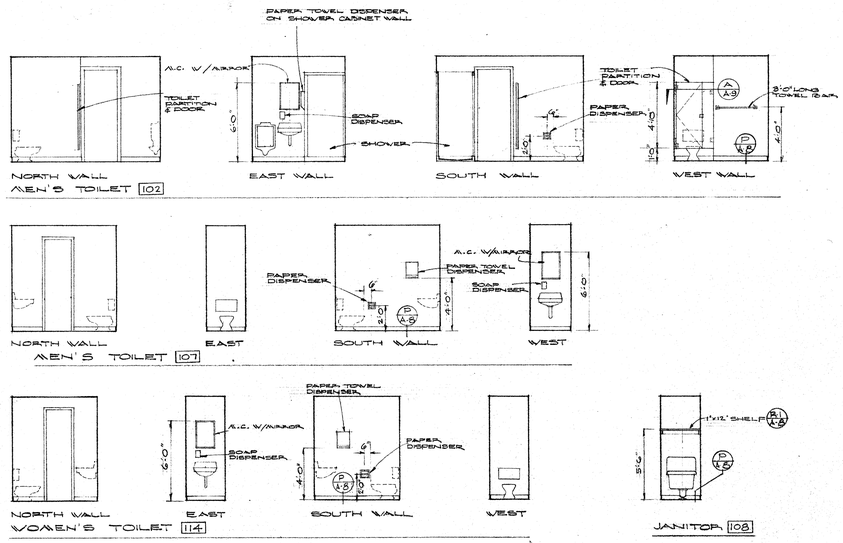
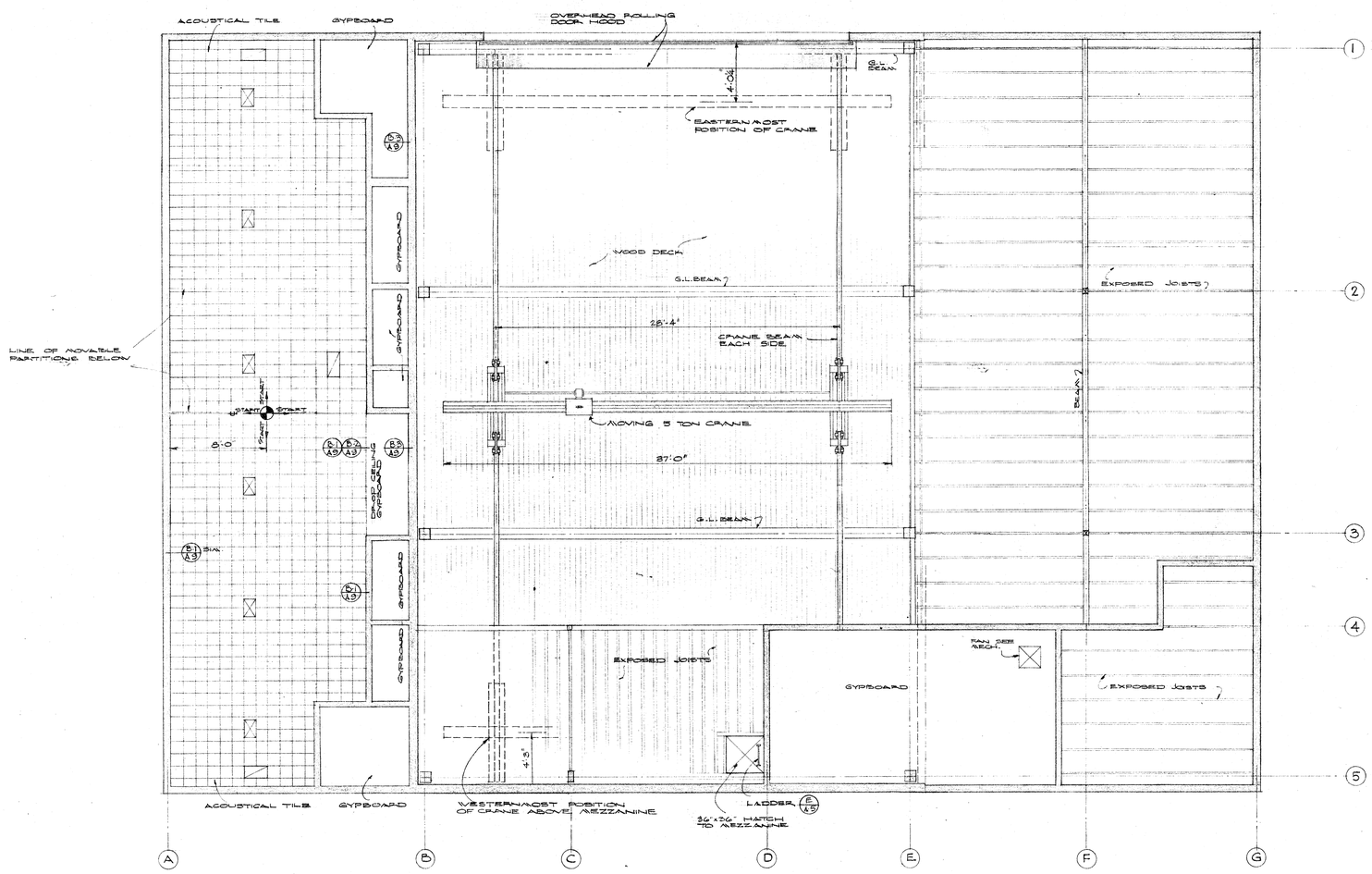
FORM LMSC 8997-2





REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

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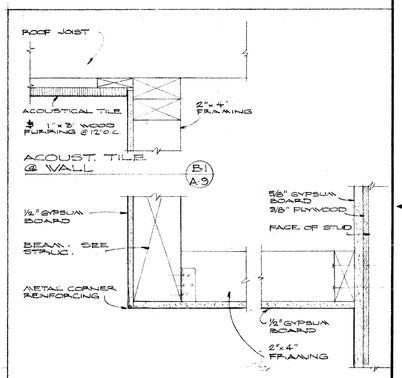
REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT

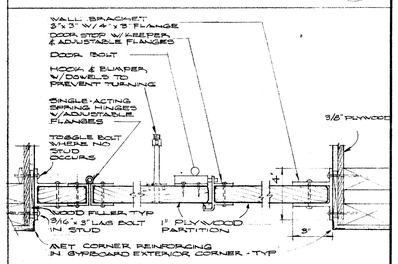
LEGEND

SUPPLY DIFFUSERS

EXHAUST GRILLES



ACOUSTICAL TILE & DROP CEILING DETAILS B A.9
SCALE: 3" = 1'-0"



TOILET PARTITION DETAIL A A.9
SCALE: 3" = 1'-0"

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
FRANK L. HOPE JR.
REGISTERED ARCHITECT - CBRGD

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
1875 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB No 66-22 | SHEET No A-9 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: REFLECTED CEILING PLAN
INTERIOR ELEVATIONS
AND DETAILS

ORGN.

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

REG. NO. 721-108A

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REV.
R.G.	APR 8 1966			AS NOTED	OF	

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FORM LMSC 9897-2

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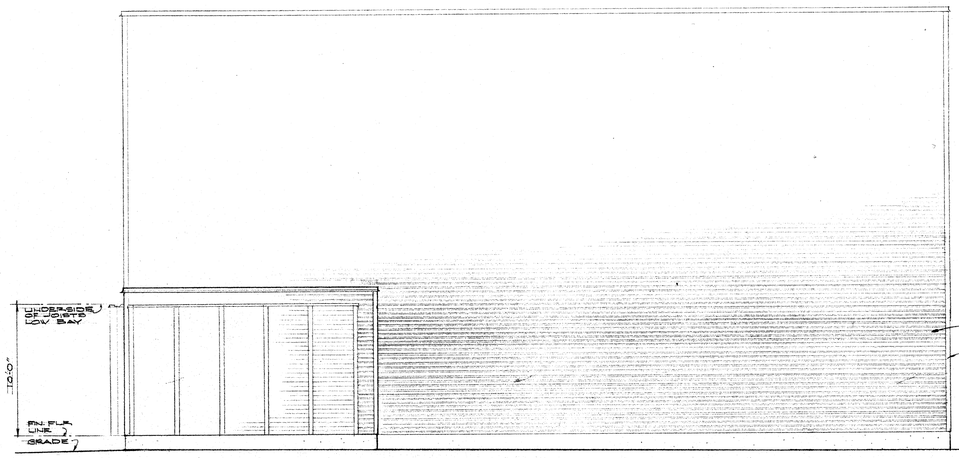
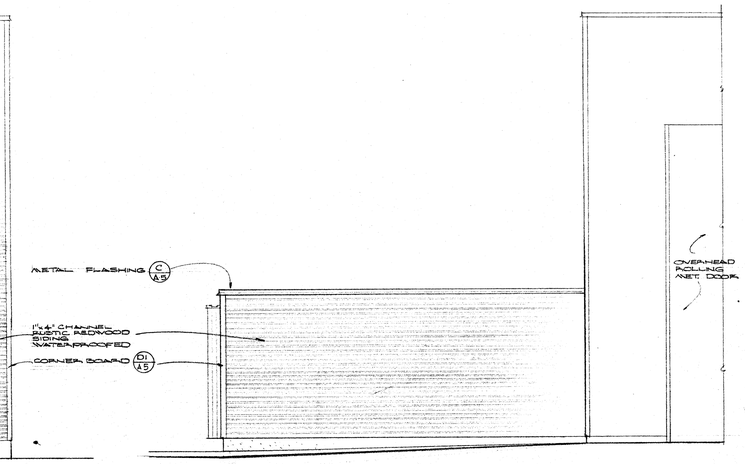
REVISIONS

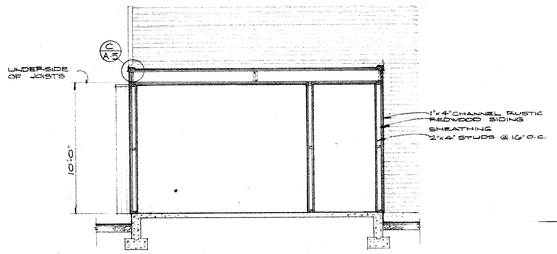
REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT



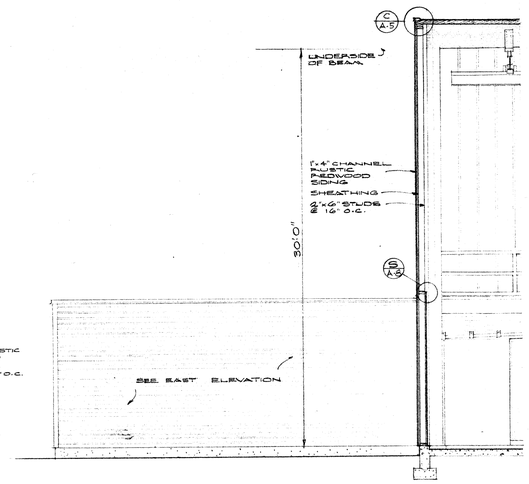
SOUTH ELEVATION
SCALE: 1/4"=1'-0"



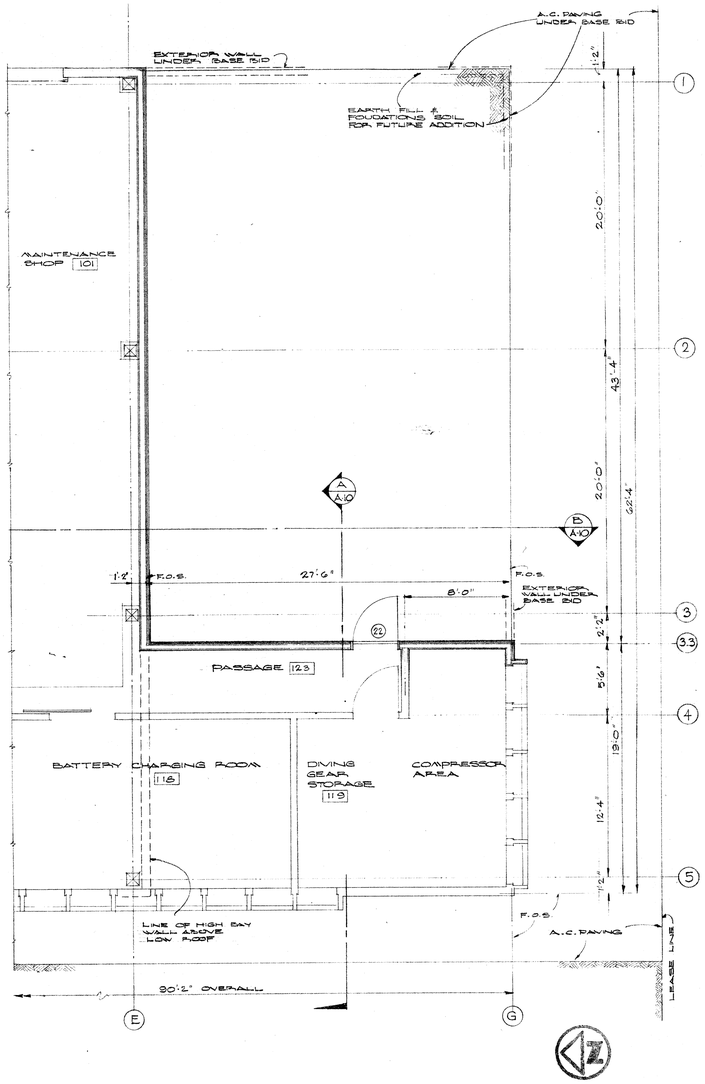
PART OF EAST ELEVATION



CROSS-SECTION
SCALE: 1/4"=1'-0"
A/A.10



PART - LONGITUDINAL SECTION
SCALE: 1/4"=1'-0"
B/A.10



FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
FRANK L. HOPE JR.
REGISTERED ARCHITECT - C8640

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
1675 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB Nº 66-22 | SHEET Nº A.10 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: ALTERNATE ITEM #1

ORGN.

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY: LOCKHEED MARINE TERMINAL
SAN DIEGO CALIFORNIA

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT. OF	REG. NO.	REV.
R.G.	APR 8 1966					721-109 A	

FORM LMSC 8897-2

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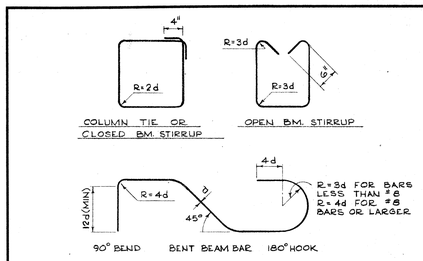
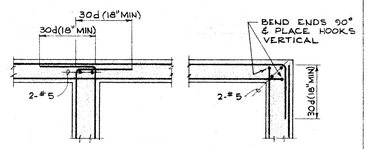
REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT

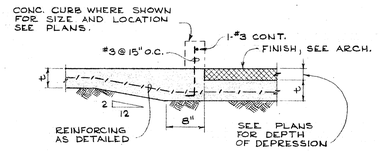


TYPICAL BAR BENDS (A / S-1)

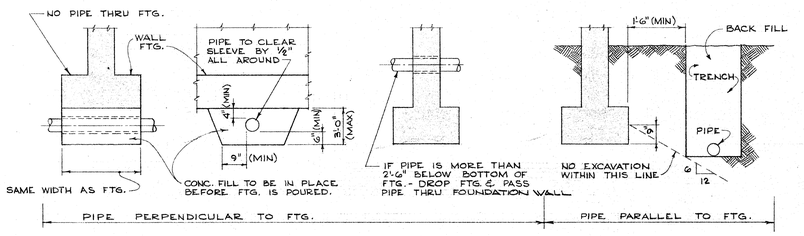


NOTE: WHERE SINGLE LAYER OF REINF. OCCURS, BEND STEEL AS SHOWN FOR OUTSIDE BARS.

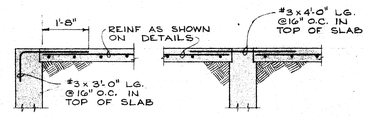
TYP. BENDS FOR HORIZ. REINF. IN CONC. WALLS & FOOTINGS (B / S-1)



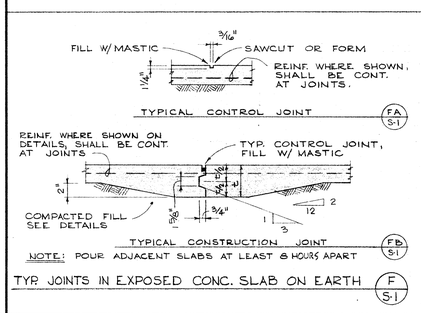
TYP. RECESSED CONC. SLAB ON EARTH (C / S-1)



PIPING AT WALL FOOTINGS (D / S-1)

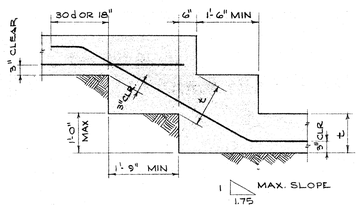


TYP. DOWELS FOR CONC. SLAB ON EARTH (E / S-1)

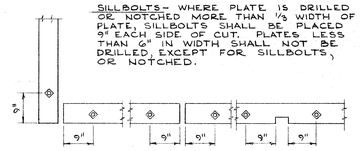


NOTE: POUR ADJACENT SLABS AT LEAST 8 HOURS APART

TYP. JOINTS IN EXPOSED CONC. SLAB ON EARTH (F / S-1)



TYPICAL STEPPED FOOTING (G / S-1)



SILLBOLTS - WHERE PLATE IS DRILLED OR NOTCHED MORE THAN 1/8 WIDTH OF PLATE, SILLBOLTS SHALL BE PLACED 9" EACH SIDE OF CUT. PLATES LESS THAN 6" IN WIDTH SHALL NOT BE DRILLED, EXCEPT FOR SILLBOLTS, OR NOTCHED.

NOTE: USE SIMILAR ARRANGEMENT FOR DRIVE-ITS @ NON-STRUCTURAL WALLS. (T / S-1)

TYP. SILLPLATE BOLTING LAYOUT (H / S-1)

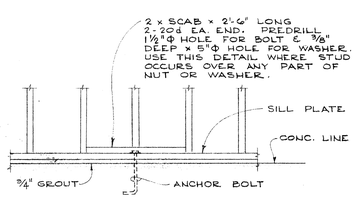
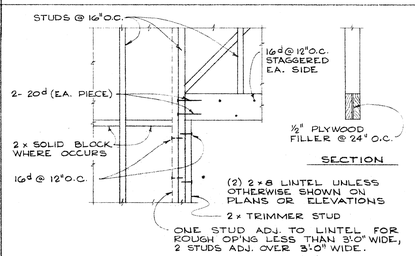
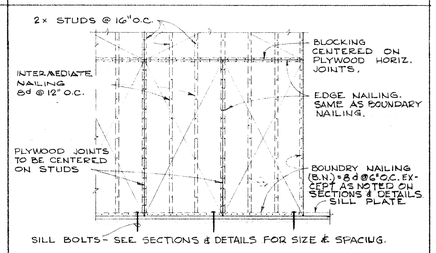


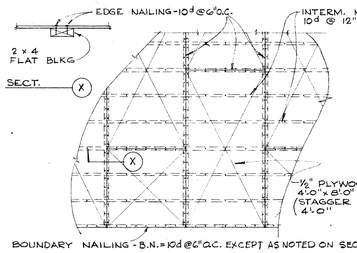
PLATE SCAB DETAIL AT STUD OVER BOLT (J / S-1)



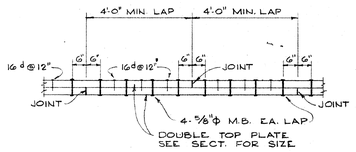
SINGLE OPENING FRAMING (K / S-1)



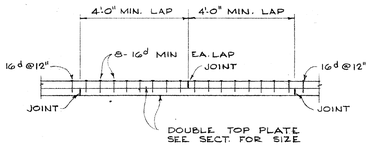
TYP. PLYWOOD SHEAR WALL DETAIL (L / S-1)



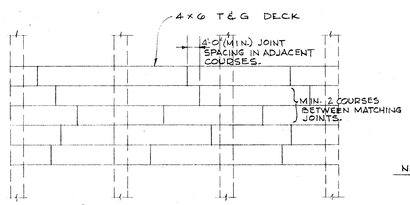
TYP. PLYWOOD SHEATHING DETAIL (M / S-1)
LOW ROOF & MEZZANINE



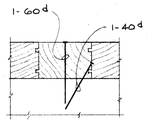
TYPICAL BOLTED PLATE SPLICE (N / S-1)



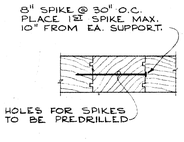
TYPICAL NAILED PLATE SPLICE (P / S-1)



RANDOM LENGTH CONTINUOUS - EACH PIECE CONTINUOUS OVER MIN. OF ONE SUPPORT

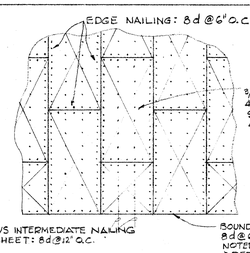


NAILING @ SUPPORT ONLY



INTERMEDIATE NAILING

TYPICAL TIMBER DECK LAYOUT (Q / S-1)
NO SCALE



TYP. PLYWOOD SHEATHING DETAIL (R / S-1)
HIGH ROOF NOTE: USE 8d "SHORT" NAILS

GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE JOB.
2. UNLESS OTHERWISE SHOWN, ALL TYPICAL DETAILS SHALL BE USED WHERE APPLICABLE.
3. DIMENSIONS, LOCATION, AND SIZES OF OPENINGS IN FLOORS AND WALLS SHALL BE VERIFIED WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
4. NO PIPES OR DUCTS SHALL BE PLACED IN SLABS OR WALLS UNLESS SPECIFICALLY DETAILED FOR THAT PURPOSE.
5. FOR EQUIPMENT PADS, SEE MECHANICAL DRAWINGS.

SOIL:

1. MAXIMUM SOIL PRESSURE = 2000 P.S.F.
2. CHARACTER OF SOIL: SEE "SOIL INVESTIGATION" BY WOODWARD, CLYDE, SHERARD & ASSOCIATES, DATED MAR. 10, 1966.

CONCRETE:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 3000 P.S.I. EXCEPT SLABS ON GRADE - 2000 P.S.I.
2. REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ALL MOULDS, GROOVES, AND ORNAMENTAL CLIPS, ETC. TO BE CAST INTO THE CONCRETE.
3. REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR THE LOCATION OF SLEEVES, INSERTS, ETC. IN CONCRETE.
4. ALL REINFORCING BARS, ANCHOR BOLTS, AND INSERTS SHALL BE WELL SECURED PRIOR TO POURING OF CONCRETE.

REINFORCING STEEL:

1. ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS (UNLESS OTHERWISE NOTED), MUST FOLLOW THE A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (A.C.I. 315-57).
2. ALL REINFORCING BARS SHALL BE INTERMEDIATE GRADE, NEW BILLET STEEL, CONFORMING TO A.S.T.M. A-15. ALL REINFORCING BARS, EXCEPT 1/4" Φ SHALL HAVE DEFORMATIONS CONFORMING TO A.S.T.M. A-305 HIGHBOND.
3. LAP ALL SPLICES 30 DIAMETERS, WITH A MINIMUM OF 1'-0", UNLESS OTHERWISE SHOWN.
4. REINFORCING STEEL SHALL HAVE A MINIMUM CONCRETE COVER AS TABULATED
   - A. FOUNDATION FOOTINGS ..... 3"
   - B. WALLS AGAINST EARTH AND FORMED ..... 2"
   - C. WALLS AGAINST EARTH (NOT FORMED) ..... 3"

STRUCTURAL STEEL:

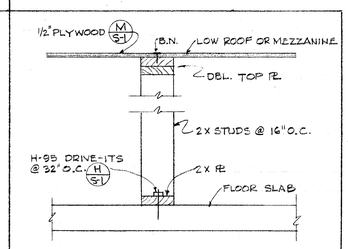
1. ALL STRUCTURAL STEEL WORK SHALL BE PERFORMED ACCORDING TO THE A.I.S.C. SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS - LATEST EDITION. ALL STRUCTURAL STEEL SHALL CONFORM TO THE STANDARD SPECIFICATION FOR BRIDGES AND BUILDINGS, SERIAL DESIGNATION A.S.T.M. A-36.
2. ALL CONNECTIONS SHALL BE DETAILED ACCORDING TO THE A.I.S.C. TEXTBOOK OF STRUCTURAL SHOP DRAFTING.
3. STRESS ALL ROD BRACING TO 2000 P.S.I. AFTER ERECTION.

MAXIMUM LIVELOADS:

1. MAXIMUM LIVELOAD, MEZZANINE FLOOR = 150 P.S.F.

BOLT SIZE	STEEL PLATE SQUARE	MALLEABLE IRON ROUND	
1/2"	2 1/2" x 1/4" x 2 1/2"	2 1/2" x 1/4"	ONE OF THESE WASHERS SHALL BE USED UNDER HEADS & NUTS OF ALL BOLTS BEARING ON WOOD.
5/8"	2 1/2" x 1/4" x 2 1/2"	2 3/4" x 5/16"	
3/4"	2 3/4" x 5/16" x 2 3/4"	3" x 7/16"	
7/8"	3 1/4" x 5/16" x 3 1/4"	3 1/2" x 7/16"	
1"	3 3/4" x 5/16" x 3 3/4"	4" x 1/2"	

WASHER SCHEDULE (S / S-1)



NON-BEARING STUD WALLS - BASE & TOP PLATE DETAIL (T / S-1)

TIMBER:

1. ALL FRAMING LUMBER TO BE MARKED GRADE "DF" SEE SPECS.
2. ALL FRAMING LUMBER TO BE CONSTRUCTION GRADE (OR BETTER) DOUGLAS FIR COAST REGION.
3. 4 x 6 T & G DECKING SHALL BE WESTERN WOOD PRODUCTS ASSOCIATION, 4 x 6 T&G, DOUGLAS FIR COMMERCIAL DECKING GRADE, 1300 f' OR EQUAL.
4. SILL PLATES TO BE BOLTED TO CONCRETE WITH 5/8" Φ x 10" BOLTS @ 4'-0" O.C. MAXIMUM, UNLESS OTHERWISE NOTED. AT ALL CORNERS, INTERSECTIONS, AND DOOR OPENINGS, PLACE A BOLT 9" MAX. FROM END, CUTS OR NOTCHES. 3/4" GROUT UNDER SILL PLATES. SILL PLATES TO BE PRESSURE TREATED OR REDWOOD. USE PRESSURE TREATED SILLS AT SHEAR WALLS.
5. TWO INCH SOLID BLOCKING SHALL BE PLACED BETWEEN ALL JOISTS AT ALL SUPPORTS, AND UNDER ALL PARTITIONS, UNLESS OTHERWISE DETAILED.
6. SOLID BLOCKING OR METAL CROSS BRIDGING SHALL BE PLACED BETWEEN RAFTERS WHERE SPAN EXCEEDS 10'-0". THE DISTANCE BETWEEN ROWS OF BLOCKING OR BRIDGING, AND BETWEEN BLOCKING OR BRIDGING AND WALL, SHALL NOT EXCEED 10'-0".
7. BOLTS SHALL BE FITTED WITH GALVANIZED MALLEABLE IRON OR STEEL PLATE WASHERS. HOLES FOR BOLTS SHALL BE 1/32" TO 1/16" LARGER THAN THE BOLT. BOLTS IN WOOD SHALL BE NOT LESS THAN 7 DIA. FROM THE END, AND 4 DIA. FROM THE EDGE, EXCEPT AS SHOWN OTHERWISE.
8. TOP PLATES OF ALL WOOD STUD WALLS TO BE TWO PIECE, SAME SIZE AS STUDS, EXCEPT AS SHOWN OTHERWISE. LAP 4'-0" MIN. WITH NOT LESS THAN 8-16d NAILS AT EACH LAP. NOT MORE THAN 12" BETWEEN NAILS, UNLESS OTHERWISE NOTED.
9. PROVIDE HERRINGBONE OR STAGGERED BLOCKING BETWEEN STUDS AT NOT MORE THAN 8'-0" VERTICAL INTERVAL, UNLESS OTHERWISE NOTED.
10. FOR END CONNECTION OF ALL DOUBLE 2 x MEMBERS, USE TIMFAST TYPE SM141 OR SM242 CONNECTORS, OR EQUAL.
11. ALL EXISTING STUDS, PLATES & BLOCKING, NECESSARY FOR THE ATTACHMENT OF NEW FRAMING, WHICH ARE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN ACCORDANCE WITH THE NAILING SCHEDULE SHOWN BELOW.

GLUED LAMINATED BEAMS:

1. TO BE IN ACCORDANCE WITH TABLE 25-D, U.B.C. 1961 COMB. 15
2. FABRICATION TO BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED LAMINATED DOUGLAS FIR (COAST REGION) LUMBER AS PUBLISHED BY WEST COAST LUMBERMAN'S ASSOCIATION.

NAILING SCHEDULE:

ALL NAILS SHALL BE COMMON WIRE NAILS. USE FOLLOWING SCHEDULE EXCEPT WHERE SHOWN OTHERWISE:

DETAIL	FASTENING
1. JOIST TO SIDES OF STUDS:	
8" JOIST OR LESS	3-16d
FOR EA. ADDITIONAL 4" IN DEPTH	1-16d
2. JOISTS TO ALL BEARINGS:	
TOENAILS EA. SIDE	2-10d
3. STUDS TO BEARINGS:	
TOE NAILS EA. SIDE	2-10d
4. BLOCKING BETWEEN JOISTS:	
a) TO EA. JOIST, TOENAIL EA. SIDE, EA. END	2-10d
b) TO JOIST BEARING, TOENAIL EA. SIDE	2-10d
5. CROSS BRIDGING BETWEEN JOISTS:	
TOENAIL EA. END	2-8d
6. HERRINGBONE BLOCKING, EA. END	2-10d
7. RIBBONS TO STUDS:	
1" RIBBON	2-8d
2" RIBBON	2-16d
8. DOUBLE TOP PLATES:	
UPPER TO LOWER PLATE (STAGGERED)	16d @ 12" O.C.
UPPER TO LOWER PLATE @ INTERSECTION	3-16d
LOWER PL-2" THICK NAIL TO TOP OF STUDS	2-20d
LOWER PL-3" THICK OR MORE TO STUDS, TOENAIL	2-12d EA. SIDE
9. MULTIPLE STUDS EXCEPT AS SHOWN OTHERWISE:	
STAGGER FOR WIDTHS MORE THAN 4"	16d @ 12" O.C.
10. DOUBLE 2 x MEMBERS:	
10" OR LESS IN DEPTH, (STAGGERED)	16d @ 12" O.C.
MORE THAN 10" IN DEPTH, (STAGGERED)	1/2" Φ M.B. @ 24" O.C.
11. 1" STRIPPING TO SHEATHING	8d @ 12" O.C.
12. CEILING STRIPPING:	
1" x 4" EA. BEARING - ONE STRAIGHT, ONE SLANT	2-8d
2" x 3" EA. BEARING - ONE STRAIGHT, ONE SLANT	2-12d
STRIPS SUPPORTING PLASTER CEILING SHALL BE WIRED IN PLACE. IN ADDITION TO ABOVE NAILING, (WIRING MAY BE OMITTED IF "STRONGHOLD" NAILS ARE USED)	
13. LET IN BRACES:	
TO EA. STUD	2-8d
TO TOP & BOTTOM PLATES	2-8d EA. PL

14. UNLESS OTHERWISE NOTED OR DETAILED, ALL 2" MATERIAL SHALL BE NAILED WITH 2-16d @ EACH BEARING OR JOINT MIN. AND ALL 1" MATERIAL WITH 2-8d @ EACH BEARING OR JOINT MIN.
15. PREDRILL HOLES WHERE NECESSARY TO PREVENT SPLITTING.
16. FOR PLYWOOD NAILING, SEE FRAMING PLANS AND TYPICAL DETAILS.

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
1475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB No. 66-22 | SHEET No. S-1 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: TYPICAL STRUCTURAL DETAILS

ORGN.: LOCKHEED MISSILES & SPACE COMPANY, A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION, SUNNYVALE, CALIFORNIA

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REG. NO.	REV.
J.C.R.	APR. 8, 1966	R.F.J.		NONE	OF	721-200 S	

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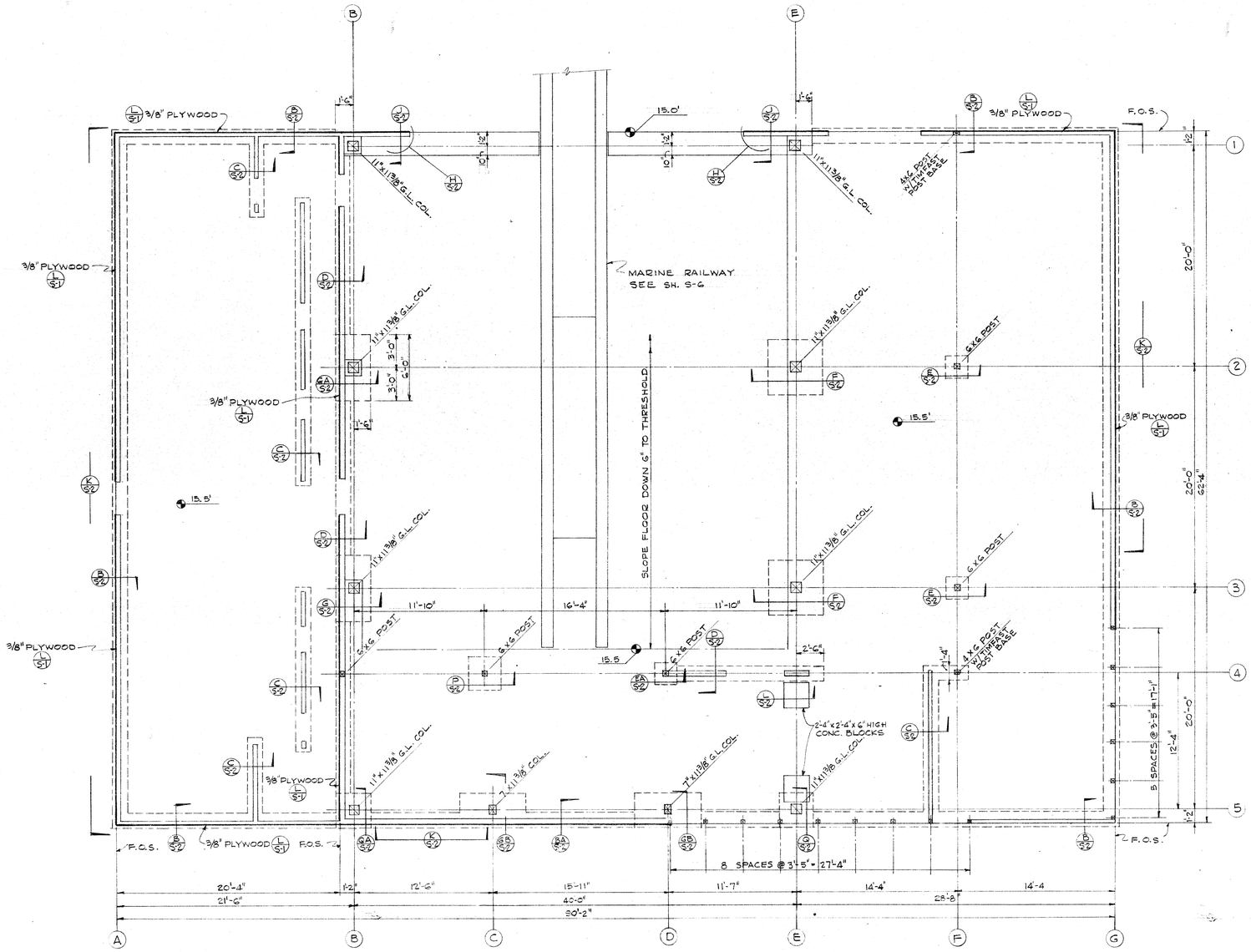
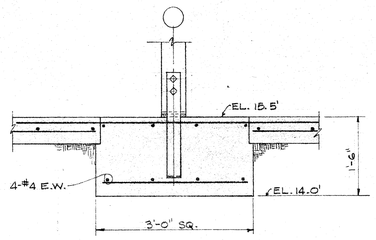
REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT

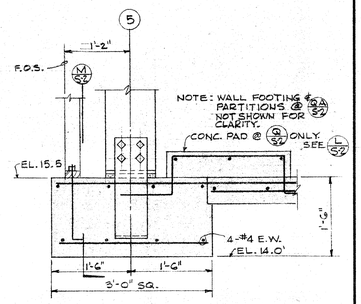


FOUNDATION PLAN (A / S-2)

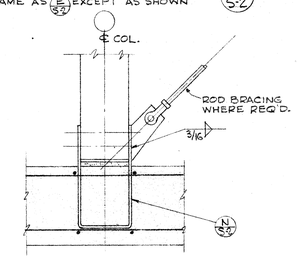
SCALE: 1/4" = 1'-0"
NOTE: BEARING AND/OR SHEAR WALLS SHOWN ONLY ALL OTHERS OMITTED FOR CLARITY.



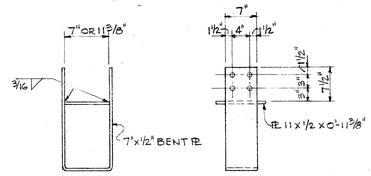
SECTION (P / S-2) — SAME AS (E / S-2) EXCEPT AS SHOWN



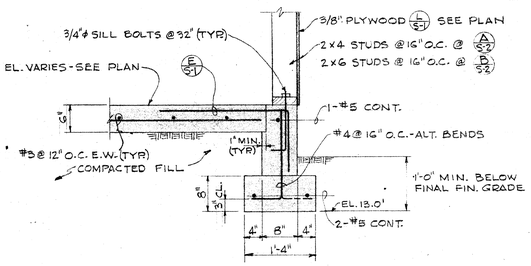
SECTION (Q / S-2) — SAME AS (F / S-2) EXCEPT AS SHOWN — SHOWN & NOTED (QA / S-2)



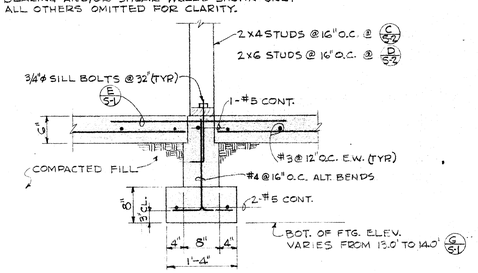
SECTION (M / S-2)



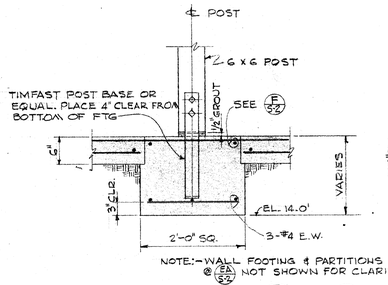
DETAIL (N / S-2)



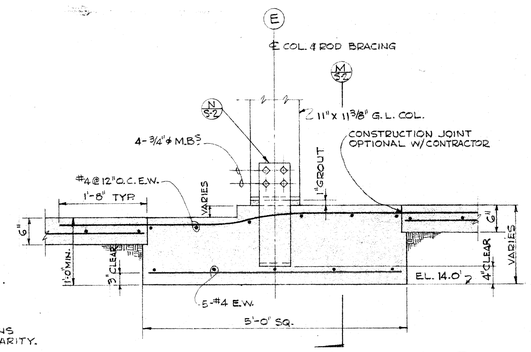
SECTION (B / S-2) (BA / S-2) SHOWN & NOTED



SECTION (C / S-2) (D / S-2) SHOWN & NOTED



SECTION (E / S-2) SHOWN — (EA / S-2) SHOWN & NOTED



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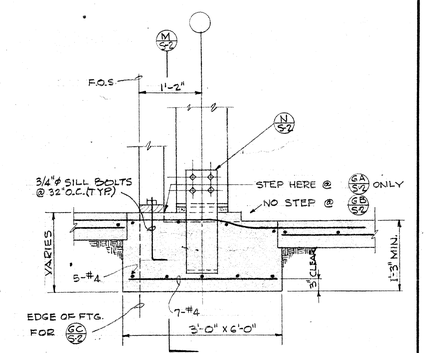
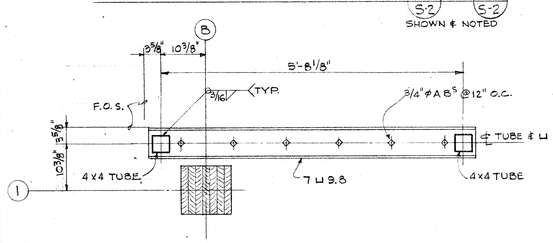
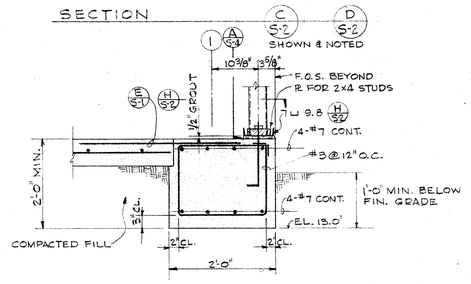


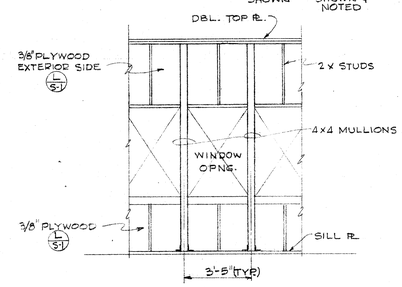
SECTION (G / S-2) SHOWN — (GA / S-2) SHOWN & NOTED — (GB / S-2) NOTED — SAME AS (F / S-2) EXCEPT AS SHOWN



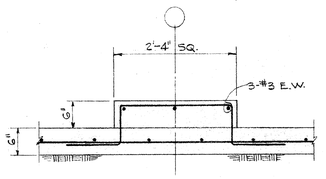
ANCHOR DETAIL FOR SHEAR FRAME @ EAST WALL — SEE (A/S-2) (H / S-2)



SECTION (J / S-2)



TYP. WINDOW WALL FRAMING NORTH & SOUTH ELEVATION (K / S-2)
SCALE: 3/8" = 1'-0"



SECTION (L / S-2)

SCALE: 1" = 1'-0" UNLESS NOTED.

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS, 1475 SIXTH AVENUE, SAN DIEGO, CALIFORNIA

A & E JOB Nº 66-22 — SHEET Nº S-2 OF 23

DRWG. TITLE: FOUNDATION PLAN, SECTIONS & DETAILS

ORGN.

LOCKHEED MISSILES & SPACE COMPANY, A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION, SUNNYVALE, CALIFORNIA

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA — REG. NO.

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REV.
L.E.M.	APR. 8, 1966	R.F.J.		AS NOTED	OF	

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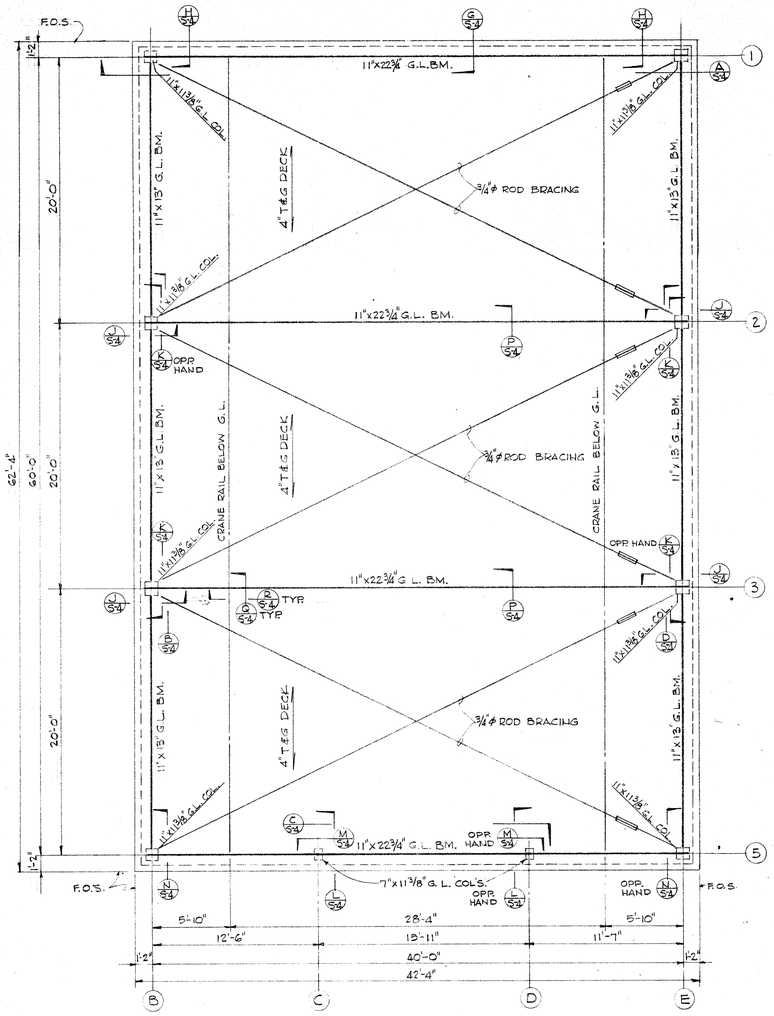
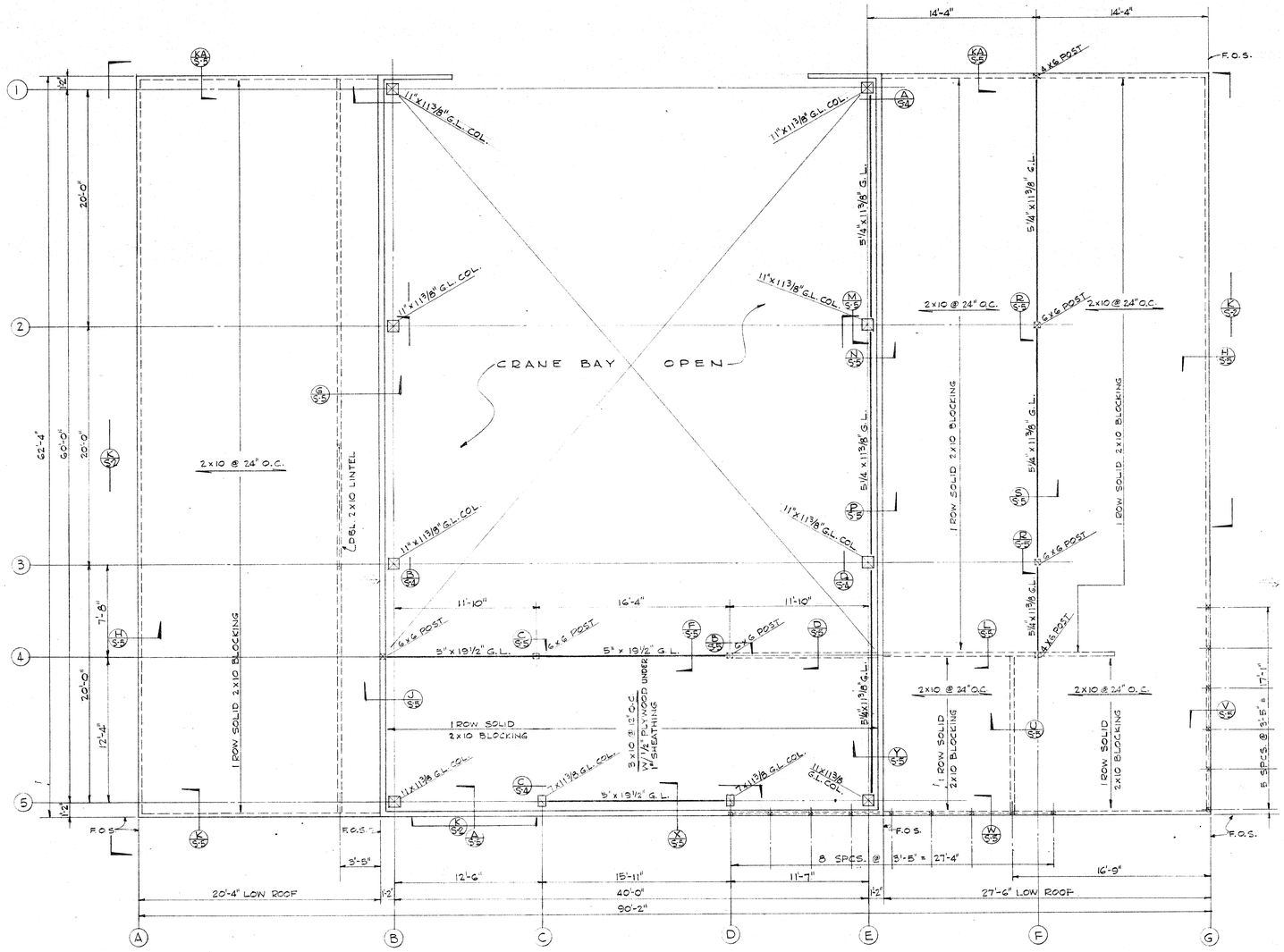


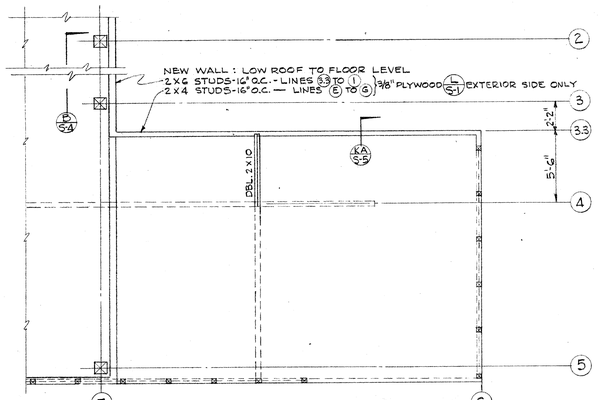
HIGH ROOF FRAMING PLAN (A/S-3)
SCALE: 1/4" = 1'-0"

NOTES:
1. SEE (S-3) FOR LAYOUT OF T&G DECK.
2. USE 3/8" PLYWOOD SHEATHING OVER T&G DECK. SEE (A/S-5) FOR NAILING.
3. CAMBER OF G.L. BEAMS @ MIDSPAN:
   a) 11"x22 3/4" = 1 1/2"
   b) 11"x13" = NONE
4. CRANE RAIL FURNISHED BY CRANE MANUFACTURER SEE SPECS.



LOW ROOF & MEZZANINE FRAMING PLAN (B/S-3)
SCALE: 1/4" = 1'-0"

NOTES:
1. 1/2" PLYWOOD SHEATHING SEE (A/S-5) FOR NAILING.
2. CAMBER OF G.L. BEAMS @ MIDSPAN.
   a) 5 1/4" x 11 3/8" = 1/2"
   b) 8" x 19 1/2" = NONE
3. BEARING AND/OR SHEAR WALLS SHOWN ONLY. ALL OTHERS OMITTED FOR CLARITY.



LOW ROOF & MEZZANINE FRAMING PLAN
ALTERNATE ITEM #1 (C/S-3)
SCALE: 1/4" = 1'-0"
NOTE: SAME AS (B/S-3) EXCEPT AS SHOWN

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
1475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB Nº 66-22 | SHEET Nº S-3 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: HIGH ROOF FRAMING PLAN / LOW ROOF & MEZZANINE FRAMING PLAN

ORGN.

LOCKHEED MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REG. NO.	REV.
L.E.M.	APR. 8, 1966	R.R.J.		1/4"=1'-0"	OF	721-202 S	

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FORM LMSC 8997-2

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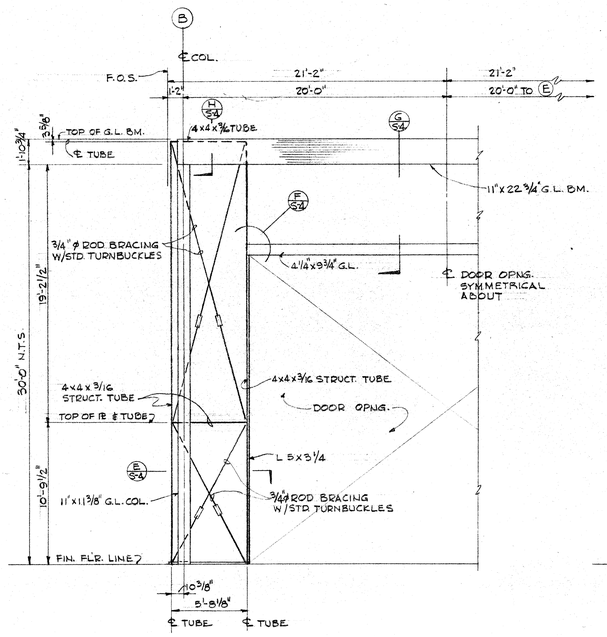
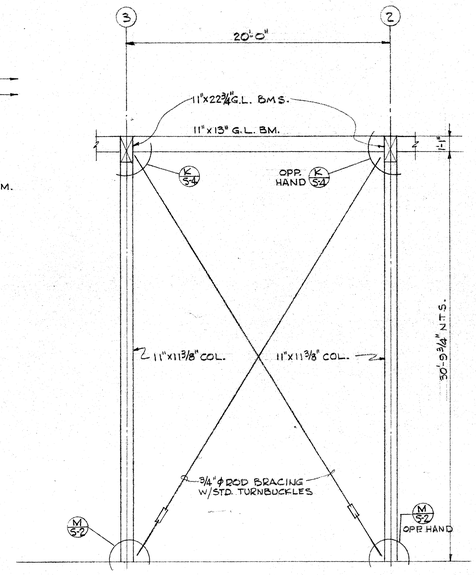
REVISIONS

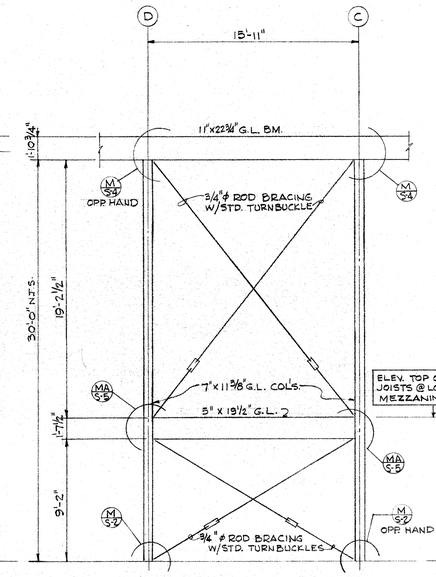
REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT



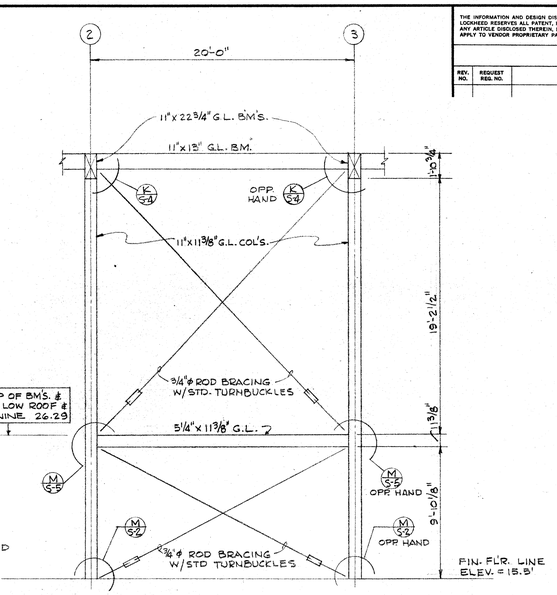
ELEVATION (A/S-4)
SYM. ABOUT ℄ DOOR OPNG.
SCALE: 1/4" = 1'-0"



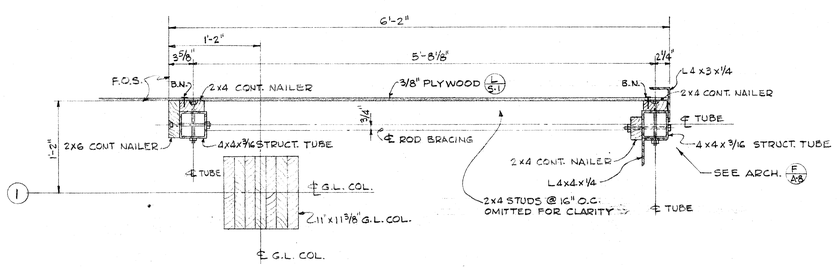
ELEVATION (B/S-4)
SCALE: 1/4" = 1'-0"



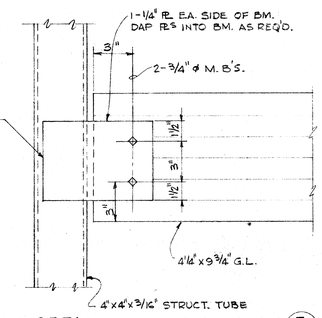
ELEVATION (C/S-4)
SCALE: 1/4" = 1'-0"
MEZZANINE JOISTS OMITTED FOR CLARITY



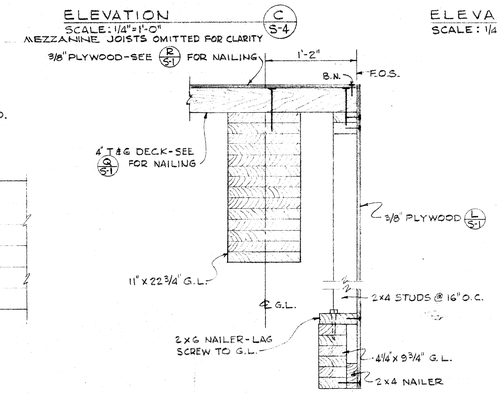
ELEVATION (D/S-4)
SCALE: 1/4" = 1'-0"



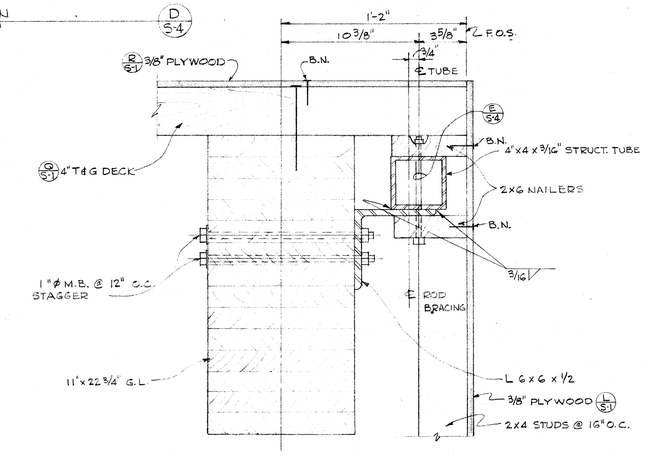
PLAN SECTION (E/S-4)
SCALE: 1 1/2" = 1'-0"
NOTE: BOLT ALL NAILERS W/ 1/2" ϕ M.B'S. @ 24" O.C. COUNTER SINK BOLT HEADS AS SHOWN.



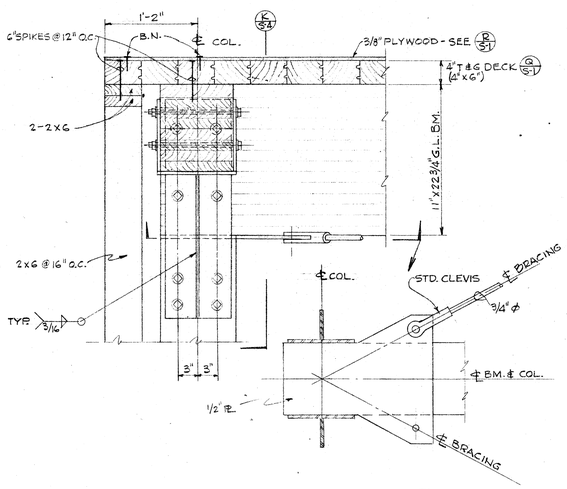
DETAIL (F/S-4)
SCALE: 3" = 1'-0"
BM. TO TUBE CONNECTION ONLY



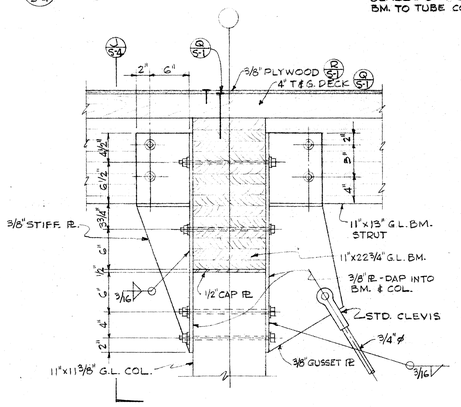
SECTION (G/S-4)
SCALE: 1 1/2" = 1'-0"



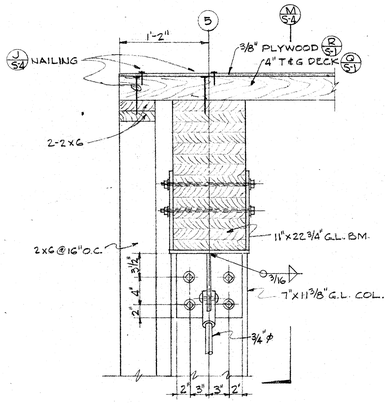
SECTION (H/S-4)
SCALE: 3" = 1'-0"



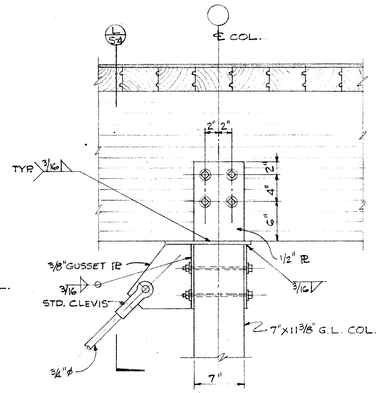
SECTION (J/S-4)
SCALE: 1 1/2" = 1'-0"
NOTE: ALL BOLTS TO BE 1" ϕ M. B'S.



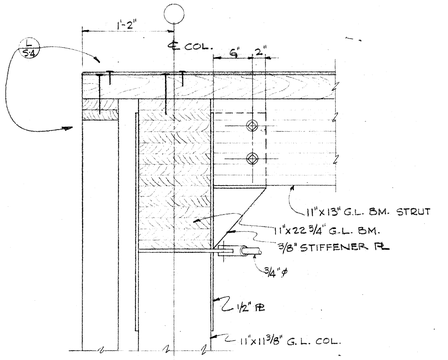
SECTION (K/S-4)
SCALE: 1 1/2" = 1'-0"



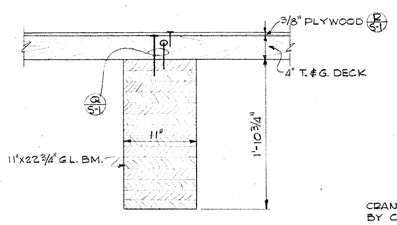
SECTION (L/S-4)
SCALE: 1 1/2" = 1'-0"
NOTE: ALL BOLTS TO BE 1" ϕ M.B'S.



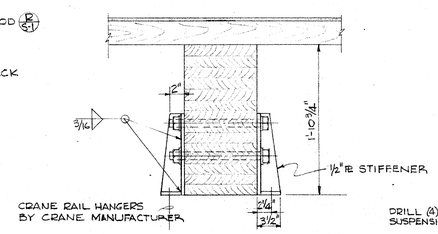
SECTION (M/S-4)
SCALE: 1 1/2" = 1'-0"



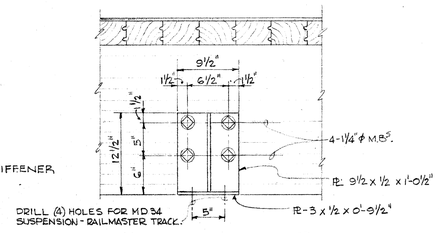
SECTION (N/S-4)
SCALE: 1 1/2" = 1'-0"
NOTE: ALL BOLTS TO BE 1" ϕ M. B'S.



SECTION (P/S-4)
SCALE: 1 1/2" = 1'-0"



SECTION (Q/S-4)
SCALE: 1 1/2" = 1'-0"



SECTION (R/S-4)
SCALE: 1 1/2" = 1'-0"

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
1475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A & E JOB Nº 66-22 | SHEET Nº S-4 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: SECTIONS & DETAILS

ORGN.

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REG. NO.	REV.
L.E.M.	APR. 8, 1966	R.F.J.		AS NOTED	OF	721-203 S	

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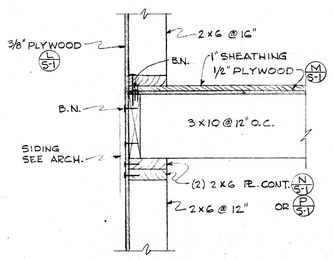
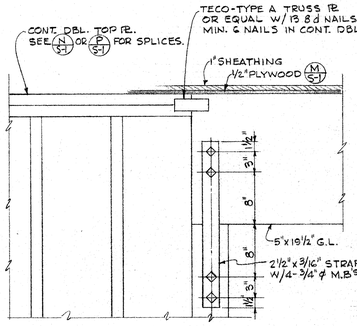
REVISIONS

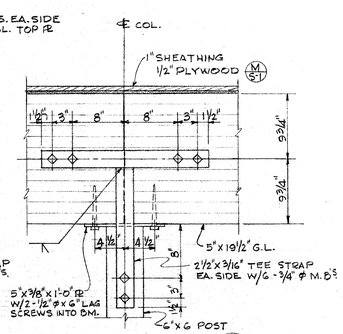
REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT



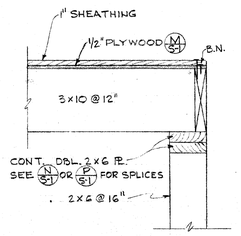
SECTION A S-5



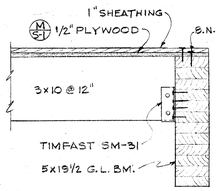
SECTION B S-5



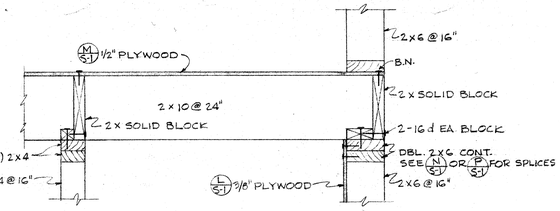
SECTION C S-5



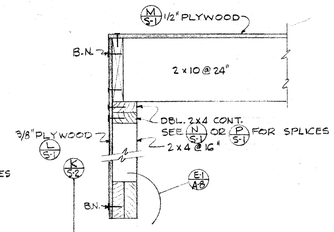
SECTION D S-5



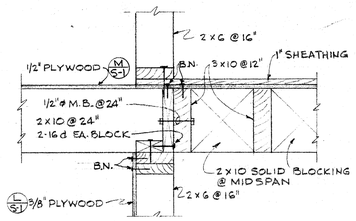
SECTION F S-5



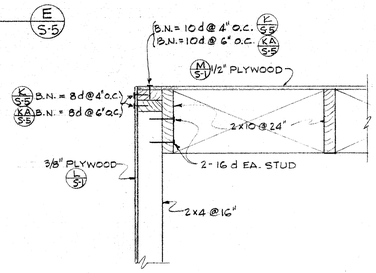
SECTION G S-5



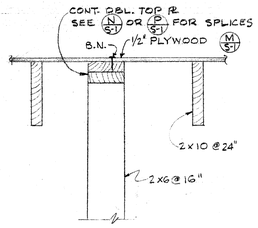
SECTION H S-5



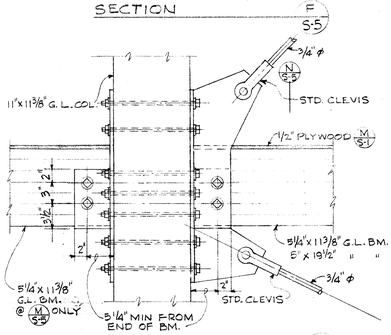
SECTION J S-5



SECTION K S-5 KA S-5

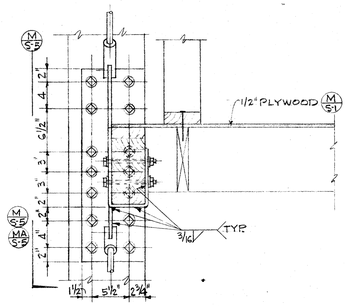


SECTION L S-5



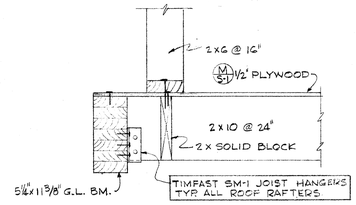
SECTION M S-5 MA S-5

ALL PL. SHOWN IS 3/8"
ALL BOLTS ARE 3/4" ϕ M.B'S

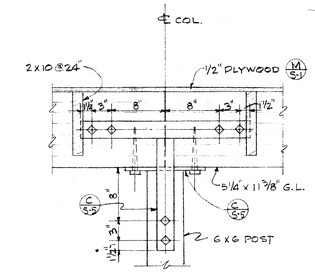


SECTION N S-5

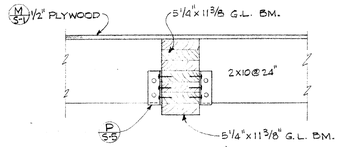
ALL PL. SHOWN IS 3/8"
ALL BOLTS ARE 3/4" ϕ M.B'S



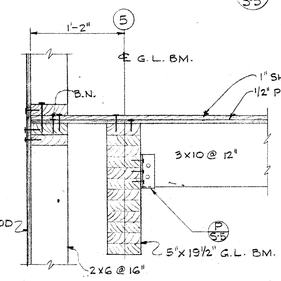
SECTION P S-5



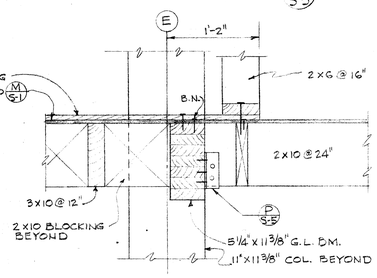
SECTION Q S-5



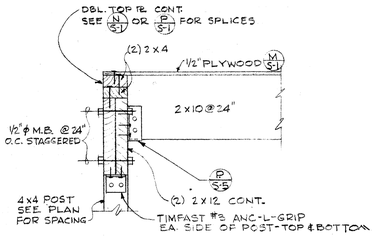
SECTION R S-5



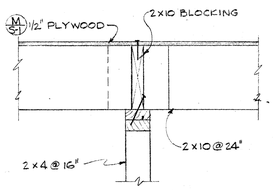
SECTION X S-5



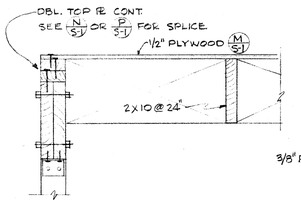
SECTION Y S-5



SECTION V S-5

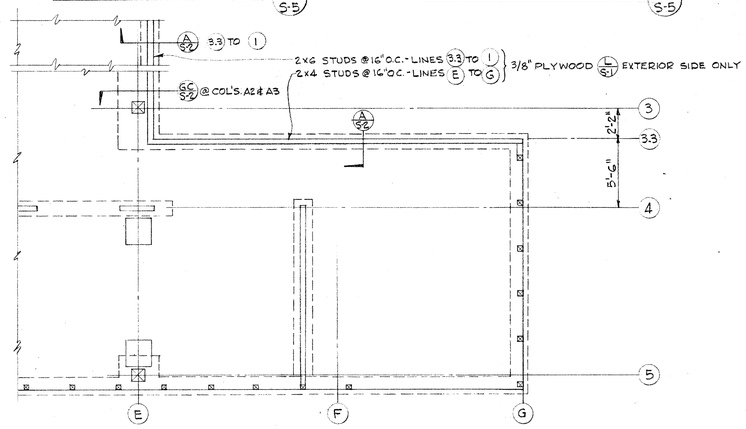


SECTION U S-5



SECTION T S-5

SAME AS V S-5 EXCEPT AS SHOWN



FOUNDATION PLAN
ALTERNATE ITEM #1 Z S-5
SCALE: 1/4" = 1'-0"

NOTE: SAME AS A S-2 EXCEPT AS SHOWN

SCALE: 1 1/2" = 1'-0" UNLESS NOTED.

REGISTERED PROFESSIONAL ENGINEER ARCHITECT OR STRUCTURAL ENGINEER — Charles Bldg	FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS 3475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA
	A&E JOB No. 66-22 — SHEET No. S-5 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: SECTIONS & DETAILS
ALTERNATE FOUNDATION PLAN

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

ORGN.

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA — REG. NO.

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REG. NO.	REV.
L.E.M.	APR. 8, 1966	R.F.J.		AS NOTED	OF	721-204 S	

FORM LMSC 8997-6

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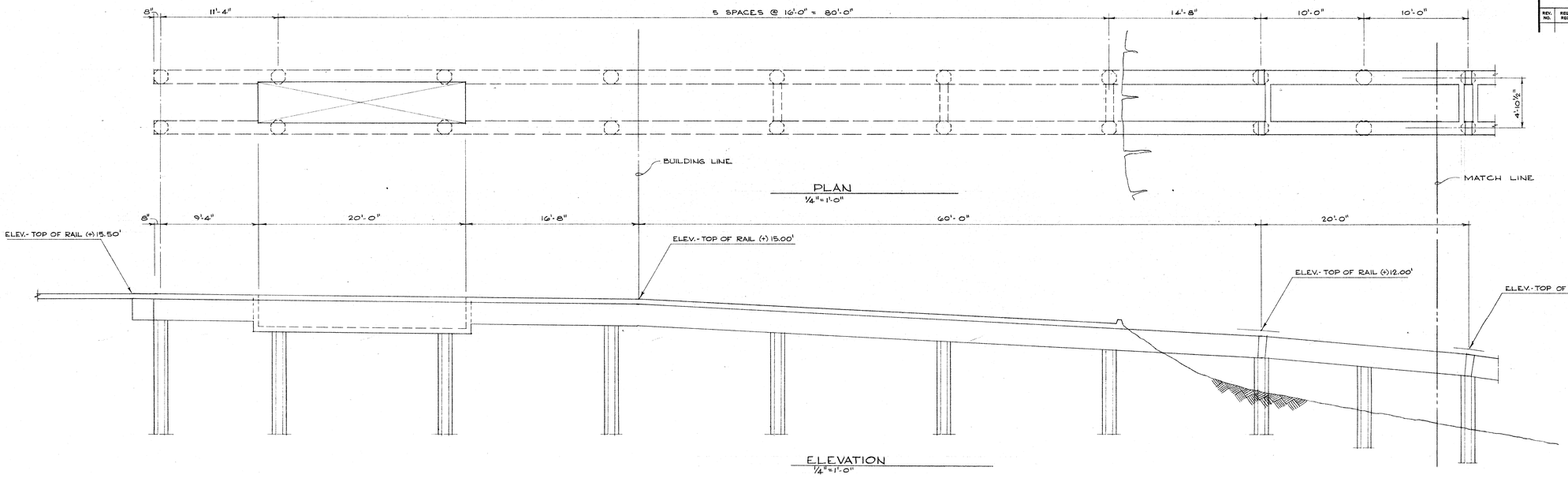
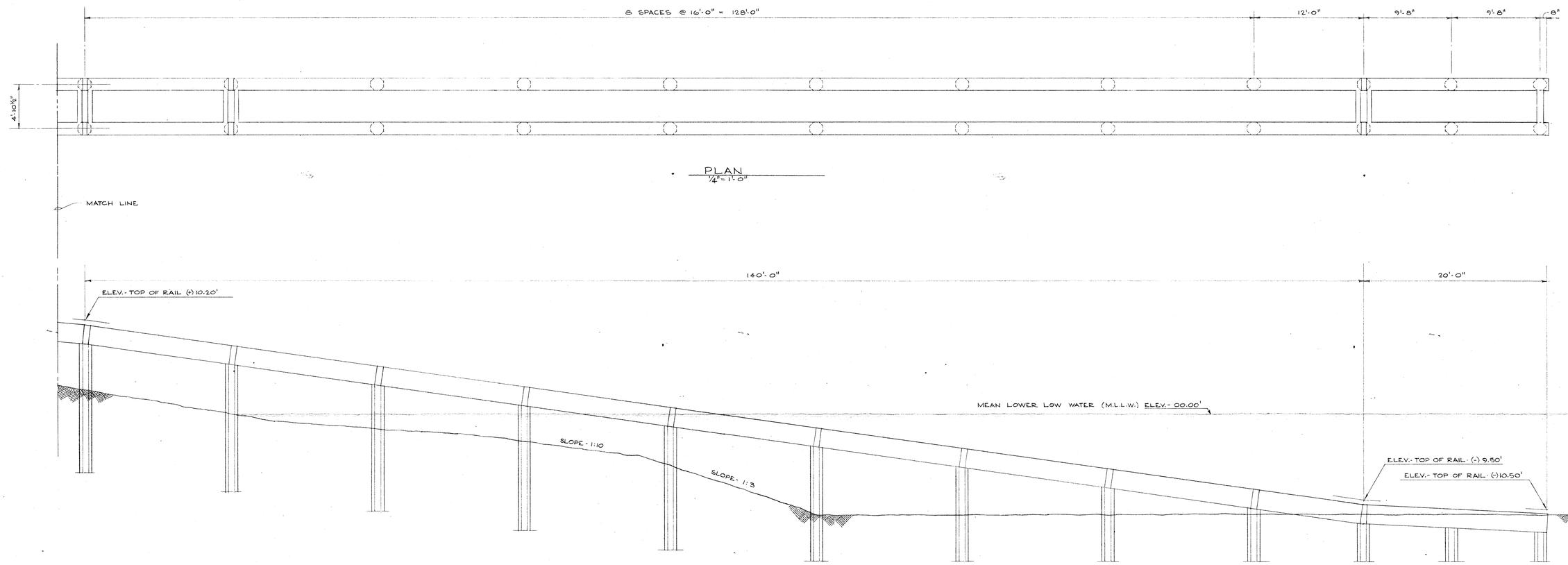
REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT



PLAN
1/4" = 1'-0"

ELEVATION
1/4" = 1'-0"



PLAN
1/4" = 1'-0"

ELEVATION
1/4" = 1'-0"

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
FRANK L. HOPE
BY HIS OFFICIAL ENDORSEMENT 1.2.3.4

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
833 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB Nº 66-22
SHEET Nº S-6 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE
MARINE RAILWAY PLANS AND ELEVATIONS

ORGN.

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY LOCKHEED MARINE TERMINAL
SAN DIEGO CALIFORNIA

REG. NO.

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT. OF	REV.
J.P.	APR. 8, 1966					

721-205 S

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FORM LMSC 8997-2

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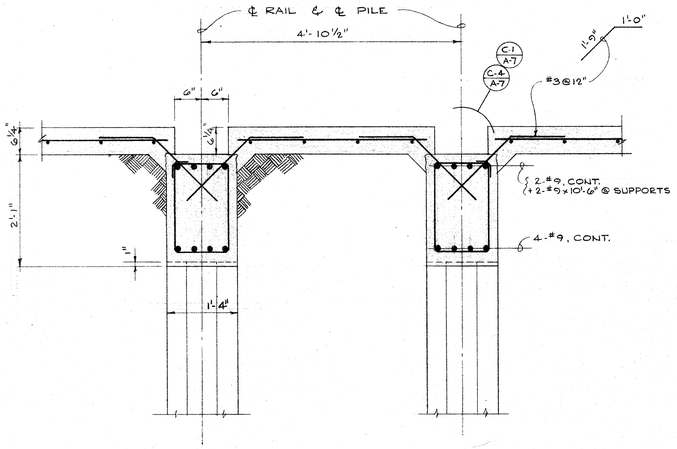
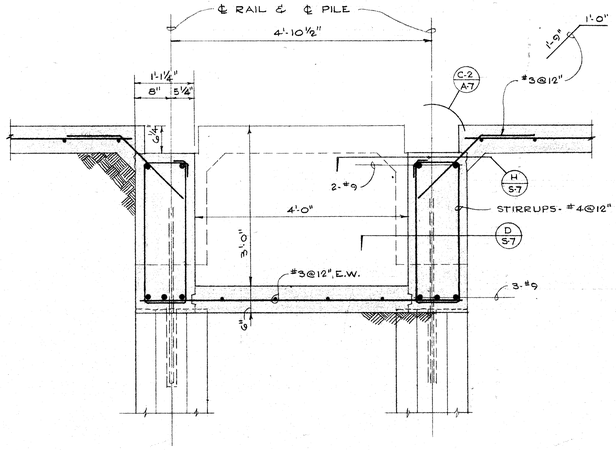
REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT



SECTION A S-7
1" = 1'-0"



SECTION B S-7
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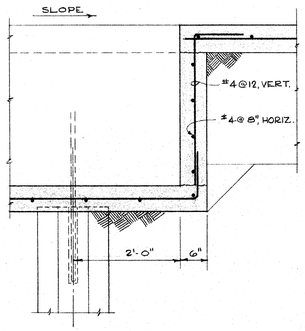
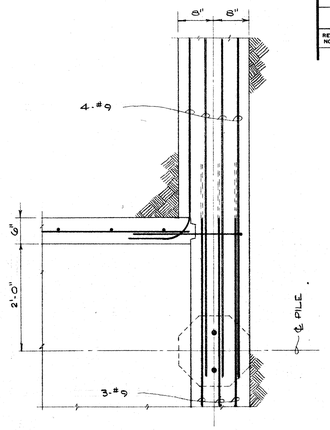
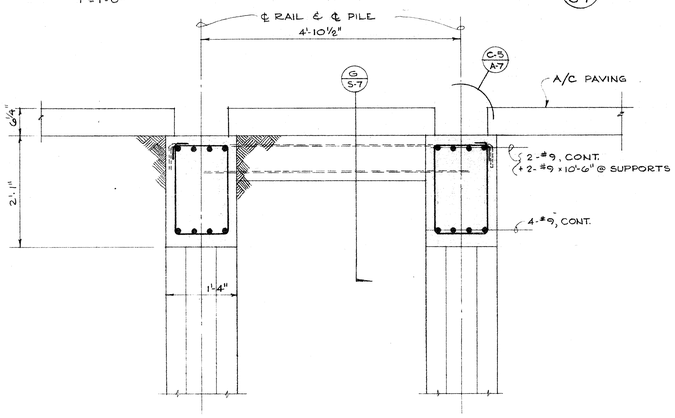


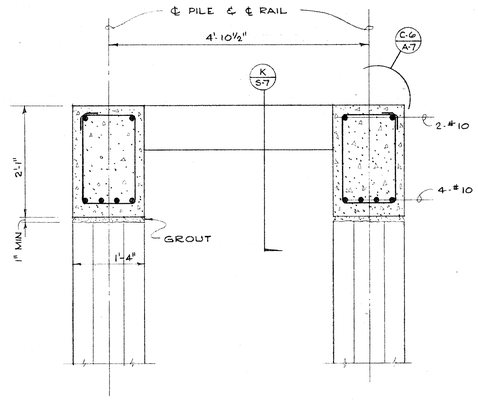
SECTION C S-7
1" = 1'-0"



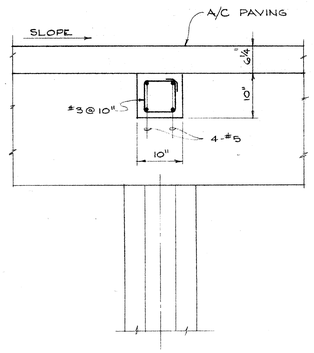
PLAN SECTION D S-7
1" = 1'-0"



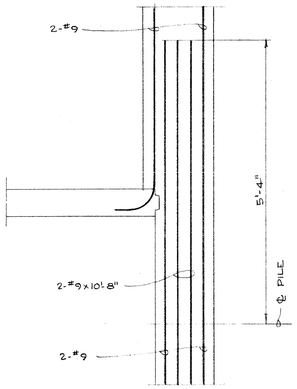
SECTION E S-7
1" = 1'-0"



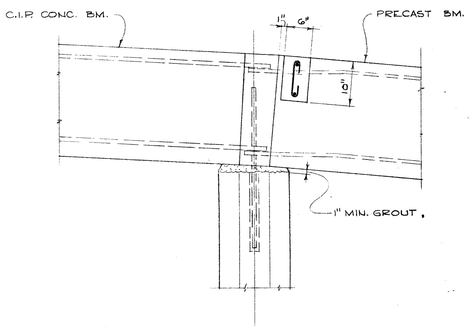
SECTION F S-7
1" = 1'-0"



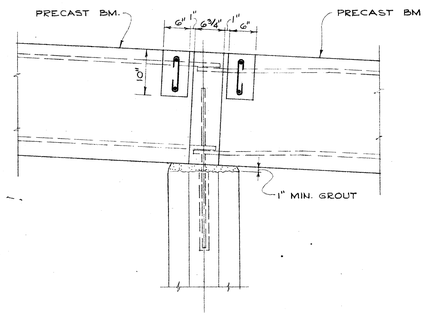
SECTION G S-7



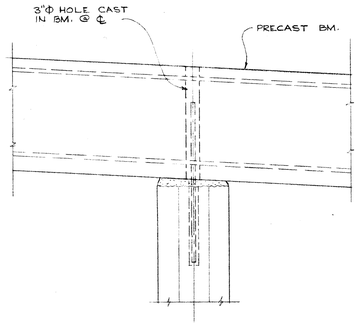
PLAN SECTION H S-7



ELEVATION J S-7
1" = 1'-0"



ELEVATION K S-7
1" = 1'-0"



ELEVATION L S-7
1" = 1'-0"

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
CHARLES B. HOPE
STRUCTURAL ENGINEER

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
1475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A & E JOB No. 66-22
SHEET No. S-7 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: MARINE RAILWAY DETAILS

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

ORGN.

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

REG. NO. 721-206 S

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REV.
J.P.	APR. 8, 1966				OF	

FORM LMSC 8997-2

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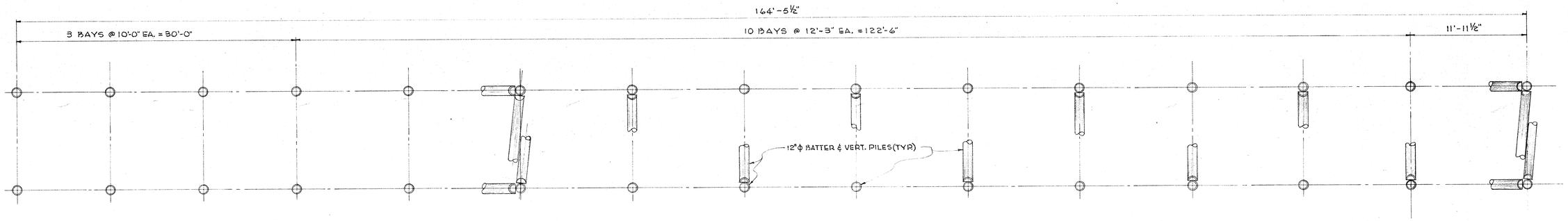
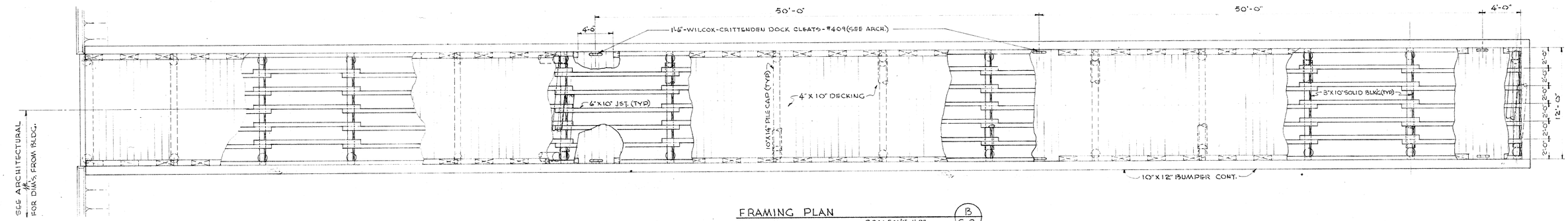
REVISIONS

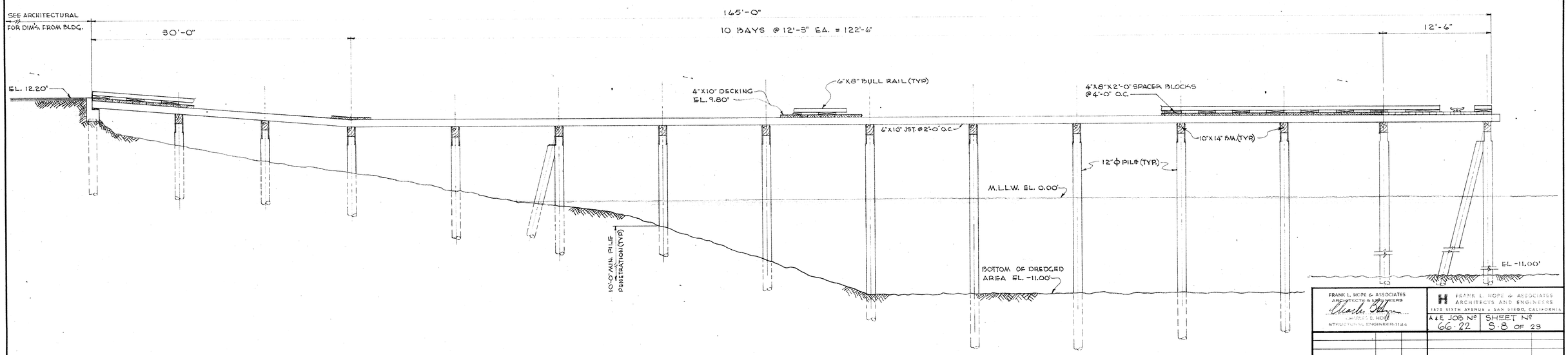
REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT



PILE LOCATION PLAN — SCALE: 1/4"=1'-0" — A / S-8



FRAMING PLAN — SCALE: 1/4"=1'-0" — B / S-8



ELEVATION — SCALE: 1/4"=1'-0" — C / S-8

FRANK L. HOPE & ASSOCIATES
ARCHITECTS & ENGINEERS
CHARLES L. HOPE
STRUCTURAL ENGINEER-3124

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
1473 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB Nº 66-22 | SHEET Nº S-8 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: FIXED PIER FRAMING AND PILE PLANS AND ELEVATIONS

ORGN.

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

REG. NO.

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT. OF	REG. NO.	REV.
W.H.S.JR	APR. 8, 1966					721-207 S	

FORM LMSC 8997-2

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REVISIONS

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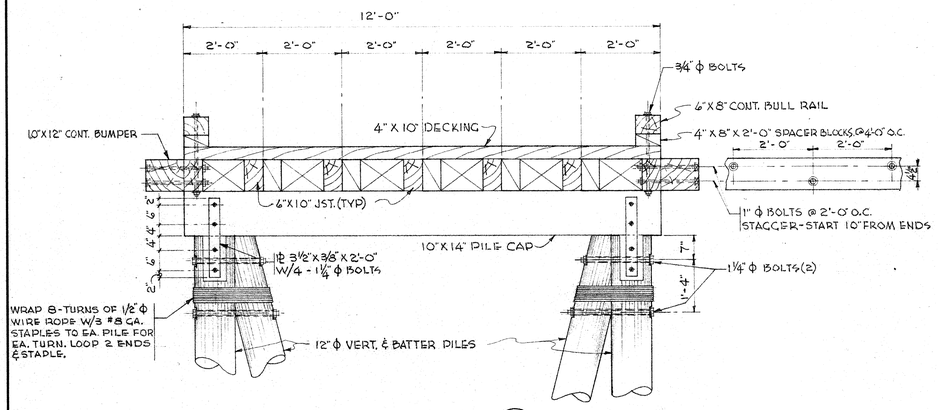
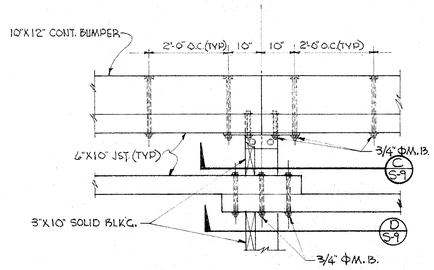
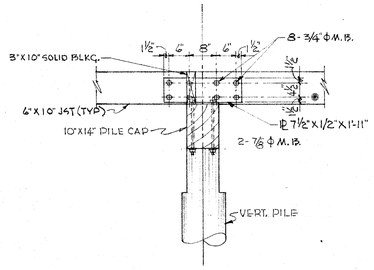


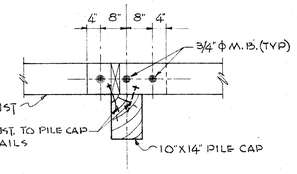
SECTION A S-9
SCALE: 3/4" = 1'-0"



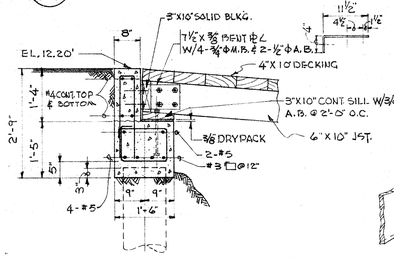
PLAN B S-9
SCALE: 3/4" = 1'-0"



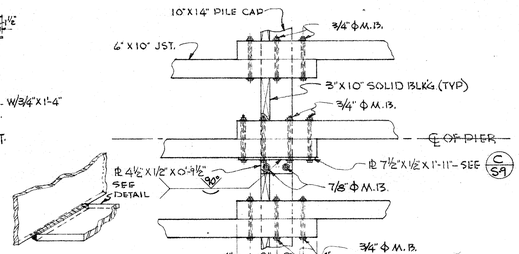
SECTION C S-9
SCALE: 3/4" = 1'-0"



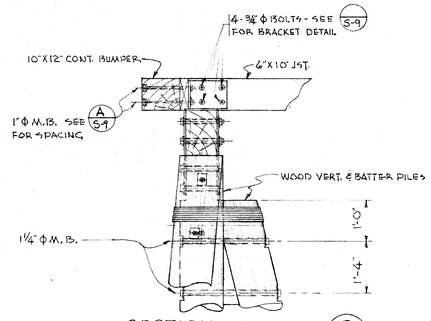
SECTION D S-9
SCALE: 3/4" = 1'-0"



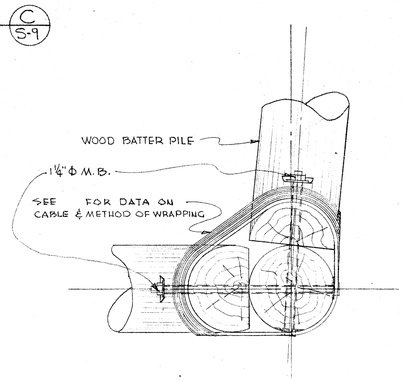
SECTION E S-9
SCALE: 3/4" = 1'-0"



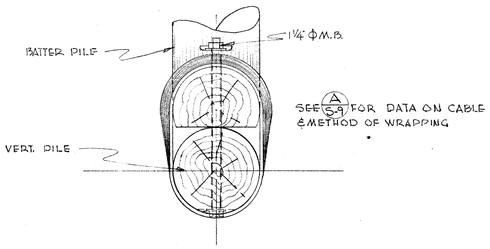
PLAN F S-9
SCALE: 3/4" = 1'-0"



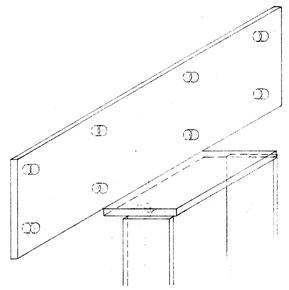
SECTION G S-9
SCALE: 3/4" = 1'-0"



SECTION H S-9
SCALE: 1 1/2" = 1'-0"



SECTION J S-9
SCALE: 1 1/2" = 1'-0"



FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
Uriah B. Hope
REGISTERED PROFESSIONAL ENGINEER

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
425 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A&E JOB Nº 66-22 | SHEET Nº S-9 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: FIXED PIER DETAILS

ORGN.

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

REG. NO.

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT. OF
	APR. 8, 1966				

721-208-S

REV.

FORM LMSC 8887-2

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REVISIONS

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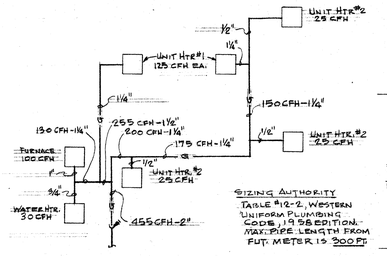
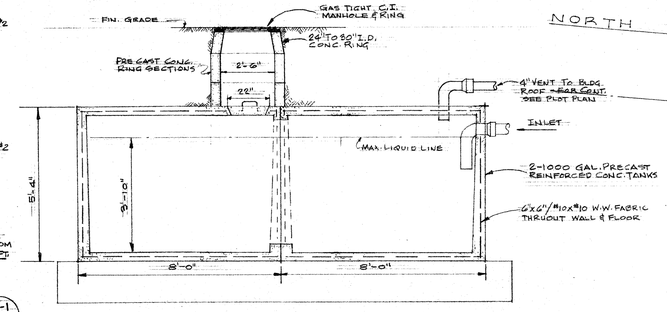


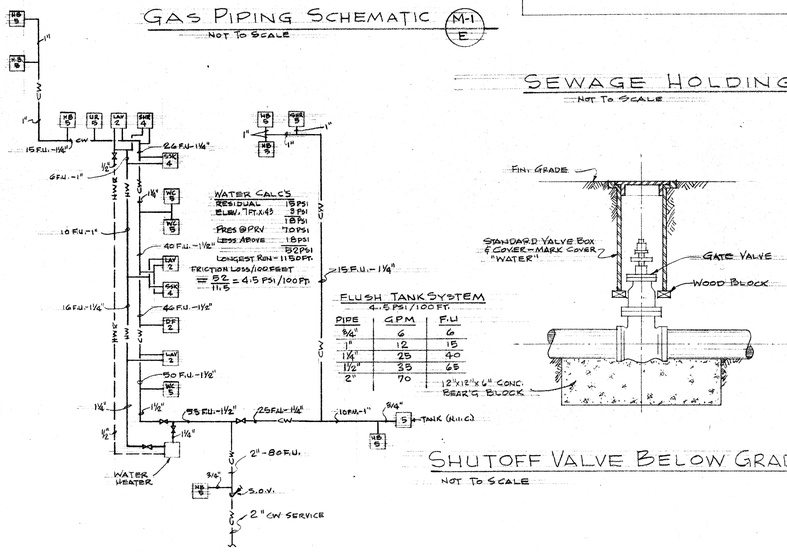
GAS PIPING SCHEMATIC (M-1 E)

NOT TO SCALE



SEWAGE HOLDING TANK DETAIL (M-1 C)

NOT TO SCALE

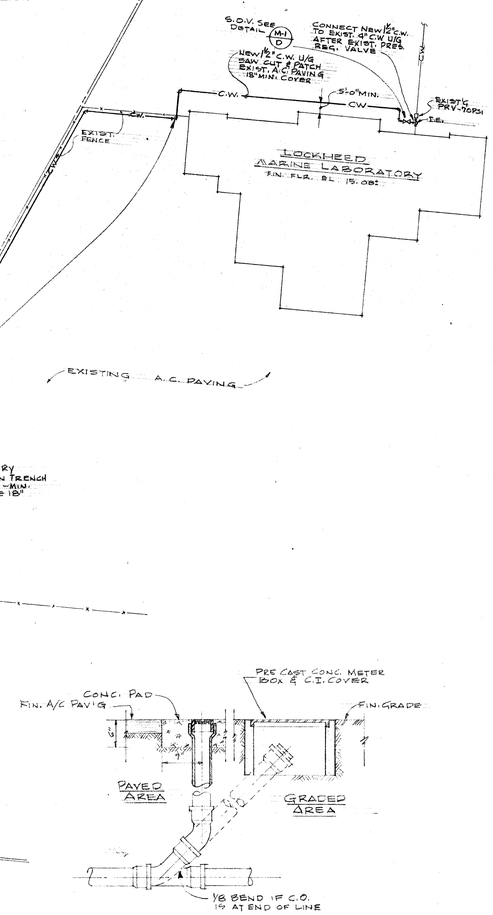


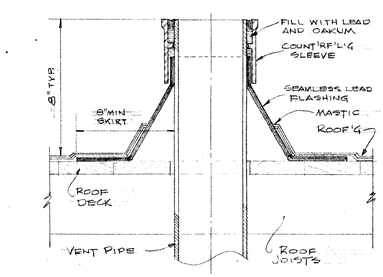
WATER PIPING SCHEMATIC (M-1 F)

NOT TO SCALE

SHUTOFF VALVE BELOW GRADE (M-1 D)

NOT TO SCALE



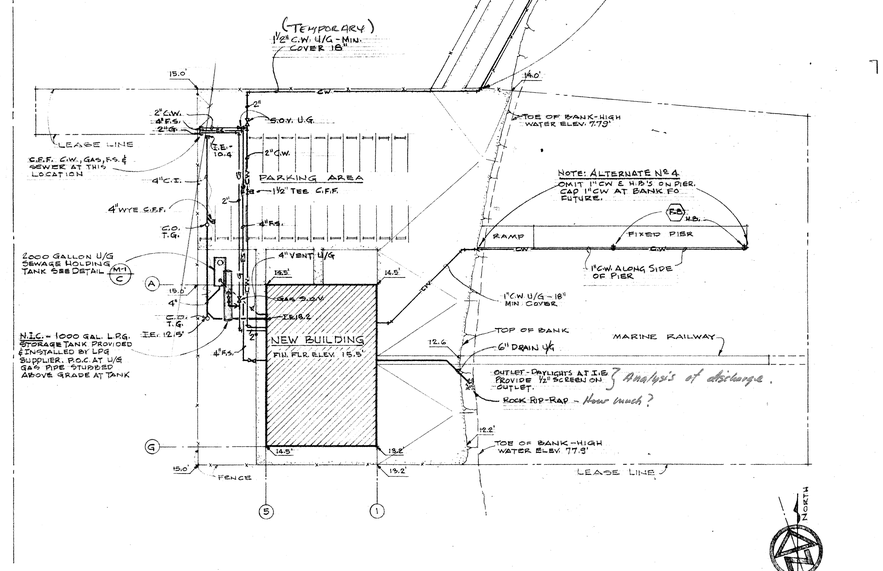


TYPICAL VENT THRU ROOF FLASHING DETAIL (M-1 B)

NOT TO SCALE

CLEANOUT TO GRADE (M-1 A)

NOT TO SCALE



PLOT PLAN

SCALE: 1" = 30'-0"

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	SOIL OR WASTE
	VENT PIPING
AW	ACID WASTE
AV	ACID VENT
RWC	RAINWATER CONDUCTOR
CW	DOMESTIC COLD WATER
HW	DOMESTIC HOT WATER
HWR	HOT WATER RETURN
A	COMPRESSED AIR
G	LOW PRESSURE GAS
	STRAINER
	UNION
	GAS COCK
	GATE VALVE
	CHECK VALVE
H.B.	HOSE BIBB
C.O. W.C.O.	CLEANOUT TO GRADE ; WALL CLEANOUT
	THERMOMETER
AFD	AUTOMATIC FIRE DAMPER
T	THERMOSTAT
F.S.	FIRE SPRINKLER
B/F	BELOW FLOOR SLAB
C.A.	COMBUSTION AIR
CAP.	CAP FOR FUTURE
C.I.	CAST IRON
D.F.	DRINKING FOUNTAIN
E.A.	EXHAUST AIR
F.D.	FLOOR DRAIN
F.S.K.	FLOOR SINK
I/A	ABOVE CEILING
I.E.	INVERT ELEVATION
LAV.	LAVATORY
R.A.	RETURN AIR
R.D.	ROOF DRAIN
S.K.	SINK
S.S.K.	SERVICE SINK
U.R.	URINAL
U/G	UNDERGROUND
V.	VENT
V.T.R.	VENT THRU ROOF
W.H.	WATER HEATER
W.C.	WATER CLOSET
E.X.	EXHAUST FAN
U.H.	UNIT HEATER
P.O.C.	POINT OF CONNECTION
S.O.V.	SHUTOFF VALVE
R.V.	RELIEF VENT
R.I.	ROOF INTAKE
X-1	EQUIPMENT MARK NUMBER
	AIR TURNING VANES

REGISTER & DIFFUSER SCHEDULE

MARK	CFM	SIZE	TYPE	FINISH	MFGR & MODEL No.	REMARKS
S-1	175	9x15	3WAY	*	TUTTLE & BAILEY #M-355	W/ADJ. EXTRACTOR
S-2	60	10x6	WALL	PRIME	TUTTLE & BAILEY #T-557	
R 1	800	18x24	WALL	PRIME	TUTTLE & BAILEY #T-70D	W/FUSIBLE LINK VOL. DMPR.
E-2	80 / 160	6x8	CEIL.	*	TUTTLE & BAILEY #T-70D	W/VOL. DMPR.
E-3	2000	22/22	CEIL.	PRIME	TUTTLE & BAILEY #T-70D	W/FIRE DAMPER
S-3	215	20x6	WALL	PRIME	TUTTLE & BAILEY #T-557	

* FACTORY APPLIED BAKED ENAMEL FINISH AS SELECTED BY ARCHITECT.

EXHAUST FAN SCHEDULE

MARK	CFM	S.P.	H.P.	VOLT	MFGR. & MODEL No.	REMARKS
EX-1	2000	0"	1/15	120	WILLIAMS-BERMUDA CO. #9616A	*
EX-2	200	1/4"	1/20	120	BERMUDA W/DAVIDSON #P08 FAN	SWITCH W/LIGHTS **
EX-3	100	1/8"	1/20	120	" " " #P06 FAN	SWITCH W/LIGHTS **

* EPOXY COATED FAN & BIRDSCREEN, ** W/BACKDRAFT DMPR.

ROOF INTAKE AND RELIEF VENT SCHEDULE

MARK	SIZE	CFM	MANUFACTURER & MODEL No.	REMARKS
RI-1	10"x10"	400	WILLIAMS-BERMUDA CO. # MC-10	WITH BIRDSCREEN
RI-2	12"x12"	COVER AIR	" " " # MC-12	" "

GAS FIRED UNIT HEATER SCHEDULE

MARK	OUTPUT BTUH	CFM	WATTS	VOLT	MFGR. & MODEL No.	REMARKS
UH-1	100,000	1040	216	120	REZNOR CO. # KA-125	
UH-2	80,000	400	50	120	REZNOR CO. # KA-25	

GAS FIRED UPFLOW FURNACE

MARK	OUTPUT BTUH	CFM	S.P.	H.P.	VOLT	MFGR & MODEL No.	REMARKS
GF-1	80,000	1190	0.5"	1/3	120	JANITROL CO. # 20-100	*

* FURNISH W/ # 16FBG RETURN DROP FILTER CABINET.

HOT WATER HEATER - GAS FIRED

MARK	INPUT BTUH	STORAGE	RECOVERY	MFGR. & MODEL No.	REMARKS
WH-1	90,000	30 GAL.	25 GPH	GAFFERS & SATTLER #A30C	

* LPG, ** 100°F RISE

SHEET NOTES:

1. FOR ADDITIONAL SITE INFORMATION SEE ARCH. SH. A-1.

FRANK L. HOPE & ASSOCIATES ARCHITECTS & ENGINEERS
JOHN ADASKA
MECHANICAL ENGINEER

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
4672 30TH AVENUE - SAN DIEGO, CALIFORNIA

A&E JOB No. 66-22 | SHEET No. M-1 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: PLOT PLAN, MECHANICAL LEGEND AND DETAILS

LOCKHEED MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

ORGN.

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REG. NO.	REV.
LDEF	APR. 8, 1966	J.A.		1" = 30'-0"		721-400-M	

8½ x 14 2 required

FORM LMSC 8897-2

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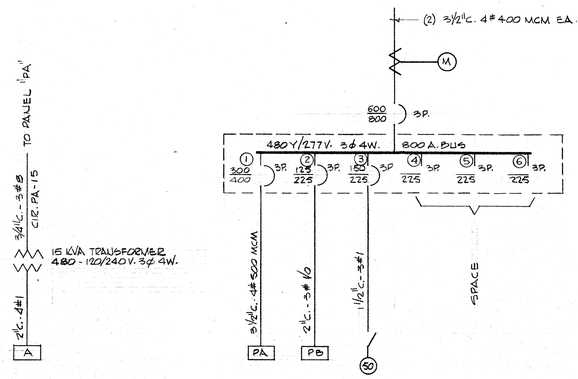

SINGLE LINE DIAGRAM

FIXTURE SCHEDULE

FIXT. Nº	DESCRIPTION	WATTS	MFR. & CAT. Nº
1	MERCURY VAPOR, W/MEDIUM BEAM, COLOR IMPROVED, 400WATT LAMP (20,000 LUMENS, INITIAL) & 277V. BALLAST	400	GUTH PS1577/277
2	FLUORESCENT, ON 1/2" STEM, W/ ACRYLIC LENS, GLOSS WHITE FINISH, W/(2) F40T12 R.S. LAMPS & 277V. BALLAST	100	GUTH ACE 6596/18F
3	INCANDESCENT, BRACKET MTD., WITH THERMOPAL GLASS, BAKED BROWN ENAMEL FINISH, W/(1) 200 WATT LAMP	200	PRESCOLITE WB-28
4	INCANDESCENT, RECESSED, W/DROP OPAL GLASS LENS, MATTE WHITE FINISH TRIM & (1) 100 W. LAMP	100	PRESCOLITE 488-6600
5	INCANDESCENT, BRACKET MTD W/SAT-IN THERMOPAL GLASS, W/(2) 75W. LAMPS & (1) GROUNDED CONVENI-ENCE OUTLET	150	PRESCOLITE WB-19
6	INCANDESCENT WITH "V" TYPE BRACKET, WIDE FLOOD, W/(1) QI1500 T3/CL QUARTZ IODINE LAMP (FOR 277 VOLTS)	1500	PAR-LIGHT LL 1500 WFL WITH 1500 UMB
7			

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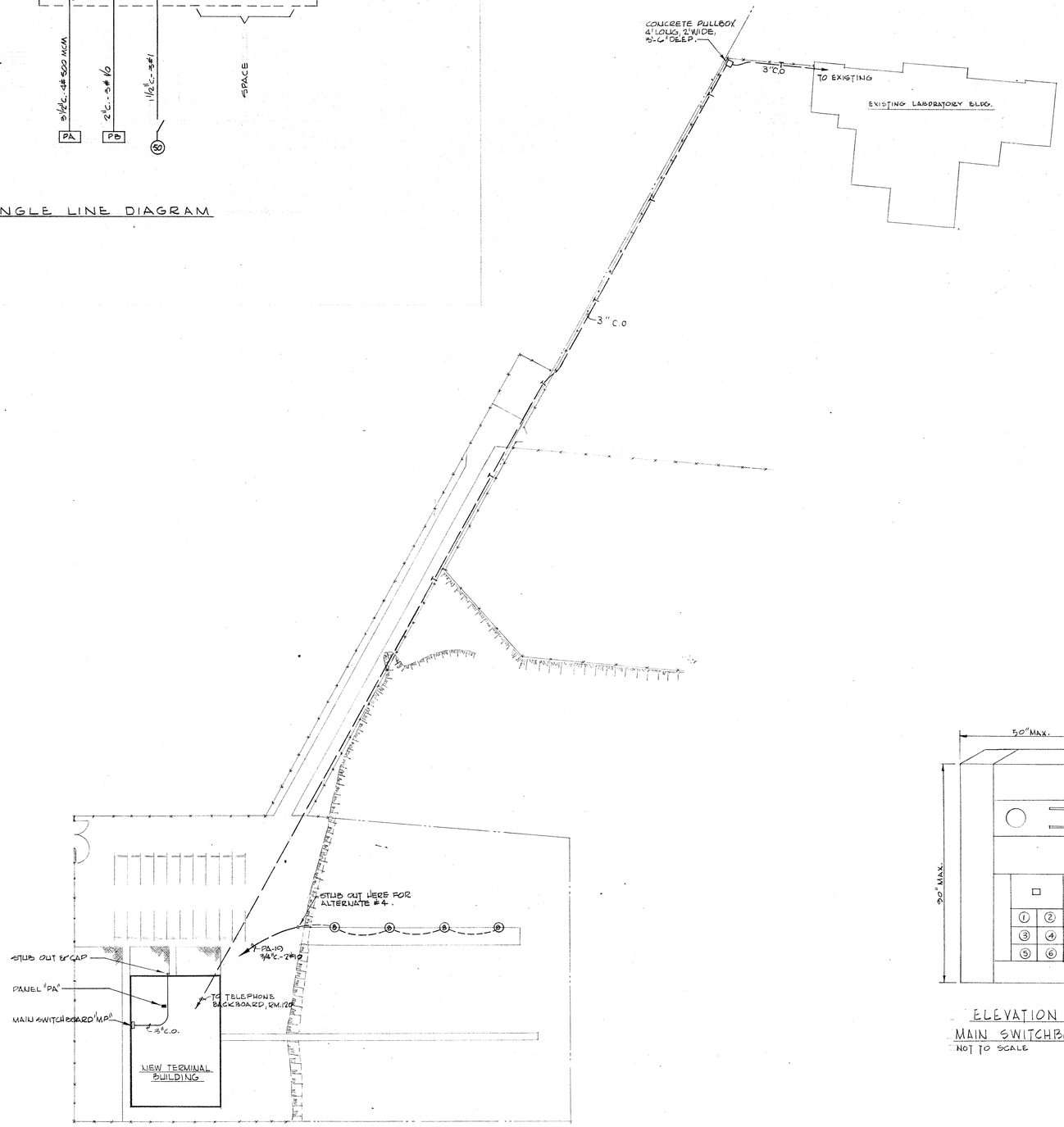
REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT

ELECTRICAL SYMBOLS

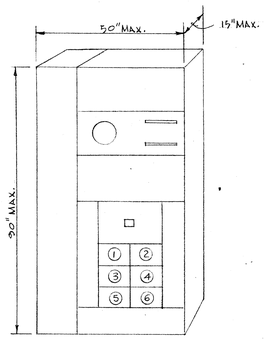
CEILING WALL

- INCANDESCENT LIGHT FIXTURE & FIXTURE NUMBER
- FLUORESCENT LIGHT FIXTURE & FIXTURE NUMBER
- INCANDESCENT, RECESSED LIGHT FIXTURE & FIXTURE NUMBER
- JUNCTION BOX
- DUPLEX CONVENIENCE OUTLET
- FLOOR OUTLET & RECEPTACLE
- S SINGLE POLE SWITCH
- S_3 THREE WAY SWITCH
- S_P SWITCH & PILOT LIGHT
- S_M FRACTIONAL HORSEPOWER MANUAL STARTER WITH THERMAL OVERLOAD
- LIGHTING PANEL
- POWER PANEL, 480 V., 3ϕ, 3W
- BRANCH CIRCUIT CONCEALED IN WALL OR CEILING (CROSS MARKS INDICATE Nº OF WIRES. WIRES ARE #12AWG IN ½"C., U.O.N.)
- BRANCH CIRCUIT CONCEALED IN FLOOR
- BRANCH CIRCUIT, EXPOSED
- HOME RUN TO PANEL BOARD. NUMBER OF ARROWS INDICATES Nº OF CIRCUITS.
- (14) MOTOR OUTLET. (FIGURE INDICATES HORSEPOWER)
- COMBINATION DISCONNECT SWITCH & MOTOR STARTER ("F" INDICATES FUSED SWITCH, "CB" INDICATES CIRCUIT BREAKER, BLANK INDICATES NON-FUSED DISCONNECT)
- T THERMOSTAT
- TELEPHONE OUTLET
- TELEPHONE FLOOR OUTLET
- T AUXILIARY SYSTEM CIRCUIT (LETTER INDICATES SYSTEM T- TELEPHONE, F-FIRE ALARM, C-CLOCK, IC-INTERCOM, S-SIGNAL)
- W.P. ADJACENT TO SYMBOL INDICATES WEATHERPROOF
- C.O. CONDUIT ONLY
- U.O.N. UNLESS OTHERWISE NOTED
- T TRANSFORMER



PLOT PLAN

SCALE: 1" = 30'-0"



ELEVATION OF MAIN SWITCHBOARD

NOT TO SCALE

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
475 SIXTH AVENUE • SAN DIEGO, CALIFORNIA

A & E JOB Nº 66-22 | SHEET Nº E-1 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE ELECTRICAL PLOT PLAN, SINGLE LINE, SWITCHBOARD, ELEVATION & SCHEDULES

ORGN.

LOCKHEED
MISSILES & SPACE COMPANY
A DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

FACILITY LOCKHEED MARINE TERMINAL
SAN DIEGO CALIFORNIA

REG. NO.

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REV.
A.E.C.	APR 5 1966				OF	

721-300E

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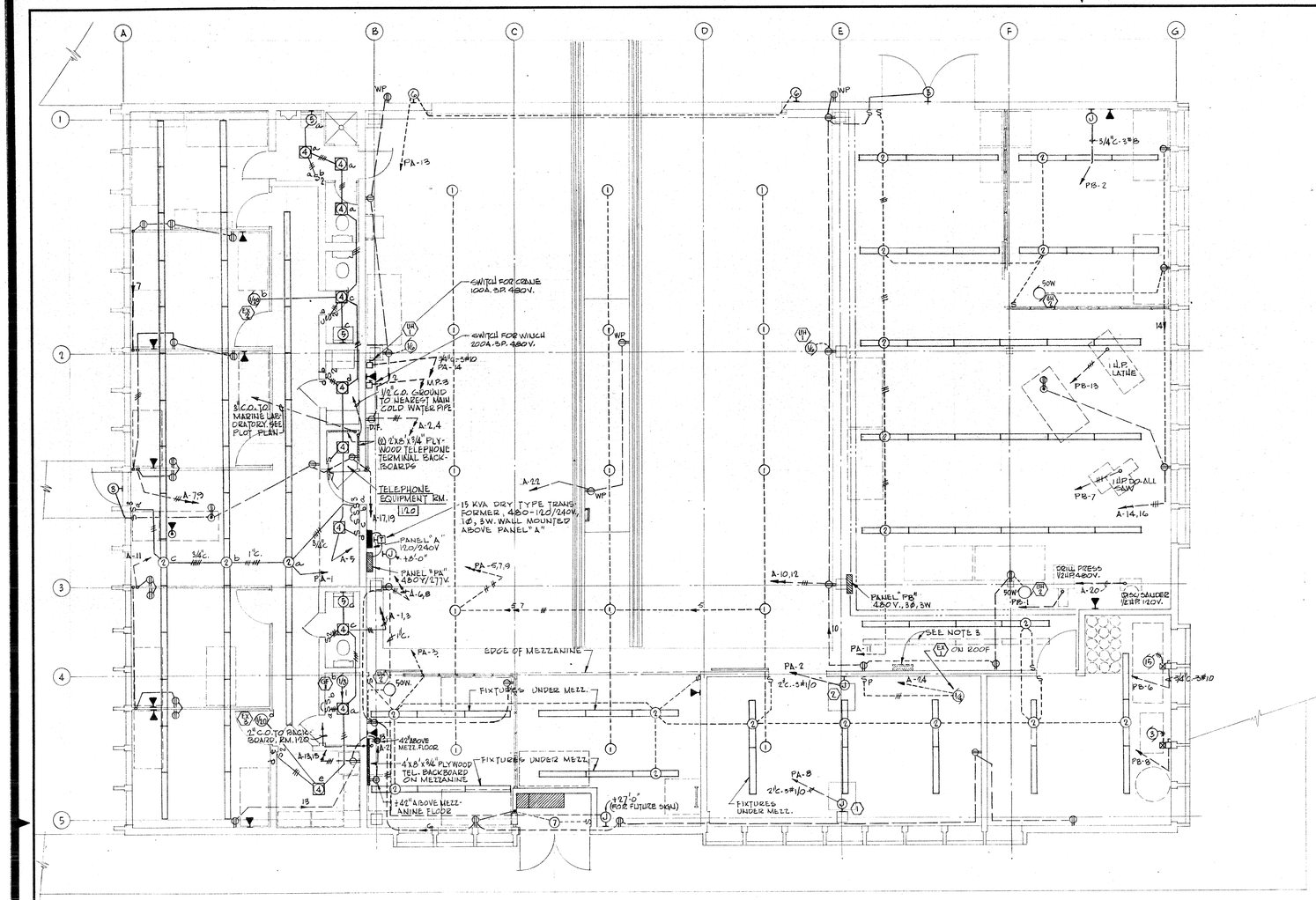
FORM LMSC 8897-2



PLAN
SCALE: 1/4" = 1'-0"

VOLTS 120/240V., 1Ø, 3W. PANEL "A" FEED TOP
MAIN LOCATION RM. 101 MTG SURFACE

LOCATION	WATTAGE Φ A	WATTAGE Φ B	LTG	REC	MIS	CIR	BKR	A B	BKR	CIR	MIS	REC	LTG	WATTAGE Φ A	WATTAGE Φ B	LOCATION
RM. 111, EX-3	830				1	1			2	1	1	3		1050		RM. 101, OUTSIDE
RMS. 112, 114, 115		640	4		1	3			4		1				510	RM. 101, D.F.
RMS. 104, 107, 108, 120	1180		9		1	5			6							
RMS. 103, 104		540		3		7			8							
RMS. 104, 105, 109	720			4		9			10					590		
RMS. 109-111		720		4		11			12						1450	
TELEPHONE POWER	500			1		13			14					410		
						15			16							
						17			18							
						19			20							
						21			22					360		
						23			24						670	
						25			26							
						27			28							
						29			30							
						31			32							
						33			34							
						35			36							
						37			38							
						39			40							
						41			42							
WATTS/PHASE																WATTS/PHASE

TOTAL = WATTS = AMPS @

VOLTS 480Y/277V. 3Ø 4W 400A. BUS PANEL PA FEED BOTTOM
MAIN 350A. 3P. MAIN CKT. BKR. LOCATION RM. 101 MTG SURFACE

LOCATION	WATTAGE Φ A	WATTAGE Φ B	WATTAGE Φ C	LTG	REC	MIS	CIR	BKR	A B C	BKR	CIR	MIS	REC	LTG	WATTAGE Φ A	WATTAGE Φ B	WATTAGE Φ C	LOCATION
							1				2							
							3				4							
							5				6							
							7				8							
							9				10							
							11				12							
FOR -15KVA TRANSF.							13	40A 3P			14							
FOR PANEL "A"							15				16							
							17				18							
							19				20							
							21				22							
							23				24							
							25				26							
							27				28							
							29				30							
							31				32							
							33				34							
							35				36							
							37				38							
							39				40							
							41				42							
WATTS/PHASE	10550	3450	3360												10490	10490	10490	WATTS/PHASE

TOTAL = 222220 WATTS = 272 AMPS @

VOLTS 480V. 3Ø. 3W. 225 A. BUS PANEL PB FEED BOTTOM
MAIN LUGS ONLY LOCATION RM. 121 MTG SURFACE

LOCATION	WATTAGE Φ A	WATTAGE Φ B	WATTAGE Φ C	LTG	REC	MIS	CIR	BKR	A B C	BKR	CIR	MIS	REC	LTG	WATTAGE Φ A	WATTAGE Φ B	WATTAGE Φ C	LOCATION
							1				2							
							3				4							
							5				6							
							7				8							
							9				10							
							11				12							
							13				14							
							15				16							
							17				18							
							19				20							
							21				22							
							23				24							
							25				26							
							27				28							
							29				30							
							31				32							
							33				34							
							35				36							
							37				38							
							39				40							
							41				42							
WATTS/PHASE	3150	3150	3150												11540	11540	11540	WATTS/PHASE

TOTAL = 50070 WATTS = 71 AMPS @

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REVISIONS

REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT

NOTES

1. MOUNT BOTTOM OF FIXTURE NO. 1 (8") ABOVE MOVING CRANE SUPPORT
2. MOUNT ALL FIXTURES TYPE NO 2 (8'-0") FROM FLOOR TO BOTTOM OF FIXTURE
3. IF MACHINE SHOP (RM. 123) IS DELETED (ALTERNATE #1), LOCATE ROW OF (4) FLUORESCENT FIXTURES, TYPE 2, & PANEL "PB" AT LOCATIONS SHOWN IN DOTTED LINES.
4. IF MACHINE SHOP (RM. 123) IS DELETED, STUB OUT CONDUITS FOR ALL MACHINE SHOP CIRCUITS

FRANK L. HOPE & ASSOCIATES
ARCHITECTS AND ENGINEERS
[illegible] 30TH AVENUE • SAN DIEGO, CALIF. • BN7-[illegible]

A&E JOB No. 66-22 | SHEET No. E-2 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE FIRST FLOOR PLAN, ELECTRICAL

ORGN.

FACILITY LOCKHEED MARINE TERMINAL SAN DIEGO CALIFORNIA

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

REG. NO. 721-301E

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT. OF	REV.
ABC	APR 8, 1966					

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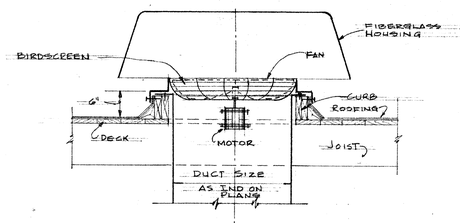
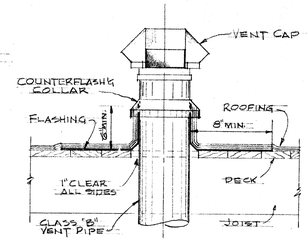
REVISIONS

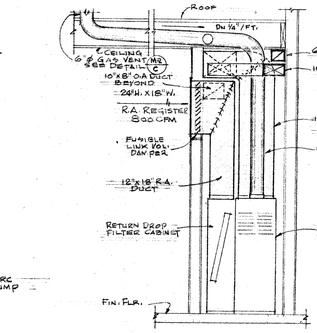
REV. NO.	REQUEST REQ. NO.	DESCRIPTION	DRAWN	DATE	APPROVALS	AS BUILT



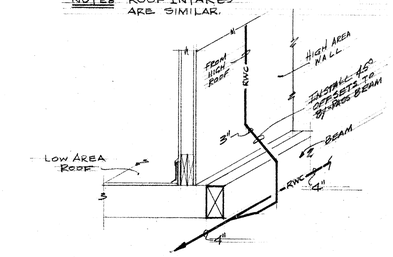
EXHAST FAN DETAIL (M-2 D)
NOT TO SCALE



GAS VENT DETAIL (M-2 C)
NOT TO SCALE

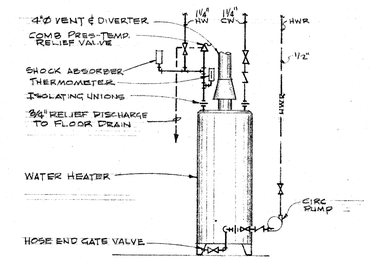


SECTION (M-2 A)
SCALE: 1/8" = 1'-0"

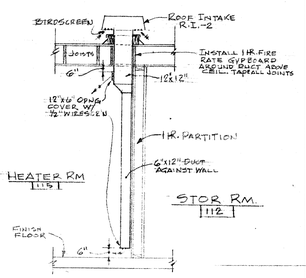


PIPING DETAIL (M-2 E)
NOT TO SCALE

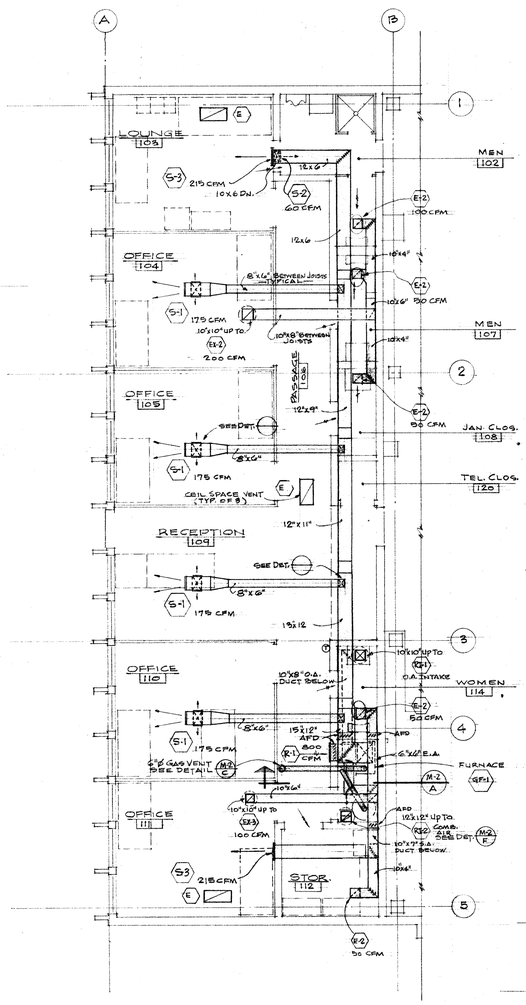
NOTES: ROOF INTAKES ARE SIMILAR.



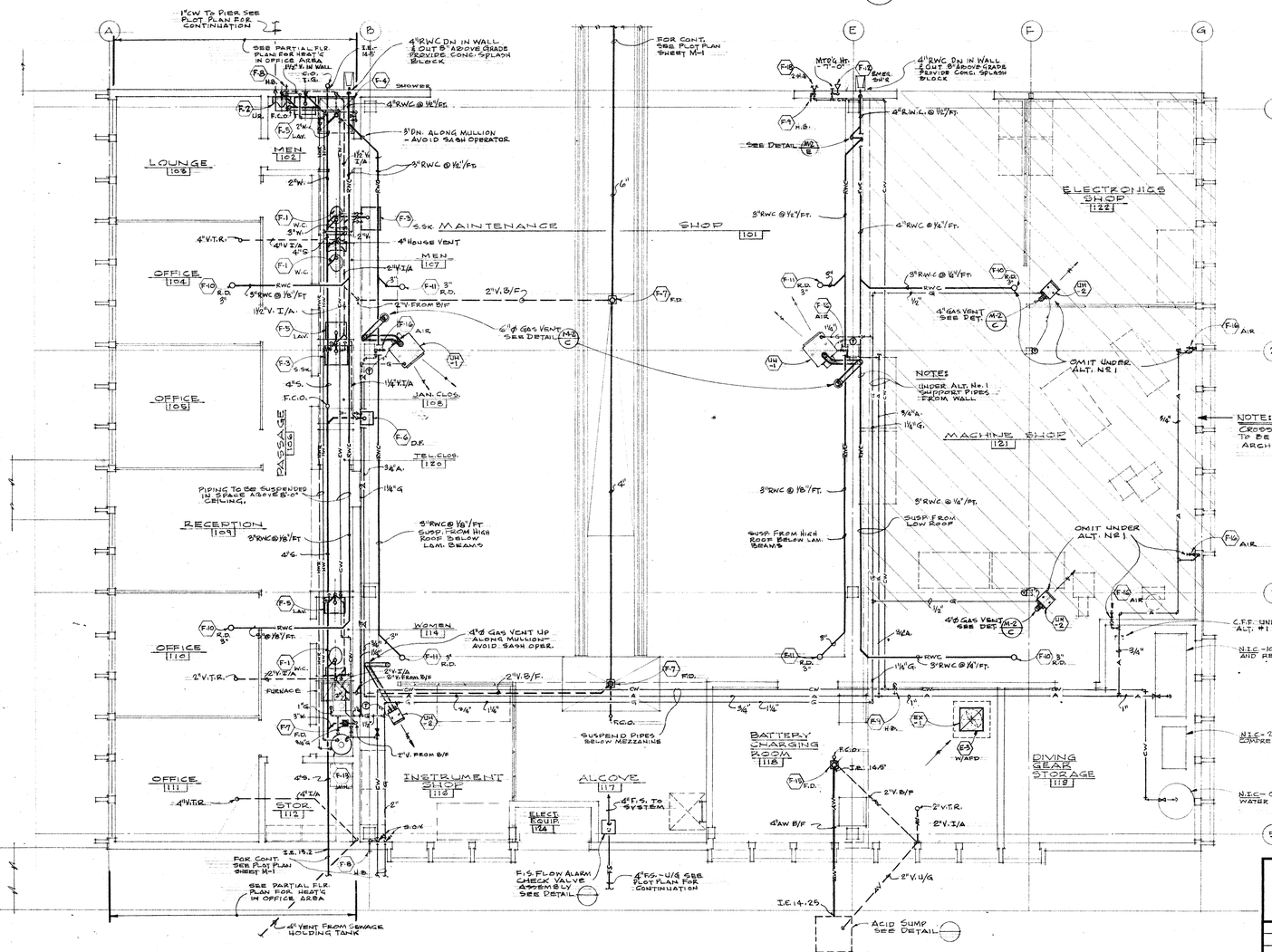
GAS FIRED WATER HEATER DETAIL (M-2 B)
NOT TO SCALE



COMBUSTION AIR DETAIL (M-2 F)
NOT TO SCALE



PARTIAL FLOOR PLAN-HEATING (M-2 G)
SCALE: 1/4" = 1'-0"



NOTES:
UNDER ALT. No. 1 SUPPORT PIPES FROM WALL

NOTE: ALTERNATE No. 1
CROSSHATCHED AREA TO BE OMITTED - SEE ARCH. SH. No. A-10

FIXTURE MIN. CONN. SCHEDULE				
Fixture	CW	HW	W	V
W.C.	3/4	—	4	2
UR.	3/4		2	1 1/2
SSK	3/4	3/4	3	1 1/2
H.B.	3/4	—	—	—
SH.	3/4	3/4	2	1 1/2
D.F.	1/2"	—	1 1/4	1 1/4
LAV	1/2	1/2	1 1/2	1 1/2

SHEET NOTES:
1. SEE SH. M-1 FOR MECH. LEGEND AND EQUIPMENT SCHEDULES.
2. FOR EXACT LOCATION OF DIFFUSERS & REGISTERS IN CEILING SEE SH. A-9.
3. FOR H.&C.W. PIPE SIZES SEE PIPING SCHEMATIC ON SHEET M-1.

FIRST FLOOR PLAN-PLUMBING (M-2 H)
SCALE: 1/4" = 1'-0"

PLAN NORTH

FRANK L. HOPE & ASSOCIATES ARCHITECTS AND ENGINEERS
1473 SIXTH AVENUE, SAN DIEGO, CALIFORNIA

JOHN ADASKA
MECHANICAL ENGINEER

A&E JOB NO. 66-22 | SHEET NO. M-2 OF 23

APPROVALS	ORGN.	DATE	REFERENCE	DRWG. NO.

DRWG. TITLE: FIRST FLOOR PLANS - PLUMBING & HEATING

ORGN.

FACILITY: LOCKHEED MARINE TERMINAL, SAN DIEGO, CALIFORNIA

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION
SUNNYVALE, CALIFORNIA

DRAWN	DATE	CHECKED	APPROVED	SCALE	SHT.	REG. NO.	REV.
LDB	APR 8 1966	J.A.		1/4" = 1'-0"		721-401-M	

FORM LMSC 8897-2

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APPENDIX D

NAHC Correspondence

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

June 6, 2019

Sherri Andrews
ASM Affiliates

VIA Email to: sandrews@asmaffiliates.com

RE: Lockheed Marine Terminal HRAR Project, San Diego County

Dear Ms. Andrews:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were positive. Please contact the Kumeyaay Cultural Repatriation Committee via phone at (760) 803-5694. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,

Steven Quinn
Associate Governmental Program Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Diego County
6/6/2019

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road — Diegueno
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
cloyd@barona-nsn.gov

Campo Band of Diegueno Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Diegueno
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Tribe
Robert Pinto, Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
wmicklin@leaningrock.net

Ewiiaapaayp Tribe
Michael Garcia, Vice Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 803 - 5694
cjlinton73@aol.com

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Inaja-Cosmit Band of Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. — Diegueno
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
epinto@jiv-nsn.gov

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 — Kwaaymii
Pine Valley, CA, 91962 — Diegueno
Phone: (619) 709 - 4207

La Posta Band of Diegueno Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

La Posta Band of Diegueno Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 — Diegueno
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Lockheed Marine Terminal HRAR Project, San Diego County.

Mesa Grande Band of Diegueno Mission Indians
Michael Linton, Chairperson
P.O Box 270 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

San Pasqual Band of Diegueno Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365 — Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org

San Pasqual Band of Diegueno Mission Indians
Allen Lawson, Chairperson
P.O. Box 365 — Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org

Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Sycuan Band of the Kumeyaay Nation
Lisa Haws, Cultural Resources Manager
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 312 - 1935
lhaws@sycuan-nsn.gov

Viejas Band of Kumeyaay Indians
Ernest Pingleton, Tribal Historic Officer, Resource Management
1 Viejas Grade Road — Diegueno
Alpine, CA, 91901
Phone: (619) 659 - 2314
epingleton@viejas-nsn.gov

Viejas Band of Kumeyaay Indians
Robert Welch, Chairperson
1 Viejas Grade Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Lockheed Marine Terminal HRAR Project, San Diego County.

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APPENDIX E

SCCIC Records Search Summary

South Coastal Information Center
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-5320
Office: (619) 594-5682
www.scic.org
nick@scic.org

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

Company: ASM Affiliates, Inc.

Company Representative: Sherri Andrews

Date Processed: 6/3/2019

Project Identification: Lockheed Marine Terminal HRAR

Search Radius: 1/2 mile

Historical Resources: YES

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: YES

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: YES

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: YES

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Summary of SHRC Approved CHRIS IC Records Search Elements	
RSID:	2617
RUSH:	yes
Hours:	1
Spatial Features:	28
Address-Mapped Shapes:	yes
Digital Database Records:	29
Quads:	1
Aerial Photos:	0
PDFs:	Yes
PDF Pages:	52

This is not an invoice. Please pay from the monthly billing statement

SCIC Records Search Results

The SCIC records search was conducted to determine whether the Project area has been previously subject to survey as well as to detect the presence or absence of cultural resources previously documented within the Project area. The search included all records and documents on file with the SCIC, as well as the National Register of Historic Places, the Office of Historic Preservation (OHP) Historic Property Directory, and the OHP Archaeological Determinations of Eligibility list.

A total of 16 previous projects were identified as a result of the records search (Table 1), none of which involve any portion of the Project area.

Table 1. Previous Cultural Resource Projects Conducted within the 0.5-Mile Records Search Radius

Report No. (SD-)	Year	Author(s) / Affiliation	Title
02759	1992	Carolyn Kyle et al. / Gallegos & Associates	Cultural Resource Evaluation for the Eastbound Harbor Drive Flyover, San Diego, California
02932	1994	Jerry Schaefer / Brian F. Mooney and Associates	Cultural Resources Evaluation for the Proposed North Metro Interceptor Sewer Project, San Diego, Calif. Appendix F
04867	1996	KEA Environmental	General Dynamic Facilities Demolition Project: Final EIR
05507	1990	Sue Wade, Stephen R. Van Wormer, and Dayle M. Cheever / RECON	Historic Properties Inventory for Secondary Treatment, Clean Water Program for Greater San Diego, San Diego, California (DEP No. 89-0744)
11098	2006	Mary Robbins-Wade / Affinis	Draft Archaeological Survey Report San Diego International Airport, Airport Master Plan, San Diego, California
11099	2006	Mary Robbins-Wade and Stephen R. Van Wormer / Affinis	Historic Architectural Survey Report: San Diego International Airport Master Plan Update
11135	2006	Stephen Van Wormer / Walter Enterprises	Ryan Aeronautical Company Historic District, 2701 North Harbor Drive, San Diego, CA 92133
11286	-	-	Spanish Landing Site
11955	2008	Steve Kim / Federal Aviation Administration	Proposed Federal Aviation Administration (FAA) Airport Surface Detection Equipment Model X (ASDE-X) Upgrade System to Serve San Diego International Airport (SAN), San Diego, California
13453	2011	Ginger Weatherford / EBI Consulting	Submission Packet, FCC Form 620, for Proposed New Tower Project Harbor Drive Right of Way along West Side of N. Harbor Drive, San Diego, San Diego County, CA 92101
13458	2011	Shannon Loftus / ACE Environmental, LLC	Cultural Resource Records Search and Site Survey AT&T Site SS0121 Commuter Terminal San Diego Port Authority Right-of-Way on Harbor Drive San Diego, San Diego County, California 92101
14311	2013	Stacie Wilson / AECOM	Letter Report: ETS 23917- Cultural Resources Monitoring Report for Replacement Activities for an Existing Capacitor and Installation of an Antenna, Spanish Landing, City of San Diego, California - IO 7011103
14431	2012	Sarah L. Farley / EBI Consulting	Addendum to FCC Form 620 Harbor Drive Harbor Island Drive (Row), San Diego, San Diego County, California 92101 EBI Project #61110632
14676	2012	Victor Globa / Federal Aviation Administration	San Diego International Airport Draft Environmental Assessment Runway 9 Displaced Threshold Project San Diego, California Section 106 Consultation
14750	2013	Victor Globa / Federal Aviation Administration	San Diego International Airport, Northside Improvements Project, San Diego, CA
17581	2018	Jennifer R. K. Stropes and Brian F. Smith / Brian F. Smith and Associates, Inc.	Historic Resources Study for the Proposed Airport Development Plan Project at the San Diego International Airport, City of San Diego, California

The search also revealed that 12 resources have been previously documented within the 0.5-mi. records search radius, none of which are within or in direct proximity to the Project area (Table 2). All of the resources are historic, primarily consisting of buildings associated with the airport complex to the north of the Project site, as well as the Spanish Landing Park, California Historical Landmark #64, which lies to the west of the Project site.

Table 2. Resources Previously Recorded within the 0.5-Mile Records Search Radius

Primary # (P-37-)	Trinomial (CA-SDI-)	Date (Recorded by, Affiliation)	Description	Attribute Codes	Relationship to Project Area
015551	-	1996 (Stephen Van Wormer, KEA Environmental)	General Dynamics, Convair Division, Harbor Drive Test Facility, Hydrodynamics Laboratory, Consolidated Aircraft Plant No. 1	HP8. Industrial building	0.50 mi. E
028619	18401	2007 (Affinis); 2006 (Stephen Van Wormer, Walter Enterprises)	Ryan Aeronautical Company Historic District; Teledyne – Ryan Complex	-	0.30 mi. NE
028620	-	2007 (Affinis); 2006 (Stephen Van Wormer, Walter Enterprises)	United Airlines 1931 Hanger and Terminal	HP8. Industrial building	-
028904	-	2007 (City of San Diego)	Spanish Landing Park; California Historical Landmark #64	-	0.20 mi. WNW
036756	-	2017 (Courtney Accardy, Brian F. Smith and Associates, Inc.)	San Diego International Airport Terminal 1; Building 1	HP39 (Other) - airport terminal	0.30 mi. N
036757	-	2017 (Courtney Accardy, Brian F. Smith and Associates, Inc.)	San Diego International Airport Terminal 2; Building 2	HP39 (Other) - airport terminal	0.40 mi. NW
036758	-	2017 (Courtney Accardy, Brian F. Smith and Associates, Inc.)	San Diego International Airport Commuter Terminal; Building 3/21	HP39 (Other) - airport terminal	0.30 mi. NNE
036759	-	2017 (Courtney Accardy, Brian F. Smith and Associates, Inc.)	San Diego International Airport United Cargo Facility; Building 4	HP39 (Other) - cargo facility	0.35 mi. N
036760	-	2017 (Courtney Accardy, Brian F. Smith and Associates, Inc.)	San Diego International Airport Southwest Airlines Cargo Facility; Building 5	HP39 (Other) - cargo facility	0.30 mi. N
036761	-	2017 (Courtney Accardy, Brian F. Smith and Associates, Inc.)	San Diego International Airport American Airlines Hanger; San Diego International Airport Air Oasis Company Hangar; Building 11	HP39 (Other) - aircraft hangar	0.30 mi. NNE
036762	-	2017 (Courtney Accardy, Brian F. Smith and Associates, Inc.)	San Diego International Airport Procurement Warehouse; Building 14	HP08 (Industrial building) - procurement warehouse	0.35 mi. NE
036763	-	2017 (Courtney Accardy, Brian F. Smith and Associates, Inc.)	San Diego International Airport Building 15; Building 15	HP39 (Other) - airport electrical shop	0.40 mi. NE

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Appendix E. Hazardous Building Materials Survey

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Hazardous Building Materials Survey

Port of San Diego
Lockheed Martin Site
1160 Harbor Island Drive
San Diego, California

Harris & Associates, Inc.

600 B Street, Suite 2000 | San Diego, California

December 16, 2019 | Project No. 108781001

Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

December 16, 2019
Project No. 108781001

Mr. Ryan Binns
Director, Environmental Planning & Compliance
Harris & Associates, Inc.
600 B Street, Suite 2000
San Diego, California 92101

Subject: Hazardous Building Materials Survey
Port of San Diego
Lockheed Martin Site
1160 Harbor Island Drive
San Diego, California 92101
Harris & Associates Project No. 1700249.002
Port of San Diego Agreement No. 25-2019KC

Dear Mr. Binns:

In accordance with your request, Ninyo & Moore has performed a hazardous building materials (HBM) survey for structures associated with the Lockheed Martin Site within the Port of San Diego, located at 1160 Harbor Island Drive in San Diego, California. Structures assessed in this survey include the Marine Terminal and Railway Building (Building 921), onsite storage shed, and the main pier (subject buildings). The attached report presents our methodology, findings, and recommendations regarding the hazardous building materials at the subject buildings.

We appreciate the opportunity to be of service to you on this important project.

Respectfully submitted,
NINYO & MOORE

Nicolas J. Carpenter, CAC# 12-4867
Senior Project Environmental Scientist

Stephen J. Waide, CIH, CSP
Principal Environmental Scientist

NSM/NJC/SJW

Distribution: (1) Addressee (via e-mail)

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2 – Summary of Asbestos-Containing Materials

3 – XRF Data Sheet

4 – Summary of Lead-Containing Surfaces

5 – Summary of Other Potential Hazardous Building Materials

APPENDICES

A – Suspect Asbestos-Containing Materials Sampling Protocol

B – Laboratory Analytical Report and Chain-of-Custody Records

C – XRF Testing Methodology

D – CDPH Form 8552 - Lead Hazard Evaluation Report

E – County of San Diego, Rule 1206 Requirements

1 INTRODUCTION

Ninyo & Moore has conducted a HBM survey for the subject buildings associated with the Lockheed Martin Site within the Port of San Diego, located at 1160 Harbor Island Drive within the City and County of San Diego, California (Figure 1). The site was used by the Lockheed Martin Corporation to service and maintain research submarines from the 1960s through 2010 and to prefabricate and test electronic control systems from the 2010 to 2015. The site has been vacant since 2015.

Our survey included an asbestos-containing materials (ACM) survey, a lead-containing surfaces (LCS) survey, and visual identification and quantification of building materials potentially falling under the California Department of Toxic Substances Control (DTSC) Universal Waste Rule (UWR) and other potential hazardous building materials. For the purposes of this assessment, LCS refers to both lead-based paint, as defined by the California Department of Public Health (CDPH) and U.S. Department of Housing and Urban Development (HUD), and other potential lead-containing materials, including, but not limited to, ceramic tile and porcelain bathroom fixtures.

The survey was performed in accordance with established guidelines for the assessment of ACM and LCS, and is based upon conditions of the subject buildings at the time of the surveying activities.

2 OBJECTIVE AND SCOPE OF SERVICES

The purpose of this report is to provide information regarding the current site conditions to assist the Port of San Diego and Harris & Associates in implementing future site improvements to the subject buildings, and surrounding area, as part of the Harbor Island Redevelopment project. It is our understanding that the subject buildings will be demolished. Our scope of work performed for the study is identified below.

- Conducted a visual reconnaissance of the subject buildings to document homogeneous areas and locate suspect ACM, LCS, building materials potentially falling under the UWR, and other potential hazardous building materials.
- Collected 77 bulk samples of suspect ACM and submitted them to an independent laboratory for analysis of asbestos content. Samples were analyzed utilizing the Environmental Protection Agency (EPA) recommended method of polarized light microscopy (PLM) in accordance with EPA Method 600/R-93/116 July 93.
- Collected 93 x-ray fluorescence (XRF) readings of potential LCS.

- Visually assessed building materials potentially falling under the UWR, including, but not limited to non-incandescent light bulbs, mercury-containing thermostat triggers, batteries, and electronic devices. Other potentially hazardous building materials, including, but not limited to, potential polychlorinated biphenyl-containing light ballasts, potential tritium-containing exit signs, potential americium-containing smoke detectors, and potential Freon™-containing air conditioning units and refrigerators, were noted, if observed.

- Prepared sample location maps showing locations where suspect ACM were collected and locations of XRF readings of surfaces with lead concentrations in excess of 0.5 milligram per square centimeter (mg/cm^2), if encountered.

- Prepared this report presenting our data and summarizing our findings and recommendations for the subject buildings regarding ACM, LCS, and other potential hazardous building materials.

3 SITE DESCRIPTION

The survey encompassed structures associated with the Lockheed Martin Site within the Port of San Diego, located in San Diego, California (Figure 2). Structures assessed include the Marine Terminal and Railway Building (Building 921), onsite storage shed, and the main pier. The following table describes the subject buildings assessed during our assessment.

Building	Approx. Date of Construction	Approx. SF	Roof Construction	Foundation	Flooring Materials	Interior Framing	Ceiling Finishes	Wall Finishes
Marine Terminal and Railway (921)	1965/1966	6,500	BURM	C	C, CPT, L, TC, VFT, W	W, M	ACT, DW, W	DW, FB, W, WP
Storage Shed	Unknown	300	M	R	FB, VFT	W	DW, VP	DW, M, VP
Main Pier	1965/1966	1,650	N/A	N/A	W	N/A	N/A	N/A

NOTES:
ACT = acoustic ceiling tile
BURM = built-up roofing membrane
C = concrete
CPT = carpet
DW = drywall
FB = fiberboard
M = metal
N/A = not applicable
L = linoleum
R = raised
TC = texture coating
VFT = vinyl floor tile
VP = vinyl paneling
W = wood
WP = wood panel

4 DEFINITIONS

- "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, actinolite, and any of these materials that has been chemically treated and/or altered.

- "ACM" means asbestos containing material; any material containing more than 1% asbestos (>1.0%).

- “ACCM” means asbestos-containing construction material; any material containing between 0.1% and 1% (0.1% to 1%) asbestos.
- “Presumed ACM” means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of material as “PACM” may be rebutted pursuant to Title 8 CCR 1529, subsection (k)(4).
- City of San Diego Ordinance 19732: requires “lead-safe work practices”, as described in the ordinance, when disturbing surfaces with a lead content between 0.5 and 1.0 mg/cm^2.
- “Lead-based paint” or “lead paint” shall refer to paint or other surface coating that contains equal to or greater than 1.0 mg/cm^2 or 0.5 percent by weight lead.
- “Lead-contaminated dust” shall refer to dust that contains lead equal to or greater than 40 micrograms per square foot ($\mu g/ft^2$) for interior floor surfaces, 250 $\mu g/ft^2$ for interior horizontal surfaces, and 400 $\mu g/ft^2$ for exterior floor and exterior horizontal surfaces.
- “Lead-contaminated soil” shall refer to bare soil containing lead equal to or greater than 400 parts per million (ppm) in children’s play areas and 1000 ppm in all other areas.
- “Presumed lead-based paint” shall refer to paint or surface coating affixed to a component in or on a school constructed before 1993 or other structure constructed before 1979.

5 PHYSICAL LIMITATIONS

Survey activities were limited to the aboveground structures and accessible, above-water portions of the main pier. Underground utilities, such as suspect cementitious water lines or suspect insulated/coated gas or electrical lines, were not assessed during survey activities. The Chemical Storage Shed located on the southeast corner of the Marine Terminal and Railway Building was locked and inaccessible at the time of survey activities. Materials on the exterior of the Chemical Storage Shed are homogeneous with the rest of the Marine Terminal and Railway Building. However, there is a possibility that additional suspect materials and/or surfaces may be encountered in the interior of Chemical Storage Shed or other inaccessible areas (e.g., interstitial wall and ceiling spaces and canopy soffits) during building renovation and/or demolition activities. For instance, untested thermal system insulation may be present within wall and ceiling cavities and behind plumbing and heating fixtures (e.g., sinks, boilers, and radiators). Suspect materials and/or surfaces encountered during building renovation and/or demolition activities that have not been assessed may either be assumed to be asbestos- and/or lead-containing and handled accordingly or be sampled and analyzed to assess whether they are asbestos- and/or lead-containing.

6 SAMPLE COLLECTION AND ANALYSES

In April 2019, the subject buildings were assessed for the presence of ACM, LCS, and other potential hazardous building materials. The ACM and LCS surveys followed EPA guidelines, or industry standards, within the limitations of the scope of this assessment. Survey activities are discussed below.

6.1 Asbestos-Containing Materials Survey

The asbestos survey was performed by a State of California Certified Asbestos Consultant and Certified Site Surveillance Technician. Survey activities included a preliminary visual assessment and bulk sampling of suspect ACM. Representative samples of suspect ACM were collected after identification of homogeneous sampling areas (areas in which the materials are uniform in color, texture, construction or application date, and general appearance). Material type, location, condition, and friability were noted for each homogeneous area. For the purposes of the assessment, the subject buildings were treated as a single homogeneous area. Seventy-seven samples of suspect ACM were collected, using EPA-recommended sampling procedures (Appendix A).

The suspect ACM samples were delivered to EMSL Analytical (EMSL) of San Diego, California, for analysis. EMSL is accredited in the National Voluntary Laboratory Accreditation Program for bulk asbestos fiber analysis. The samples were analyzed for the presence and quantification of asbestos fibers, using PLM with dispersion staining, in accordance with EPA Method 600/R-93/116 July 93. Due to material layering, 121 separate PLM analyses were performed. The lower limit of reliable detection for asbestos using the PLM method is approximately 1% by weight. Currently, the EPA and the State of California stipulate that materials containing greater than 1% asbestos constitute ACM and the State of California stipulates that a materials containing greater than 0.1% asbestos constitute asbestos-containing construction materials (ACCM).

Building materials that were sampled and analyzed for the presence of asbestos in this survey are presented in the attached Table 1 and the locations from which bulk asbestos samples were collected during this survey are shown on Figure 3. Copies of the laboratory analytical report and chain-of-custody records for this survey are presented in Appendix B.

6.2 Lead-Containing Surfaces Survey

Ninyo & Moore's objective was to test suspect lead-containing surfaces observed in the subject buildings and to assess the condition of surfaces found to be lead-containing. For the purposes of this

assessment, LCS refers to both lead-based paint, as defined by CDPH and HUD, and other potential lead-containing materials, including, but not limited to, ceramic tile and porcelain bathroom fixtures.

The testing was conducted by a CDPH-certified Lead Inspector/Assessor using a portable NITON XLp 300A XRF spectrum analyzer in accordance with accepted environmental science and engineering practices for renovation projects. The testing methodology utilized is presented in Appendix C. Ninety-three XRF readings (including calibrations) were collected during the survey. Building components that were tested for the presence of lead during this survey are presented in the attached Table 3. The XRF testing orientation (A, B, C, and D wall orientations) utilized during the testing and locations of XRF readings in excess of 0.5 mg/cm^2, the regulatory standard for lead in surface coatings, are depicted on Figure 3.

Surfaces with a lead content greater than 0.5 mg/cm^2 are summarized in Table 4, including the locations of the LCS. A copy of CDPH form 8552 “Lead Hazard Evaluation Report” for the subject buildings is included in Appendix D.

6.3 Other Potential Hazardous Building Materials Assessment

Ninyo & Moore performed a visual assessment of building materials potentially falling under the UWR, including, but not limited to, non-incandescent light bulbs, mercury-containing thermostat triggers, batteries, and electronic devices. Other potentially hazardous building materials, including, but not limited to, potential polychlorinated biphenyl-containing light ballasts, potential tritium-containing exit signs, potential americium-containing smoke detectors, and potential Freon™-containing air conditioning units and refrigerators, were noted, if observed. In accordance with the scope of work, positive identification of the suspect hazardous material, via analytical testing, was not performed. Other potentially hazardous building materials are summarized in Table 5.

7 FINDINGS AND RECOMMENDATIONS

The findings of these surveys are based on our visual observations and analysis of suspect building materials. Our findings are presented below.

7.1 Asbestos-Containing Materials

Based on the analytical results from this survey, ACMs are located at the subject buildings. ACMs are summarized in Table 2. Materials, which were not sampled as part of this assessment, that are

uniform in color, texture, construction or application date, and/or general appearance to materials found to be asbestos-containing, should be presumed to be asbestos-containing.

The identified ACMs should not be disturbed. Prior to building demolition activities, a licensed asbestos abatement contractor should remove the ACMs in accordance with federal, state, and local regulations. **It is the contractor's responsibility to confirm ACM locations and quantities prior to bid submittals and initiating demolition activities for the subject buildings.**

Should additional suspect materials, not sampled or assessed in this report, be uncovered during building renovation and/or demolition: (a) samples of suspect materials should be collected for laboratory analysis, and all activities that may impact the materials should cease until laboratory analytical results are reviewed; or (b) the materials should be assumed to be asbestos-containing and handled as such. Note that any work involving the disturbance of materials containing asbestos should be performed using appropriate work practices and be conducted by, and under the supervision of, properly trained, experienced, and certified personnel.

7.2 Lead-Containing Surfaces

Based on the results of the XRF assays collected during this survey, surfaces containing concentrations of lead greater than or equal to 1.0 mg/cm^2, or 0.5% by weight, were identified at the subject buildings.

In addition, surfaces with a lead content between 0.5 and 1.0 mg/cm^2 were identified in the subject buildings, which are depicted in italicized text in Table 3. To comply with City of San Diego Ordinance 19732, "lead-safe work practices", as described in the ordinance, should be used when these surfaces are disturbed during abatement activities. Surfaces with a lead content exceeding the regulatory standards for lead in surface coatings are summarized in Table 4.

The identified LCSs should be handled by an appropriately trained and licensed contractor in accordance with all federal, state, and local regulations. Prior to building demolition activities, a licensed contractor, using CDPH-certified personnel, should perform the LCS abatement in accordance with local, state, and federal regulations. **It is the contractor's responsibility to confirm LCS quantities and locations prior to bid submittals and initiating demolition activities for the subject buildings**. The Contractor is also responsible for waste characterization for all materials removed from the subject buildings.

Please note that disturbing surfaces containing lead concentrations below the LCS criteria, as defined by CDPH and HUD, (e.g., lead concentrations less than 1.0 mg/cm^2, or 0.5% by weight) may still trigger the California Occupational Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1). In addition, please note that LCS condition was based upon Ninyo & Moore's visual observations during survey activities and, as some of the identified LCS are located on the exterior of the subject buildings, LCS conditions may further deteriorate prior to demolition activities.

Should suspect surfaces, not sampled or assessed in this report, be uncovered during building renovation and/or demolition: (a) samples of suspect surfaces should be collected for laboratory analysis and/or XRF testing of the suspect surfaces, and all activities that impact the suspect surfaces should cease until laboratory analytical results are reviewed and/or XRF testing results become available; or (b) the surfaces should be assumed to contain concentrations of lead greater than or equal to 0.5 mg/cm^2, or 0.25% by weight, and handled as such.

7.3 Other Potential Hazardous Building Materials

A visual assessment and quantification of all UWR and other potential hazardous building materials that could be impacted by demolition activities was performed. Other potential hazardous building materials observed throughout the subject buildings are summarized in Table 5 and include:

- Fluorescent light tubes and associated ballasts,
- Non-incandescent lights,
- Mercury containing thermostats and switches,
- Potential Freon™-containing air-conditioning units,
- Potential asbestos-containing fire hoses,
- Winch and hoist systems,
- Industrial compressors.

Prior to demolition activities that could potentially disturb these materials, building materials falling under the UWR and other potential hazardous building materials should be removed and properly recycled or disposed by a licensed contractor in accordance with federal, state and local regulations. **It is the contractor's responsibility to confirm miscellaneous hazardous building materials quantities and locations present prior to bid submittals and initiating demolition activities for the subject buildings.** The Contractor is also responsible for waste characterization for all materials removed from the subject buildings.

8 LIMITATIONS

Ninyo & Moore's opinions and recommendations regarding environmental conditions, as presented in this report, are based on limited sampling and chemical analysis. Further assessment of potential adverse environmental impacts may be accomplished by conducting a more comprehensive assessment. The samples collected and used for testing, and the observations made, are believed to be representative of the areas evaluated. However, if additional suspect building materials are encountered during demolition activities, these materials should be sampled by qualified personnel, and analyzed for content prior to further disturbance. In addition, please note that quantities of impacted building materials are approximate. It is the contractor's responsibility to confirm quantities present.

The environmental services described in this report have been conducted in general accordance with current regulatory guidelines and the standard of care exercised by environmental consultants performing similar work in the project area. No warranty, expressed or implied, is made regarding the professional opinions presented in this report. Variations in site conditions may exist and conditions not observed or described in this report may be encountered during subsequent activities.

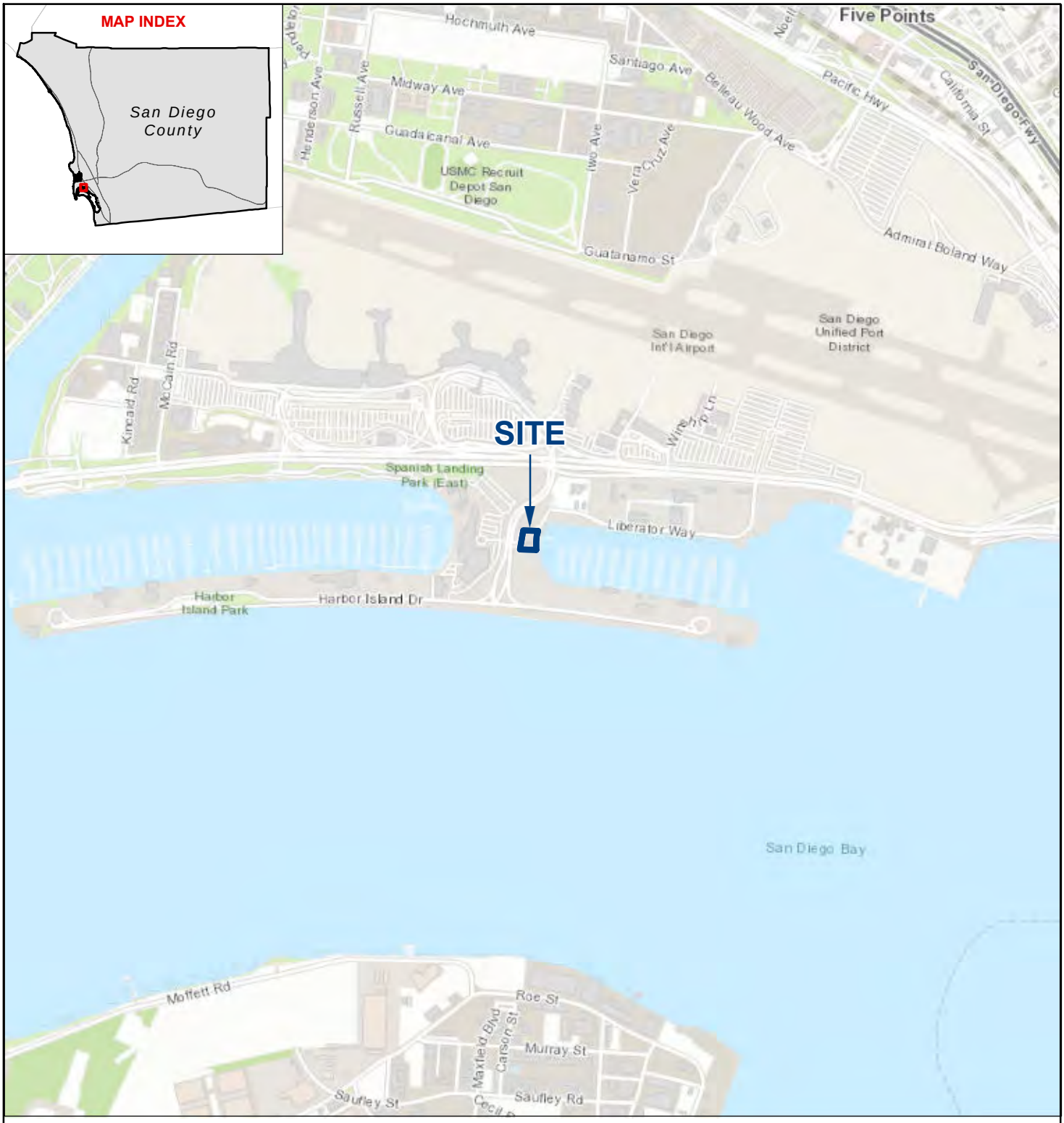
This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires any additional information, or has questions regarding content, interpretations presented, or completeness of this document.

The environmental interpretations and opinions contained in this report are based on the results of laboratory tests and analyses intended to detect the presence and concentration of specific chemical or physical constituents in samples collected from the subject site. The testing and analyses have been conducted by an independent laboratory that is certified by the State of California to conduct such tests. Ninyo & Moore has no involvement in, or control over, such testing and analysis. Ninyo & Moore, therefore, disclaims responsibility for any inaccuracy in

such laboratory results. Please note the laboratory analytical report states: “Due to the magnification limitations inherent in PLM, asbestos fibers below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by transmission electron microscopy to confirm asbestos quantities.”

Our findings, opinions, and recommendations are based on an analysis of the observed site conditions. It should be understood that the conditions of a site can change with time as a result of natural processes or the activities of humans at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

FIGURES



NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: ESRI WORLD TOPO, 2017

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FIGURE 1

SITE LOCATION

LOCKHEED MARTIN SITE
1160 HARBOR ISLAND DRIVE, SAN DIEGO, CALIFORNIA

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

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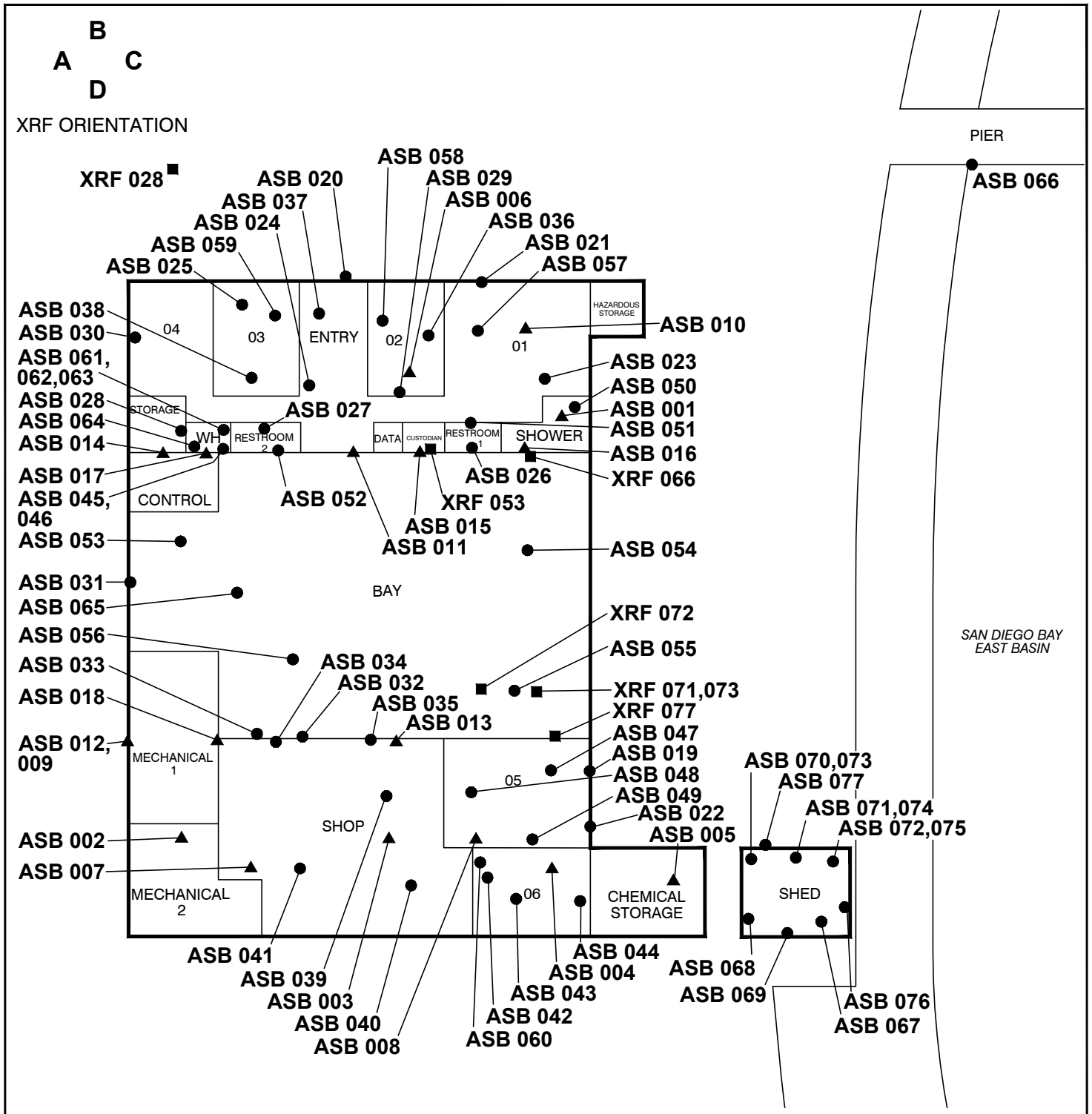

LEGEND

● **ASB 077** ASBESTOS SAMPLE

▲ **ASB 018** ASBESTOS ROOF SAMPLE

■ **XRF 077** XRF ASSAY IN EXCESS OF 0.5 mg/cm^2

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

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FIGURE 2

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

SAMPLE LOCATIONS

LOCKHEED MARTIN SITE
1160 HARBOR ISLAND DRIVE, SAN DIEGO, CALIFORNIA

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TABLES

Table 1 - Asbestos Survey Results

Sample No.	Bldg. No.	Room No.	Sample Location	Sample Description	Approx. Quantity [1]	Friable Y/N	Condition	Asbestos Content
ASB-001	Lockheed	Roof	Northeast roof	Black roof assembly	--	N/A	N/A	ND
ASB-002	Lockheed	Roof	Southwest roof	Black roofing	--	N/A	N/A	ND
ASB-002A	Lockheed	Roof	Southwest roof	Pink insulation	--	N/A	N/A	ND
ASB-003	Lockheed	Roof	South roof	Black roofing	--	N/A	N/A	ND
ASB-003A	Lockheed	Roof	South roof	Pink insulation	--	N/A	N/A	ND
ASB-004	Lockheed	Roof	Southeast roof	Black roof assembly	--	N/A	N/A	ND
ASB-005	Lockheed	Roof	Southeast lower roof	Black roofing	--	N/A	N/A	ND
ASB-005A	Lockheed	Roof	Southeast lower roof	Pink insulation	--	N/A	N/A	ND
ASB-006	Lockheed	Roof	North roof	Black roof penetration mastic	--	N/A	N/A	ND
ASB-007	Lockheed	Roof	Southwest roof	Black roof penetration mastic	--	N/A	N/A	ND
ASB-008	Lockheed	Roof	Southeast roof	Black roof penetration mastic	--	N/A	N/A	ND
ASB-009	Lockheed	Roof	Southwest roof	Black edge mastic	--	N/A	N/A	ND
ASB-010	Lockheed	Roof	North roof	Black pipe mastic/coating	--	N/A	N/A	ND
ASB-011	Lockheed	Roof	North roof	Gray roof caulking	--	N/A	N/A	ND
ASB-012	Lockheed	Roof	Southwest roof	Gray roof caulking	--	N/A	N/A	ND
ASB-013	Lockheed	Roof	South roof	Gray roof caulking	--	N/A	N/A	ND
ASB-014	**Lockheed**	**Roof**	**Northwest windows**	**White window caulking**	**150 LF**	**N**	**Fair**	**2% chrysotile**
ASB-015	**Lockheed**	**Roof**	**North windows**	**White window caulking**	**See ASB-014**	**N**	**Fair**	**3% chrysotile**
ASB-016	**Lockheed**	**Roof**	**Northeast windows**	**White window caulking**	**See ASB-014**	**N**	**Fair**	**3% chrysotile**
ASB-017	Lockheed	Roof	North upper wall, behind wood paneling	Brown/black/silver wall backing	--	N/A	N/A	ND
ASB-018	Lockheed	Roof	South upper wall, behind wood paneling	Brown/black wall backing	--	N/A	N/A	ND
ASB-019	Lockheed	Exterior	East wall, behind wood paneling	Brown/black/silver wall backing	--	N/A	N/A	ND
ASB-020	Lockheed	Exterior	North foundation	Gray concrete	--	N/A	N/A	ND
ASB-021	Lockheed	Exterior	North foundation	Gray concrete	--	N/A	N/A	ND
ASB-022	Lockheed	Exterior	East foundation	Gray concrete	--	N/A	N/A	ND
ASB-023	Lockheed	Office 1	Southeast ceiling	12"x12" tan/white acoustic ceiling tile	--	N/A	N/A	ND
ASB-024	Lockheed	Entry	West ceiling	12"x12" tan/white acoustic ceiling tile	--	N/A	N/A	ND
ASB-025	Lockheed	Office 3	North ceiling	12"x12" tan/white acoustic ceiling tile	--	N/A	N/A	ND
ASB-026	Lockheed	RR 1	South ceiling	White drywall	--	N/A	N/A	ND
ASB-026A	**Lockheed**	**RR 1**	**South ceiling**	**White joint compound**	**15,000 SF**	**N**	**Good**	**2 % chrysotile**

Table 1 - Asbestos Survey Results

Sample No.	Bldg. No.	Room No.	Sample Location	Sample Description	Approx. Quantity [1]	Friable Y/N	Condition	Asbestos Content
ASB-026B	Lockheed	RR 1	South ceiling	Tan tape	--	N/A	N/A	ND
ASB-027	Lockheed	RR 2	North ceiling	White drywall	--	N/A	N/A	ND
ASB-027A	Lockheed	RR 2	North ceiling	Tan tape	--	N/A	N/A	ND
ASB-028	Lockheed	Storage	East ceiling	White drywall	--	N/A	N/A	ND
ASB-028A	**Lockheed**	**Storage**	**East ceiling**	**White joint compound**	**See ASB-026A**	**N**	**Good**	**2 % chrysotile**
ASB-028B	Lockheed	Storage	East ceiling	Tan tape	--	N/A	N/A	ND
ASB-029	Lockheed	Office 2	South wall	White drywall	--	N/A	N/A	ND
ASB-029A	Lockheed	Office 2	South wall	Tan tape	--	N/A	N/A	ND
ASB-030	Lockheed	Office 4	West wall	White drywall	--	N/A	N/A	ND
ASB-030A	Lockheed	Office 4	West wall	Tan tape	--	N/A	N/A	ND
ASB-031	Lockheed	Bay	West wall (mezzanine level)	White drywall	--	N/A	N/A	ND
ASB-031A	**Lockheed**	**Bay**	**West wall (mezzanine level)**	**White joint compound**	**See ASB-026A**	**N**	**Good**	**2 % chrysotile**
ASB-031B	Lockheed	Bay	West wall (mezzanine level)	Tan tape	--	N/A	N/A	ND
ASB-032	Lockheed	Shop	North wall	White drywall	--	N/A	N/A	ND
ASB-032A	**Lockheed**	**Shop**	**North wall**	**White joint compound**	**See ASB-026A**	**N**	**Good**	**2 % chrysotile**
ASB-032B	Lockheed	Shop	North wall	Tan tape	--	N/A	N/A	ND
ASB-033	Lockheed	Bay	Southwest lower wall	Brown covebase mastic	--	N/A	N/A	ND
ASB-034	Lockheed	Shop	North lower wall	Brown covebase mastic	--	N/A	N/A	ND
ASB-035	Lockheed	Shop	North lower wall	Brown covebase mastic	--	N/A	N/A	ND
ASB-036	Lockheed	Office 2	East floor, beneath carpet	Yellow carpet mastic	--	N/A	N/A	ND
ASB-036A	**Lockheed**	**Office 2**	**East floor, beneath carpet**	**9"x9" beige vinyl floor tile**	**3,000 SF**	**N**	**Good**	**6% chrysotile**
ASB-036B	**Lockheed**	**Office 2**	**East floor, beneath carpet**	**Black mastic associated with 9"x9" vinyl floor tile**	**3,300 SF**	**N**	**Good**	**3% chrysotile**
ASB-037	Lockheed	Entry	North floor, beneath carpet	Yellow carpet mastic	--	N/A	N/A	ND
ASB-037A	**Lockheed**	**Entry**	**North floor, beneath carpet**	**9"x9" beige vinyl floor tile**	**See ASB-036A**	**N**	**Good**	**6% chrysotile**
ASB-037B	**Lockheed**	**Entry**	**North floor, beneath carpet**	**Black mastic associated with 9"x9" vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**3% chrysotile**
ASB-038	Lockheed	Office 3	South floor, beneath carpet	Yellow carpet mastic	--	N/A	N/A	ND
ASB-038A	**Lockheed**	**Office 3**	**South floor, beneath carpet**	**9"x9" beige vinyl floor tile**	**See ASB-036A**	**N**	**Good**	**6% chrysotile**
ASB-038B	**Lockheed**	**Office 3**	**South floor, beneath carpet**	**Black mastic associated with 9"x9" vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**3% chrysotile**

Table 1 - Asbestos Survey Results

Sample No.	Bldg. No.	Room No.	Sample Location	Sample Description	Approx. Quantity [1]	Friable Y/N	Condition	Asbestos Content
ASB-039	**Lockheed**	**Shop**	**Northeast floor**	**9"x9" brown vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**4% chrysotile**
ASB-039A	**Lockheed**	**Shop**	**Northeast floor**	**Black mastic associated with 9"x9" vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**4% chrysotile**
ASB-040	**Lockheed**	**Shop**	**East floor**	**9"x9" tan vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**4% chrysotile**
ASB-040A	**Lockheed**	**Shop**	**East floor**	**Black mastic associated with 9"x9" vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**4% chrysotile**
ASB-041	**Lockheed**	**Shop**	**West floor**	**9"x9" tan vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**6% chrysotile**
ASB-041A	Lockheed	Shop	West floor	Yellow mastic associated with 9"x9" vinyl floor tile	--	N/A	N/A	ND
ASB-042	**Lockheed**	**Office 6**	**Northwest floor**	**9"x9" brown vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**3% chrysotile**
ASB-042A	Lockheed	Office 6	Northwest floor	Yellow mastic associated with 9"x9" vinyl floor tile	--	N/A	N/A	ND
ASB-043	**Lockheed**	**Office 6**	**Center floor**	**9"x9" brown vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**2% chrysotile**
ASB-043A	Lockheed	Office 6	Center floor	Yellow mastic associated with 9"x9" vinyl floor tile	--	N/A	N/A	ND
ASB-044	**Lockheed**	**Office 6**	**East floor**	**9"x9" brown vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**2% chrysotile**
ASB-044A	Lockheed	Office 6	East floor	Yellow mastic associated with 9"x9" vinyl floor tile	--	N/A	N/A	ND
ASB-045	**Lockheed**	**Water Heater**	**West floor**	**12"x12" beige vinyl floor tile/mastic**	**300 SF**	**N**	**Good**	**7% chrysotile**
ASB-045A	**Lockheed**	**Water Heater**	**West floor**	**Black mastic associated with 12"x12" vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**5% chrysotile**
ASB-046	**Lockheed**	**Water Heater**	**East floor**	**12"x12" beige vinyl floor tile/mastic**	**See ASB-045**	**N**	**Good**	**7% chrysotile**
ASB-046A	**Lockheed**	**Water Heater**	**East floor**	**Black mastic associated with 12"x12" vinyl floor tile**	**See ASB-036B**	**N**	**Good**	**6% chrysotile**
ASB-047	Lockheed	Office 5	Northeast floor	Yellow carpet mastic	--	N/A	N/A	ND
ASB-047A	**Lockheed**	**Office 5**	**Northeast floor**	**12"x12" beige vinyl floor tile**	**See ASB-045**	**N**	**Good**	**2% chrysotile**
ASB-047B	Lockheed	Office 5	Northeast floor	Yellow mastic associated with 12"x12" vinyl floor tile	--	N/A	N/A	ND

Table 1 - Asbestos Survey Results

Sample No.	Bldg. No.	Room No.	Sample Location	Sample Description	Approx. Quantity [1]	Friable Y/N	Condition	Asbestos Content
ASB-048	Lockheed	Office 5	West floor	Yellow carpet mastic	--	N/A	N/A	ND
ASB-048A	**Lockheed**	**Office 5**	**West floor**	**12"x12" beige vinyl floor tile**	**See ASB-045**	**N**	**Good**	**2% chrysotile**
ASB-048B	Lockheed	Office 5	West floor	Yellow mastic associated with 12"x12" vinyl floor tile	--	N/A	N/A	ND
ASB-049	Lockheed	Office 5	South floor	Yellow carpet mastic	--	N/A	N/A	ND
ASB-049A	**Lockheed**	**Office 5**	**South floor**	**12"x12" beige vinyl floor tile**	**See ASB-045**	**N**	**Good**	**2% chrysotile**
ASB-049B	Lockheed	Office 5	South floor	Yellow mastic associated with 12"x12" vinyl floor tile	--	N/A	N/A	ND
ASB-050	**Lockheed**	**Shower**	**East floor**	**Beige linoleum**	**175 SF**	**N**	**Good**	**15% chrysotile**
ASB-050A	*Lockheed*	*Shower*	*East floor*	*Yellow glue associated with linoleum*	*175 SF*	*N*	*Good*	*<1% chrysotile*
ASB-051	**Lockheed**	**RR 1**	**North floor**	**Beige linoleum**	**See ASB-050**	**N**	**Good**	**15% chrysotile**
ASB-051A	*Lockheed*	*RR 1*	*North floor*	*Yellow glue associated with linoleum*	*See ASB-050A*	*N*	*Good*	*<1% chrysotile*
ASB-052	**Lockheed**	**RR 2**	**South floor**	**Beige linoleum**	**See ASB-050**	**N**	**Good**	**15% chrysotile**
ASB-052A	Lockheed	RR 2	South floor	Yellow glue associated with linoleum	--	N/A	N/A	ND
ASB-053	*Lockheed*	*Bay*	*Northwest floor*	*9"x9" brown vinyl floor tile*	*--*	*N*	*Good*	*<1% chrysotile*
ASB-053A	Lockheed	Bay	Northwest floor	Yellow mastic associated with 9"x9" vinyl floor tile	--	N/A	N/A	ND
ASB-054	**Lockheed**	**Bay**	**Northeast floor**	**Gray floor texture coating**	**2,225 SF**	**N**	**Good**	**2% chrysotile**
ASB-055	**Lockheed**	**Bay**	**Southeast floor**	**Gray floor texture coating**	**See ASB-054**	**N**	**Good**	**2% chrysotile**
ASB-056	**Lockheed**	**Bay**	**Southwest floor**	**Gray floor texture coating**	**See ASB-054**	**N**	**Good**	**2% chrysotile**
ASB-057	Lockheed	Office 1	Northwest floor	Yellow carpet glue	--	N/A	N/A	ND
ASB-058	Lockheed	Office 2	Northwest floor	Yellow carpet glue	--	N/A	N/A	ND
ASB-059	Lockheed	Office 3	Northeast floor	Yellow carpet glue	--	N/A	N/A	ND
ASB-060	**Lockheed**	**Office 6**	**Northwest wall**	**Black pipe coating**	**5 LF**	**N**	**Good**	**3% chrysotile**
ASB-061	Lockheed	Water Heater	East HVAC unit	Brown HVAC flex boot (damper)	--	N/A	N/A	ND
ASB-062	Lockheed	Water Heater	East HVAC unit	Brown HVAC flex boot (damper)	--	N/A	N/A	ND
ASB-063	Lockheed	Water Heater	East HVAC unit	Brown HVAC flex boot (damper)	--	N/A	N/A	ND

Table 1 - Asbestos Survey Results

Sample No.	Bldg. No.	Room No.	Sample Location	Sample Description	Approx. Quantity [1]	Friable Y/N	Condition	Asbestos Content
ASB-064	**Lockheed**	**Water Heater**	**Southwest pipe**	**White thermal system insulation pipe elbow**	**1 EA**	**Y**	**Good**	**10% chrysotile**
ASB-065	Lockheed	Bay	West mechanical winch (sub-grade)	Green winch damper	--	N/A	N/A	ND
ASB-066	Lockheed	Pier	Pier	Gray bumper wrap	--	N/A	N/A	ND
ASB-066A	Lockheed	Pier	Pier	Black bumber mastic	--	N/A	N/A	ND
ASB-067	Lockheed	Shed	Southeast ceiling	White drywall	--	N/A	N/A	ND
ASB-067A	Lockheed	Shed	Southeast ceiling	Yellow mastic	--	N/A	N/A	ND
ASB-068	Lockheed	Shed	West wall	White drywall	--	N/A	N/A	ND
ASB-068A	Lockheed	Shed	West wall	Yellow mastic	--	N/A	N/A	ND
ASB-069	Lockheed	Shed	South wall	White drywall	--	N/A	N/A	ND
ASB-069A	Lockheed	Shed	South wall	Yellow mastic	--	N/A	N/A	ND
ASB-070	Lockheed	Shed	Northwest floor	Gray flooring	--	N/A	N/A	ND
ASB-071	Lockheed	Shed	North floor	Gray flooring	--	N/A	N/A	ND
ASB-072	Lockheed	Shed	Northeast floor	Gray flooring	--	N/A	N/A	ND
ASB-073	Lockheed	Shed	Northwest floor, beneath fiberboard flooring	12"x12" brown vinyl floor tile	--	N/A	N/A	ND
ASB-073A	Lockheed	Shed	Northwest floor, beneath fiberboard flooring	Yellow mastic associated with 12"x12" vinyl floor tile	--	N/A	N/A	ND
ASB-074	Lockheed	Shed	North floor, beneath fiberboard flooring	12"x12" brown vinyl floor tile	--	N/A	N/A	ND
ASB-075	Lockheed	Shed	Northeast floor, beneath fiberboard flooring	12"x12" brown vinyl floor tile	--	N/A	N/A	ND
ASB-075A	Lockheed	Shed	Northeast floor, beneath fiberboard flooring	Yellow mastic associated with 12"x12" vinyl floor tile	--	N/A	N/A	ND
ASB-076	Lockheed	Shed	East HVAC unit	Beige HVAC insulation	--	N/A	N/A	ND
ASB-077	Lockheed	Shed	North wall, exterior	White wall insulation	--	N/A	N/A	ND

NOTES:

Bulk asbestos sample analysis via USEPA 600/R-93/116 method using polarized light microscopy, unless otherwise noted.

[1] = Material quantities are approximate and are not intended to be used or interpreted as actual quantities. It is the contractor's responsibility to confirm material quantities prior to bid submittals and initiating renovation and/or demolition activities at the site.

HVAC = Heating, ventilation and air conditioning

EA = Each N/A = Not applicable

LF = Linear feet ND = None detected

SF = Square feet

Table 2 - Summary of Asbestos-Containing Materials

Sample No.(s)	ACM Location [1]	ACM Description	Approx. Quantity [2]	Friable Y/N	Condition	Asbestos Content
ASB-014, ASB-015, and ASB-016	Upper Windows - North side of building	Window caulking	150 LF	N	Fair	2-3% chrysotile
ASB-026A, ASB-028A, ASB-031A, and ASB-032A	Interior walls throughout	White joint compoound associated with drywall	15,000 SF	N	Good	2% chrysotile
ASB-036A, ASB-037A, ASB-038A, ASB-039, ASB-040, ASB-041, ASB-042, ASB-043, and ASB-044	Entry, Offices -1, 2, 3, 4, and 6, Hallway, Storage, Data, Custodial, Shop, and Bay (under northwest scaffolding) - floors througout	9"x9" vinyl floor tile	3,000 SF	N	Good	2-6% chrysotile
ASB-036B, ASB-037B, ASB-038B, ASB-039A, ASB-040A, ASB-045A, and ASB-046A	Entry, Offices -1, 2, 3, 4, 5, and 6, Hallway, Storage, Water Heater Closet, Data, Custodial, Shop, and Bay (under northwest scaffolding) - floors througout, under vinyl floor tile	Black mastic associated with vinyl floor tile	3,300 SF	N	Good	3-4% chrysotile
ASB-045, ASB-046, ASB-047A, ASB-048A, and ASB-049A	Water Heater Closet and Office 5 - floors throughout	12"x12" vinyl floor tile	300 SF	N	Good	2% chrysotile
ASB-050, ASB-051, and ASB-052	Restroom , Restroom 2, and Shower - floors throughout	Linoleum and associated glue	175 SF	N	Good	2% chrysotile
ASB-054, ASB-055, and ASB-056	Bay floor throughout	Gray texture coating	2,225 SF	N	Good	2% chrysotile
ASB-060	Office 6 - pipe at northwest wall	Black pipe coating/insulation	5 LF	N	Good	3% chrysotile
ASB-064	Water Heater Closet - southwest pipe	White thermal system insulation pipe elbow	1 EA	Y	Good	10% chrysotile

NOTES:

[1] = ACM locations are based upon Ninyo & Moore's visual observations during survey activities. Materials that are uniform in color, texture, construction or application date, and/or general appearance to materials found to be asbestos-containing, should be presumed to be asbestos-containing.

[2] = Material quantities are approximate and are not intended to be used or interpreted as actual quantities. It is the contractor's responsibility to confirm material quantities prior to bid submittals and initiating renovation and/or demolition activities at the site.

EA = Each
LF = Linear feet
SF = Square feet

Table 3 - XRF Data Sheet

Reading No.	Building	Floor	Side	Room / Area	Source / Component	Substrate	Condition	Color	Results (POS / NEG)	Approx. Quantity [1]	Lead Reading (mg/cm^2)	Precision (+/- mg/cm^2)
1	--	--	--	Shutter Calibration					--	--	N/A	--
2	--	--	--	Standard Calibration 1.04 +/- 0.06 mg/cm^2					--	--	1.00	0.40
3	--	--	--	Standard Calibration 1.04 +/- 0.06 mg/cm^2					--	--	1.20	0.70
4	--	--	--	Standard Calibration 1.04 +/- 0.06 mg/cm^2					--	--	1.10	0.60
5	1160 Harbor Is.	1	A	Exterior	Wall	Wood	Intact	Gray	NEG	--	<LOD	0.03
6	1160 Harbor Is.	1	A	Exterior	Wall spacer	Wood	Intact	Gray	NEG	--	<LOD	0.03
7	1160 Harbor Is.	1	A	Exterior	Door	Wood	Intact	Gray	NEG	--	<LOD	0.12
8	1160 Harbor Is.	1	A	Exterior	Door frame	Wood	Intact	Gray	NEG	--	<LOD	0.04
9	1160 Harbor Is.	1	B	Exterior	Door frame	Metal	Intact	Gray	NEG	--	<LOD	0.03
10	1160 Harbor Is.	1	B	Exterior	Door	Metal	Intact	Gray	NEG	--	<LOD	0.03
11	1160 Harbor Is.	1	B	Exterior	Wall	Wood	Intact	Gray	NEG	--	<LOD	0.03
12	1160 Harbor Is.	1	B	Exterior	Roll-up door	Metal	Intact	Gray	NEG	--	<LOD	0.09
13	1160 Harbor Is.	1	B	Exterior	Roll-up door frame	Metal	Intact	Gray	NEG	--	<LOD	0.34
14	1160 Harbor Is.	1	B	Exterior	Door	Wood	Intact	Gray	NEG	--	<LOD	0.03
15	1160 Harbor Is.	1	B	Exterior	Door frame	Wood	Intact	Gray	NEG	--	<LOD	0.17
16	1160 Harbor Is.	1	B	Exterior	Wall	Wood	Intact	Tan	NEG	--	<LOD	0.14
17	1160 Harbor Is.	1	C	Exterior	Electrical box	Metal	Intact	Tan	NEG	--	<LOD	0.03
18	1160 Harbor Is.	1	C	Exterior	Electrical box	Metal	Intact	Tan	NEG	--	<LOD	0.03
19	1160 Harbor Is.	1	C	Exterior	Door	Metal	Intact	Gray	NEG	--	<LOD	0.03
20	1160 Harbor Is.	1	C	Exterior	Door	Metal	Intact	Gray	NEG	--	<LOD	0.03
21	1160 Harbor Is.	1	C	Exterior	Louver wall	Wood	Intact	Tan	NEG	--	<LOD	0.04
22	1160 Harbor Is.	1	D	Exterior	Louver wall	Wood	Intact	Gray	NEG	--	<LOD	0.23
23	1160 Harbor Is.	1	D	Exterior	Wall	Wood	Intact	Gray	NEG	--	<LOD	0.05
24	1160 Harbor Is.	1	D	Exterior	Electrical poles	Wood	Intact	Gray	NEG	--	<LOD	0.03
25	1160 Harbor Is.	1	D	Exterior	Water line	Metal	Intact	Gray	NEG	--	<LOD	0.03
26	1160 Harbor Is.	1	D	Exterior	Post	Metal	Intact	Gray	NEG	--	<LOD	0.17
27	1160 Harbor Is.	1	D	Exterior	Striping	Black Top	Intact	White	NEG	--	<LOD	0.03
28	**1160 Harbor Is.**	**1**	**D**	**Exterior**	**Striping**	**Black Top**	**Intact**	**Yellow**	**POS**	**50 SF**	**1.50**	**1.00**
29	1160 Harbor Is.	1	A	Exterior	Parking block	Concrete	Intact	White	NEG	--	<LOD	0.03
30	1160 Harbor Is.	1	A	Exterior	Post	Metal	Intact	Yellow	NEG	--	<LOD	0.21
31	1160 Harbor Is.	1	A	Exterior	Light post	Metal	Intact	Yellow	NEG	--	<LOD	0.10
32	1160 Harbor Is.	1	B	Office 1	Wall	Drywall	Intact	White	NEG	--	<LOD	0.03
33	1160 Harbor Is.	1	A	Office 1	Window sill	Wood	Intact	White	NEG	--	<LOD	0.45
34	1160 Harbor Is.	1	A	Office 1	Window casing	Wood	Intact	White	NEG	--	<LOD	0.29
35	1160 Harbor Is.	1	D	Office 1	Baseboard	Metal	Intact	Black	NEG	--	<LOD	0.30

Table 3 - XRF Data Sheet

Reading No.	Building	Floor	Side	Room / Area	Source / Component	Substrate	Condition	Color	Results (POS / NEG)	Approx. Quantity (1)	Lead Reading (mg/cm^2)	Precision (+/- mg/cm^2)
36	1160 Harbor Is.	1	C	Office 1	Wall	Drywall	Intact	White	INCOM	--	<LOD	0.05
37	1160 Harbor Is.	1	C	Office 2	Wall	Drywall	Intact	White	NEG	--	<LOD	0.03
38	1160 Harbor Is.	1	C	Office 2	Door	Wood	Intact	White	NEG	--	<LOD	0.88
39	1160 Harbor Is.	1	A	Entry	Door	Wood	Intact	White	NEG	--	<LOD	0.24
40	1160 Harbor Is.	1	A	Entry	Window sill	Wood	Intact	White	NEG	--	<LOD	0.47
41	1160 Harbor Is.	1	B	Office 3	Wall	Drywall	Intact	White	NEG	--	<LOD	0.03
42	1160 Harbor Is.	1	B	Office 3	Wall frame	Metal	Intact	White	NEG	--	<LOD	0.03
43	1160 Harbor Is.	1	A	Office 4	Window casing	Wood	Intact	White	NEG	--	<LOD	0.43
44	1160 Harbor Is.	1	C	Office 4	Door	Wood	Intact	White	NEG	--	<LOD	0.85
45	1160 Harbor Is.	1	B	Shower	Ceiling	Drywall	Intact	White	NEG	--	<LOD	0.05
46	1160 Harbor Is.	1	B	Shower	Sink	Porcelain	Intact	White	NEG	--	<LOD	0.12
47	1160 Harbor Is.	1	B	Shower	Urinal	Porcelain	Intact	White	NEG	--	<LOD	0.07
48	1160 Harbor Is.	1	D	Shower	Toilet	Porcelain	Intact	White	NEG	--	<LOD	0.04
49	1160 Harbor Is.	1	A	Shower	Wall	Wood	Intact	White	NEG	--	<LOD	0.06
50	1160 Harbor Is.	1	A	RR 1	Wall	Wood	Intact	White	NEG	--	<LOD	0.14
51	1160 Harbor Is.	1	B	RR 1	Toilet	Porcelain	Intact	White	NEG	--	<LOD	0.05
52	1160 Harbor Is.	1	D	RR 1	Sink	Porcelain	Intact	White	NEG	--	<LOD	0.18
53	**1160 Harbor Is.**	**1**	**B**	**Custodian**	**Sink**	**Porcelain**	**Intact**	**White**	**POS**	**2 EA**	**9.10**	**7.30**
54	1160 Harbor Is.	1	B	RR 2	Sink	Porcelain	Intact	White	NEG	--	<LOD	0.08
55	1160 Harbor Is.	1	D	RR 2	Toilet	Porcelain	Intact	White	NEG	--	<LOD	0.08
56	1160 Harbor Is.	1	D	Hot Water Heater	Wall	Drywall	Intact	Tan	NEG	--	<LOD	0.03
57	1160 Harbor Is.	1	D	Hot Water Heater	HVAC duct	Metal	Intact	Tan	NEG	--	<LOD	0.18
58	1160 Harbor Is.	1	A	Bay Area	Wall	Drywall	Intact	White	NEG	--	<LOD	0.03
59	1160 Harbor Is.	1	A	Bay Area	Panel box	Metal	Intact	Tan	NEG	--	<LOD	0.15
60	1160 Harbor Is.	1	A	Bay Area	Water pipeline	Metal	Intact	Red	NEG	--	0.30	0.19
61	1160 Harbor Is.	1	D	Bay Area	Water pipeline	Metal	Intact	Red	NEG	--	<LOD	0.26
62	1160 Harbor Is.	1	D	Bay Area	Water pipeline	Metal	Intact	Red	NEG	--	<LOD	0.30
63	1160 Harbor Is.	1	B	Bay Area	Floor	Metal	Intact	Gray	NEG	--	<LOD	0.08
64	1160 Harbor Is.	1	C	Bay Area	Floor striping	Concrete	Intact	Black-Yellow	NEG	--	<LOD	0.03
65	1160 Harbor Is.	1	B	Bay Area	Roll-up door	Metal	Intact	Blue	NEG	--	<LOD	0.18
66	**1160 Harbor Is.**	**1**	**A**	**Bay Area**	**Sink**	**Porcelain**	**Intact**	**White**	**POS**	**See Reading 53**	**9.10**	**7.20**
67	1160 Harbor Is.	1	D	Bay Area	Sliding door	Metal	Intact	Green	NEG	--	<LOD	0.17
68	1160 Harbor Is.	1	D	Bay Area	Sliding door frame	Wood	Intact	Gray	NEG	--	<LOD	0.06

Table 3 - XRF Data Sheet

Reading No.	Building	Floor	Side	Room / Area	Source / Component	Substrate	Condition	Color	Results (POS / NEG)	Approx. Quantity [1]	Lead Reading (mg/cm^2)	Precision (+/- mg/cm^2)
69	1160 Harbor Is.	1	D	Bay Area	Pipeline	Metal	Intact	White	NEG	--	<LOD	0.35
70	1160 Harbor Is.	1	D	Bay Area	Pipeline	Metal	Intact	White	NEG	--	<LOD	0.26
71	**1160 Harbor Is.**	**2**	**D**	**Bay Area Mezzanine**	**Beam**	**Metal**	**Intact**	**Yellow**	**POS**	**1 x 40 LF**	**2.40**	**1.70**
72	**1160 Harbor Is.**	**2**	**D**	**Bay Area Mezzanine**	**Beam**	**Metal**	**Intact**	**Yellow**	**POS**	**See Reading 71**	**2.00**	**1.20**
73	*1160 Harbor Is.*	*2*	*D*	*Bay Area Mezzanine*	*Beam*	*Metal*	*Intact*	*Orange*	*POS*	*2 x 65 LF*	*0.70*	*0.20*
74	1160 Harbor Is.	2	D	Bay Area Mezzanine	Railing	Wood	Intact	Brown	NEG	--	<LOD	0.13
75	1160 Harbor Is.	2	D	Bay Area Mezzanine	Floor	Wood	Intact	Brown	NEG	--	<LOD	0.05
76	1160 Harbor Is.	2	C	Bay Area Mezzanine	Wall	Drywall	Intact	Brown	NEG	--	<LOD	0.03
77	*1160 Harbor Is.*	*2*	*C*	*Bay Area Mezzanine*	*Door*	*Wood*	*Intact*	*Blue*	*POS*	*2 EA*	*0.50*	*0.10*
78	1160 Harbor Is.	2	C	Bay Area Mezzanine	Door frame	Wood	Intact	Tan	NEG	--	<LOD	0.19
79	1160 Harbor Is.	1	C	Mechanical 1	Door frame	Wood	Intact	White	INCOM	--	<LOD	0.14
80	1160 Harbor Is.	1	C	Mechanical 1	Door frame	Wood	Intact	White	NEG	--	<LOD	0.09
81	1160 Harbor Is.	1	B	Mechanical 1	Door	Wood	Intact	White	NEG	--	<LOD	0.03
82	1160 Harbor Is.	1	A	Mechanical 1	Wall	Wood	Intact	White	NEG	--	<LOD	0.03
83	1160 Harbor Is.	1	A	Mechanical 1	Wall	Wood	Intact	White	NEG	--	<LOD	0.07
84	1160 Harbor Is.	1	A	Shop	Ceiling	Wood	Intact	White	INCOM	--	<LOD	0.48
85	1160 Harbor Is.	1	A	Shop	Ceiling	Wood	Intact	White	NEG	--	<LOD	0.17
86	1160 Harbor Is.	1	A	Shop	BeamS	Wood	Intact	White	NEG	--	<LOD	0.37
87	1160 Harbor Is.	1	A	Shop	Post	Wood	Intact	White	NEG	--	<LOD	0.04
88	1160 Harbor Is.	1	A	Southeast Shed	Wall	Metal	Intact	White	INCOM	--	<LOD	0.31
89	1160 Harbor Is.	1	A	Southeast Shed	Wall	Metal	Intact	White	NEG	--	<LOD	0.78
90	1160 Harbor Is.	1	C	Southeast Shed	Wall	Metal	Intact	White	NEG	--	<LOD	0.07
91	--	--	--	Standard Calibration 1.04 +/- 0.06 mg/cm2					--	--	1.10	0.60
92	--	--	--	Standard Calibration 1.04 +/- 0.06 mg/cm2					--	--	1.10	0.60
93	--	--	--	Standard Calibration 1.04 +/- 0.06 mg/cm2					--	--	1.00	0.50

NOTES:

XRF assays were collected using a portable NITON XLp 300A XRF spectrum analyzer.

[1] = Surface quantities are approximate and are not intended to be used or interpreted as actual quantities. It is the contractor's responsibility to confirm material quantities prior to bid submittals and initiating renovation and/or demolition activities at the site.

POS = Positive
NEG = Negative
INCOM = Incomplete
RR = Restroom

EA = Each
LF = Linear feet
mg/cm^2 = milligrams per square centimeter

Table 4 - Summary of Lead-Containing Surfaces [1]

Reading No.(s)	Room / Area [2]	Source / Component	Substrate	Condition	Color(s)	Lead Reading(s) (mg/cm^2)	Approximate Quantity [3]
28	Exterior	Striping	Black Top	Intact	Yellow	1.50	50 SF
53 and 66	Bay Area and Custodian Room	Sink	Porcelain	Intact	White	9.10	2 EA
71 and 72	Bay Area Mezzanine	Beam	Metal	Intact	Yellow	2.00-2.40	1 x 40 LF
73	Bay Area Mezzanine	Beam	Metal	Intact	Orange	0.70	2 x 65 LF
77	Bay Area Mezzanine	Door	Wood	Intact	Blue	0.50	2 EA

NOTES:

[1] = Note that the LCS in this table are materials that meet or exceed the criteria of CDPH. LCS in this table does not necessarily identify all materials that could contain lead at concentrations less than 1.0 mg/cm^2 or 5,000 milligrams per kilogram (mg/kg), which could trigger the Cal-OSHA lead in construction standard.

[2] = LCS locations are based upon Ninyo & Moore's visual observations during survey activities.

[3] = Surface quantities are approximate and are not intended to be used or interpreted as actual quantities. It is the contractor's responsibility to confirm material quantities prior to bid submittals and initiating renovation and/or demolition activities at the site.

EA = Each

LF = Linear feet

SF = Square feet

mg/cm^2 = milligrams per square centimeter

Table 5 - Summary of Other Potential Hazardous Building Materials

Building	Fluorescent Light Tubes	Fluorescent Light Ballasts	Non-Incandescent Lights	Smoke Detectors	Mercury Thermostats and Switches	A/C Units	Tritium-Powered Exit Signs	Freon Refrig. Systems	Wet Transformers	Cooling Towers	Lead Acid Batteries	Halon Fire Suppression Systems	Other
Marine Terminal and Railway (921)	190	95	24	--	4	4	--	--	--	--	--	--	2 fire hoses 1 winch 1 hoist 2 compressors
Storage Shed	10	10	--	--	--	1	--	--	--	--	--	--	--
Main Pier	--	--	4	--	--	--	--	--	--	--	--	--	--

NOTES:

Material quantities are approximate and are not intended to be used or interpreted as actual quantities. It is the contractor's responsibility to confirm material quantities prior to bid submittals and initiating renovation and/or demolition activities at subject site.

A/C = Air Conditioning

APPENDIX A

Suspect Asbestos-Containing Materials Sampling Protocol

SUSPECT ASBESTOS-CONTAINING MATERIALS SAMPLING PROTOCOL

Personal Protection Equipment

Inhalation of asbestos fibers during asbestos survey poses a serious health and safety hazard, the use of personal protection equipment (PPE) by building inspectors is recommended during sampling activities. Our building inspectors generally wear a respirator (either a full- or half-face mask) equipped with high-efficiency disposable filter cartridges. If utilized, full-face masks will also prevent eye irritation from dust, fibers, and debris released during sampling activities. When necessary, disposable clothing is worn during sampling activities. Our building inspectors utilize plastic bags to handle the disposal of drop cloths, protective clothing, wet cloths, and debris.

Sampling Equipment

Our building inspectors will need various tools and materials to accomplish their sampling tasks, including those listed below:

- a ladder to access areas and a flash light to aid visibility,
- airtight, sampling containers (e.g., resealable plastic bags),
- a plastic spray bottle, filled with amended water, to wet the material to be sampled,
- plastic drop cloths to spread beneath the area to be sampled,
- a utility knife, linoleum cutter, or other tool appropriate for collecting samples,
- a caulking gun and compound for filling holes once a sample has been extracted,
- spray acrylic or adhesive to encapsulate the small areas from which samples were collected,
- duct tape for repairing thermal system insulation jackets,
- cloths and cleaner for decontaminating tools,
- a vacuum cleaner equipped with high efficiency particulate air (HEPA) filters, when necessary,
- indelible ink pen for labeling sample containers, and
- camera for photographic documentation, and
- Chain-of-Custody documentation forms.

Sampling Procedures

ACMs are divided into three categories: Surfacing materials, Thermal System Insulation (TSI), and Miscellaneous materials. The procedures for sampling these three types of materials are as follows:

Surfacing Materials

1. Select a location where the material has been previously damaged or a low profile area.
2. Spread a plastic drop cloth on the floor and set up other equipment, (e.g., ladder).
3. Put on protective equipment (respirator at all times when sampling friable material and protective clothing, when needed).
4. Moisten area where sample is to be collected (spray the area with amended water).
5. Collect sample using a clean knife or other tool appropriate to cut out or scrape off a small piece of the material. Care is taken to ensure that all layers of material are collected, without disturbing any adjacent material.
6. Place the sample in the labeled container and tightly seal it.
7. Wipe the exterior of the container with a wet wipe to remove any residue which may have adhered to the container it during sampling.
8. Clean tools with wet wipes and vacuum area with a HEPA vacuum to clean all debris.
9. Fill hole with caulking compound or appropriate filler (to minimize subsequent fiber release and for appearance).
10. Label container with its sample identification number and fill out location and type of material being sampled on a Chain-of-Custody documentation form.
11. Mark the location and sample identification number on the sample location map.
12. Repeat the above steps at each sample location. Place sample containers in plastic bags.
13. Discard protective clothing, rags, and drop cloth in a plastic bag.

Thermal System Insulation

Sampling TSI follows the same procedural sequence as laid out above. Obtain samples from exposed or damaged areas, if possible. However, random sampling will require sampling of some intact material. Sampling holes can be patched with plastic spackling, caulk, or fibrous glass.

Miscellaneous Materials

Sampling miscellaneous materials follows the same procedural sequence as laid out above, making sure that a cross section of the materials have been obtained.

Forwarding Samples to Laboratory

The samples are transferred, using standard chain-of-custody procedures, to a laboratory accredited in the National Voluntary Laboratory Accreditation Program (NVLAP), for bulk asbestos fiber analysis. The samples are analyzed using polarized light microscopy with dispersion staining (PLM/ds) for the presence and quantification of asbestos fibers, in general accordance with either United States Environmental Protection Agency (USEPA) Method 600/M4-82-020 or USEPA Method 600/R-93/116. The lower limit of reliable detection for asbestos using the PLM/ds method is approximately 1% by volume. California regulations require certain worker protection standards and have certain contractor requirements for disturbing those materials having an asbestos content of greater than one tenth of 1% (0.1%).

APPENDIX B

Laboratory Analytical Report and Chain-Of-Custody Records

EMSL Analytical, Inc.

7916 Convoy Court,Building 4, Suite A San Diego, CA 92111

Tel/Fax: (858) 499-1303 / (858) 499-1304

http://www.EMSL.com / sandiegolab@emsl.com

EMSL Order: 431903149
Customer ID: 32NIN63
Customer PO:
Project ID:

Attention: Nicholas Marinello
Ninyo & Moore
5710 Ruffin Road
San Diego, CA 92123

Phone: (858) 576-1000
Fax: (858) 576-9600
Received Date: 04/04/2019 12:20 PM
Analysis Date: 04/17/2019 - 04/18/2019
Collected Date:

Project: HARRIS/LOCKHEED MARTIN SITE HBMS - 108781001 - 1160 NORTH HARBOR ISLAND DRIVE SAN DIEGO CA 92101

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-001 *431903149-0001*	1160 N. HARBOR - N.E. ROOF - ROOF ASSEMBLY	Black Fibrous Homogeneous	6% Glass	94% Non-fibrous (Other)	None Detected
ASB-002-Roofing *431903149-0002*	1160 N. HARBOR - S.W. ROOF - ROOF ASSEMBLY	Black Fibrous Homogeneous	7% Glass	93% Non-fibrous (Other)	None Detected
ASB-002-Insulation *431903149-0002A*	1160 N. HARBOR - S.W. ROOF - ROOF ASSEMBLY	Pink Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-003-Roofing *431903149-0003*	1160 N. HARBOR - S. ROOF - ROOF ASEEMBLY	Black Fibrous Homogeneous	6% Glass	94% Non-fibrous (Other)	None Detected
ASB-003-Insulation *431903149-0003A*	1160 N. HARBOR - S. ROOF - ROOF ASEEMBLY	Pink Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-004 *431903149-0004*	1160 N. HARBOR - S.E. ROOF - ROOF ASSEMBLY	Black Fibrous Homogeneous	6% Glass	94% Non-fibrous (Other)	None Detected
ASB-005-Roofing *431903149-0005*	1160 N. HARBOR - S.E. LOWER ROOF - ROOF ASSEMBLY	Black Fibrous Homogeneous	6% Glass	94% Non-fibrous (Other)	None Detected
ASB-005-Insulation *431903149-0005A*	1160 N. HARBOR - S.E. LOWER ROOF - ROOF ASSEMBLY	Pink Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-006 *431903149-0006*	1160 N. HARBOR - N. ROOF - ROOF PENETRATION M	Black Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
ASB-007 *431903149-0007*	1160 N. HARBOR - S.W. ROOF - ROOF PENETRATION M	Black Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
ASB-008 *431903149-0008*	1160 N. HARBOR - S.E. ROOF - ROOF PENETRATION M	Black Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
ASB-009 *431903149-0009*	1160 N. HARBOR - S.W. ROOF - EDGE M	Black Non-Fibrous Homogeneous	7% Cellulose	93% Non-fibrous (Other)	None Detected
ASB-010 *431903149-0010*	1160 N. HARBOR - N. ROOF - PIPE M/COATING	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-011 *431903149-0011*	1160 N. HARBOR - N. ROOF - CAULKING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-012 *431903149-0012*	1160 N. HARBOR - S.W. ROOF - CAULKING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-013 *431903149-0013*	1160 N. HARBOR - S. ROOF - CAULKING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 04/18/2019 23:07:45

EMSL Analytical, Inc.
7916 Convoy Court,Building 4, Suite A San Diego, CA 92111
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http://www.EMSL.com / sandiegolab@emsl.com

EMSL Order: 431903149
Customer ID: 32NIN63
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-014 *431903149-0014*	1160 N. HARBOR - N.W. WINDOWS - WINDOW CAULKING	White Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-015 *431903149-0015*	1160 N. HARBOR - N. WINDOWS - WINDOW CAULKING	White Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-016 *431903149-0016*	1160 N. HARBOR - N.E. WINDOWS - WINDOW CAULKING	White Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-017 *431903149-0017*	1160 N. HARBOR - N. UPPER WALL (BEHIND WOOD PANELING) - WALL BACKING	Brown/Black/Silver Fibrous Homogeneous	75% Cellulose	25% Non-fibrous (Other)	None Detected
ASB-018 *431903149-0018*	1160 N. HARBOR - S. UPPER WALL (BEHIND WOOD PANELING) - WALL BACKING	Brown/Black Fibrous Homogeneous	75% Cellulose	25% Non-fibrous (Other)	None Detected
ASB-019 *431903149-0019*	1160 N. HARBOR - EXTERIOR - E. WALL (BEHIND WOOD PANELING) - WALL BACKING	Brown/Black/Silver Fibrous Homogeneous	75% Cellulose	25% Non-fibrous (Other)	None Detected
ASB-020 *431903149-0020*	1160 N. HARBOR - EXTEIROR - N. FOUNDATION - CONCRETE	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-021 *431903149-0021*	1160 N. HARBOR - EXTERIOR - N. FOUNDATION - CONCRETE	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-022 *431903149-0022*	1160 N. HARBOR - EXTERIOR - E. FOUNDATION - CONCRETE	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-023 *431903149-0023*	1160 N. HARBOR - RM 01 - S.E. CEILING - 12"x12" ACT	Tan/White Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-024 *431903149-0024*	1160 N. HARBOR - ENTRY - W. CEILING - 12"x12" ACT	Tan/White Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-025 *431903149-0025*	1160 N. HARBOR - RM 03 - N. CEILING - 12"x12" ACT	Tan/White Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-026-Drywall *431903149-0026*	1160 N. HARBOR - RR1 - S. CEILING - DW/JC/TAPE	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-026-Joint Compound *431903149-0026A*	1160 N. HARBOR - RR1 - S. CEILING - DW/JC/TAPE	White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-026-Tape *431903149-0026B*	1160 N. HARBOR - RR1 - S. CEILING - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected

Initial report from: 04/18/2019 23:07:45

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http://www.EMSL.com / sandiegolab@emsl.com

EMSL Order: 431903149
Customer ID: 32NIN63
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-027-Drywall *431903149-0027*	1160 N. HARBOR - RR2 - N. CEILING - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
No joint compound present in sample.					
ASB-027-Tape *431903149-0027A*	1160 N. HARBOR - RR2 - N. CEILING - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-028-Drywall *431903149-0028*	1160 N. HARBOR - STORAGE - E. CEILING - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-028-Joint Compound *431903149-0028A*	1160 N. HARBOR - STORAGE - E. CEILING - DW/JC/TAPE	White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-028-Tape *431903149-0028B*	1160 N. HARBOR - STORAGE - E. CEILING - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-029-Drywall *431903149-0029*	1160 N. HARBOR - RM 02 - S. WALL - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-029-Tape *431903149-0029A*	1160 N. HARBOR - RM 02 - S. WALL - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-030-Drywall *431903149-0030*	1160 N. HARBOR - RM 04 - W. WALL - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-030-Tape *431903149-0030A*	1160 N. HARBOR - RM 04 - W. WALL - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-031-Drywall *431903149-0031*	1160 N. HARBOR - BAY - W. WALL (MEZZANINE LEVEL) - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose <1% Glass	98% Non-fibrous (Other)	None Detected
ASB-031-Joint Compound *431903149-0031A*	1160 N. HARBOR - BAY - W. WALL (MEZZANINE LEVEL) - DW/JC/TAPE	White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-031-Tape *431903149-0031B*	1160 N. HARBOR - BAY - W. WALL (MEZZANINE LEVEL) - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-032-Drywall *431903149-0032*	1160 N. HARBOR - SHOP - N. WALL - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-032-Joint Compound *431903149-0032A*	1160 N. HARBOR - SHOP - N. WALL - DW/JC/TAPE	White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-032-Tape *431903149-0032B*	1160 N. HARBOR - SHOP - N. WALL - DW/JC/TAPE	Tan Non-Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-033 *431903149-0033*	1160 N. HARBOR - BAY - S.W. LOWER WALL - CB M	Brown Non-Fibrous Homogeneous	3% Fibrous (Other)	97% Non-fibrous (Other)	None Detected

Fibers were found with refractive indices outside of the acceptable range for regulated asbestos. These fibers are possibly altered asbestos fibers and were not included in the final asbestos concentration.

Initial report from: 04/18/2019 23:07:45

EMSL Analytical, Inc.
7916 Convoy Court,Building 4, Suite A San Diego, CA 92111
Tel/Fax: (858) 499-1303 / (858) 499-1304
http://www.EMSL.com / sandiegolab@emsl.com

EMSL Order: 431903149
Customer ID: 32NIN63
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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-034 *431903149-0034*	1160 N. HARBOR - SHOP - N. LOWER WALL - CB M	Brown Non-Fibrous Homogeneous	4% Fibrous (Other)	96% Non-fibrous (Other)	None Detected
Fibers were found with refractive indices outside of the acceptable range for regulated asbestos. These fibers are possibly altered asbestos fibers and were not included in the final asbestos concentration.					
ASB-035 *431903149-0035*	1160 N. HARBOR - SHOP - N. LOWER WALL - CB M	Brown Non-Fibrous Homogeneous	3% Fibrous (Other)	97% Non-fibrous (Other)	None Detected
Fibers were found with refractive indices outside of the acceptable range for regulated asbestos. These fibers are possibly altered asbestos fibers and were not included in the final asbestos concentration.					
ASB-036-Mastic 1 *431903149-0036*	1160 N. HARBOR - RM 02 - E. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-036-Vinyl Floor Tile *431903149-0036A*	1160 N. HARBOR - RM 02 - E. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Beige Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
ASB-036-Mastic 2 *431903149-0036B*	1160 N. HARBOR - RM 02 - E. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-037-Mastic 1 *431903149-0037*	1160 N. HARBOR - ENTRY - N. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-037-Vinyl Floor Tile *431903149-0037A*	1160 N. HARBOR - ENTRY - N. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Beige Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
ASB-037-Mastic 2 *431903149-0037B*	1160 N. HARBOR - ENTRY - N. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-038-Mastic 1 *431903149-0038*	1160 N. HARBOR - RM 03 - S. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-038-Vinyl Floor Tile *431903149-0038A*	1160 N. HARBOR - RM 03 - S. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Beige Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
ASB-038-Mastic 2 *431903149-0038B*	1160 N. HARBOR - RM 03 - S. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-039-Vinyl Floor Tile *431903149-0039*	1160 N. HARBOR - SHOP - N.E. FLOOR - 9"x9" VFT/M	Brown Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
ASB-039-Mastic *431903149-0039A*	1160 N. HARBOR - SHOP - N.E. FLOOR - 9"x9" VFT/M	Black Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
ASB-040-Vinyl Floor Tile *431903149-0040*	1160 N. HARBOR - SHOP - E. FLOOR - 9"x9" VFT/M	Tan Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
ASB-040-Mastic *431903149-0040A*	1160 N. HARBOR - SHOP - E. FLOOR - 9"x9" VFT/M	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-041-Vinyl Floor Tile *431903149-0041*	1160 N. HARBOR - SHOP - W. FLOOR - 9"x9" VFT/M	Tan Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
ASB-041-Mastic *431903149-0041A*	1160 N. HARBOR - SHOP - W. FLOOR - 9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-042-Vinyl Floor Tile *431903149-0042*	1160 N. HARBOR - RM 06 - N.W. FLOOR - 9"x9" VFT/M	Brown Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-042-Mastic *431903149-0042A*	1160 N. HARBOR - RM 06 - N.W. FLOOR - 9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-043-Vinyl Floor Tile *431903149-0043*	1160 N. HARBOR - RM 06 - CNTR FLOOR - 9"x9" VFT/M	Brown Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-043-Mastic *431903149-0043A*	1160 N. HARBOR - RM 06 - CNTR FLOOR - 9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-044-Vinyl Floor Tile *431903149-0044*	1160 N. HARBOR - RM 06 - E. FLOOR - 9"x9" VFT/M	Brown Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-044-Mastic *431903149-0044A*	1160 N. HARBOR - RM 06 - E. FLOOR - 9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-045-Vinyl Floor Tile *431903149-0045*	1160 N. HARBOR - WATER HEATER - W. FLOOR - 12"x12" VFT/M	Beige Non-Fibrous Homogeneous		93% Non-fibrous (Other)	7% Chrysotile
ASB-045-Mastic *431903149-0045A*	1160 N. HARBOR - WATER HEATER - W. FLOOR - 12"x12" VFT/M	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
ASB-046-Vinyl Floor Tile *431903149-0046*	1160 N. HARBOR - WATER HEATER - E. FLOOR - 12"x12" VFT/M	Beige Non-Fibrous Homogeneous		93% Non-fibrous (Other)	7% Chrysotile
ASB-046-Mastic *431903149-0046A*	1160 N. HARBOR - WATER HEATER - E. FLOOR - 12"x12" VFT/M	Black Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
ASB-047-Mastic 1 *431903149-0047*	1160 N. HARBOR - RM 05 - N.E. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-047-Vinyl Floor Tile *431903149-0047A*	1160 N. HARBOR - RM 05 - N.E. FLOOR - M/12"x12" VFT/M	Beige Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-047-Mastic 2 *431903149-0047B*	1160 N. HARBOR - RM 05 - N.E. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-048-Mastic 1 *431903149-0048*	1160 N. HARBOR - RM 05 - W. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-048-Vinyl Floor Tile *431903149-0048A*	1160 N. HARBOR - RM 05 - W. FLOOR - M/12"x12" VFT/M	Beige Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-048-Mastic 2 *431903149-0048B*	1160 N. HARBOR - RM 05 - W. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-049-Mastic 1 *431903149-0049*	1160 N. HARBOR - RM 05 - S. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-049-Vinyl Floor Tile *431903149-0049A*	1160 N. HARBOR - RM 05 - S. FLOOR - M/12"x12" VFT/M	Beige Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-049-Mastic 2 *431903149-0049B*	1160 N. HARBOR - RM 05 - S. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-050-Linoleum *431903149-0050*	1160 N. HARBOR - SHOWER - E. FLOOR - LIN/GLUE	Beige Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
ASB-050-Glue *431903149-0050A*	1160 N. HARBOR - SHOWER - E. FLOOR - LIN/GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
Result includes a small amount of inseparable attached material.					
ASB-051-Linoleum *431903149-0051*	1160 N. HARBOR - RR1 - N. FLOOR - LIN/GLUE	Beige Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
ASB-051-Glue *431903149-0051A*	1160 N. HARBOR - RR1 - N. FLOOR - LIN/GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
Result includes a small amount of inseparable attached material.					
ASB-052-Linoleum *431903149-0052*	1160 N. HARBOR - RR2 - S. FLOOR - LIN/GLUE	Beige Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
ASB-052-Glue *431903149-0052A*	1160 N. HARBOR - RR2 - S. FLOOR - LIN/GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-053-Vinyl Floor Tile *431903149-0053*	1160 N. HARBOR - BAY - N.W. FLOOR - 9"x9" VFT/M	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
ASB-053-Mastic *431903149-0053A*	1160 N. HARBOR - BAY - N.W. FLOOR - 9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-054 *431903149-0054*	1160 N. HARBOR - BAY - N.E. FLOOR - FLOOR COATING	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-055 *431903149-0055*	1160 N. HARBOR - BAY - S.E. FLOOR - FLOOR COATING	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-056 *431903149-0056*	1160 N. HARBOR - BAY - S.W. FLOOR - FLOOR COATING	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-057 *431903149-0057*	1160 N. HARBOR - RM 01 - N.W. FLOOR - CARPET GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-058 *431903149-0058*	1160 N. HARBOR - RM 02 - N.W. FLOOR - CARPET GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-059 *431903149-0059*	1160 N. HARBOR - RM 03 - N.E. FLOOR - CARPET GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-060 *431903149-0060*	1160 N. HARBOR - RM 06 - N.W. WALL - PIPE COATING	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-061 *431903149-0061*	1160 N. HARBOR - WATER HEATER - E. HVAC UNIT - HVAC FLEX BOOT (DAMPER)	Brown Fibrous Homogeneous	75% Glass	25% Non-fibrous (Other)	None Detected
ASB-062 *431903149-0062*	1160 N. HARBOR - WATER HEATER - E. HVAC UNIT - HVAC FLEX BOOT (DAMPER)	Brown Fibrous Homogeneous	75% Glass	25% Non-fibrous (Other)	None Detected
ASB-063 *431903149-0063*	1160 N. HARBOR - WATER HEATER - E. HVAC UNIT - HVAC FLEX BOOT (DAMPER)	Brown Fibrous Homogeneous	75% Glass	25% Non-fibrous (Other)	None Detected
ASB-064 *431903149-0064*	1160 N. HARBOR - WATER HEATER - S.W. PIPE - TSI PIPE ELBOW	White Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
ASB-065 *431903149-0065*	1160 N. HARBOR - BAY - W. MECH. WINCH (SUB-GRADE) - WINCH DAMPER	Green Fibrous Homogeneous	35% Synthetic 40% Glass	25% Non-fibrous (Other)	None Detected
ASB-066-Wrap *431903149-0066*	1160 N. HARBOR - PIER - PIER - BUMPER	Gray Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
ASB-066-Mastic *431903149-0066A*	1160 N. HARBOR - PIER - PIER - BUMPER	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-067-Drywall *431903149-0067*	1160 N. HARBOR - SHED-SE CEILING-DW/WALL MASTIC	White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-067-Mastic *431903149-0067A*	1160 N. HARBOR - SHED-SE CEILING-DW/WALL MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-068-Drywall *431903149-0068*	1160 N. HARBOR - SHED-W WALL-DW/WALL MASTIC	White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-068-Mastic *431903149-0068A*	1160 N. HARBOR - SHED-W WALL-DW/WALL MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-069-Drywall *431903149-0069*	1160 N. HARBOR - SHED-S WALL-DW/WALL MASTIC	White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-069-Mastic *431903149-0069A*	1160 N. HARBOR - SHED-S WALL-DW/WALL MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
ASB-070 *431903149-0070*	1160 N. HARBOR - SHED-NW FLR-FLOORING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-071 *431903149-0071*	1160 N. HARBOR - SHED-N FLR-FLOORING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-072 *431903149-0072*	1160 N. HARBOR - SHED-NE FLR-FLOORING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-073-Vinyl Floor Tile *431903149-0073*	1160 N. HARBOR - SHED-NW FLR BENEATH 1ST LAYER FLR-12X12 VFT/MASTIC	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-073-Mastic *431903149-0073A*	1160 N. HARBOR - SHED-NW FLR BENEATH 1ST LAYER FLR-12X12 VFT/MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-074-Vinyl Floor Tile *431903149-0074* *Insufficient mastic material in sample for analysis.*	1160 N. HARBOR - SHED-N FLR BENEATH 1ST LAYER FLR-12X12 VFT/MASTIC	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-075-Vinyl Floor Tile *431903149-0075*	1160 N. HARBOR - SHED-NE FLR BENEATH 1ST LAYER FLR-12X12 VFT/MASTIC	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-075-Mastic *431903149-0075A*	1160 N. HARBOR - SHED-NE FLR BENEATH 1ST LAYER FLR-12X12 VFT/MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-076 *431903149-0076*	1160 N. HARBOR - SHED-E HVAC UNIT-HVAC INSULATION	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-077 *431903149-0077*	1160 N. HARBOR - SHED-N WALL EXT-WALL INSULATION	White Fibrous Homogeneous	80% Glass	20% Non-fibrous (Other)	None Detected

Analyst(s)
Alberto Guerrero (56)
Terra Nevin (65)

Mariah Curran, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. San Diego, CA NVLAP Lab Code 200855-0, CA ELAP 2713, HI L-09-03

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http://www.EMSL.com / sandiegolab@emsl.com

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Customer ID: 32NIN63
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Project ID:

Attention: Nicholas Marinello
Ninyo & Moore
5710 Ruffin Road
San Diego, CA 92123

Phone: (858) 576-1000
Fax: (858) 576-9600
Received Date: 04/04/2019 12:20 PM
Analysis Date: 04/17/2019 - 04/18/2019
Collected Date:

Project: HARRIS/LOCKHEED MARTIN SITE HBMS - 108781001 - 1160 NORTH HARBOR ISLAND DRIVE SAN DIEGO CA 92101

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-001 *431903149-0001*	1160 N. HARBOR - N.E. ROOF - ROOF ASSEMBLY	Black Fibrous Homogeneous	6% Glass	94% Non-fibrous (Other)	None Detected
ASB-002-Roofing *431903149-0002*	1160 N. HARBOR - S.W. ROOF - ROOF ASSEMBLY	Black Fibrous Homogeneous	7% Glass	93% Non-fibrous (Other)	None Detected
ASB-002-Insulation *431903149-0002A*	1160 N. HARBOR - S.W. ROOF - ROOF ASSEMBLY	Pink Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-003-Roofing *431903149-0003*	1160 N. HARBOR - S. ROOF - ROOF ASEEMBLY	Black Fibrous Homogeneous	6% Glass	94% Non-fibrous (Other)	None Detected
ASB-003-Insulation *431903149-0003A*	1160 N. HARBOR - S. ROOF - ROOF ASEEMBLY	Pink Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-004 *431903149-0004*	1160 N. HARBOR - S.E. ROOF - ROOF ASSEMBLY	Black Fibrous Homogeneous	6% Glass	94% Non-fibrous (Other)	None Detected
ASB-005-Roofing *431903149-0005*	1160 N. HARBOR - S.E. LOWER ROOF - ROOF ASSEMBLY	Black Fibrous Homogeneous	6% Glass	94% Non-fibrous (Other)	None Detected
ASB-005-Insulation *431903149-0005A*	1160 N. HARBOR - S.E. LOWER ROOF - ROOF ASSEMBLY	Pink Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-006 *431903149-0006*	1160 N. HARBOR - N. ROOF - ROOF PENETRATION M	Black Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
ASB-007 *431903149-0007*	1160 N. HARBOR - S.W. ROOF - ROOF PENETRATION M	Black Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
ASB-008 *431903149-0008*	1160 N. HARBOR - S.E. ROOF - ROOF PENETRATION M	Black Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
ASB-009 *431903149-0009*	1160 N. HARBOR - S.W. ROOF - EDGE M	Black Non-Fibrous Homogeneous	7% Cellulose	93% Non-fibrous (Other)	None Detected
ASB-010 *431903149-0010*	1160 N. HARBOR - N. ROOF - PIPE M/COATING	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-011 *431903149-0011*	1160 N. HARBOR - N. ROOF - CAULKING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-012 *431903149-0012*	1160 N. HARBOR - S.W. ROOF - CAULKING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-013 *431903149-0013*	1160 N. HARBOR - S. ROOF - CAULKING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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http://www.EMSL.com / sandiegolab@emsl.com

EMSL Order: 431903149
Customer ID: 32NIN63
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-014 *431903149-0014*	1160 N. HARBOR - N.W. WINDOWS - WINDOW CAULKING	White Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-015 *431903149-0015*	1160 N. HARBOR - N. WINDOWS - WINDOW CAULKING	White Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-016 *431903149-0016*	1160 N. HARBOR - N.E. WINDOWS - WINDOW CAULKING	White Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-017 *431903149-0017*	1160 N. HARBOR - N. UPPER WALL (BEHIND WOOD PANELING) - WALL BACKING	Brown/Black/Silver Fibrous Homogeneous	75% Cellulose	25% Non-fibrous (Other)	None Detected
ASB-018 *431903149-0018*	1160 N. HARBOR - S. UPPER WALL (BEHIND WOOD PANELING) - WALL BACKING	Brown/Black Fibrous Homogeneous	75% Cellulose	25% Non-fibrous (Other)	None Detected
ASB-019 *431903149-0019*	1160 N. HARBOR - EXTERIOR - E. WALL (BEHIND WOOD PANELING) - WALL BACKING	Brown/Black/Silver Fibrous Homogeneous	75% Cellulose	25% Non-fibrous (Other)	None Detected
ASB-020 *431903149-0020*	1160 N. HARBOR - EXTEIROR - N. FOUNDATION - CONCRETE	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-021 *431903149-0021*	1160 N. HARBOR - EXTERIOR - N. FOUNDATION - CONCRETE	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-022 *431903149-0022*	1160 N. HARBOR - EXTERIOR - E. FOUNDATION - CONCRETE	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-023 *431903149-0023*	1160 N. HARBOR - RM 01 - S.E. CEILING - 12"x12" ACT	Tan/White Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-024 *431903149-0024*	1160 N. HARBOR - ENTRY - W. CEILING - 12"x12" ACT	Tan/White Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-025 *431903149-0025*	1160 N. HARBOR - RM 03 - N. CEILING - 12"x12" ACT	Tan/White Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-026-Drywall *431903149-0026*	1160 N. HARBOR - RR1 - S. CEILING - DW/JC/TAPE	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-026-Joint Compound *431903149-0026A*	1160 N. HARBOR - RR1 - S. CEILING - DW/JC/TAPE	White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-026-Tape *431903149-0026B*	1160 N. HARBOR - RR1 - S. CEILING - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected

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Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-027-Drywall *431903149-0027*	1160 N. HARBOR - RR2 - N. CEILING - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
No joint compound present in sample.					
ASB-027-Tape *431903149-0027A*	1160 N. HARBOR - RR2 - N. CEILING - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-028-Drywall *431903149-0028*	1160 N. HARBOR - STORAGE - E. CEILING - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-028-Joint Compound *431903149-0028A*	1160 N. HARBOR - STORAGE - E. CEILING - DW/JC/TAPE	White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-028-Tape *431903149-0028B*	1160 N. HARBOR - STORAGE - E. CEILING - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-029-Drywall *431903149-0029*	1160 N. HARBOR - RM 02 - S. WALL - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-029-Tape *431903149-0029A*	1160 N. HARBOR - RM 02 - S. WALL - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-030-Drywall *431903149-0030*	1160 N. HARBOR - RM 04 - W. WALL - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-030-Tape *431903149-0030A*	1160 N. HARBOR - RM 04 - W. WALL - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-031-Drywall *431903149-0031*	1160 N. HARBOR - BAY - W. WALL (MEZZANINE LEVEL) - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose <1% Glass	98% Non-fibrous (Other)	None Detected
ASB-031-Joint Compound *431903149-0031A*	1160 N. HARBOR - BAY - W. WALL (MEZZANINE LEVEL) - DW/JC/TAPE	White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-031-Tape *431903149-0031B*	1160 N. HARBOR - BAY - W. WALL (MEZZANINE LEVEL) - DW/JC/TAPE	Tan Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-032-Drywall *431903149-0032*	1160 N. HARBOR - SHOP - N. WALL - DW/JC/TAPE	White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-032-Joint Compound *431903149-0032A*	1160 N. HARBOR - SHOP - N. WALL - DW/JC/TAPE	White Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-032-Tape *431903149-0032B*	1160 N. HARBOR - SHOP - N. WALL - DW/JC/TAPE	Tan Non-Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
ASB-033 *431903149-0033*	1160 N. HARBOR - BAY - S.W. LOWER WALL - CB M	Brown Non-Fibrous Homogeneous	3% Fibrous (Other)	97% Non-fibrous (Other)	None Detected

Fibers were found with refractive indices outside of the acceptable range for regulated asbestos. These fibers are possibly altered asbestos fibers and were not included in the final asbestos concentration.

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-034 *431903149-0034*	1160 N. HARBOR - SHOP - N. LOWER WALL - CB M	Brown Non-Fibrous Homogeneous	4% Fibrous (Other)	96% Non-fibrous (Other)	None Detected
Fibers were found with refractive indices outside of the acceptable range for regulated asbestos. These fibers are possibly altered asbestos fibers and were not included in the final asbestos concentration.					
ASB-035 *431903149-0035*	1160 N. HARBOR - SHOP - N. LOWER WALL - CB M	Brown Non-Fibrous Homogeneous	3% Fibrous (Other)	97% Non-fibrous (Other)	None Detected
Fibers were found with refractive indices outside of the acceptable range for regulated asbestos. These fibers are possibly altered asbestos fibers and were not included in the final asbestos concentration.					
ASB-036-Mastic 1 *431903149-0036*	1160 N. HARBOR - RM 02 - E. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-036-Vinyl Floor Tile *431903149-0036A*	1160 N. HARBOR - RM 02 - E. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Beige Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
ASB-036-Mastic 2 *431903149-0036B*	1160 N. HARBOR - RM 02 - E. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-037-Mastic 1 *431903149-0037*	1160 N. HARBOR - ENTRY - N. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-037-Vinyl Floor Tile *431903149-0037A*	1160 N. HARBOR - ENTRY - N. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Beige Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
ASB-037-Mastic 2 *431903149-0037B*	1160 N. HARBOR - ENTRY - N. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-038-Mastic 1 *431903149-0038*	1160 N. HARBOR - RM 03 - S. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-038-Vinyl Floor Tile *431903149-0038A*	1160 N. HARBOR - RM 03 - S. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Beige Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
ASB-038-Mastic 2 *431903149-0038B*	1160 N. HARBOR - RM 03 - S. FLOOR (BENEATH CARPET) - M/9"x9" VFT/M	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-039-Vinyl Floor Tile *431903149-0039*	1160 N. HARBOR - SHOP - N.E. FLOOR - 9"x9" VFT/M	Brown Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
ASB-039-Mastic *431903149-0039A*	1160 N. HARBOR - SHOP - N.E. FLOOR - 9"x9" VFT/M	Black Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
ASB-040-Vinyl Floor Tile *431903149-0040*	1160 N. HARBOR - SHOP - E. FLOOR - 9"x9" VFT/M	Tan Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
ASB-040-Mastic *431903149-0040A*	1160 N. HARBOR - SHOP - E. FLOOR - 9"x9" VFT/M	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
ASB-041-Vinyl Floor Tile *431903149-0041*	1160 N. HARBOR - SHOP - W. FLOOR - 9"x9" VFT/M	Tan Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
ASB-041-Mastic *431903149-0041A*	1160 N. HARBOR - SHOP - W. FLOOR - 9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-042-Vinyl Floor Tile *431903149-0042*	1160 N. HARBOR - RM 06 - N.W. FLOOR - 9"x9" VFT/M	Brown Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-042-Mastic *431903149-0042A*	1160 N. HARBOR - RM 06 - N.W. FLOOR - 9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-043-Vinyl Floor Tile *431903149-0043*	1160 N. HARBOR - RM 06 - CNTR FLOOR - 9"x9" VFT/M	Brown Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-043-Mastic *431903149-0043A*	1160 N. HARBOR - RM 06 - CNTR FLOOR - 9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-044-Vinyl Floor Tile *431903149-0044*	1160 N. HARBOR - RM 06 - E. FLOOR - 9"x9" VFT/M	Brown Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-044-Mastic *431903149-0044A*	1160 N. HARBOR - RM 06 - E. FLOOR - 9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-045-Vinyl Floor Tile *431903149-0045*	1160 N. HARBOR - WATER HEATER - W. FLOOR - 12"x12" VFT/M	Beige Non-Fibrous Homogeneous		93% Non-fibrous (Other)	7% Chrysotile
ASB-045-Mastic *431903149-0045A*	1160 N. HARBOR - WATER HEATER - W. FLOOR - 12"x12" VFT/M	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
ASB-046-Vinyl Floor Tile *431903149-0046*	1160 N. HARBOR - WATER HEATER - E. FLOOR - 12"x12" VFT/M	Beige Non-Fibrous Homogeneous		93% Non-fibrous (Other)	7% Chrysotile
ASB-046-Mastic *431903149-0046A*	1160 N. HARBOR - WATER HEATER - E. FLOOR - 12"x12" VFT/M	Black Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
ASB-047-Mastic 1 *431903149-0047*	1160 N. HARBOR - RM 05 - N.E. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-047-Vinyl Floor Tile *431903149-0047A*	1160 N. HARBOR - RM 05 - N.E. FLOOR - M/12"x12" VFT/M	Beige Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-047-Mastic 2 *431903149-0047B*	1160 N. HARBOR - RM 05 - N.E. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-048-Mastic 1 *431903149-0048*	1160 N. HARBOR - RM 05 - W. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-048-Vinyl Floor Tile *431903149-0048A*	1160 N. HARBOR - RM 05 - W. FLOOR - M/12"x12" VFT/M	Beige Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile

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ASB-048-Mastic 2 *431903149-0048B*	1160 N. HARBOR - RM 05 - W. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-049-Mastic 1 *431903149-0049*	1160 N. HARBOR - RM 05 - S. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-049-Vinyl Floor Tile *431903149-0049A*	1160 N. HARBOR - RM 05 - S. FLOOR - M/12"x12" VFT/M	Beige Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-049-Mastic 2 *431903149-0049B*	1160 N. HARBOR - RM 05 - S. FLOOR - M/12"x12" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-050-Linoleum *431903149-0050*	1160 N. HARBOR - SHOWER - E. FLOOR - LIN/GLUE	Beige Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
ASB-050-Glue *431903149-0050A*	1160 N. HARBOR - SHOWER - E. FLOOR - LIN/GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
Result includes a small amount of inseparable attached material.					
ASB-051-Linoleum *431903149-0051*	1160 N. HARBOR - RR1 - N. FLOOR - LIN/GLUE	Beige Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
ASB-051-Glue *431903149-0051A*	1160 N. HARBOR - RR1 - N. FLOOR - LIN/GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
Result includes a small amount of inseparable attached material.					
ASB-052-Linoleum *431903149-0052*	1160 N. HARBOR - RR2 - S. FLOOR - LIN/GLUE	Beige Fibrous Homogeneous		85% Non-fibrous (Other)	15% Chrysotile
ASB-052-Glue *431903149-0052A*	1160 N. HARBOR - RR2 - S. FLOOR - LIN/GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-053-Vinyl Floor Tile *431903149-0053*	1160 N. HARBOR - BAY - N.W. FLOOR - 9"x9" VFT/M	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
ASB-053-Mastic *431903149-0053A*	1160 N. HARBOR - BAY - N.W. FLOOR - 9"x9" VFT/M	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-054 *431903149-0054*	1160 N. HARBOR - BAY - N.E. FLOOR - FLOOR COATING	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-055 *431903149-0055*	1160 N. HARBOR - BAY - S.E. FLOOR - FLOOR COATING	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-056 *431903149-0056*	1160 N. HARBOR - BAY - S.W. FLOOR - FLOOR COATING	Gray Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
ASB-057 *431903149-0057*	1160 N. HARBOR - RM 01 - N.W. FLOOR - CARPET GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-058 *431903149-0058*	1160 N. HARBOR - RM 02 - N.W. FLOOR - CARPET GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-059 *431903149-0059*	1160 N. HARBOR - RM 03 - N.E. FLOOR - CARPET GLUE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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ASB-060 *431903149-0060*	1160 N. HARBOR - RM 06 - N.W. WALL - PIPE COATING	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
ASB-061 *431903149-0061*	1160 N. HARBOR - WATER HEATER - E. HVAC UNIT - HVAC FLEX BOOT (DAMPER)	Brown Fibrous Homogeneous	75% Glass	25% Non-fibrous (Other)	None Detected
ASB-062 *431903149-0062*	1160 N. HARBOR - WATER HEATER - E. HVAC UNIT - HVAC FLEX BOOT (DAMPER)	Brown Fibrous Homogeneous	75% Glass	25% Non-fibrous (Other)	None Detected
ASB-063 *431903149-0063*	1160 N. HARBOR - WATER HEATER - E. HVAC UNIT - HVAC FLEX BOOT (DAMPER)	Brown Fibrous Homogeneous	75% Glass	25% Non-fibrous (Other)	None Detected
ASB-064 *431903149-0064*	1160 N. HARBOR - WATER HEATER - S.W. PIPE - TSI PIPE ELBOW	White Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
ASB-065 *431903149-0065*	1160 N. HARBOR - BAY - W. MECH. WINCH (SUB-GRADE) - WINCH DAMPER	Green Fibrous Homogeneous	35% Synthetic 40% Glass	25% Non-fibrous (Other)	None Detected
ASB-066-Wrap *431903149-0066*	1160 N. HARBOR - PIER - PIER - BUMPER	Gray Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
ASB-066-Mastic *431903149-0066A*	1160 N. HARBOR - PIER - PIER - BUMPER	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-067-Drywall *431903149-0067*	1160 N. HARBOR - SHED-SE CEILING-DW/WALL MASTIC	White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-067-Mastic *431903149-0067A*	1160 N. HARBOR - SHED-SE CEILING-DW/WALL MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-068-Drywall *431903149-0068*	1160 N. HARBOR - SHED-W WALL-DW/WALL MASTIC	White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-068-Mastic *431903149-0068A*	1160 N. HARBOR - SHED-W WALL-DW/WALL MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-069-Drywall *431903149-0069*	1160 N. HARBOR - SHED-S WALL-DW/WALL MASTIC	White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
ASB-069-Mastic *431903149-0069A*	1160 N. HARBOR - SHED-S WALL-DW/WALL MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
ASB-070 *431903149-0070*	1160 N. HARBOR - SHED-NW FLR-FLOORING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-071 *431903149-0071*	1160 N. HARBOR - SHED-N FLR-FLOORING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-072 *431903149-0072*	1160 N. HARBOR - SHED-NE FLR-FLOORING	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-073-Vinyl Floor Tile *431903149-0073*	1160 N. HARBOR - SHED-NW FLR BENEATH 1ST LAYER FLR-12X12 VFT/MASTIC	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-073-Mastic *431903149-0073A*	1160 N. HARBOR - SHED-NW FLR BENEATH 1ST LAYER FLR-12X12 VFT/MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-074-Vinyl Floor Tile *431903149-0074* *Insufficient mastic material in sample for analysis.*	1160 N. HARBOR - SHED-N FLR BENEATH 1ST LAYER FLR-12X12 VFT/MASTIC	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-075-Vinyl Floor Tile *431903149-0075*	1160 N. HARBOR - SHED-NE FLR BENEATH 1ST LAYER FLR-12X12 VFT/MASTIC	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-075-Mastic *431903149-0075A*	1160 N. HARBOR - SHED-NE FLR BENEATH 1ST LAYER FLR-12X12 VFT/MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-076 *431903149-0076*	1160 N. HARBOR - SHED-E HVAC UNIT-HVAC INSULATION	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
ASB-077 *431903149-0077*	1160 N. HARBOR - SHED-N WALL EXT-WALL INSULATION	White Fibrous Homogeneous	80% Glass	20% Non-fibrous (Other)	None Detected

Analyst(s)
Alberto Guerrero (56)
Terra Nevin (65)

Mariah Curran, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. San Diego, CA NVLAP Lab Code 200855-0, CA ELAP 2713, HI L-09-03

Initial report from: 04/18/2019 23:07:45

APPENDIX C

XRF Testing Methodology

XRF TESTING METHODOLOGY

To assess the painted surfaces for future contractor worker safety, x-ray fluorescence (XRF) testing technologies were utilized. The testing was conducted in general accordance with the following regulation: *Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation Certification, and Work Practice in Lead Related Construction, Section 36000.*

After a visual assessment, accessible painted surfaces were screened for lead content with a NITON XLp 300A XRF spectrum analyzer. XRF readings were taken using the standard paint mode. Standard paint mode measurements have no predetermined testing length, and automatically adjust to account for various types of substrates and material's densities. In the standard paint mode, the NITON 300A XLp XRF collects an XRF assay until either a K-shell or L-shell result is indicated as either positive or negative, compared to the threshold level based on the current precision of the test. Correction for paint matrix and substrate effects is performed automatically by the XRF analyzer.

XRF readings were made on testing combinations in all room equivalents in an effort to test typical materials that are representative of the room equivalent. Testing combinations were tested non-destructively by holding the shutter of the XRF against the surface being tested. At each XRF assay location, the trigger is depressed to open the shutter, and one reading was made using the standard paint testing mode. Results of each assay were recorded in the memory of the XRF spectrum analyzer and downloaded via the software provided by the manufacturer. In addition, the results of each assay were read and recorded on the XRF Data Sheet field data sheet.

The XRF testing orientation is depicted on the attached sample location maps. The "A" direction was initially assigned to the direction of the street, and the subsequent directions ("B", "C", and "D") were assigned clockwise from the "A" direction. Should the subject site be located on the corner of two streets, the "A" direction is assigned to the direction of the street address of the subject site.

To ensure that the XRF equipment was working properly, various quality control tests were performed before, during, and after the on-site work. At the beginning of the work day, three start up validation measurements were made in the K and L calibration mode, using the calibration check standard associated with the particular XRF that was used. This painted standard contains a known quantity of lead and allows the XRF operator to determine whether the instrument is functioning within acceptable tolerance ranges for accuracy and precision, as determined by the manufacturer. Calibration checks were generally collected on the red 1.06 mg/cm^2 and/or yellow 1.57 mg/cm^2 Standard Reference Material (SRM) paint film, developed by the National Institute of Standards and Technology (NIST).

In addition to the three starts up tests, calibration readings are collected between each building, after four hours, and at the completion of XRF testing. Results of each calibration reading were recorded within the memory of the XRF spectrum analyzer and on the XRF Data Sheet. The quality control tests taken during testing at the subject site were within the acceptable performance range prescribed by the XRF equipment manufacturer. Documentation of the quality control calibration check is included in the XRF Data Sheet, Table 3.

APPENDIX D

CDPH Form 8552 - Lead Hazard Evaluation Report

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 04/04/2019

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

- [x] Lead Inspection
- [ ] Risk assessment
- [ ] Clearance Inspection
- [ ] Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
1160 Harbor Island Drive	San Diego	San Diego	92101

Construction date (year) of structure	Type of structure		Children living in structure?
1965/1966	[ ] Multi-unit building [ ] Single family dwelling	[ ] School or daycare [x] Other Industrial	[ ] Yes [x] No [ ] Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
Port of San Diego (Development Services), Juliette Orozco	619-686-6200

Address [number, street, apartment (if applicable)]	City	State	Zip Code
3165 Pacific Highway	San Diego	CA	92101

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

- [ ] No lead-based paint detected
- [x] Intact lead-based paint detected
- [ ] Deteriorated lead-based paint detected
- [x] No lead hazards detected
- [ ] Lead-contaminated dust found
- [ ] Lead-contaminated soil found
- [x] Other LCS Porcelain

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Nicholas Marinello	858-576-1000

Address [number, street, apartment (if applicable)]	City	State	Zip Code
5710 Ruffin Road	San Diego	CA	92123

CDPH certification number	Signature	Date
28513		4/16/19

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Nicolas Carpenter, CDPH #19280; Brian Ford, CDPH #17260

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

APPENDIX E

County of San Diego, Rule 1206 Requirements

Rule 1206

(4) (i) Facility Information

- Name of Building(s):
  Marine Terminal and Railway Building (Building 921)

- Address of Building:
  1160 Harbor Island Drive
  San Diego, CA 92101

- Building Owner:
  Port of San Diego
  3165 Pacific Highway
  San Diego, CA 92101

(5) (ii) Consultant Information

- Name and Title:
  Nicholas Marinello
  Senior Staff Environmental Scientist

- Company:
  Ninyo & Moore
  5710 Ruffin Road
  San Diego, CA 92123

- Qualifications:
  Certified Asbestos Consultant #17-6117
  Expires 12/13/2019

(6) (iii) Facility Survey Date

- April 4 and 12, 2019

(7) (vi) Suspect Materials Information

- See Tables 1 and 2

- See Sample Location Map 2

(4) (v) Analytical Laboratory Information

- EMSL Analytical, Inc.
  7916 Convoy Court
  San Diego, CA 92111
  (858) 499-1303

(4) (vi) Analytical Laboratory Qualifications

- Laboratory qualification documents can be found on their website below - https://www.emsl.com/Locations.aspx?laboratoryid=43

(4) (vii) Analytical Test Method Used

- Asbestos Analysis of Bulk Materials via EPA Method 600/R-93/116 using Polarized Light Microscopy

5710 Ruffin Road | San Diego, California 92123 | p. 858.576.1000

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Appendix F. Air Quality Memorandum and Greenhouse Gas Emissions Analysis

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Harris & Associates

MEMORANDUM

To: Juliette Orozco, San Diego Unified Port District
From: Sharon Toland, Harris & Associates
RE: Impacts to Air Quality from the Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project
Date: February 12, 2020
Att: 1, CalEEMod Results
CC: Ryan Binns, ENV SP, Kristin Blackson, Harris & Associates

---

The following presents the results of Harris & Associates' analysis of the potential criteria pollutant emissions from proposed remediation activities of the Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project).

Project Description and Modeling Assumptions

Phase 1

The first phase of the project would include the demolition of the Lockheed Martin Company Marine Terminal improvements. Existing utilities within the existing 5,500-square-foot marine terminal building would be disconnected and removed. This phase would include removing power to the San Diego Gas & Electric transformer vault, removing the gas lines to the nearest valve box, capping the fire sprinkler lines 6 inches above grade, removing the sewage tank and associated pipes, capping the outlets to the sewage tank, and removing the water to the backflow preventer on site. The marine terminal building would be demolished. It is assumed that utility removal and site preparation would require 5 working days. Demolition of the marine terminal building would require 7 working days, and 840 tons of debris would be exported in 170 trucks.

After building demolition, the foundation would be removed, and any resulting depressions would be filled with compactable clean fill. It is assumed that the import of 5,205 cubic yards of material would be required to fill depressions. The site would then be graded to match the existing elevation. A total of 0.73 acre would be disturbed during this phase. Foundation removal and grading is assumed to require 5 working days. A 15-cubic-yard-capacity truck is assumed for material import. A construction fleet of an excavator, backhoe, loader, and dozer is assumed for Phase 1 activities.

Phase 2

Phase 2 would include the waterside component of the project beginning with the waterside demolition that is assumed to require 20 working days. The project would include demolition of the in-water 165-foot pier and the 328-foot-long marine railway structure and support structures extending into the bay. The piles from the pier would be removed using equipment staged on a barge or from the landside. The barge would be the storage area for the removed piles. Outfall erosion protection would be constructed along the northern shoreline using 400 square feet of riprap and gravelly sand. Debris would be removed from the water by a heavy clamshell bucket. A fleet of two excavators, a crane, and a drill rig is assumed to represent the equipment staged on the barge. Use of a tug boat would be required for barge placement. The tug boat is assumed to be in operation for approximately 8 hours per day. Removed piles and debris would be brought ashore and transported for disposal by haul truck trips. A total of 1,040 tons of material is assumed to be exported.

Once the existing waterside facilities are demolished, offshore sediments would be dredged, transported to shore, and ultimately transported for disposal. The sediments would be removed using mechanical dredging means, such as a barge-mounted derrick crane, an enclosed clamshell bucket, or a standard clamshell bucket. Dredged material would be placed in scows to transport the material to shore. Prior to offloading sediments, any ponded water would be pumped within the scow into a water treatment system. It is assumed a tug boat for barge placement and two scows would be in operation for approximately 8 hours each day. Approximately 3,500 cubic yards of contaminated sediments with elevated mercury levels would be dredged and exported. A 15-cubic-yard-capacity truck is assumed for material export. Dredged materials would be disposed of at an approved Class III (or Class II) landfill. The nearest available landfill would be the Otay Landfill, located in Chula Vista, California. A one-way haul trip length of 24 miles is assumed.

A total material import of 4,500 cubic yards is assumed for riprap and clean sand to cover the remediation area following sediment disposal. The clean sand would be transported to the project site by haul truck or barge. This analysis assumes material would arrive by truck and would be loaded onto barges and transported to the placement area. A construction equipment fleet of an excavator, a crane, a loader, a dozer, two pumps, and two trucks is assumed for the dredging and export phase of construction.

Phase 3

Phase 3 would include the post-remediation work activities. This phase would include minimal construction equipment that would be required for grading and demolition to return the site to an undeveloped condition. No import or export is expected to occur.

Following the completion of the proposed project, occasional maintenance trips would be required for monitoring activities.

Significance Thresholds

Appendix G of the California Environmental Quality Act Guidelines states that significance criteria established by the applicable air quality management or air pollution control district may be relied on to make determinations of impact. San Diego Air Pollution Control District Rule 20.2 presents air quality impact analysis trigger levels that can be used as numeric methods to demonstrate that a project's total emissions would not result in a significant impact to air quality (SDAPCD 2018). Because the San Diego Air Pollution Control District does not have air quality impact analysis thresholds for emissions of particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and volatile organic compounds (VOCs), the San Diego Unified Port District applies the County of San Diego's Guidelines for Determining Significance (County of San Diego 2007) as thresholds for these pollutants. These thresholds are similar to threshold adopted by the City of San Diego. The thresholds are the same for all pollutants except PM2.4 and VOCs. The City of San Diego has not adopted a threshold for $PM_{2.5}$ and the threshold for VOCs is 137 pounds per day (City of San Diego 2011). Therefore, the County of San Diego thresholds are more conservative and applied to the project. The screening thresholds are listed in Table 1.

Table 1. Screening-Level Criteria Thresholds for Air Quality Impacts

Pollutant	Emission Rate (pounds/day)
PM_{10}	100
$PM_{2.5}$	55
NO_X	250
SO_X	250
CO	550
Pb	3.2
VOC	75

Sources: SDAPCD 2018; County of San Diego 2007.

Notes: CO = carbon monoxide; NO_X = oxides of nitrogen; Pb = lead and lead compounds; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; SO_X = oxides of Sulfur; VOC = volatile organic compounds

The thresholds listed in Table 1 represent screening-level thresholds that can be used to evaluate whether project-related emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. For nonattainment pollutants (ozone [O_3], with ozone precursors oxides of nitrogen [NO_X] and VOCs, and particulate matter less than 10 microns in diameter [PM_{10}]), if emissions exceed the thresholds shown in Table 1, the proposed project could result in a cumulatively considerable net increase in these pollutants and, thus, could have a significant impact on the ambient air quality.

Project Emissions

Project construction emissions from sources other than harbor craft were estimated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. Model inputs were based on the information described previously and provided by the San Diego Unified Port District. Emissions from the tug boat and scows were estimated based on the data, formulas, and emissions factors provided by the Port of San Diego 2016 Maritime Air Emissions Inventory (San Diego Unified Port District 2018). Based on the descriptions of harbor craft in the emission inventories, average engine power, load factor, and emissions factors for tow boats and work boats are assumed for the tug boat and scows, respectively. Detailed assumptions and modeling data sheets are provided in Attachment 1. Emissions levels associated with construction of the proposed project are shown in Table 2.

Table 2. Estimated Daily Maximum Air Pollutant Emissions

Construction Phase	VOC	NO_x	CO	SO_X	PM_{10}	$PM_{2.5}$
pounds/day						
1 – Utility Removal and Site Preparation	1	12	10	<1	1	1
1 – Demolition	1	20	10	<1	4	1
1 – Grading	2	46	17	<1	4	2
2 – Waterside Demolition	6	74	41	<1	4	3
2 – Dredging and Export	18	183	114	<1	8	7
Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; SO_X = oxides of sulfur; VOC = volatile organic compounds

Emission quantities are rounded to the nearest whole number. Exact values are provided in Attachment 1.

Project remediation activities would be short term and temporary, and as shown in Table 2, emissions would be below the significance thresholds for all pollutants. Furthermore, the project would be required to comply with San Diego Air Pollution Control District Rule 55, which is designed to control fugitive dust emissions. This requirement was not accounted for in the air quality modeling, resulting in conservative emissions impact estimates. Thus, the air emissions associated with project remediation activities would be less than significant.

Phase 3 activities would include minimal construction equipment required for grading and demolition to return the site to an undeveloped condition. No truck trips are anticipated. Although construction specifics are unknown, because construction activities would be less intense during this phase than the earlier phases, it can be assumed that maximum daily emissions would not exceed the significance thresholds.

Following remediation activities, the project site would remain vacant and would not generate new sources of operational emissions. Only occasional maintenance trips would be required, resulting in negligible criteria pollutant emissions. Therefore, operational emissions would be less than significant.

Summary

Implementation of the project would not result in significant criteria pollutant emissions. No mitigation measures are necessary.

If you have any questions regarding this memorandum, please contact me at (619) 481-5002, extension 2528, or Sharon.Toland@WeAreHarris.com.

References

City of San Diego. 2011. California Environmental Quality Act Significance Determination Thresholds. January.

County of San Diego. 2007. County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Air Quality. Department of Planning and Land Use, Department of Public Works, Land Use and Environment Group. March 19. Accessed February 2020. http://www.sandiegocounty.gov/content/dam/sdc/pds/ProjectPlanning/docs/AQ-Guidelines.pdf.

San Diego Unified Port District. 2018. Port of San Diego 2016 Maritime Air Emissions Inventory. Prepared by ICF. June.

SDAPCD (San Diego Air Pollution Control District). 2018. "Rule 20.2: New Source Review – Non-Major Stationary Sources." In Regulation II, Permits. Revision adopted April 27, 2016, effective November 5. Accessed February 2020. https://www.sdapcd.org/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Permits/APCD_20.2-2016.pdf.

Attachment 1. CalEEMod Results

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Lockheed Martin Demo

San Diego Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	0.73	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2023
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Lockheed Martin Demo - San Diego Air Basin, Summer

Project Characteristics -

Land Use - Disturbance area 32K SF

Construction Phase - Based on schedule from Port

Off-road Equipment - Fleet provded by Port

Off-road Equipment - Fleet provided by Port

Off-road Equipment - Fleet provided by Port

Off-road Equipment - Fleet provided by Port

Off-road Equipment - Fleet provided by Port

Grading - Info needs provided by Port

Demolition -

Trips and VMT - Haul trip capacity and trip length from Port

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	NumDays	10.00	7.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	25.00
tblConstructionPhase	PhaseEndDate	9/15/2021	9/7/2021
tblConstructionPhase	PhaseStartDate	9/15/2021	9/1/2021
tblGrading	AcresOfGrading	2.50	0.73
tblGrading	AcresOfGrading	0.00	0.73
tblGrading	AcresOfGrading	0.00	2.92
tblGrading	MaterialExported	0.00	3,500.00
tblGrading	MaterialImported	0.00	5,025.00
tblGrading	MaterialImported	0.00	4,500.00
tblLandUse	LotAcreage	0.11	0.73

tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Pressure Washers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
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tblTripsAndVMT	HaulingTripLength	20.00	24.00
tblTripsAndVMT	HaulingTripLength	20.00	24.00
tblTripsAndVMT	HaulingTripLength	20.00	24.00
tblTripsAndVMT	HaulingTripLength	20.00	24.00
tblTripsAndVMT	HaulingTripLength	20.00	24.00
tblTripsAndVMT	HaulingTripNumber	83.00	340.00
tblTripsAndVMT	HaulingTripNumber	103.00	416.00

tblTripsAndVMT	HaulingTripNumber	628.00	694.00
tblTripsAndVMT	HaulingTripNumber	1,000.00	1,067.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.7110	45.9464	21.0630	0.1360	4.0408	0.9837	4.4829	1.2711	0.9286	1.6826	0.0000	14,780.5891	14,780.5891	1.4958	0.0000	14,817.9839
Maximum	**2.7110**	**45.9464**	**21.0630**	**0.1360**	**4.0408**	**0.9837**	**4.4829**	**1.2711**	**0.9286**	**1.6826**	**0.0000**	**14,780.5891**	**14,780.5891**	**1.4958**	**0.0000**	**14,817.9839**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.7110	45.9464	21.0630	0.1360	4.0408	0.9837	4.4829	1.2711	0.9286	1.6826	0.0000	14,780.5891	14,780.5891	1.4958	0.0000	14,817.9839
Maximum	**2.7110**	**45.9464**	**21.0630**	**0.1360**	**4.0408**	**0.9837**	**4.4829**	**1.2711**	**0.9286**	**1.6826**	**0.0000**	**14,780.5891**	**14,780.5891**	**1.4958**	**0.0000**	**14,817.9839**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1388	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409
Mobile	0.0539	0.1987	0.6485	2.3900e-003	0.2157	1.7700e-003	0.2175	0.0577	1.6400e-003	0.0593		243.2798	243.2798	0.0117		243.5733
Total	**0.1944**	**0.2142**	**0.6621**	**2.4800e-003**	**0.2157**	**2.9500e-003**	**0.2187**	**0.0577**	**2.8200e-003**	**0.0605**		**261.9110**	**261.9110**	**0.0121**	**3.4000e-004**	**262.3153**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1388	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409
Mobile	0.0539	0.1987	0.6485	2.3900e-003	0.2157	1.7700e-003	0.2175	0.0577	1.6400e-003	0.0593		243.2798	243.2798	0.0117		243.5733
Total	**0.1944**	**0.2142**	**0.6621**	**2.4800e-003**	**0.2157**	**2.9500e-003**	**0.2187**	**0.0577**	**2.8200e-003**	**0.0605**		**261.9110**	**261.9110**	**0.0121**	**3.4000e-004**	**262.3153**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Site Preparation	Site Preparation	9/1/2021	9/7/2021	5	5	
2	Phase 1 Demolition	Demolition	9/8/2021	9/16/2021	5	7	
3	Phase 1 Grading	Grading	9/17/2021	9/23/2021	5	5	
4	Phase 2 Demolition	Demolition	10/1/2021	10/28/2021	5	20	
5	Phase 2 Grading	Grading	10/29/2021	12/2/2021	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 1 Grading	Excavators	1	6.00	158	0.38
Phase 2 Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Phase 1 Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Phase 2 Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Phase 1 Demolition	Rubber Tired Dozers	1	1.00	247	0.40

Phase 2 Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Phase 1 Demolition	Excavators	1	6.00	158	0.38
Phase 1 Grading	Rubber Tired Dozers	1	1.00	247	0.40
Phase 2 Grading	Rubber Tired Dozers	1	1.00	247	0.40
Phase 1 Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Phase 2 Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Phase 1 Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Phase 2 Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Phase 1 Site Preparation		0		0	
Phase 1 Site Preparation		0		0	
Phase 1 Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Phase 1 Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Phase 1 Site Preparation	Graders	1	8.00	187	0.41
Phase 1 Site Preparation	Excavators	1	8.00	158	0.38
Phase 2 Demolition	Excavators	2	6.00	158	0.38
Phase 2 Demolition	Bore/Drill Rigs	1	8.00	221	0.50
Phase 2 Grading	Excavators	1	6.00	158	0.38
Phase 2 Grading	Pressure Washers	1	6.00	13	0.30
Phase 2 Grading	Pumps	2	6.00	84	0.74
Phase 2 Grading	Off-Highway Trucks	2	6.00	402	0.38
Phase 2 Grading	Cranes	1	6.00	231	0.29
Phase 2 Demolition	Cranes	1	6.00	231	0.29

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 1 Demolition	4	10.00	0.00	340.00	10.80	7.30	24.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Site Preparation	4	10.00	0.00	0.00	10.80	7.30	24.00	LD_Mix	HDT_Mix	HHDT
Phase 2 Demolition	4	10.00	0.00	416.00	10.80	7.30	24.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Grading	4	10.00	0.00	694.00	10.80	7.30	24.00	LD_Mix	HDT_Mix	HHDT
Phase 2 Grading	9	23.00	0.00	1,067.00	10.80	7.30	24.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Phase 1 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1548	0.0000	0.1548	0.0167	0.0000	0.0167			0.0000			0.0000
Off-Road	1.0567	11.8696	9.5595	0.0180		0.5157	0.5157		0.4744	0.4744		1,743.6762	1,743.6762	0.5639		1,757.7747
Total	**1.0567**	**11.8696**	**9.5595**	**0.0180**	**0.1548**	**0.5157**	**0.6705**	**0.0167**	**0.4744**	**0.4912**		**1,743.6762**	**1,743.6762**	**0.5639**		**1,757.7747**

3.2 Phase 1 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0346	0.0225	0.2652	8.2000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		81.4441	81.4441	2.3200e-003		81.5022
Total	**0.0346**	**0.0225**	**0.2652**	**8.2000e-004**	**0.0822**	**5.7000e-004**	**0.0827**	**0.0218**	**5.2000e-004**	**0.0223**		**81.4441**	**81.4441**	**2.3200e-003**		**81.5022**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1548	0.0000	0.1548	0.0167	0.0000	0.0167			0.0000			0.0000
Off-Road	1.0567	11.8696	9.5595	0.0180		0.5157	0.5157		0.4744	0.4744	0.0000	1,743.6762	1,743.6762	0.5639		1,757.7747
Total	**1.0567**	**11.8696**	**9.5595**	**0.0180**	**0.1548**	**0.5157**	**0.6705**	**0.0167**	**0.4744**	**0.4912**	**0.0000**	**1,743.6762**	**1,743.6762**	**0.5639**		**1,757.7747**

3.2 Phase 1 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0346	0.0225	0.2652	8.2000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		81.4441	81.4441	2.3200e-003		81.5022
Total	**0.0346**	**0.0225**	**0.2652**	**8.2000e-004**	**0.0822**	**5.7000e-004**	**0.0827**	**0.0218**	**5.2000e-004**	**0.0223**		**81.4441**	**81.4441**	**2.3200e-003**		**81.5022**

3.3 Phase 1 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5999	0.0000	2.5999	0.3937	0.0000	0.3937			0.0000			0.0000
Off-Road	0.5836	5.8302	6.3489	9.6000e-003		0.3126	0.3126		0.2875	0.2875		929.9131	929.9131	0.3008		937.4319
Total	**0.5836**	**5.8302**	**6.3489**	**9.6000e-003**	**2.5999**	**0.3126**	**2.9125**	**0.3937**	**0.2875**	**0.6813**		**929.9131**	**929.9131**	**0.3008**		**937.4319**

3.3 Phase 1 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4170	14.0303	3.5420	0.0439	1.0183	0.0451	1.0634	0.2790	0.0432	0.3222		4,818.3809	4,818.3809	0.4174		4,828.8153
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0346	0.0225	0.2652	8.2000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		81.4441	81.4441	2.3200e-003		81.5022
Total	**0.4516**	**14.0528**	**3.8073**	**0.0448**	**1.1004**	**0.0457**	**1.1461**	**0.3008**	**0.0437**	**0.3445**		**4,899.8250**	**4,899.8250**	**0.4197**		**4,910.3175**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5999	0.0000	2.5999	0.3937	0.0000	0.3937			0.0000			0.0000
Off-Road	0.5836	5.8302	6.3489	9.6000e-003		0.3126	0.3126		0.2875	0.2875	0.0000	929.9131	929.9131	0.3008		937.4319
Total	**0.5836**	**5.8302**	**6.3489**	**9.6000e-003**	**2.5999**	**0.3126**	**2.9125**	**0.3937**	**0.2875**	**0.6813**	**0.0000**	**929.9131**	**929.9131**	**0.3008**		**937.4319**

3.3 Phase 1 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4170	14.0303	3.5420	0.0439	1.0183	0.0451	1.0634	0.2790	0.0432	0.3222		4,818.3809	4,818.3809	0.4174		4,828.8153
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0346	0.0225	0.2652	8.2000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		81.4441	81.4441	2.3200e-003		81.5022
Total	**0.4516**	**14.0528**	**3.8073**	**0.0448**	**1.1004**	**0.0457**	**1.1461**	**0.3008**	**0.0437**	**0.3445**		**4,899.8250**	**4,899.8250**	**0.4197**		**4,910.3175**

3.4 Phase 1 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0488	0.0000	1.0488	0.4519	0.0000	0.4519			0.0000			0.0000
Off-Road	0.5836	5.8302	6.3489	9.6000e-003		0.3126	0.3126		0.2875	0.2875		929.9131	929.9131	0.3008		937.4319
Total	**0.5836**	**5.8302**	**6.3489**	**9.6000e-003**	**1.0488**	**0.3126**	**1.3614**	**0.4519**	**0.2875**	**0.7394**		**929.9131**	**929.9131**	**0.3008**		**937.4319**

3.4 Phase 1 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1918	40.0938	10.1219	0.1255	2.9098	0.1290	3.0388	0.7974	0.1234	0.9208		13,769.2319	13,769.2319	1.1927		13,799.0498
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0346	0.0225	0.2652	8.2000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		81.4441	81.4441	2.3200e-003		81.5022
Total	**1.2264**	**40.1162**	**10.3871**	**0.1264**	**2.9920**	**0.1296**	**3.1216**	**0.8192**	**0.1239**	**0.9431**		**13,850.6760**	**13,850.6760**	**1.1950**		**13,880.5520**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0488	0.0000	1.0488	0.4519	0.0000	0.4519			0.0000			0.0000
Off-Road	0.5836	5.8302	6.3489	9.6000e-003		0.3126	0.3126		0.2875	0.2875	0.0000	929.9131	929.9131	0.3008		937.4319
Total	**0.5836**	**5.8302**	**6.3489**	**9.6000e-003**	**1.0488**	**0.3126**	**1.3614**	**0.4519**	**0.2875**	**0.7394**	**0.0000**	**929.9131**	**929.9131**	**0.3008**		**937.4319**

3.4 Phase 1 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1918	40.0938	10.1219	0.1255	2.9098	0.1290	3.0388	0.7974	0.1234	0.9208		13,769.2319	13,769.2319	1.1927		13,799.0498
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0346	0.0225	0.2652	8.2000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		81.4441	81.4441	2.3200e-003		81.5022
Total	**1.2264**	**40.1162**	**10.3871**	**0.1264**	**2.9920**	**0.1296**	**3.1216**	**0.8192**	**0.1239**	**0.9431**		**13,850.6760**	**13,850.6760**	**1.1950**		**13,880.5520**

3.5 Phase 2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1266	0.0000	1.1266	0.1706	0.0000	0.1706			0.0000			0.0000
Off-Road	0.9096	9.8660	8.4591	0.0215		0.3950	0.3950		0.3634	0.3634		2,078.6589	2,078.6589	0.6723		2,095.4659
Total	**0.9096**	**9.8660**	**8.4591**	**0.0215**	**1.1266**	**0.3950**	**1.5216**	**0.1706**	**0.3634**	**0.5340**		**2,078.6589**	**2,078.6589**	**0.6723**		**2,095.4659**

3.5 Phase 2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1786	6.0083	1.5168	0.0188	0.4361	0.0193	0.4554	0.1195	0.0185	0.1380		2,063.4008	2,063.4008	0.1787		2,067.8691
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0346	0.0225	0.2652	8.2000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		81.4441	81.4441	2.3200e-003		81.5022
Total	**0.2132**	**6.0308**	**1.7821**	**0.0196**	**0.5182**	**0.0199**	**0.5381**	**0.1413**	**0.0190**	**0.1603**		**2,144.8448**	**2,144.8448**	**0.1811**		**2,149.3713**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1266	0.0000	1.1266	0.1706	0.0000	0.1706			0.0000			0.0000
Off-Road	0.9096	9.8660	8.4591	0.0215		0.3950	0.3950		0.3634	0.3634	0.0000	2,078.6589	2,078.6589	0.6723		2,095.4659
Total	**0.9096**	**9.8660**	**8.4591**	**0.0215**	**1.1266**	**0.3950**	**1.5216**	**0.1706**	**0.3634**	**0.5340**	**0.0000**	**2,078.6589**	**2,078.6589**	**0.6723**		**2,095.4659**

3.5 Phase 2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1786	6.0083	1.5168	0.0188	0.4361	0.0193	0.4554	0.1195	0.0185	0.1380		2,063.4008	2,063.4008	0.1787		2,067.8691
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0346	0.0225	0.2652	8.2000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		81.4441	81.4441	2.3200e-003		81.5022
Total	**0.2132**	**6.0308**	**1.7821**	**0.0196**	**0.5182**	**0.0199**	**0.5381**	**0.1413**	**0.0190**	**0.1603**		**2,144.8448**	**2,144.8448**	**0.1811**		**2,149.3713**

3.6 Phase 2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.9216	0.0000	0.9216	0.4340	0.0000	0.4340			0.0000			0.0000
Off-Road	2.2650	20.9845	17.3405	0.0417		0.9427	0.9427		0.8895	0.8895		4,004.9476	4,004.9476	1.0375		4,030.8843
Total	**2.2650**	**20.9845**	**17.3405**	**0.0417**	**0.9216**	**0.9427**	**1.8643**	**0.4340**	**0.8895**	**1.3234**		**4,004.9476**	**4,004.9476**	**1.0375**		**4,030.8843**

3.6 Phase 2 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3665	12.3285	3.1124	0.0386	0.8948	0.0397	0.9344	0.2452	0.0380	0.2832		4,233.9396	4,233.9396	0.3668		4,243.1084
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0796	0.0517	0.6101	1.8800e-003	0.1889	1.3100e-003	0.1902	0.0501	1.2000e-003	0.0513		187.3214	187.3214	5.3500e-003		187.4551
Total	**0.4460**	**12.3802**	**3.7225**	**0.0405**	**1.0837**	**0.0410**	**1.1247**	**0.2953**	**0.0392**	**0.3345**		**4,421.2610**	**4,421.2610**	**0.3721**		**4,430.5634**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.9216	0.0000	0.9216	0.4340	0.0000	0.4340			0.0000			0.0000
Off-Road	2.2650	20.9845	17.3405	0.0417		0.9427	0.9427		0.8895	0.8895	0.0000	4,004.9476	4,004.9476	1.0375		4,030.8843
Total	**2.2650**	**20.9845**	**17.3405**	**0.0417**	**0.9216**	**0.9427**	**1.8643**	**0.4340**	**0.8895**	**1.3234**	**0.0000**	**4,004.9476**	**4,004.9476**	**1.0375**		**4,030.8843**

3.6 Phase 2 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3665	12.3285	3.1124	0.0386	0.8948	0.0397	0.9344	0.2452	0.0380	0.2832		4,233.9396	4,233.9396	0.3668		4,243.1084
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0796	0.0517	0.6101	1.8800e-003	0.1889	1.3100e-003	0.1902	0.0501	1.2000e-003	0.0513		187.3214	187.3214	5.3500e-003		187.4551
Total	**0.4460**	**12.3802**	**3.7225**	**0.0405**	**1.0837**	**0.0410**	**1.1247**	**0.2953**	**0.0392**	**0.3345**		**4,421.2610**	**4,421.2610**	**0.3721**		**4,430.5634**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0539	0.1987	0.6485	2.3900e-003	0.2157	1.7700e-003	0.2175	0.0577	1.6400e-003	0.0593		243.2798	243.2798	0.0117		243.5733
Unmitigated	0.0539	0.1987	0.6485	2.3900e-003	0.2157	1.7700e-003	0.2175	0.0577	1.6400e-003	0.0593		243.2798	243.2798	0.0117		243.5733

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	34.85	6.60	3.40	76,846	76,846
Total	34.85	6.60	3.40	76,846	76,846

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.602700	0.040134	0.179939	0.104242	0.014985	0.005435	0.016642	0.024350	0.001934	0.001888	0.005938	0.000757	0.001056

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409
NaturalGas Unmitigated	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	158.356	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409
Total		**1.7100e-003**	**0.0155**	**0.0130**	**9.0000e-005**		**1.1800e-003**	**1.1800e-003**		**1.1800e-003**	**1.1800e-003**		**18.6301**	**18.6301**	**3.6000e-004**	**3.4000e-004**	**18.7409**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.158356	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409
Total		**1.7100e-003**	**0.0155**	**0.0130**	**9.0000e-005**		**1.1800e-003**	**1.1800e-003**		**1.1800e-003**	**1.1800e-003**		**18.6301**	**18.6301**	**3.6000e-004**	**3.4000e-004**	**18.7409**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1388	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Unmitigated	0.1388	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0318					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1388**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0318					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1388**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

						Emissions factor (g/hp-hour)					Emissions (g/day)				
Type of Craft		**Number of Boats**	**Hours Per Day**	**HP**	**Load Factor**	**VOC**	**CO**	**Nox**	**PM**	**SO2**	**VOC**	**CO**	**Nox**	**PM**	**SO2**
Tow Boat	Main Engine	1	3.9	1338	0.68	0.57	3.65	6.95	0.24	0.01	2,028	12,949	24,668	855	35
	Aux Engine	1	7.8	114	0.43	0.83	3.04	4.56	0.18	0.01	316	1,161	1,745	71	4
Scow (Work boa	Main Engine	2	7.8	850	0.45	0.53	3.89	5.02	0.14	0.01	3,148	23,239	29,927	853	60
	Aux Engine	2	7.8	132	0.43	1.47	5.49	13.27	0.66	0.01	1,305	4,865	11,748	588	9

Dredging and Export (Tow and Scows)

Pollutant	**Total g/day**	**Total pounds/da**
VOC	6,798	15
CO	42,213	93
Nox	68,089	150
PM	2,366	5
SO2	108	0

Demolition (Tow Boat only)

Pollutant	**Total g/day**	**Total pounds/day**
VOC	2,344	5
CO	14,110	31
Nox	26,414	58
PM	926	2
SO2	39	0

DRAFT

Greenhouse Gas Emissions Analysis

Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project

May 2020

Prepared for:

San Diego Unified Port District
3165 Pacific Highway
San Diego, California 92101
Juliette Orozco

Prepared by:

Harris & Associates

600 B Street, Suite 2000
San Diego, California 92101
(619) 236-1778

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Appendix A. Modeling Results

Acronyms and Abbreviations

°F	degrees Fahrenheit
2017 Scoping Plan	2017 Climate Change Scoping Plan
AB	Assembly Bill
CalEEMod	California Emission Estimator Model
CAP	Climate Action Plan
CCAT	California Climate Action Team
CCC	California Coastal Commission
CEQA	California Environmental Quality Act
CH_4	methane
City	City of San Diego
City CAP	City of San Diego Climate Action Plan
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	County of San Diego
District	San Diego Unified Port District
EO	Executive Order
First Update	First Update to the Climate Change Scoping Plan
Focus 2050	Regional Focus 2050 Working Paper and Technical Assessment
GHG	greenhouse gas
MMT	million metric tons
MT	metric ton
MTF	Lockheed Martin Marine Terminal Facilities
N_2O	nitrous oxide
project	Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project
SB	Senate Bill
SF_6	sulfur hexafluoride
SMA	sediment management area
USEPA	U.S. Environmental Protection Agency

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Executive Summary

This greenhouse gas (GHG) emissions analysis assesses the potential GHG-related impacts associated with demolition and remediation of the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project), which would involve the demolition of the existing Lockheed Martin Marine Terminal Facilities (MTF) and would return the site to its original undeveloped state in the City of San Diego (City). This report presents an evaluation of existing conditions in the region, thresholds of significance, and potential impacts associated with the remediation and demolition of the project.

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Section 1 Introduction

1.1 Purpose of the Report

This greenhouse gas (GHG) emissions evaluation was prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) to assess if any potentially significant impacts related to GHG emissions are likely to occur in conjunction with the type and scale of development associated with the proposed Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project (project).

1.2 Project Location and Description

The proposed project involves the demolition of the existing Lockheed Martin Marine Terminal Facilities (MTF) located at 1160 Harbor Island Drive in San Diego, California (Figure 1, Regional Location). The project site is approximately 64,000 square feet, with the landside comprising approximately 32,000 square feet and the waterside comprising approximately 32,000 square feet (Figure 2, Project Site). The existing landside and waterside improvements were constructed in 1966 and were primarily used by the Lockheed Martin Company (now the Lockheed Martin Corporation) as a maintenance facility for deepwater submersible vehicles. Lockheed Martin Corporation proposes to demolish existing landside and waterside improvements to return the site to its original undeveloped state. Activities would be broken down into three phases and would include landside demolition, waterside demolition, dredging, sediment remediation, and post-remediation activities (Figure 3, Project Components). It is anticipated that the project would be completed in approximately 5 to 6 months, with Phase 1 occurring from November through December 2020, Phase 2 occurring from September through November 2021, and Phase 3 beginning in May 2022.

Phase 1

Landside Demolition

The first phase would include the demolition of the MTF. Existing utilities within the existing 5,500-square-foot marine terminal building would be disconnected and removed. This would include removing power to the San Diego Gas & Electric transformer vault, removing the gas lines to the nearest valve box, capping the fire sprinkler lines 6 inches above grade, removing the sewage tank and associated pipes, capping the outlets to the sewage tank, and removing the water to the backflow preventer on site. The project would then demolish the marine terminal building. After building demolition, the foundation would be removed, and any resulting depressions would be filled with compactable clean fill. The site would then be graded to match the existing elevation. The existing concrete and asphalt parking areas would remain to be used as part of the sediment management area (SMA) during the offshore remediation component. The SMA

would be confined with an impermeable barrier (potentially through an asphalt berm or K-rails sealed at the base with an impervious fabric) to prevent discharge into San Diego Bay or into underlying soils.

Phase 2

Waterside Demolition

Phase 2 would include the offshore component of the project, beginning with the waterside demolition. The project would include demolition of the in-water 165-foot pier and the 328-foot-long marine railway structure and support structures extending into the bay. The piles from the pier would be removed using equipment staged on a barge or from the landside. The project barge would be the storage area for the removed piles. Outfall erosion protection would be constructed along the northern shoreline using 400 square feet of riprap and gravelly sand. Silt curtains would be used as necessary to minimize the transport of suspended solids. In addition, a floating surface debris boom would be deployed equipped with skirts and absorbent pads to capture floating surface debris and control potential oil sheen movement. The water's turbidity levels would be monitored during demolition activities. Debris would be removed from the water by a heavy clamshell bucket. Removed piles and debris would be brought ashore and transported for disposal by haul truck trips.

Dredging

Once the existing waterside facilities are demolished, offshore sediments would be dredged within an approximately 90,000-square-foot area. Approximately 15,000 cubic yards of contaminated sediments with elevated mercury levels would be dredged while maintaining navigation beneficial use on the project site. The sediments would be removed using mechanical dredging means, such as a barge-mounted derrick crane, an enclosed clamshell bucket, or a standard clamshell bucket.

Throughout dredging operations, silt curtains would be used to contain resuspended sediment during dredging and debris removal operations. Each silt curtain would include an oil boom component contained within the silt curtain, which would float on the water surface. Silt curtains would be weighted and positioned using anchors or marine structures or by being connected to shoreline locations.

Dredged material would then be placed in water-tight scows, large flat-bottomed boats with square ends used for transporting bulk materials (Figure 3), that would be transferred to the upland SMA for processing or transfer. Prior to offloading sediments, any ponded water would be pumped within the scow into a water treatment system. The on-site water treatment system would consist of a series of holding and weir tanks and would be sufficient to meet the discharge requirements into the City's sewer system (through an Individual User Discharge Permit). Prior to discharge, water samples would be collected in accordance with the Individual User Discharge Permit. If the effluent contains analytical concentrations that exceed Individual User Discharge Permit

standards, the water would then be treated on site or removed from the site by a licensed waste hauler and disposed of in accordance with local, state, and federal requirements.

At the SMA, dredged sediment would be stabilized with Portland cement (as necessary to pass the Paint Filter Test) to accelerate the drying process. The sediment would be tested based on selected upland disposal landfill's profile requirements and then loaded into lined haul trucks and transported to an upland disposal location. Dredged materials would be disposed of at an approved Class III (or Class II) landfill. The nearest available landfill would be the Otay Landfill, located in Chula Vista, California.

Sediment Placement

Once dredging is complete, the project would place 4,500 cubic yards of clean sand cover on up to 92,170 square feet of the site. The clean sand cover would be placed on areas targeted for remediation. As time passes, the clean cover would mix into the underlying sediment through benthic interactions, such as organism burrowing. Equipment required for placement would be similar to the equipment used during dredging but would be supplemented with a conveyor. The clean sand would be transported to the project site by haul truck or barge. If the material arrives by truck, it would be loaded onto barges and transported to the placement area. A silt curtain would be placed around the sand placement area to reduce turbidity caused by placement operations.

Phase 3

Once the sediment has been dredged and disposed of the SMA would be removed. The asphalt and concrete paving areas would be demolished with the exception of a retaining wall above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to allow stormwater to be absorbed and to minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain and the site would be graded so that the excess water from storm events is directed to those spillways.

The existing mature trees would be left undisturbed. Drought tolerant grass would be planted, and an irrigation system would be installed. The irrigation system would be connected to the existing backflow flow protector on site and would have manual valves due to the lack of on-site power.

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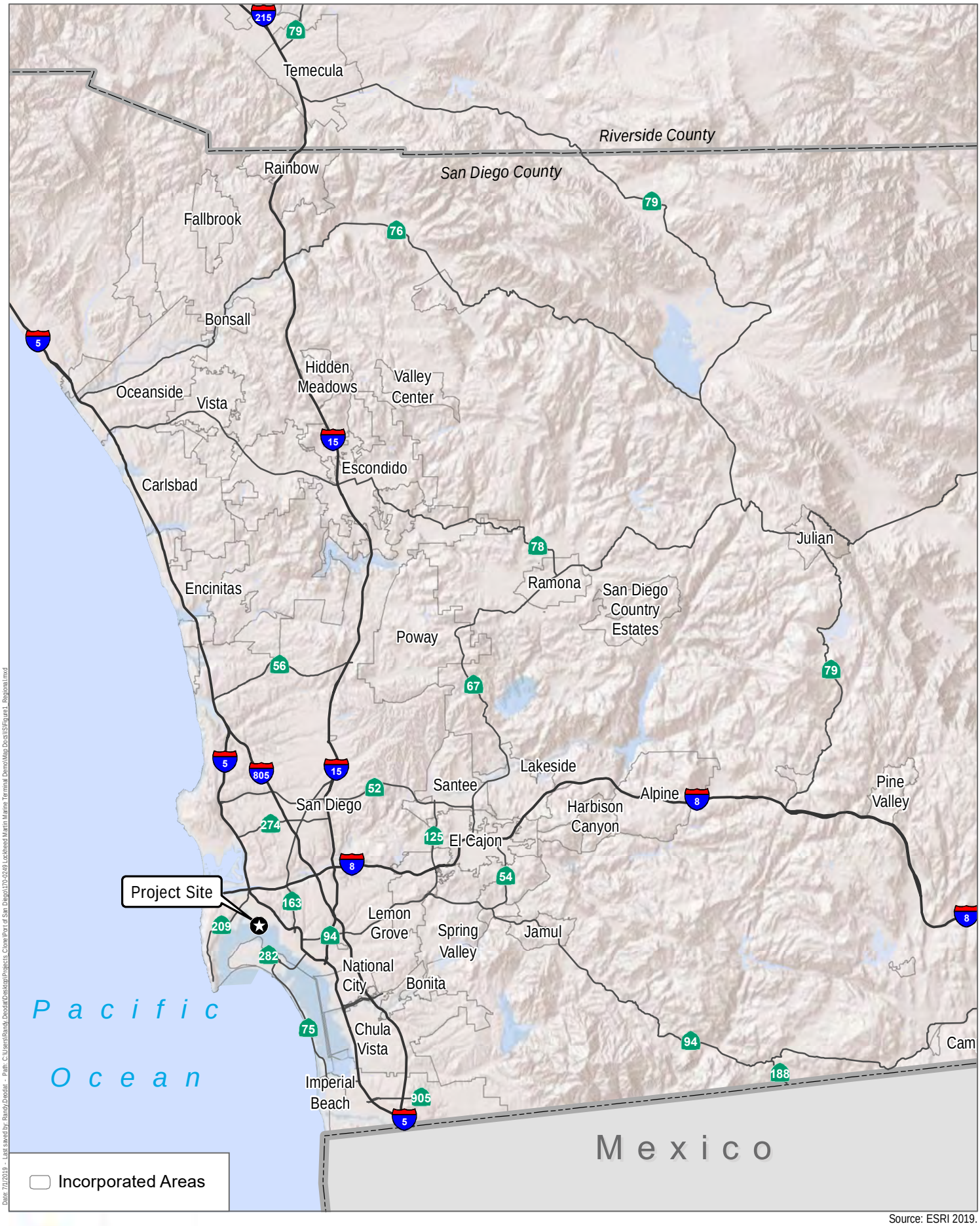

Source: ESRI 2019.

Harris & Associates

N

0 5 10 Miles

Figure 1

Regional Location

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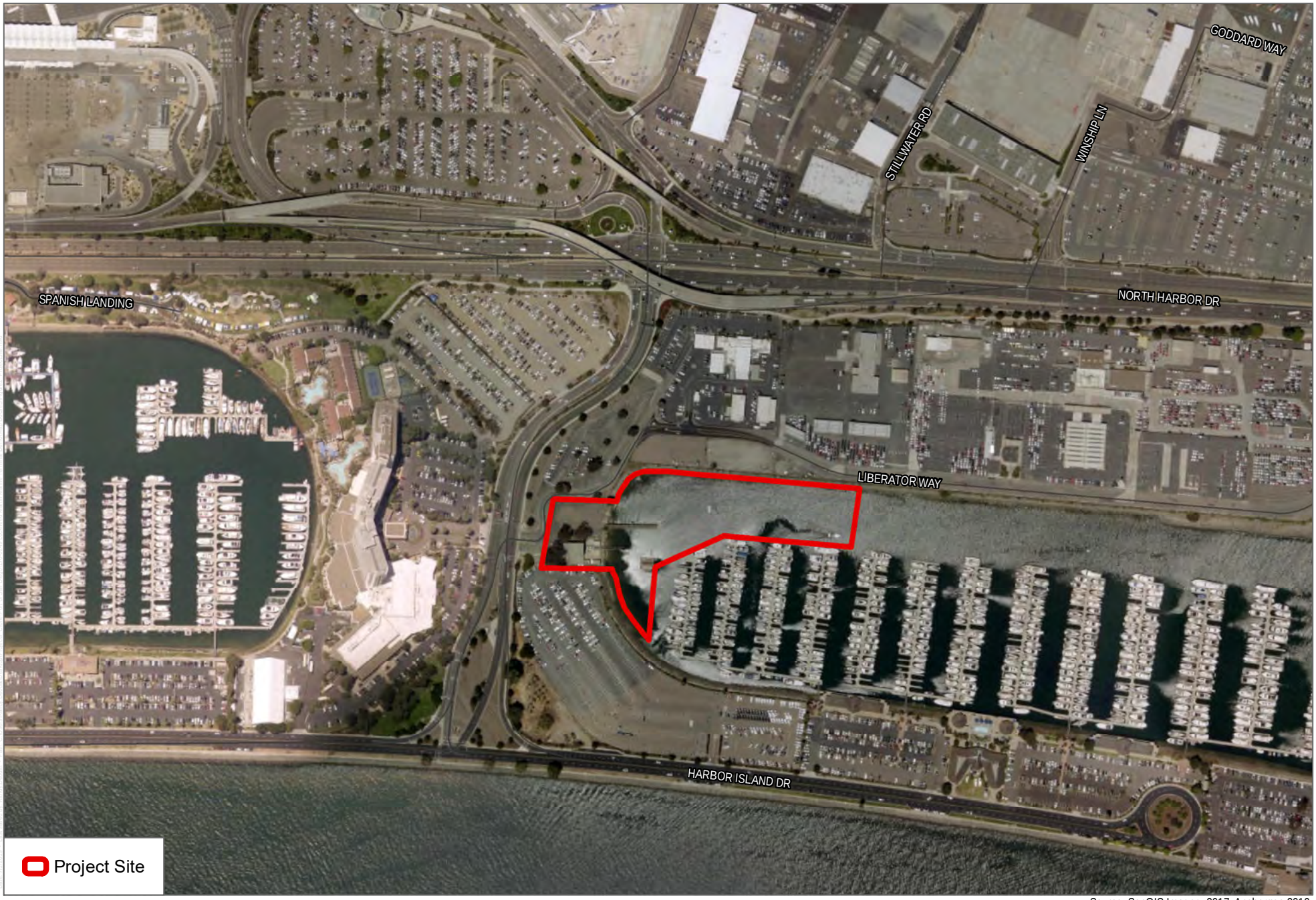

Source: SanGIS Imagery 2017; Anchorqea 2019.

Harris & Associates

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Figure 2

Project Site

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Source: SanGIS Imagery 2017; Anchorqea 2019.

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Figure 3

Project Components

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Section 2 Environmental Setting

2.1 Global Climate Change Overview

Climate change refers to any substantial change in measures of climate (such as temperature, precipitation, or wind) lasting for decades or longer. According to the U.S. Environmental Protection Agency (USEPA), the earth's climate has changed many times during the planet's history, including events ranging from ice ages to long periods of warmth. Historically, natural factors such as volcanic eruptions, changes in the earth's orbit, and the amount of energy released from the sun have affected the earth's climate. Some GHGs, such as water vapor, occur naturally and are emitted to the atmosphere through natural processes, while others are emitted through human activities. Beginning late in the eighteenth century, human activities associated with the Industrial Revolution have also changed the composition of the atmosphere and, therefore, are very likely influencing the earth's climate. For over the past 200 years, the burning of fossil fuels, such as coal and oil, and deforestation have caused concentrations of heat-trapping GHG to increase substantially in the atmosphere.

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat-trapping effects of GHGs, the earth's temperature would be approximately 93 degrees Fahrenheit (°F) cooler (CCAT 2007). However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

2.2 Greenhouse Gases

Carbon dioxide (CO_2) enters the atmosphere through the burning of fossil fuels, solid waste, trees and wood products, and as a result of other chemical reactions such as through the manufacturing of cement. Globally, the largest source of CO_2 emissions is the combustion of fossil fuels in power plants, automobiles, industrial facilities, and other similar sources (USEPA 2019a). Methane (CH_4) is emitted from a variety of both natural and human-related sources, including fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management (USEPA 2019b). Nitrous oxide (N_2O) is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste (USEPA 2019b). Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) are synthetic, powerful GHGs that are emitted from a variety of industrial processes, and the production of chlorodifluoromethane. Construction or operation of the proposed project would not include any industrial processes, and chlorodifluoromethane has been mostly phased out of use in the U.S. (UNEP 2018); therefore, these GHGs are not discussed further in this EIR.

Individual GHGs have varying heat-trapping properties and atmospheric lifetimes. Table 1 identifies the carbon dioxide equivalent (CO_2e) and atmospheric lifetimes of basic GHGs. The CO_2e is a

consistent methodology for comparing GHG emissions because it normalizes various GHG emissions to a consistent measure. Each GHG is compared to CO_2 with respect to its ability to trap infrared radiation, its atmospheric lifetime, and its chemical structure. For example, CH_4 is a GHG that is 25 times more potent than CO_2; therefore, 1 metric ton (MT) of CH_4 is equal to 25 $MTCO_2e$.

Table 1. Global Warming Potentials and Atmospheric Lifetimes of Common Greenhouse Gases

GHG	Formula	100-Year Global Warming Potential[1]	Atmospheric Lifetime
Carbon dioxide	CO_2	1	~100
Methane	CH_4	25	12
Nitrous oxide	N_2O	298	121

Source: CAPCOA 2017. Consistent with CalEEMod, Version 2016.3.2.

Notes: GHG = greenhouse gas

[1] The warming effects over a 100-year time frame relative to other GHGs.

2.2.1 Carbon Dioxide

CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products and as a result of other chemical reactions, such as through the manufacturing of cement. Globally, the largest source of CO_2 emissions is the combustion of fossil fuels in power plants, automobiles, industrial facilities, and other similar sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and petroleum-based products also produce CO_2 emissions. CO_2 is also removed from the atmosphere (or sequestered) when it is absorbed by plants as part of the biological carbon cycle. As part of the carbon cycle, billions of tons of atmospheric CO_2 are removed from the atmosphere by oceans and growing plants, also known as "sinks," and are emitted back into the atmosphere annually through respiration, decay, and combustion, also known as "sources." When in balance, the total CO_2 emissions and removals from the entire carbon cycle are roughly equal. Since the Industrial Revolution in the 1700s, human activities, such as the burning of oil, coal, and gas and deforestation, have increased CO_2 concentrations in the atmosphere (USEPA 2019a).

2.2.2 Methane

CH_4 is emitted from a variety of both human-related and natural sources. Human-related activities include fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management. CH_4 is emitted during the production and transport of fossil fuels. CH_4 emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills. It is estimated that 60 percent of global CH_4 emissions are related to human activities. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and wildfires. Natural processes in soil and chemical reactions in the atmosphere help remove CH_4 from the atmosphere (USEPA 2019a).

2.2.3 Nitrous Oxide

N_2O is produced by both natural and human-related sources. N_2O is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic (fatty) acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. Globally, approximately 40 percent of total N_2O emissions come from human activities (USEPA 2019a).

2.3 Global, National, Statewide, and Local Greenhouse Gas Inventories

In an effort to evaluate and reduce the potential adverse impact of climate change, global, national, state, and local organizations have conducted GHG inventories to estimate levels of and trends in GHG emissions and removals. The following summarizes these GHG inventories.

2.3.1 Global

Worldwide anthropogenic GHG emissions in 2010 were approximately 49,000 million metric tons (MMT) of CO_2e, including ongoing emissions from industrial and agricultural sources and emissions from land use changes (e.g., deforestation, biomass decay) (IPCC 2014). CO_2 emissions from fossil fuel use and industrial processes account for 65 percent of the total emissions of 49,000 $MMTCO_2e$ (which include land use changes), and CO_2 emissions are 77 percent of the total GHG emissions. CH_4 emissions account for 16 percent of total GHG emissions, and N_2O emissions account for 6 percent of total GHG emissions (IPCC 2014).

2.3.2 United States

The USEPA's Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017 provides a comprehensive emissions inventory of the nation's primary anthropogenic sources and sinks of GHGs. Total U.S. GHG emissions in 2017 were 6,456.7 $MMTCO_2e$, a decrease from 2016 by 0.5 percent. Emissions from transportation activities, in total, accounted for the largest portion (28.9 percent) of total U.S. GHG emissions in 2017. Electric power generation accounted for the second largest portion (27.5 percent), while emissions from industry accounted for the third largest portion (22.2 percent) of total U.S. GHG emissions in 2017. Emissions from industry have in general declined over the past decade due to a number of factors, including structural changes in the U.S. economy (i.e., shifts from a manufacturing-based to a service-based economy), fuel switching, and energy efficiency improvements. The remaining U.S. GHG emissions were contributed by, in order of magnitude, the agricultural, commercial, and residential sectors (USEPA 2019a).

2.3.3 California

According to the California Greenhouse Gas Emissions Inventory for 2006 to 2016, which tracks the emissions of seven GHGs for the years 2000 through 2016, the total California GHG emissions in 2016 were 429 $MMTCO_2e$. During the 2000 to 2016 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14 tons per person to 10.8 tons per person in 2016, a 23 percent decrease. The transportation sector remains the largest source of GHG emissions in the state, accounting for 39 percent of the inventory, and experienced a small increase in emissions in 2016. Emissions from the electricity sector (16 percent in 2016) continue to decline due to growing zero-GHG energy generation sources. Emissions from the industrial sector contributed 21 percent to total GHG emissions in 2015 and 2016, emissions from the commercial sector contributed 5 percent, emissions from the residential sector contributed 7 percent, and emissions from the agricultural sector contributed 8 percent (CARB 2018a).

2.3.4 County of San Diego

In February 2018, in conjunction with the County of San Diego's (County's) Climate Action Plan (CAP), the County published a GHG inventory for County operations and the activities occurring within the unincorporated communities of the County. The GHG inventory includes a discussion of the primary sources and annual levels of GHG emissions for 2014 (baseline year) and describes likely trends if emissions are not reduced for 2020, 2030, and 2050. Total GHG emissions in the County in 2014 were estimated to be 3.2 $MMTCO_2e$ from the following sectors: transportation (on- and off-road), electricity, solid waste, natural gas, agriculture, water, wastewater, and propane (County of San Diego 2018). On-road transportation is the largest emissions sector, accounting for approximately 1.5 $MMTCO_2e$, or 45 percent of total emissions. Energy consumption, including electricity and natural gas use, is the next largest source of emissions, accounting for approximately 1.1 $MMTCO_2e$, or 35 percent of the total.

2.3.5 City of San Diego

The most recent inventory completed by the City was published in 2018 for 2015–2017 emissions. The 2017 community-wide emissions were estimated to be approximately 10.2 $MMTCO_2e$, a 0.2 percent decrease from 2016 emissions (City of San Diego 2018). Transportation is the largest emissions sector, accounting for approximately 54 percent of the total emissions. Energy consumption, including electricity and natural gas use, is the next largest source of emissions, accounting for approximately 40 percent of the total.

2.3.6 Port of San Diego

The San Diego Unified Port District (District) prepared a GHG emissions inventory as part of the preparation of the Port of San Diego CAP (District 2013). The inventory included GHG emissions from electricity use; natural gas use; on-road and maritime transportation; water use; and waste

generation from port activities, including lodging, ocean-going vessels, recreational boating, commercial development, and cargo and cruise activity. Total emissions in 2006 were 826,429 $MTCO_2e$. The largest contributing source was on-road transportation emissions (314,870 $MTCO_2e$). The largest contributing activity sectors were lodging (137,429 $MTCO_2e$) and industrial activities (137,429 $MTCO_2e$).

2.4 Regional Adverse Effects of Climate Change

The San Diego Foundation's Regional Focus 2050 Working Paper and Technical Assessment (Focus 2050) explored what the San Diego region would be like in 2050 if current climate change trends continue (San Diego Foundation 2008). The range of impacts presented in Focus 2050 are based on projections of climate change on the San Diego region using three climate models and two emissions scenarios drawn from those used by the Intergovernmental Panel on Climate Change. A summary of the potential adverse effects of climate change on the San Diego region, as projected in Focus 2050, is provided below.

2.4.1 Climate

From observations and model historical simulations, it appears that temperatures began to warm more substantially in the 1970s. Some scientists attribute the change to the response to the effects of GHG accumulation, which began to increase substantially during this time. Climate model simulations exhibit warming across the County, ranging from approximately 1.5°F to 4.5°F, with some differences in the timing and geographic distribution of the changes. The models predict greater warming in the summer than in winter, with surface air temperatures warming from 0.7°F to more than 2°F over that found in winter. Temperature changes for areas along the coast would be moderated by the influence of the Pacific Ocean, but interior areas, where the greatest population growth would occur, would experience the greatest temperature increase.

The months when the County experiences the most extreme warm temperatures, currently in July and August, will likely begin in June and extend until September. It is estimated that the inland portion of the County may have more than a threefold increase in hot days in 2050. Experts generally conclude that rainfall will continue to vary widely from year to year, leaving the County highly vulnerable to drought.

2.4.2 Sea Level

If current climate change trends continue, rising sea levels will have a major impact on the San Diego region's environment and economy, particularly in coastal areas. When high tide occurs during a large storm, particularly in El Niño winters, flooding will threaten homes, businesses, and hotels in low-lying coastal areas. Flooding may also impact military, port and airport operations. High surf events will last for more hours, with waves causing even greater coastal erosion and related damage. Rising sea levels will wear away the foundations of sea bluffs and significantly

change the County coastline. Sandy beaches and nearby wetlands serve as barriers to protect coastline developments from high surf. As these areas shrink from more intense wave activity, there may be a greater need for beach sand replenishment. More seawalls and breakwaters may need to be built to defend homes and businesses from coastal flooding. In addition to being extremely costly, these structures will destroy beaches and wetlands that do not have space to shift inland. Wetlands and estuaries could be devastated, leaving beaches exposed to more pollutants that endanger human and marine life.

2.4.3 Water Supply

The San Diego County Water Authority predicts an approximately 20 percent increase in water demand for the County, from 647,285 acre-feet/year in 2015 to approximately 785,685 acre-feet/year in 2035. Approximately 65 percent of this demand is expected to come from imported sources (SDCWA 2011).

Drought years, which have historically increased water demand by another 7 percent, might occur as much as 50 percent more often and be considerably drier. In drought years, parched soil soaks up more surface water and groundwater, increasing the need for imported and other water supplies. At the same time that the County demand for water would increase, climate change could shrink the Colorado River flow (a major source of imported water for the County) by 20 percent or more. A decline in the Sierra Nevada snowpack, aggravated by increased temperatures, could impact the water flow of many Northern California rivers that serve as primary sources of water to the California aqueduct, a major source of imported water for the County. The County's water supply plans are likely to be severely challenged by climate change. Even with plans in place to conserve, recycle, and augment available water, the County could face an 18 percent shortfall in water supply by 2050.

2.4.4 Wildfires

Fire occurrence has steadily increased in Southern California in direct proportion to human population growth because most ignitions are caused by human activities. Most fires start during the summer, when coastal sage and chaparral vegetation have dried to a highly flammable state. However, fires that start during the fall burn more acres because flames are intensified and spread by hot, dry Santa Ana winds. It is not entirely clear from climate change models how Santa Ana conditions will affect San Diego regional fire regimes in the future. Some models predict a decrease in the frequency and intensity of Santa Ana conditions, while others predict an increase, particularly during the fire season. If Santa Ana conditions increase significantly earlier in the fire season, this shift could increase the incidence of massive Santa Ana fires. This is because the winds will begin gusting during the time of year when most fires start. More frequent fires would threaten native plant species by not allowing sufficient recovery time before the species burn again. This would allow weedy, non-native species, which thrive in post-fire conditions, to multiply. Weedy invaders dry out earlier in the year, catch fire more easily, and burn faster than native plants.

Additionally, if current trends continue, the San Diego region will experience a population increase, with more development and human activities in backcountry areas over the coming decades. As a result of climate change, we can expect higher spring temperatures, scorching summers, drier vegetation, and longer fire seasons. A simultaneous occurrence of these factors will increase the likelihood of more devastating firestorms similar to those that destroyed many homes and lives in the unincorporated County during 2003 and 2007.

2.4.5 Ecosystems

The County beaches, canyons, mountains, and deserts support a vast variety of plants and animals, some of which are found nowhere else on the planet. This biodiversity is already under stress from human population growth and land use changes that have broken up and reduced species habitat into fragmented areas. The impacts of climate change will add to the pressures on habitats and the species that live in the County. As a result, the locations where the temperature, moisture, and other environmental conditions are suitable for a particular species will shift. Plant and animal species are generally able to adapt to shifting habitats, but under existing trends, climate change would occur so rapidly that ecological conditions may shift faster than species are able to follow. To survive, some animals and plants will have to move up to 95 miles over the next century to find new habitat or face extinction. Drought and unusually warm years have already led to growing insect populations, such as bark beetles (*Scolytinae* sp.), which have attacked and killed drought-stressed trees in the County. With warmer weather, the County's forests will lose more trees. Ecological changes will cascade because the loss of one species will challenge the ability of other species up and down the same food chain to survive. Top predators, such as coyotes (*Canis latrans*), may be lost if habitat patches become too small or isolated, which can lead to an increase in smaller predators that prey on native songbirds.

2.4.6 Public Health

Increased heat, air pollution, wildfires, and infectious disease will cause illness and death in the County, especially among the elderly, children, and the chronically ill. Californians experience the worst air quality in the nation, and the County is currently out of compliance with the federal ozone standard. By 2050, more hot sunny days will increase ozone air pollution levels, which can exacerbate asthma and other respiratory and cardiovascular diseases. Fire-related injuries and death are likely to increase if intense wildfires occur more frequently. Wildfires can also be a significant contributor to air pollution. Wildfire smoke contains numerous toxic and hazardous pollutants that are dangerous to breathe and can worsen lung disease and other respiratory conditions.

Warmer temperatures year-round could lead to growing mosquito populations, increasing the occurrence of West Nile virus in the San Diego region. Hot weather could also bring tropical diseases, such as malaria and dengue fever, to the region for the first time. In coastal waters, conditions are likely to favor more frequent "red tides" or harmful algal blooms, which can harbor

toxic bacteria and other diseases. In 2050, with an aging population and more residents living in areas with extreme heat conditions and poor air quality, the San Diego region will face intensified public health concerns.

2.4.7 Energy Needs

If current climate change trends continue, warmer temperatures and a growing population will translate into big challenges for the San Diego region's energy supply by 2050. The main impact will be higher demand for electricity as a result of the greater need for summer cooling, especially in inland areas where both regional population growth and temperature increases will be highest. Hotter summers and more frequent, longer, and intense heat waves will increase peak demand for electricity, which could result in blackouts and power outages, without adequate planning.

2.5 Regulatory Framework

2.5.1 Federal

The following section describes the federal regulation relevant to the proposed project's GHG analysis, the federal Clean Air Act.

2.5.1.1 Federal Clean Air Act

On April 2, 2007, the U.S. Supreme Court ruled in Massachusetts v. USEPA that CO_2 is an air pollutant, as defined under the Clean Air Act, and that the USEPA has the authority to regulate emissions of GHGs. The USEPA announced that GHGs (including CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6) threaten the public health and welfare of the American people. This action was a prerequisite to finalizing the USEPA's GHG emissions standards for light-duty vehicles, which were jointly proposed by the USEPA and the U.S. Department of Transportation's National Highway Traffic Safety Administration. The standards require compliance with progressively more stringent GHG emission standards for the 2012 through 2025 vehicle model years.

2.5.2 State

The following section summarizes statewide GHG emissions targets relevant to the proposed project's GHG analysis.

2.5.2.1 Executive Order S-3-05

On June 1, 2005, California Governor Arnold Schwarzenegger announced, through Executive Order (EO) S-3-05, the following statewide GHG emission reduction targets:

- By 2010, California shall reduce GHG emissions to 2000 levels.
- By 2020, California shall reduce GHG emissions to 1990 levels.
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

The first California Climate Action Team (CCAT) Report to the Governor in 2006 contained recommendations and strategies to help ensure the targets in EO S-3-05 are met (CalEPA 2006). The latest CCAT Biennial Report was released in 2010. It expands on the policy-oriented 2006 assessment and provides updated information and scientific findings. The details in the CCAT Biennial Report include development of updated climate and sea level projections using the latest information and tools available and evaluation of climate change in the context of broader social changes, such as land use changes and demographic shifts (CalEPA 2010).

2.5.2.2 Assembly Bill 32: Global Warming Solution Act of 2006

In September 2006, the California Legislature adopted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHG emissions in California. GHGs, as defined under AB 32, include CO_2, CH_4, N_2O, CFCs, hydrofluorocarbons, perfluorocarbons, and SF_6. Under AB 32, CARB has the primary responsibility for reducing GHG emissions and continues the CCAT to coordinate statewide efforts and promote strategies that can be undertaken by many other California agencies. AB 32 required CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020.

In general, AB 32 directed CARB to perform the following:

- Prepare and approve a Scoping Plan for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020, and update the Scoping Plan every 5 years
- Maintain and continue reductions in emissions of GHG beyond 2020
- Identify the statewide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020
- Identify and adopt regulations for discrete early actions that could be enforceable on or before January 1, 2010
- Adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit GHG emissions
- Convene an Environmental Justice Advisory Committee to advise CARB in developing and updating the Scoping Plan and any other pertinent matter in implementing AB 32
- Appoint an Economic and Technology Advancement Advisory Committee to provide recommendations for technologies, research, and GHG emission reduction measures

Regarding the first bullet, the First Update to the Climate Change Scoping Plan (First Update) was adopted in May 2014. The First Update identifies opportunities for GHG reductions using existing and new funding sources, defines CARB's climate change priorities for the next 5 years, and establishes the plan for meeting the long-term goals of EO S-3-05, described below. The First Update highlights California's progress toward meeting the 2020 GHG emission reduction goals defined in the initial Scoping Plan and evaluates how GHG reduction strategies may be aligned

with other state priorities for water, waste, natural resources, clean energy, transportation, and land use. According to the First Update, California is on track to meet the 2020 GHG emission reduction goal. While the First Update discusses setting a mid-term target, the plan does not set a quantifiable target toward meeting the 2050 goal (CARB 2014).

The 2017 Climate Change Scoping Plan (2017 Scoping Plan) was finalized in November 2017 and adopted in December 2017. This plan outlines the framework for achieving the 2030 reductions as established in EO B-30-15 and Senate Bill (SB) 32, described below. The 2017 Scoping Plan identifies GHG reductions by emissions sector to achieve a statewide emissions level that is 40 percent below 1990 levels by 2030. CARB recommends statewide targets of no more than 6 $MTCO_2e$ per capita by 2030 and no more than 2 $MTCO_2e$ per capita by 2050. However, CARB specifically states that these goals are appropriate for the plan level (city, county, subregional, or regional level, as appropriate) but not for specific individual projects because the goals include all emissions sectors in the state.

The 2017 Scoping Plan also includes recommendations for local governments when considering discretionary approvals and entitlements of individual projects through CEQA. Specifically, CARB recommends that projects incorporate design features and GHG reduction measures, to the degree feasible, to minimize GHG emissions and that achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development. When designing mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from vehicle miles traveled, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits locally.

2.5.2.3 Senate Bill 32

Effective January 1, 2017, SB 32 added Section 38566 to the California Health and Safety Code. SB 32 provides that "in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by [Division 25.5 of the California Health and Safety Code], [CARB] shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030." In other words, SB 32 requires California to reduce its statewide GHG emissions by the year 2030 so that emissions are 40 percent below those that occurred in 1990.

2.5.2.4 Senate Bill 350

California's Renewable Portfolio Standard was established in 2002 under SB 1078 and accelerated in 2006 under SB 107 by requiring that 20 percent of electricity retail sales be served by renewable energy sources by 2010. Subsequent recommendations in California energy policy reports advocated a goal of 33 percent by 2020, and on November 17, 2008, Governor Arnold Schwarzenegger signed EO S-14-08, requiring retail sellers of electricity to serve 33 percent of

their load with renewable energy by 2020. In April 2011, SB X1-2 codified EO S-14-08, setting the new Renewable Portfolio Standard targets at 20 percent by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020 for electricity retailers. Most recently, Governor Edmund G. Brown Jr. signed SB 350 in October 2015, which extended the Renewable Portfolio Standard target by requiring retail sellers to procure 50 percent of their electricity from renewable energy resources by 2030.

2.5.2.5 Assembly Bill 1493: Vehicular Emissions of Greenhouse Gases

AB 1493 (Pavley) requires that CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State." On September 24, 2009, CARB adopted amendments to the Pavley regulations that intend to reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments bind California's enforcement of AB 1493 (starting in 2009) while providing vehicle manufacturers with new compliance flexibility. In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single packet of standards called "Advanced Clean Cars" (CARB 2018b).

2.5.2.6 California Code of Regulations, Title 24, Part 6

California Code of Regulations, Title 24, Part 6, California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions. The Title 24 standards are updated periodically to allow the consideration and possible incorporation of new energy efficiency technologies and methods. The latest update to the Title 24 standards occurred in 2019 and went into effect January 1, 2020. The 2019 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential standards include improvements for attics, walls, water heating, and lighting. The standards are divided into three basic sets. The first set includes mandatory requirements that apply to all buildings. The second set is composed of performance standards—the energy budgets—that vary by climate zone (of which there are 16 in California) and building type; thus, the standards are tailored to local conditions. Finally, the third set is an alternative to the performance standards, which are a set of prescriptive packages that are a checklist compliance approach.

2.5.2.7 California Green Building Standards Code

The California Green Building Standards Code (24 CCR Part 11) is a code with mandatory requirements for new residential and nonresidential buildings throughout California. The code is Part 11 of the California Building Standards Code in Title 24 of the CCR (CBSC 2020). The current 2019 standards for new construction of and additions and alterations to residential and nonresidential buildings went into effect on January 1, 2020.

The development of the California Green Building Standards Code is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the governor. In short, the code is established to reduce construction waste, make buildings more efficient in the use of materials and energy, and reduce environmental impact during and after construction.

The California Green Building Standards Code contains requirements for stormwater control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The code provides for design options that allow the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, such as heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

2.5.2.8 Assembly Bill 341

In 2011, the California Legislature enacted AB 341 (California Public Resource Code, Section 42649.2), increasing the diversion target to 75 percent statewide. AB 341 also requires the provision of a recycling service to commercial and residential facilities that generate 4 cubic yards or more of solid waste per week. AB 341 does not include a recycling target for local municipalities.

2.5.2.9 Executive Order S-01-07

EO S-01-07 was enacted by Governor Arnold Schwarzenegger on January 18, 2007, and mandates that (1) a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 and (2) a Low Carbon Fuel Standard for transportation fuels be established for California. According to the San Diego County Updated Greenhouse Gas Inventory (EPIC 2013), the effects of the Low Carbon Fuel Standard would be a 10 percent reduction in GHG emissions from fuel use by 2020. On April 23, 2009, CARB adopted regulations to implement the Low Carbon Fuel Standard.

2.5.2.10 California Coastal Commission Sea Level Rise Policy Guidance

The original Sea Level Rise Policy Guidance was unanimously adopted for use by the California Coastal Commission (CCC) on August 12, 2015. It provides an overview of the best available

science on sea level rise for California and recommended methods for addressing sea level rise in the CCC planning and regulatory actions. The guidance is intended to serve as a multipurpose resource for a variety of audiences and includes a high level of detail on many subjects. Since the guidance is not specific to a particular geographic location or development intensity, readers should view the content as a menu of options to use only if relevant, rather than a checklist of required actions. On November 7, 2018, the CCC unanimously adopted the Science Update to the Sea Level Rise Policy Guidance. The science-focused changes reflect recent scientific studies and statewide guidance that updates the best available science on sea level rise projections relevant to California. Other sections of the guidance remain unchanged (CCC 2018).

2.5.3 Local

The following section summarizes the local plans and guidance relevant to the proposed project's GHG analysis.

2.5.3.1 City of San Diego Climate Action Plan

The City adopted a CAP (City CAP) in December 2015 (City of San Diego 2015). The City CAP quantifies GHG emissions, establishes reduction targets for 2020 and 2035, identifies strategies and measures to reduce GHG levels, and provides guidance for monitoring progress on an annual basis. The City CAP identifies a comprehensive set of goals and actions, including ordinances, policies, resolutions, programs, and incentives, that the City can use to reduce GHG emissions. The City CAP includes strategies and actions that encourage (1) water and energy-efficient buildings; (2) clean and renewable energy; (3) bicycling, walking, transit, and land use; (4) zero waste; and (5) climate resiliency. In conjunction with the City CAP, the City adopted the CAP Consistency Checklist in July 2016. The CAP Consistency Checklist contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emission targets in the City CAP are achieved.

2.5.3.2 San Diego Unified Port District Climate Action Plan

In December 2013 the Board of Port Commissioners approved a CAP to reduce local GHG emissions. The CAP includes a variety of potential GHG reduction policies and measures selected to help meet the District's GHG reduction goals of 10 percent less than 2006 levels by 2020 and 25 percent less than 2006 levels by 2035. Reducing GHG emissions can slow the rate of climate change, reducing impacts. The District's reduction measures include those required by state and federal regulations, and District-specific policies and measures focus on the following:

- Transportation Land Use Planning: Support alternatively fueled technology and implement management systems that increase the efficiency of transportation and reduce energy consumption.
- Energy Conservation and Efficiency: Employ energy strategies in buildings and exterior spaces that save money on utility costs, reduce GHG emissions, and provide other community benefits.

- Water Conservation and Recycling: Conserve, treat, and reuse water to minimize GHG emissions and conserve a scarce resource.
- Alternative Energy Generation: Meet energy demands through renewable energy generation.
- Waste Reduction and Recycling: Promote behavioral changes that encourage conserving resources, reuse, and recycling.
- Miscellaneous: Support other programs and outreach to reduce GHG emissions.

Section 3 Thresholds of Significance and Methods

3.1 Significance Criteria

Given the relatively small levels of emissions generated by a typical development in relationship to the total amount of GHG emissions generated on a national or global basis, individual development projects are not expected to result in significant direct impacts with respect to climate change. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new development could result in significant cumulative impacts with respect to climate change. Thus, the potential for a significant GHG impact is limited to cumulative impacts.

According to Appendix G of the CEQA Guidelines, a project would be considered to have a significant climate change impact if it would:

- Generate GHG either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG.

The determination of significance is governed by CEQA Guidelines, Section 15064.4, which states that "the determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to . . . [use a quantitative model or qualitative model]." In turn, CEQA Guidelines, Section 15064.4(b), clarifies that a lead agency should consider "whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project." Therefore, consistent with CEQA Guidelines, Section 15064.4, the GHG analysis for the project appropriately relies on a threshold based on the exercise of careful judgement and is believed to be appropriate in the context of this particular project.

The District prepared a GHG emissions inventory as part of the preparation of the Port of San Diego CAP (District 2013). In December 2017, the California Air Resources Board adopted its 2017 Scoping Plan Update, which identifies GHG reductions by emissions sector to achieve a statewide emissions level consistent with Assembly Bill 32 (CARB 2017). Senate Bill 32 extends the statewide emissions reductions goals of Assembly Bill 32 by requiring the state to further reduce GHGs to 40 percent below 1990 levels by 2030.

The District's CAP is not a CAP meeting the requirements of Section 15183.5 of the CEQA Guidelines and, therefore, does not provide a threshold for project compliance. Numeric thresholds have been adopted by other agencies and were considered as an option, including the threshold of

900 $MTCO_2e$ (annual emissions) recommended by the California Air Pollution Control Officers Association and referenced in the 2017 Scoping Plan (CARB 2017). Bright-line thresholds are typically intended to screen out smaller projects with relatively minimal emissions so that the vast majority (typically 90 percent) of total future development would be subject to mitigation or project features that would reduce GHG emissions compared to business-as-usual emissions and consistent with GHG reduction goals (CAPCOA 2008). In the absence of an adopted District threshold, this analysis incorporates the 900 MTCO2e (annual emissions) recommended by the California Air Pollution Control Officers Association to determine the relative significance of project emissions. Per the South Coast Air Quality Management District guidance (SCAQMD 2009), due to the long-term nature of GHG emissions in the atmosphere, instead of determining significance of construction emissions alone, the total construction emissions are amortized over 30 years (an estimate of the life of the proposed project) and addressed an part of annual operational emissions.

3.2 Methods and Assumptions

Project construction emissions from sources other than harbor craft were estimated using the California Emission Estimator Model (CalEEMod), Version 2016.3.2, based on the information provided by the District.

The first phase would include the demolition 5,500 square feet of the MTF. It is assumed that utility removal and site preparation would require 5 working days. Demolition of the marine terminal building would require 7 working days, and 840 tons of debris would be exported in 170 trucks.

After building demolition, the foundation would be removed, and any resulting depressions would be filled with compactable clean fill. It is assumed that the import of 5,205 cubic yards of material would be required for remediation activities. The site would then be graded to match the existing elevation. A total of 0.73 acre would be disturbed during this phase. Foundation removal and grading is assumed to require 5 working days. A 15-cubic-yard-capacity truck is assumed for material import. A construction fleet of an excavator, backhoe, loader, and dozer is assumed for Phase 1 activities.

Phase 2 would include the offshore component of the project beginning with the waterside demolition that is assumed to require 20 working days. Debris would be removed from the water by a heavy clamshell bucket. A fleet of two excavators, a crane, and a drill rig is assumed to represent the equipment staged on the barge. Removed piles and debris would be brought ashore and transported for disposal by haul truck trips. A total of 1,040 tons of material is assumed to be exported.

Once the existing waterside facilities are demolished, offshore sediments would be dredged, transported to shore, and ultimately transported for disposal. Approximately 3,500 cubic yards of contaminated sediments with elevated mercury levels would be exported. A 15-cubic-yard-

capacity truck is assumed for material export. Dredged materials would be disposed of at an approved Class III (or Class II) landfill. The nearest available landfill would be the Otay Landfill, located in Chula Vista, California. A one-way haul trip length of 24 miles is assumed.

A total material import of 4,500 cubic yards is assumed for riprap and clean sand to cover the remediation area following sediment disposal. This analysis assumes material would arrive by truck and be loaded onto barges and transported to the placement area. A construction equipment fleet of an excavator, crane, loader, dozer, two pumps, and two trucks is assumed for the dredging and export phase of construction.

Phase 3 activities would require minimal construction equipment grading and demolition to return the site to an undeveloped condition. Emissions from the tug boat and scows were estimated based on the data, formulas, and emissions factors provided through the Port of San Diego 2016 Maritime Air Emissions Inventory (District 2018). Based on the descriptions of harbor craft in the emission inventories, average engine power, load factor, and emissions factors for tow boats and work boats are assumed for the tug boat and scows, respectively. Use of a tug boat is assumed to be required for approximately 8 hours per day for 43 working days during waterside demolition, mobilization, dredging, and cover placement. Two scow boats are assumed to be required for approximately 8 hours per day for 18 working days during dredging and cover placement. Detailed assumptions and modeling data sheets are provided in Appendix A. GHG emissions are estimated in terms of total $MTCO_2e$.

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Section 4 Project Impacts

This section evaluates potential impacts of the proposed project related to the generation of GHG emissions.

4.1 Emissions of Greenhouse Gases

GHG emissions would be associated with the remediation of the project through use of heavy equipment, truck trips, harbor craft operation, and vehicle trips by the construction crew commuting to the project site. Emissions of GHGs related to the remediation activities would be temporary and cease following the 6-month construction period. Estimated remediation emissions by phase are provided in Table 2. As shown, remediation activities would result in one-time emissions totaling approximately 364 $MTCO_2e$ or amortized emissions of 12.13 $MTCO_2e$ per year.

Table 2. Estimated Construction Emissions

Construction Phase	CO_2e Emissions (MT)
1 – Utility Removal and Site Preparation	4
1 – Demolition	18
1 – Grading	33
2 – Waterside Demolition	39
2 – Dredging and Export	96
2 – Harbor Craft Operation	174
Total Construction Emissions	**364**

Source: CAPCOA 2017 (CalEEMod, Version 2016.3.2).
Notes: CO_2e = metric tons of carbon dioxide equivalent; MT = metric tons

Following remediation activities, the project site would not generate new sources of operational emissions. Only occasional maintenance trips would be required, resulting in negligible GHG emissions, similar to existing conditions. The addition of the project's amortized construction emissions of 12.13 $MTCO_2e$ to the existing annual District emissions (826,429 $MTCO_2e$ in 2006) during the remediation activities would result in a negligible contribution (0.0015 percent) to annual District GHG emissions. Additionally, emissions would also be well below the screening level of 900 $MTCO_2e$ recommended by CAPCOA at the state level for on-going annual emissions. The project would result in a minimal one-time contribution of GHG emissions during an approximately 6-month period and would not result in an increase in ongoing annual GHG emissions compared to existing site conditions. Therefore, GHG emissions from the project would be less than significant.

4.2 Consistency with Local Plans Adopted for the Purpose of Reducing Greenhouse Gas Emissions

The plans, policies, or regulations adopted for the purpose of reducing GHG emissions that are applicable to the proposed project include the Port of San Diego CAP, as well as the long-term statewide emissions reduction goals. The CCC Sea Level Rise Policy Guidance is also considered below.

4.2.1 Port of San Diego Climate Action Plan

The Port of San Diego CAP is the applicable plan adopted for the purpose of reducing GHG emissions. The CAP focuses on reducing ongoing annual GHG emissions from activities within the port. As discussed in Section 4.1, Emissions of Greenhouse Gases, the project site does not currently generate GHG emissions. The addition of the project's amortized construction emissions of 12.13 MTCO2e to the existing annual District emissions (826,429 $MTCO_2e$ in 2006) during the remediation activities would result in a negligible contribution (0.0015 percent) to annual District GHG emissions. Therefore, the project would not have an impact on the District's abilities to achieve emissions reduction goals. However, the CAP includes the following recommended emissions reduction measures related to construction (District 2013):

- **TR3: Vehicle Idling.** Enforce state idling laws for commercial vehicles, including delivery and construction vehicles.
- **SW1.** Increase the diversion of solid waste from landfill disposal. Establish and enforce a construction waste-recycling program for all demolition and construction projects. Identify major waste generating uses, and provide technical and financial support to implement waste reduction strategies, and expand public outreach and education about waste management and recycling.
- **SW2.** Adopt a Construction and Demolition Recycling Ordinance.

Remediation activities would be required by law to comply with state idling laws for construction vehicles. Therefore, the project would be consistent with measure TR3. To date, the District has not adopted an ordinance for construction or demolition recycling. Export from the project site would consist primarily of contaminated sediment that would not be eligible for recycling. A portion of demolition material from the existing terminal improvements may be eligible for recycling; however, a goal for recycled content has not been established. The proposed project would not interfere with the District's ability to establish a construction and demolition recycling ordinance. Therefore, the proposed project would be consistent with the Port of San Diego CAP. This impact would be less than significant.

4.2.2 Long-Term Statewide Emissions Reduction Goals

As described in Section 2.5.2, State, EO B-30-15 established a statewide emissions reduction target of 40 percent below 1990 levels by 2030, which was codified by SB 32. EO S-3-05 established a statewide emissions reduction target of 80 percent below 1990 levels by 2050. According to the most recent data included in the 2017 Scoping Plan, the state is on track to achieve the 2020 target (CARB 2017). As discussed in Section 4.1, the proposed project would not result in a net increase in annual GHG emissions, which is consistent with the recommendations of the 2017 Scoping Plan. Similar to the Port of San Diego CAP, because the project site does not currently generate GHG emissions, and the proposed project would not result in net increase in annual GHG impacts, the project would not have an impact on the state's abilities to achieve emissions reduction goals. This impact would be less than significant.

4.2.3 California Coastal Commission Sea Level Rise Policy Guidance

The main concern of the CCC related to climate-related sea level rise is threats to shoreline development, coastal beach access and recreation, habitats, agricultural lands, cultural resources, and scenic resources, all of which are subject to specific protections and regulations in the California Coastal Act. The proposed project would not potentially exacerbate exposure of coastal resources to sea level rise because the proposed project does not introduce any new coastal resources or propose significant changes to the project site that would exacerbate flooding of resources elsewhere in the District. The project site does not currently provide shoreline development, coastal beach access and recreation, agricultural lands, cultural resources, or scenic resources; therefore, no impact would occur to these resources. The Biological Technical Study and Essential Fish Habitat Assessment prepared for the project by Merkel & Associates (2020) concludes that the proposed project would not result in permanent adverse impacts to biological resources. Therefore, the proposed project would not adversely impact the ability of species to adapt to sea level rise. The proposed project would not exacerbate exposure of coastal resources to sea level rise. Therefore, this impact would be less than significant.

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Section 5 Cumulative Impacts

As summarized in Section 4.1, implementation of the project would not result in an increase in annual GHG emissions. Temporary GHG emissions from remediation activities would be minimal. Therefore, the project would not result in a cumulatively considerable contribution to a potentially significant cumulative impact with respect to GHG emissions.

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Appendix A. Modeling Results

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Lockheed Martin Demo

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	0.73	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2023
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Disturbance area 32K SF

Construction Phase - Based on schedule from Port

Off-road Equipment - Fleet provded by Port

Off-road Equipment - Fleet provided by Port

Off-road Equipment - Fleet provided by Port

Off-road Equipment - Fleet provided by Port

Off-road Equipment - Fleet provided by Port

Grading - Info needs provided by Port

Demolition -

Trips and VMT - Haul trip capacity and trip length from Port

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	NumDays	10.00	7.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	25.00
tblConstructionPhase	PhaseEndDate	9/15/2021	9/7/2021
tblConstructionPhase	PhaseStartDate	9/15/2021	9/1/2021
tblGrading	AcresOfGrading	2.50	0.73
tblGrading	AcresOfGrading	0.00	0.73
tblGrading	AcresOfGrading	0.00	2.92
tblGrading	MaterialExported	0.00	3,500.00
tblGrading	MaterialImported	0.00	5,025.00
tblGrading	MaterialImported	0.00	4,500.00
tblLandUse	LotAcreage	0.11	0.73

tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Pressure Washers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	24.00
tblTripsAndVMT	HaulingTripLength	20.00	24.00
tblTripsAndVMT	HaulingTripLength	20.00	24.00
tblTripsAndVMT	HaulingTripLength	20.00	24.00
tblTripsAndVMT	HaulingTripLength	20.00	24.00
tblTripsAndVMT	HaulingTripNumber	83.00	340.00
tblTripsAndVMT	HaulingTripNumber	103.00	416.00

tblTripsAndVMT	HaulingTripNumber	628.00	694.00
tblTripsAndVMT	HaulingTripNumber	1,000.00	1,067.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0561	0.7980	0.4690	2.0100e-003	0.0645	0.0201	0.0846	0.0178	0.0188	0.0366	0.0000	189.1563	189.1563	0.0308	0.0000	189.9264
Maximum	**0.0561**	**0.7980**	**0.4690**	**2.0100e-003**	**0.0645**	**0.0201**	**0.0846**	**0.0178**	**0.0188**	**0.0366**	**0.0000**	**189.1563**	**189.1563**	**0.0308**	**0.0000**	**189.9264**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0561	0.7980	0.4690	2.0100e-003	0.0645	0.0201	0.0846	0.0178	0.0188	0.0366	0.0000	189.1562	189.1562	0.0308	0.0000	189.9263
Maximum	**0.0561**	**0.7980**	**0.4690**	**2.0100e-003**	**0.0645**	**0.0201**	**0.0846**	**0.0178**	**0.0188**	**0.0366**	**0.0000**	**189.1562**	**189.1562**	**0.0308**	**0.0000**	**189.9263**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**9-30-2021**	0.2191	0.2191
		Highest	0.2191	0.2191

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0253	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Energy	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	16.6633	16.6633	6.1000e-004	1.7000e-004	16.7290
Mobile	7.0100e-003	0.0282	0.0862	3.1000e-004	0.0290	2.4000e-004	0.0292	7.7500e-003	2.3000e-004	7.9800e-003	0.0000	29.0571	29.0571	1.4500e-003	0.0000	29.0935
Waste						0.0000	0.0000		0.0000	0.0000	1.2585	0.0000	1.2585	0.0744	0.0000	3.1180
Water						0.0000	0.0000		0.0000	0.0000	0.3668	4.9203	5.2871	0.0379	9.3000e-004	6.5113
Total	**0.0327**	**0.0310**	**0.0887**	**3.3000e-004**	**0.0290**	**4.6000e-004**	**0.0294**	**7.7500e-003**	**4.5000e-004**	**8.2000e-003**	**1.6254**	**50.6408**	**52.2662**	**0.1143**	**1.1000e-003**	**55.4518**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0253	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Energy	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	16.6633	16.6633	6.1000e-004	1.7000e-004	16.7290
Mobile	7.0100e-003	0.0282	0.0862	3.1000e-004	0.0290	2.4000e-004	0.0292	7.7500e-003	2.3000e-004	7.9800e-003	0.0000	29.0571	29.0571	1.4500e-003	0.0000	29.0935
Waste						0.0000	0.0000		0.0000	0.0000	1.2585	0.0000	1.2585	0.0744	0.0000	3.1180
Water						0.0000	0.0000		0.0000	0.0000	0.3668	4.9203	5.2871	0.0379	9.3000e-004	6.5113
Total	**0.0327**	**0.0310**	**0.0887**	**3.3000e-004**	**0.0290**	**4.6000e-004**	**0.0294**	**7.7500e-003**	**4.5000e-004**	**8.2000e-003**	**1.6254**	**50.6408**	**52.2662**	**0.1143**	**1.1000e-003**	**55.4518**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Site Preparation	Site Preparation	9/1/2021	9/7/2021	5	5	
2	Phase 1 Demolition	Demolition	9/8/2021	9/16/2021	5	7	
3	Phase 1 Grading	Grading	9/17/2021	9/23/2021	5	5	
4	Phase 2 Demolition	Demolition	10/1/2021	10/28/2021	5	20	
5	Phase 2 Grading	Grading	10/29/2021	12/2/2021	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 1 Grading	Excavators	1	6.00	158	0.38
Phase 2 Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Phase 1 Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Phase 2 Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Phase 1 Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Phase 2 Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Phase 1 Demolition	Excavators	1	6.00	158	0.38
Phase 1 Grading	Rubber Tired Dozers	1	1.00	247	0.40
Phase 2 Grading	Rubber Tired Dozers	1	1.00	247	0.40
Phase 1 Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Phase 2 Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37

Phase 1 Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Phase 2 Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Phase 1 Site Preparation		0		0	
Phase 1 Site Preparation		0		0	
Phase 1 Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Phase 1 Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Phase 1 Site Preparation	Graders	1	8.00	187	0.41
Phase 1 Site Preparation	Excavators	1	8.00	158	0.38
Phase 2 Demolition	Excavators	2	6.00	158	0.38
Phase 2 Demolition	Bore/Drill Rigs	1	8.00	221	0.50
Phase 2 Grading	Excavators	1	6.00	158	0.38
Phase 2 Grading	Pressure Washers	1	6.00	13	0.30
Phase 2 Grading	Pumps	2	6.00	84	0.74
Phase 2 Grading	Off-Highway Trucks	2	6.00	402	0.38
Phase 2 Grading	Cranes	1	6.00	231	0.29
Phase 2 Demolition	Cranes	1	6.00	231	0.29

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 1 Demolition	4	10.00	0.00	340.00	10.80	7.30	24.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Site Preparation	4	10.00	0.00	0.00	10.80	7.30	24.00	LD_Mix	HDT_Mix	HHDT
Phase 2 Demolition	4	10.00	0.00	416.00	10.80	7.30	24.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Grading	4	10.00	0.00	694.00	10.80	7.30	24.00	LD_Mix	HDT_Mix	HHDT
Phase 2 Grading	9	23.00	0.00	1,067.00	10.80	7.30	24.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Phase 1 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.9000e-004	0.0000	3.9000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6400e-003	0.0297	0.0239	5.0000e-005		1.2900e-003	1.2900e-003		1.1900e-003	1.1900e-003	0.0000	3.9546	3.9546	1.2800e-003	0.0000	3.9866
Total	**2.6400e-003**	**0.0297**	**0.0239**	**5.0000e-005**	**3.9000e-004**	**1.2900e-003**	**1.6800e-003**	**4.0000e-005**	**1.1900e-003**	**1.2300e-003**	**0.0000**	**3.9546**	**3.9546**	**1.2800e-003**	**0.0000**	**3.9866**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.2000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1751	0.1751	1.0000e-005	0.0000	0.1753
Total	**9.0000e-005**	**6.0000e-005**	**6.2000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1751**	**0.1751**	**1.0000e-005**	**0.0000**	**0.1753**

3.2 Phase 1 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.9000e-004	0.0000	3.9000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6400e-003	0.0297	0.0239	5.0000e-005		1.2900e-003	1.2900e-003		1.1900e-003	1.1900e-003	0.0000	3.9546	3.9546	1.2800e-003	0.0000	3.9866
Total	**2.6400e-003**	**0.0297**	**0.0239**	**5.0000e-005**	**3.9000e-004**	**1.2900e-003**	**1.6800e-003**	**4.0000e-005**	**1.1900e-003**	**1.2300e-003**	**0.0000**	**3.9546**	**3.9546**	**1.2800e-003**	**0.0000**	**3.9866**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.2000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1751	0.1751	1.0000e-005	0.0000	0.1753
Total	**9.0000e-005**	**6.0000e-005**	**6.2000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1751**	**0.1751**	**1.0000e-005**	**0.0000**	**0.1753**

3.3 Phase 1 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.1000e-003	0.0000	9.1000e-003	1.3800e-003	0.0000	1.3800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0400e-003	0.0204	0.0222	3.0000e-005		1.0900e-003	1.0900e-003		1.0100e-003	1.0100e-003	0.0000	2.9526	2.9526	9.5000e-004	0.0000	2.9765
Total	**2.0400e-003**	**0.0204**	**0.0222**	**3.0000e-005**	**9.1000e-003**	**1.0900e-003**	**0.0102**	**1.3800e-003**	**1.0100e-003**	**2.3900e-003**	**0.0000**	**2.9526**	**2.9526**	**9.5000e-004**	**0.0000**	**2.9765**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4700e-003	0.0501	0.0127	1.5000e-004	3.4900e-003	1.6000e-004	3.6500e-003	9.6000e-004	1.5000e-004	1.1100e-003	0.0000	15.2044	15.2044	1.3400e-003	0.0000	15.2380
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	9.0000e-005	8.7000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2452	0.2452	1.0000e-005	0.0000	0.2454
Total	**1.5900e-003**	**0.0502**	**0.0136**	**1.5000e-004**	**3.7700e-003**	**1.6000e-004**	**3.9300e-003**	**1.0300e-003**	**1.5000e-004**	**1.1900e-003**	**0.0000**	**15.4496**	**15.4496**	**1.3500e-003**	**0.0000**	**15.4833**

3.3 Phase 1 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.1000e-003	0.0000	9.1000e-003	1.3800e-003	0.0000	1.3800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0400e-003	0.0204	0.0222	3.0000e-005		1.0900e-003	1.0900e-003		1.0100e-003	1.0100e-003	0.0000	2.9526	2.9526	9.5000e-004	0.0000	2.9765
Total	**2.0400e-003**	**0.0204**	**0.0222**	**3.0000e-005**	**9.1000e-003**	**1.0900e-003**	**0.0102**	**1.3800e-003**	**1.0100e-003**	**2.3900e-003**	**0.0000**	**2.9526**	**2.9526**	**9.5000e-004**	**0.0000**	**2.9765**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4700e-003	0.0501	0.0127	1.5000e-004	3.4900e-003	1.6000e-004	3.6500e-003	9.6000e-004	1.5000e-004	1.1100e-003	0.0000	15.2044	15.2044	1.3400e-003	0.0000	15.2380
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	9.0000e-005	8.7000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2452	0.2452	1.0000e-005	0.0000	0.2454
Total	**1.5900e-003**	**0.0502**	**0.0136**	**1.5000e-004**	**3.7700e-003**	**1.6000e-004**	**3.9300e-003**	**1.0300e-003**	**1.5000e-004**	**1.1900e-003**	**0.0000**	**15.4496**	**15.4496**	**1.3500e-003**	**0.0000**	**15.4833**

3.4 Phase 1 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6200e-003	0.0000	2.6200e-003	1.1300e-003	0.0000	1.1300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4600e-003	0.0146	0.0159	2.0000e-005		7.8000e-004	7.8000e-004		7.2000e-004	7.2000e-004	0.0000	2.1090	2.1090	6.8000e-004	0.0000	2.1261
Total	**1.4600e-003**	**0.0146**	**0.0159**	**2.0000e-005**	**2.6200e-003**	**7.8000e-004**	**3.4000e-003**	**1.1300e-003**	**7.2000e-004**	**1.8500e-003**	**0.0000**	**2.1090**	**2.1090**	**6.8000e-004**	**0.0000**	**2.1261**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0100e-003	0.1024	0.0259	3.1000e-004	7.1200e-003	3.2000e-004	7.4500e-003	1.9600e-003	3.1000e-004	2.2700e-003	0.0000	31.0349	31.0349	2.7400e-003	0.0000	31.1034
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.2000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1751	0.1751	1.0000e-005	0.0000	0.1753
Total	**3.1000e-003**	**0.1024**	**0.0265**	**3.1000e-004**	**7.3200e-003**	**3.2000e-004**	**7.6500e-003**	**2.0100e-003**	**3.1000e-004**	**2.3200e-003**	**0.0000**	**31.2101**	**31.2101**	**2.7500e-003**	**0.0000**	**31.2786**

3.4 Phase 1 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6200e-003	0.0000	2.6200e-003	1.1300e-003	0.0000	1.1300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4600e-003	0.0146	0.0159	2.0000e-005		7.8000e-004	7.8000e-004		7.2000e-004	7.2000e-004	0.0000	2.1090	2.1090	6.8000e-004	0.0000	2.1261
Total	**1.4600e-003**	**0.0146**	**0.0159**	**2.0000e-005**	**2.6200e-003**	**7.8000e-004**	**3.4000e-003**	**1.1300e-003**	**7.2000e-004**	**1.8500e-003**	**0.0000**	**2.1090**	**2.1090**	**6.8000e-004**	**0.0000**	**2.1261**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0100e-003	0.1024	0.0259	3.1000e-004	7.1200e-003	3.2000e-004	7.4500e-003	1.9600e-003	3.1000e-004	2.2700e-003	0.0000	31.0349	31.0349	2.7400e-003	0.0000	31.1034
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.2000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1751	0.1751	1.0000e-005	0.0000	0.1753
Total	**3.1000e-003**	**0.1024**	**0.0265**	**3.1000e-004**	**7.3200e-003**	**3.2000e-004**	**7.6500e-003**	**2.0100e-003**	**3.1000e-004**	**2.3200e-003**	**0.0000**	**31.2101**	**31.2101**	**2.7500e-003**	**0.0000**	**31.2786**

3.5 Phase 2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0113	0.0000	0.0113	1.7100e-003	0.0000	1.7100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1000e-003	0.0987	0.0846	2.1000e-004		3.9500e-003	3.9500e-003		3.6300e-003	3.6300e-003	0.0000	18.8573	18.8573	6.1000e-003	0.0000	19.0098
Total	**9.1000e-003**	**0.0987**	**0.0846**	**2.1000e-004**	**0.0113**	**3.9500e-003**	**0.0152**	**1.7100e-003**	**3.6300e-003**	**5.3400e-003**	**0.0000**	**18.8573**	**18.8573**	**6.1000e-003**	**0.0000**	**19.0098**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8000e-003	0.0614	0.0155	1.9000e-004	4.2700e-003	1.9000e-004	4.4600e-003	1.1700e-003	1.9000e-004	1.3600e-003	0.0000	18.6031	18.6031	1.6400e-003	0.0000	18.6441
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.5000e-004	2.5000e-003	1.0000e-005	8.0000e-004	1.0000e-005	8.1000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.7005	0.7005	2.0000e-005	0.0000	0.7010
Total	**2.1500e-003**	**0.0616**	**0.0180**	**2.0000e-004**	**5.0700e-003**	**2.0000e-004**	**5.2700e-003**	**1.3800e-003**	**2.0000e-004**	**1.5800e-003**	**0.0000**	**19.3036**	**19.3036**	**1.6600e-003**	**0.0000**	**19.3451**

3.5 Phase 2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0113	0.0000	0.0113	1.7100e-003	0.0000	1.7100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1000e-003	0.0987	0.0846	2.1000e-004		3.9500e-003	3.9500e-003		3.6300e-003	3.6300e-003	0.0000	18.8573	18.8573	6.1000e-003	0.0000	19.0097
Total	**9.1000e-003**	**0.0987**	**0.0846**	**2.1000e-004**	**0.0113**	**3.9500e-003**	**0.0152**	**1.7100e-003**	**3.6300e-003**	**5.3400e-003**	**0.0000**	**18.8573**	**18.8573**	**6.1000e-003**	**0.0000**	**19.0097**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8000e-003	0.0614	0.0155	1.9000e-004	4.2700e-003	1.9000e-004	4.4600e-003	1.1700e-003	1.9000e-004	1.3600e-003	0.0000	18.6031	18.6031	1.6400e-003	0.0000	18.6441
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.5000e-004	2.5000e-003	1.0000e-005	8.0000e-004	1.0000e-005	8.1000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.7005	0.7005	2.0000e-005	0.0000	0.7010
Total	**2.1500e-003**	**0.0616**	**0.0180**	**2.0000e-004**	**5.0700e-003**	**2.0000e-004**	**5.2700e-003**	**1.3800e-003**	**2.0000e-004**	**1.5800e-003**	**0.0000**	**19.3036**	**19.3036**	**1.6600e-003**	**0.0000**	**19.3451**

3.6 Phase 2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0115	0.0000	0.0115	5.4200e-003	0.0000	5.4200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0283	0.2623	0.2168	5.2000e-004		0.0118	0.0118		0.0111	0.0111	0.0000	45.4153	45.4153	0.0118	0.0000	45.7095
Total	**0.0283**	**0.2623**	**0.2168**	**5.2000e-004**	**0.0115**	**0.0118**	**0.0233**	**5.4200e-003**	**0.0111**	**0.0165**	**0.0000**	**45.4153**	**45.4153**	**0.0118**	**0.0000**	**45.7095**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.6300e-003	0.1574	0.0398	4.8000e-004	0.0110	5.0000e-004	0.0115	3.0100e-003	4.8000e-004	3.4900e-003	0.0000	47.7151	47.7151	4.2100e-003	0.0000	47.8203
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-003	7.1000e-004	7.1800e-003	2.0000e-005	2.3100e-003	2.0000e-005	2.3200e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	2.0140	2.0140	6.0000e-005	0.0000	2.0155
Total	**5.6300e-003**	**0.1581**	**0.0470**	**5.0000e-004**	**0.0133**	**5.2000e-004**	**0.0138**	**3.6200e-003**	**5.0000e-004**	**4.1200e-003**	**0.0000**	**49.7291**	**49.7291**	**4.2700e-003**	**0.0000**	**49.8358**

3.6 Phase 2 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0115	0.0000	0.0115	5.4200e-003	0.0000	5.4200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0283	0.2623	0.2168	5.2000e-004		0.0118	0.0118		0.0111	0.0111	0.0000	45.4153	45.4153	0.0118	0.0000	45.7094
Total	**0.0283**	**0.2623**	**0.2168**	**5.2000e-004**	**0.0115**	**0.0118**	**0.0233**	**5.4200e-003**	**0.0111**	**0.0165**	**0.0000**	**45.4153**	**45.4153**	**0.0118**	**0.0000**	**45.7094**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.6300e-003	0.1574	0.0398	4.8000e-004	0.0110	5.0000e-004	0.0115	3.0100e-003	4.8000e-004	3.4900e-003	0.0000	47.7151	47.7151	4.2100e-003	0.0000	47.8203
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-003	7.1000e-004	7.1800e-003	2.0000e-005	2.3100e-003	2.0000e-005	2.3200e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	2.0140	2.0140	6.0000e-005	0.0000	2.0155
Total	**5.6300e-003**	**0.1581**	**0.0470**	**5.0000e-004**	**0.0133**	**5.2000e-004**	**0.0138**	**3.6200e-003**	**5.0000e-004**	**4.1200e-003**	**0.0000**	**49.7291**	**49.7291**	**4.2700e-003**	**0.0000**	**49.8358**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	7.0100e-003	0.0282	0.0862	3.1000e-004	0.0290	2.4000e-004	0.0292	7.7500e-003	2.3000e-004	7.9800e-003	0.0000	29.0571	29.0571	1.4500e-003	0.0000	29.0935
Unmitigated	7.0100e-003	0.0282	0.0862	3.1000e-004	0.0290	2.4000e-004	0.0292	7.7500e-003	2.3000e-004	7.9800e-003	0.0000	29.0571	29.0571	1.4500e-003	0.0000	29.0935

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	34.85	6.60	3.40	76,846	76,846
Total	34.85	6.60	3.40	76,846	76,846

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.602700	0.040134	0.179939	0.104242	0.014985	0.005435	0.016642	0.024350	0.001934	0.001888	0.005938	0.000757	0.001056

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.5789	13.5789	5.5000e-004	1.1000e-004	13.6263
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.5789	13.5789	5.5000e-004	1.1000e-004	13.6263
NaturalGas Mitigated	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.0844	3.0844	6.0000e-005	6.0000e-005	3.1028
NaturalGas Unmitigated	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.0844	3.0844	6.0000e-005	6.0000e-005	3.1028

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	57800	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.0844	3.0844	6.0000e-005	6.0000e-005	3.1028
Total		**3.1000e-004**	**2.8300e-003**	**2.3800e-003**	**2.0000e-005**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**3.0844**	**3.0844**	**6.0000e-005**	**6.0000e-005**	**3.1028**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	57800	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.0844	3.0844	6.0000e-005	6.0000e-005	3.1028
Total		**3.1000e-004**	**2.8300e-003**	**2.3800e-003**	**2.0000e-005**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**3.0844**	**3.0844**	**6.0000e-005**	**6.0000e-005**	**3.1028**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	41550	13.5789	5.5000e-004	1.1000e-004	13.6263
Total		**13.5789**	**5.5000e-004**	**1.1000e-004**	**13.6263**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	41550	13.5789	5.5000e-004	1.1000e-004	13.6263
Total		**13.5789**	**5.5000e-004**	**1.1000e-004**	**13.6263**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0253	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Unmitigated	0.0253	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.7900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0195					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Total	**0.0253**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**1.0000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.7900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0195					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Total	**0.0253**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**1.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.2871	0.0379	9.3000e-004	6.5113
Unmitigated	5.2871	0.0379	9.3000e-004	6.5113

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	1.15625 / 0	5.2871	0.0379	9.3000e-004	6.5113
Total		**5.2871**	**0.0379**	**9.3000e-004**	**6.5113**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	1.15625 / 0	5.2871	0.0379	9.3000e-004	6.5113
Total		**5.2871**	**0.0379**	**9.3000e-004**	**6.5113**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.2585	0.0744	0.0000	3.1180
Unmitigated	1.2585	0.0744	0.0000	3.1180

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.2	1.2585	0.0744	0.0000	3.1180
Total		**1.2585**	**0.0744**	**0.0000**	**3.1180**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.2	1.2585	0.0744	0.0000	3.1180
Total		**1.2585**	**0.0744**	**0.0000**	**3.1180**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

							Emissions factor (g/hp-hour)			Emissions (total grams)		
Type of Craft		**Number of Boats**	**Hours Per Day**	**Days in Operation**	**HP**	**Load Factor**	**CO2**	**CH4**	**N20**	**CO2**	**CH4**	**N20**
Tow Boat	Main Engine	1	3.9	43	1338	0.68	588.14	0.01	0.02	89,738,500	1,526	3,052
	Aux Engine	1	7.8	43	114	0.43	588.14	0.02	0.02	9,669,791	329	329
Scow (Work boat)	Main Engine	2	7.8	18	850	0.45	588.14	0.01	0.02	63,169,765	1,074	2,148
	Aux Engine	2	7.8	18	132	0.43	588.14	0.02	0.02	9,373,898	319	319

Pollutant	**GWP**	**Total grams**	**grams CO2e**	**Total MT CO2e**
CO2	1	171,951,953	171,951,953	172
CH4	25	3,247	81,186	0
N2O	298	5,847	1,742,499	2
Sum		-		**174**

Appendix G. Drainage Study and Stormwater Quality Management Plan

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DRAFT

Drainage Study

Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project

March 2020

Prepared for:

Port of San Diego
3165 Pacific Highway
San Diego, California 92101-1128

Prepared by:

600 B Street, Suite 2000
San Diego, California 92101
(619) 236-1778
Frank Lopez, PE, QSD, CFM

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Acronyms and Abbreviations

BMP	best management practice
cfs	cubic feet per second
DMA	Drainage Management Area
project	Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project
SDHM	San Diego County Hydrology Manual
SMA	sediment management area

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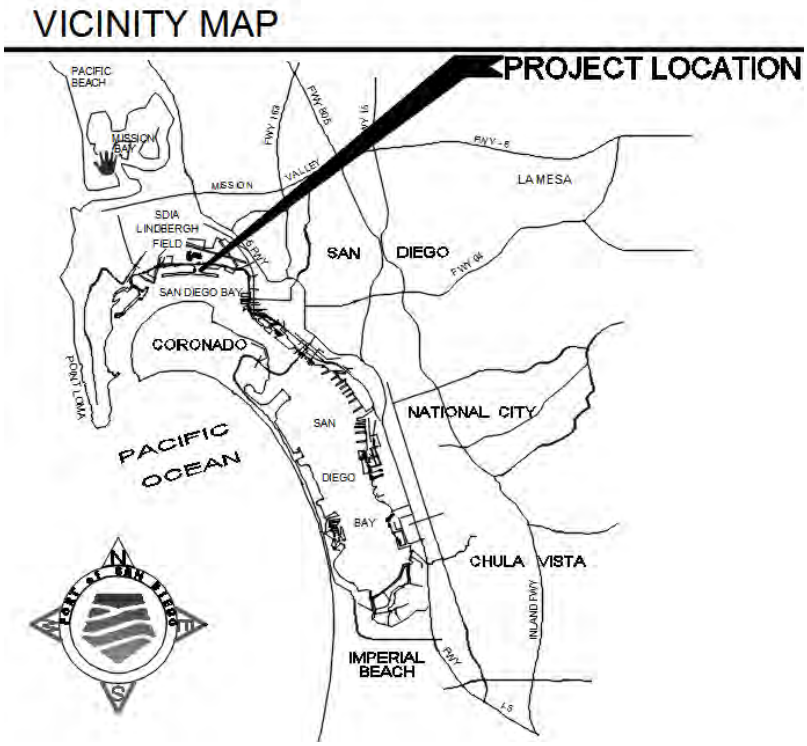
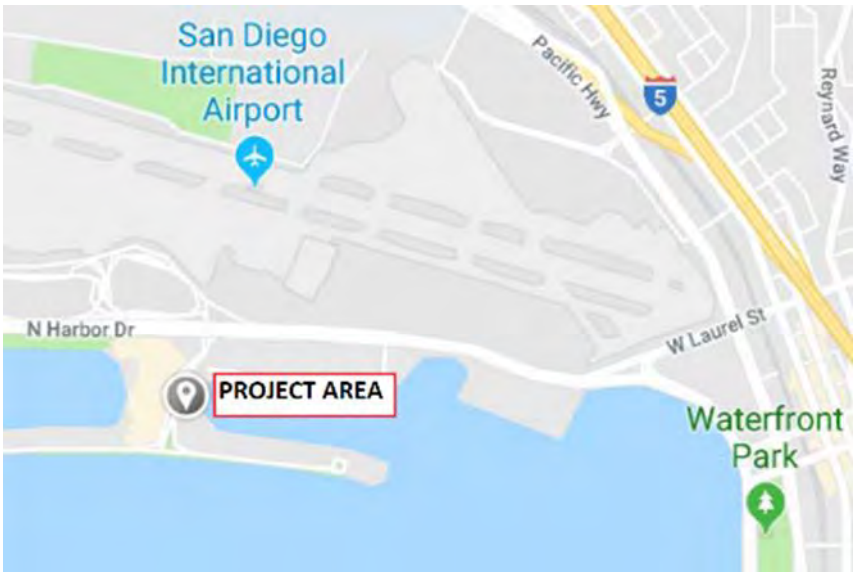
Vicinity Map





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Project Description

The Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project (project) is located east of Harbor Drive on Liberator Way at 1160 North Harbor Island Drive. The project site is occupied by an abandoned Lockheed Martin Corporation facility that was previously used for the maintenance of deep water submersibles, utilizing bay front property to test the designs of boats, submarines and other submersibles, and seaplanes, as well as other maintenance and industrial uses.

Due to concerns of contaminated sediments, and the Regional Water Quality Control Board's findings of concentrations of pollutants, the San Diego Unified Port District filed a lawsuit against Lockheed Martin Corporation under state law and the Comprehensive Environmental Response, Compensation, and Liability Act to ensure remediation of the contaminated sediments would occur. A settlement was reached in 2017, where all parties expressly denied any liability; however, they agreed to contribute time and resources toward remediation of the site.

The intent of the project is to demolish all existing landside and waterside improvements to the roughly 1.5-acre site. The approximately 0.78-acre landside portion of the site shall be returned to its original, undeveloped state, a completely pervious landscaped lot. The waterside area of the project, approximately 0.74 acre of the San Diego Bay, has no drainage pattern impacts on the site. Activities performed to remediate the waterside portion of the project will be listed and addressed in a Remediation Plan and stormwater impacts developed by the construction activities within the waterside will be addressed in a Stormwater Pollution Prevention Plan (SWPPP) prior to project approval. We have summarized these activities within the interim condition analysis discussion.

Demolition within the project scope will incorporate the following tasks:

- Removal of the 5,500-square-foot building
- Removal of all concrete, asphalt paving, and utilities
- Removal of the 165-foot-long pier, 328-foot-long marine railway, and all support structures (i.e., piles) that extend into the bay
- Minor dredging associated with removal of the in-water improvements
- Dredging of approximately 3,500 cubic yards of contaminated sediment from the waterside portion of the site

All phases of activities will be addressed in a Remediation Plan, the Stormwater Quality Management Plan, and the required Stormwater Pollution Prevention Plan that Lockheed Martin Corporation will develop in order to properly address the water quality concerns and protection of the bay from any contaminated sediments.

The proposed post-project condition is to remove the impervious area completely and regrade the existing soils to promote infiltration. The post-project condition would consist of a natural pervious surface covered in non-invasive, drought-tolerant vegetation, such as grass. Existing mature trees would be left undisturbed. The Stormwater Quality Management Plan identifies a number of site design best management practices (BMPs) to ensure that water quality is maintained in post-project conditions.

The purpose of this drainage study is to evaluate the pre-project, interim project, and post-project drainage conditions to identify mitigation efforts associated with each project condition.

Section 1 Methodology

1.1 County of San Diego Drainage Design Criteria

The Port of San Diego criteria uses a 25-year storm event. The design criteria guidance, as found in the 2003 County of San Diego Department of Public Works Flood Control Division Hydrology Manual, specifies the design runoff conditions within the San Diego County Flood Control District will be based on the storm frequency from the following guidance.

1.2 Rational Method Hydrologic Analysis

Computer Software Package – CivilD was originally anticipated for the project, but after reviewing the site it was determined that multiple nodes and confluence points were not necessary due to the project size. The proposed project reduces the amount of impervious surface, resulting in a decrease in flow from the existing condition. Therefore, continuous simulation software models were deemed unnecessary.

Design Storm – 25-year return interval.

Land Use – Industrial (General); the values used for this analysis are based on the Soil Group D and the selection from Table 3-1 of the SDHM (Appendix A).

Soil Type – The Hydrologic Soil Map identified the project site as "Undetermined;" therefore, Hydrologic Soil Group D was assumed for the project site. Group D soils have very slow infiltration rates when thoroughly wetted. Consisting chiefly of clay soils with a high swelling potential, soils with a high permanent water table, soils with clay pan or clay layer at or near the surface, and shallow soils over nearly impervious materials, Group D soils have a very slow rate of water transmission.

Runoff Coefficient – In accordance with the San Diego Hydrology Manual (SDHM), runoff coefficients were selected from Table 3-1 of the SDHM and used in the weighed calculation of a C factor for each area within the site. Weighted C factors were determined for Drainage Management Areas (DMAs) A and D, since they contain landscaped areas. Table 1 summarizes the weighted runoff calculation for DMAs A and D.

$$C = \frac{(Pervious\ Area(Acres) * C_{Open\ Space}) + \left(Impervious\ Area\ (Acres) * C_{impervious}\right)}{Total\ Area\ (Acres)}$$

Table 1. Weighted C Value Calculations

DMA	Area (Pervious)	Area (Impervious)	C (Pervious)	C (Impervious)	Weighted C Value
Existing Conditions					
DMA A	0.051	0.449	0.35	0.85	0.80
DMA D	0.003	0.156	0.35	0.85	0.84

Note: DMA = Drainage Management Area, C = Runoff Coefficient
Area measurements are in acres.

Method of Analysis – The Rational Method is the most widely used hydrologic model for estimating peak runoff rates. Applied to small urban and semi-urban areas with drainage areas less than 0.5 square mile, the Rational Method relates storm rainfall intensity, a runoff coefficient, and drainage area to peak runoff rate. This relationship is expressed by the equation:

$$Q = CIA, \text{where,}$$

Q = peak runoff rate in cubic feet per second at the point of analysis

C = runoff coefficient representing the area (usually the averaged ratio of runoff to rainfall intensity)

I = time-averaged rainfall intensity in inches per hour corresponding to the time of concentration

A = drainage basin area in acres

Section 2 Project Conditions

The project is located in Region 9 of the State Water Quality Control Board. The proposed project site is located within the Pueblo San Diego Watershed (908) and Lindbergh Hydrologic Subarea (HAS- 908.21), as defined by the Water Quality Control Plan for the San Diego Basin (9). This project site drains directly into the Pacific Ocean.

2.1 Existing Conditions

The existing site is an inactive site that is approximately 90 percent impervious and consists of a 5,500-square-foot building with two 280-square-foot sheds and small landscaped areas; all of which drain into the San Diego Bay. Currently, there are four DMAs within the project site's land side. They have been delineated and identified as DMAs A, B, C, and D. DMAs A, B, and D currently flow overland into San Diego Bay, while DMA C is directed off site into an adjacent parking structure and captured by an existing conveyance system. These flow patterns are shown on the Existing Drainage Management Exhibit in Appendix B:

- **DMA A (pink):** Stormwater sheet flows into the bay at Outlet A. This area is approximately 10 percent pervious due to landscaped areas and 90 percent impervious because of the existing paved parking lot.
- **DMA B (green):** Stormwater is generated from a portion of the existing building's roof and collected in a roof drain and directed into the bay via Outlet B. This DMA is completely impervious.
- **DMA C (blue):** Stormwater sheet flows off site into an adjacent parking structure. This DMA consist of an existing landscaped area that is completely pervious.
- **DMA D (purple):** Stormwater that is generated from the eastern half of the building roof is collected in a roof drain on the eastern side of the building. Stormwater flows underneath the mobile structures/sheds and flows into a natural channel that sheet flows the bay. An adjacent channel sheet flows along the south side of this DMA and directly sheet flows into the bay. This DMA is approximately 98 percent impervious.

2.2 Interim Conditions

The overall project goal is to restore the site back to its original grade and conditions. In order to do so, there are some considerations to be made with concerns for on-site hydrology and drainage prior to the post-project conditions. The construction activities for the project will take place in a three-phase process, as noted below:

- **Phase 1:** The components of Phase 1 consist of but are not limited to the removal and disconnection of existing utilities, demolition of landside structures, removal of the building foundation and fill of any depressions resulting from the demolition activities.

A portion of the existing pavement to the northwest will remain a sediment management area (SMA) for storage of dredged material.

- **Phase 2:** Phase 2 activities consist of in-water demolition, dredging in the bay, placement of clean sand, sediment management and disposal, and outfall protection.
- **Phase 3:** Phase 3 activities would return the site to an unoccupied, undeveloped site. Once the sediment has been dredged and disposed of, the existing asphalt and concrete paved areas that were used as the SMA would be demolished. The site would be regraded such that slopes would be shallow and allow stormwater to be absorbed and excess water from larger storm events would be directed to the post-project BMPs.

The applicant will be required to prepare a Stormwater Pollution Prevention Plan in compliance with 2009-0009-DWQ Construction General Permit to address stormwater runoff and potential pollutants during construction.

The interim condition of the project site will have three delineated DMAs (F, G, and H). The interim DMAs were delineated into three areas to control the discharge of sediment and other pollutants from entering the bay. Construction activities should be monitored and runoff should route through the Construction BMPs prior to leaving the site. It is the responsibility of the contractor to reduce any potential for negative impacts and prepare for rain events accordingly.

- **DMA F (orange):** This DMA would convert the existing paved parking area to a SMA for stockpile of dredged material. Perimeter control measures such as gravel or sand bags should be considered to prevent sediments from leaving the project site.
- **DMA G (indigo):** This DMA will function as a buffer from DMA F and the San Diego Bay. Perimeter control measures such as gravel or sand bags should be considered to prevent sediments from leaving the project site.
- **DMA H (red):** This DMA, which would be the construction staging area, would be restored to an unpaved surface during the construction phase and would be roughly graded in order to minimize direct drainage into the bay. Perimeter control will be used to prevent sediments from discharging off site.

2.3 Post-Project Condition

The post-project condition will consist of a natural pervious surface covered in non-invasive, drought-tolerant vegetation, such as grass. This site will be regraded to promote infiltration and minimize stormwater discharge into the San Diego Bay. Riprap will be placed at the outfalls for erosion protection along the eastern shoreline of the site in order to mitigate any potential erosion. Runoff from the site will sheet flow into sediment traps added upstream of the outfalls, where sediment would be captured to avoid sediment entering the bay directly. DMA E (yellow) has been included in the Post-Project Conditions DMA and BMP Exhibit in Appendix B for reference.

2.3.1 Flow Calculations

The existing and proposed peak flows generated by a 25-year storm event are included in Table 2.

Stormwater generated by the proposed development will surface flow into a proposed sediment trap to avoid sediment entering the bay. With the proposed demolition, regrade of the site, and removal of all pavement, the project's existing runoff of 2.41 cubic feet per second (cfs) will be reduced to 0.68 cfs; resulting in a decrease of runoff. No adverse downstream impacts are anticipated.

Table 2. Flow Determination Calculations

DMA ID	Area (acres) A	25-Year P6	Runoff Coefficient C	Time of Concentration (minutes) D	50-Year Intensity (inches/hour) I	Flow (cfs) Q
Existing Conditions						
DMA A	0.501	1.8	0.80	8.21	3.45	1.38
DMA B	0.092	1.8	0.85	5.03	4.72	0.37
DMA C	0.023	1.8	0.35	9.06	3.23	0.03
DMA D	0.159	1.8	0.84	5.01	4.74	0.63
Total	**0.775**	—	—	—	—	**2.41**
Proposed Conditions						
DMA E	0.775	1.8	0.35	13.39	3.0	**0.68**

Notes: cfs = cubic feet per second; DMA = Drainage Management Area

Calculations and exhibits are located in Appendices A through D.

2.4 Results and Conclusions

The drainage management areas were analyzed in order to determine the runoff that would generate from the project site for the existing, interim and post condition. Calculations for the design were made using methodology presented in the County of San Diego Drainage Design Manual using the 25-year storm event.

In the existing condition, 3 percent of the stormwater (DMA C) is conveyed into an adjacent parking lot that will flow into an eventual drainage conveyance system, while 97 percent of the runoff is conveyed through surface flow into existing outlets into the San Diego Bay. This 97 percent of stormwater runoff is currently being captured by roof drains and high points that exist within the site.

Interim construction conditions will need to implement multiple BMPs on site in order to protect the bay. Calculations were performed to determine the appropriate sizing for the SMA. We have accounted for approximately 2,000 cubic yards as the max allowable volume for the proposed sizing of the SMA within DMA F.

The proposed condition removes the building, associates sheds, and all pavement from the site, which would increase the site's infiltration capabilities and significantly decrease stormwater discharge from the site into the bay. Upon completion of demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state and would not involve the use of hazardous materials. The post-project condition would consist of a natural pervious surface covered in non-invasive, drought-tolerant vegetation, such as grass. Existing mature trees would be left undisturbed. The Stormwater Quality Management Plan identifies a number of site design BMPs to ensure that site drainage and water quality is maintained after demolition and waterside dredging and remediation activities.

Appendix A. Soils Map and Runoff Coefficient Table

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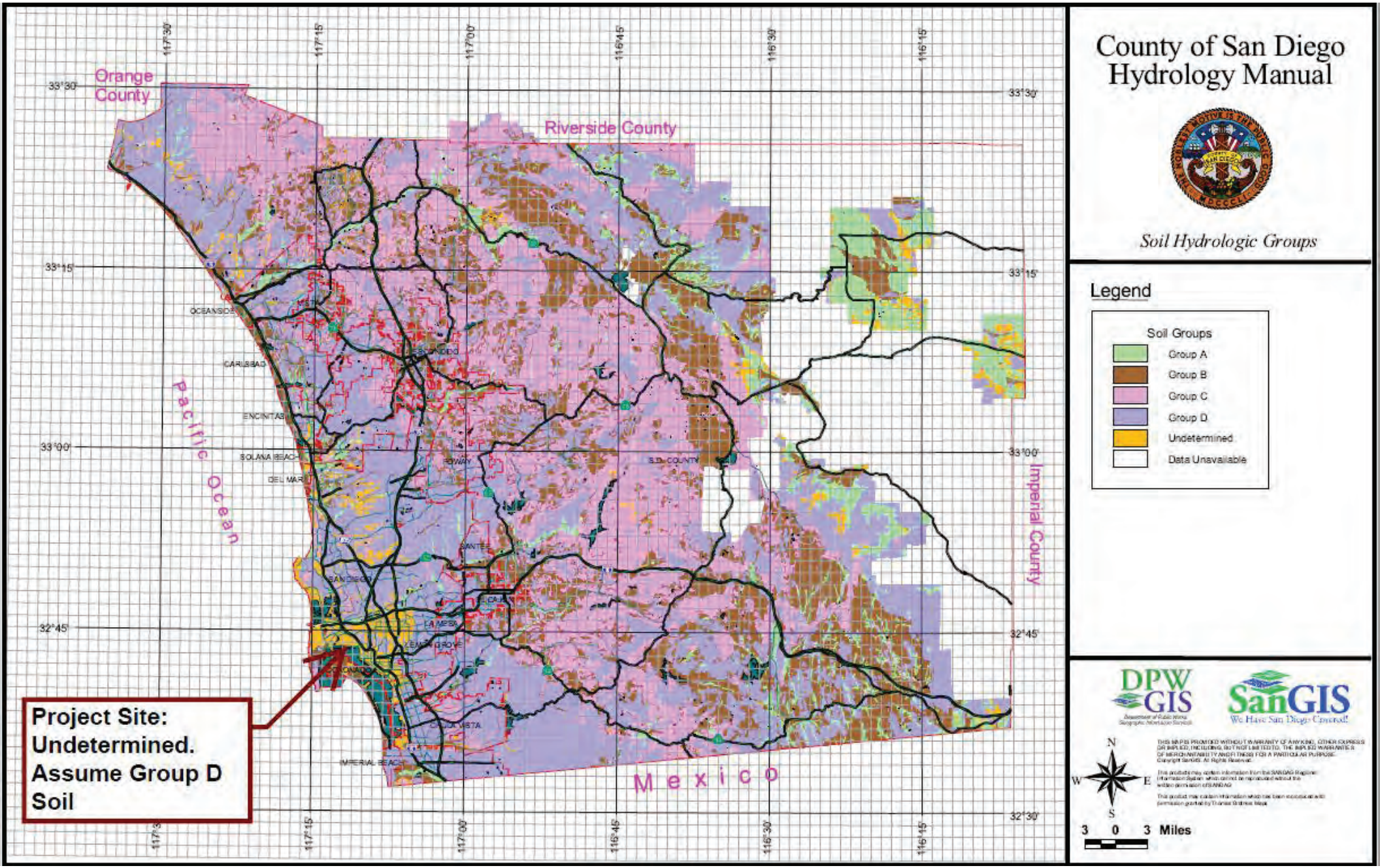
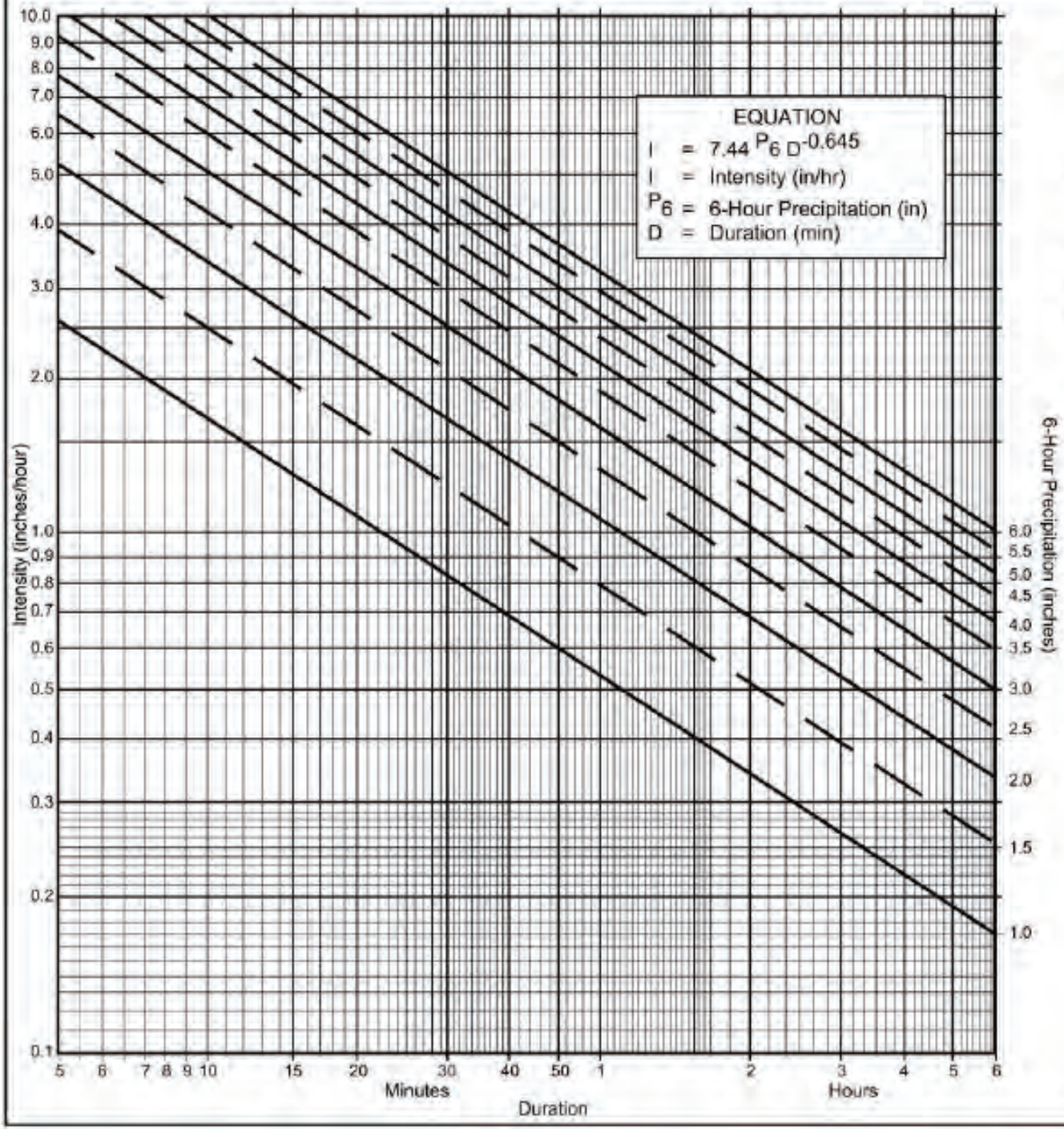

County of San Diego
Hydrology Manual
Soil Hydrologic Groups
Legend
Soil Groups
Group A
Group B
Group C
Group D
Undetermined
Data Unavailable
Orange County
Riverside County
Imperial County
Pacific Ocean
Mexico
OCEANSIDE
CARLSBAD
ENCINITAS
SOLANA BEACH
DEL MAR
ESCONDIDO
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
LA MESA
LEMON GROVE
CORONADO
CHULA VISTA
IMPERIAL BEACH
Project Site:
Undetermined.
Assume Group D
Soil
DPW GIS
SanGIS
We Have San Diego Covered!
N
W
E
S
3 0 3 Miles



Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency 25 year

(b) P_6 = 1.8 in., P_{24} = 3.2 $\frac{P_6}{P_{24}}$ = 56 %(2)

(c) Adjusted P_6(2) = _____ in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6 / Duration	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE

3-1

Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS

Land Use		Runoff Coefficient "C"				
			Soil Type			
NRCS Elements	County Elements	% IMPER.	A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78	0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78	0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81	0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, Cp, for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).
DU/A = dwelling units per acre
NRCS = National Resources Conservation Service

Appendix B. Drainage Basin Maps

Existing Drainage Management Exhibit

Interim Conditions DMA and BMP Exhibit

Post-Project DMA and BMP Exhibit

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AREA CALCULATIONS:

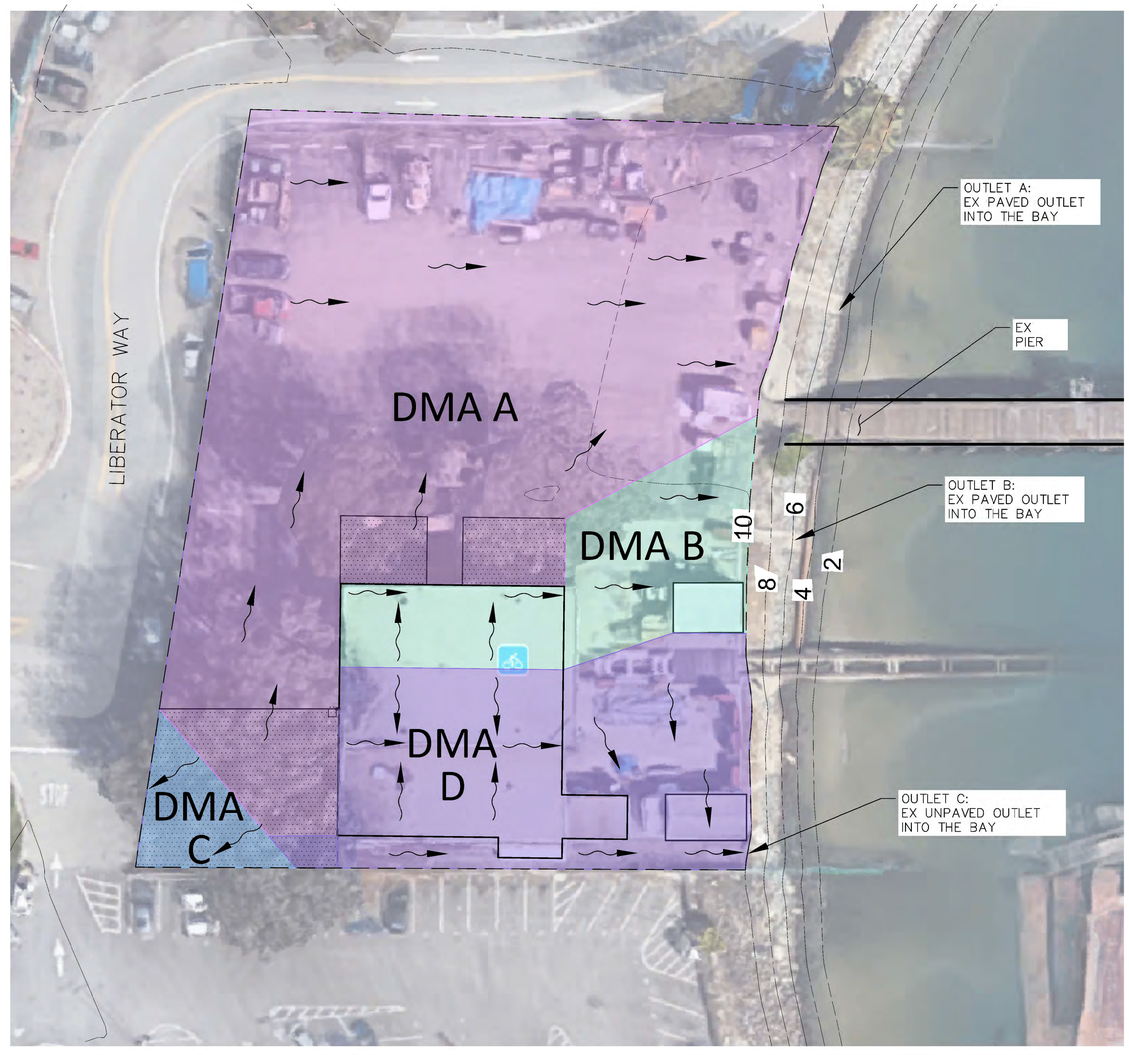
TOTAL PROJECT AREA: 0.775 ACRES

DMA A = 0.501 ACRES
PERVIOUS: 0.051 ACRES
IMPERVIOUS: 0.449 ACRES

DMA B = 0.092 ACRES
PERVIOUS: N/A
IMPERVIOUS: 0.092 ACRES

DMA C = 0.023 ACRES
PERVIOUS: 0.023 ACRES
IMPERVIOUS: N/A

DMA D = 0.159ACRES
PERVIOUS: 0.003 ACRES
IMPERVIOUS: 0.156 ACRES



LEGEND:

EXIST. CONTOUR 2

FLOW DIRECTION

LANDSCAPING

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LOCKHEED MARTIN MARINE TERMINAL DEMOLITION AND OFFSHORE REMEDIATION PROJECT

EXISTING DRAINAGE MANAGEMENT EXHIBIT

HARRIS & ASSOCIATES
600 B Street, Suite 2000
San Diego, CA 92101
(619) 236-1778 • (619) 236-1179

LEGEND:

- FLOATING SILT CURTAINS WITH OIL BOOM
- LIMIT OF WORK
- SE-1 SLIT FENCE
- TC-1 CONSTRUCTION ENTRANCE
- GRAVEL OR SAND BAGS
- FLOW PATH
- CONTRACTOR ACTIVITY AREA

CASQA BMPS TO BE CONSIDERED

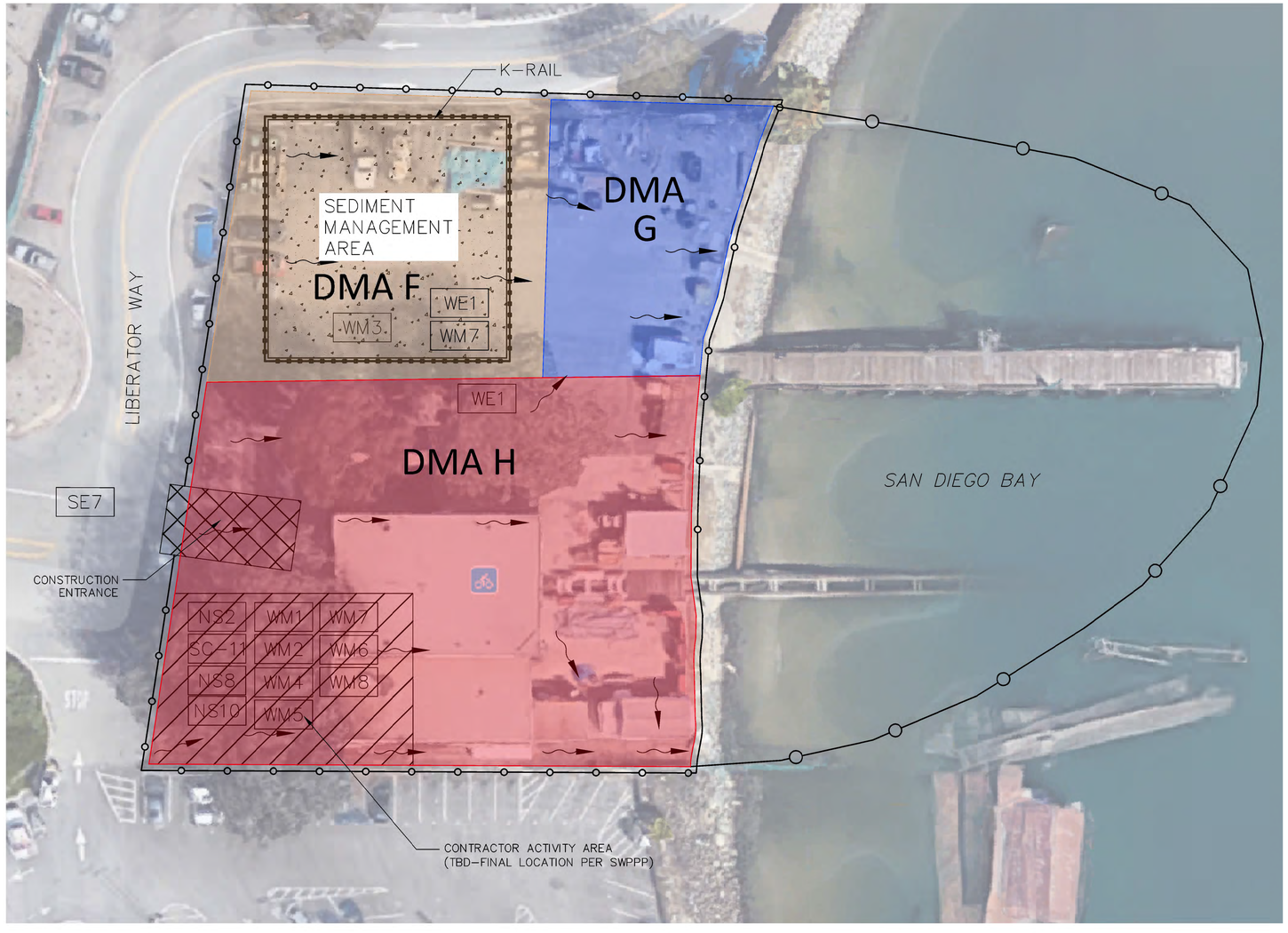
SE7	STREET SWEEPING AND VACUUMING
WE1	WIND EROSION CONTROL
NS8	VEHICLE AND EQUIPMENT CLEANING
NS10	VEHICLE AND EQUIPMENT MAINTENANCE
WM1	MATERIAL DELIVERY AND STORAGE
WM2	MATERIAL USE
WM3	STOCKPILE MANAGEMENT
WM4	SPILL PREVENTION AND CONTROL
WM5	SOLID WASTE MANAGEMENT
WM6	HAZARDOUS WASTE MANAGEMENT
WM7	CONTAMINATED SOIL MANAGEMENT
WM8	CONCRETE WASTE MANAGEMENT
NS2	DEWATERING OPERATIONS
SC-11	SPILL, PREVENTION, CONTROL AND CLEANUP

AREA CALCULATIONS:

DMA F = 0.2 ACRES
(100% IMPERVIOUS)

DMA G = 0.12 ACRES
(100% IMPERVIOUS)

DMA H = 0.45 ACRES
(100% PERVIOUS)



NOTES

1. BMPS SHOWN ARE RECOMMENDED. THE PROJECT SWPPP WILL TAKE PRECEDENCE.
2. STABILIZED CONSTRUCTION ENTRANCE IS SHOWN FOR REFERENCE ONLY.
3. CONTRACTOR TO MAINTAIN/REVISE EROSION CONTROL MEASURES AS NEEDED TO PROTECT AND PREVENT SEDIMENT FROM LEAVING THE SITE DURING VARIOUS STAGES/PHASES OF REMOVAL NOT SHOWN ON THE EROSION CONTROL PLAN. CONTRACTOR TO COMPLY WITH SWPPP AT ALL TIMES.
4. CONTRACTOR SHALL SWEEP THE PUBLIC ROAD IN THE VICINITY OF THE ENTRANCE AS OFTEN AS NECESSARY THROUGHOUT THE WORK DAY TO COMPLETE REMOVE ALL DEBRIS ASSOCIATED WITH PROJECT ACTIVITIES.
5. SEDIMENT MANAGEMENT AREA IS FOR PLACEMENT OF DREDGED MATERIAL.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

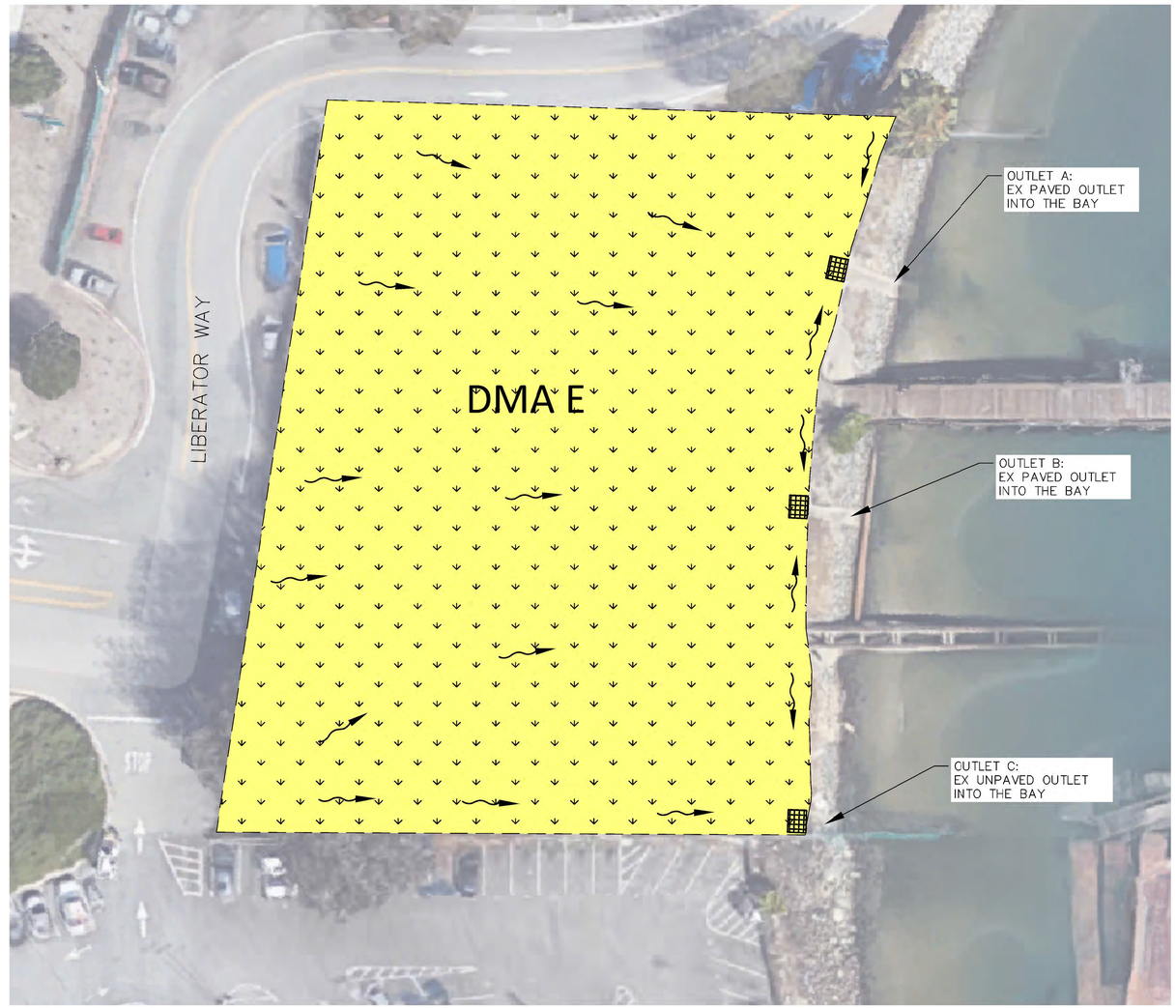
LOCKHEED MARTIN MARINE TERMINAL DEMOLITION AND OFFSHORE REMEDIATION PROJECT

INTERIM CONDITIONS DMA & BMP EXHIBIT

HARRIS & ASSOCIATES
600 B Street, Suite 2000
San Diego, CA 92101
(619) 236-1778 ● (619) 236-1179

AREA CALCULATIONS:

DMA E = 0.775 ACRES
(100% PERVIOUS)



LEGEND:

FLOW DIRECTION

SEDIMENT TRAP

LANDSCAPED DROUGHT TOLERANT GRASS

NOTES:

1. ALL STORMWATER RUNOFF RESULTING FROM THE 85TH PERCENTILE, 24 HOUR STORM SHALL BE CAPTURED AND RETAINED ON SITE. THE DEVELOPER SHALL DEFINE THE LOCATION, SIZE, AND TYPE OF BMP IMPLEMENTED TO RETAIN THE DESIGN CAPTURE VOLUME OF 422 CUBIC FEET.

2. ANY STORM EVENT ABOVE THE 85TH PERCENTILE, 24 HOUR STORM EVENT LEVEL SHOULD FLOW THROUGH THE SEDIMENT TRAPS SHOWN ON THIS EXHIBIT FOR FLOOD CONTROL PURPOSES.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LOCKHEED MARTIN MARINE TERMINAL DEMOLITION AND OFFSHORE REMEDIATION PROJECT

POST-PROJECT DMA & BMP EXHIBIT

HARRIS & ASSOCIATES
600 B Street, Suite 2000
San Diego, CA 92101
(619) 236-1778 • (619) 236-1179

Appendix C. 25-Year Storm Event Isopluvial Maps

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County of San Diego Hydrology Manual

Rainfall Isopluvials

25 Year Rainfall Event - 6 Hours

Isopluvial (inches)

Project Site:
P_6=1.8

Orange County

Riverside County

Imperial County

Pacific Ocean

Mexico

OCEANSIDE
CARLSBAD
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
SANTEE
SAN DIEGO
LA MESA
EL CAJON
CORONADO
CHULA VISTA
IMPERIAL BEACH
S.D. COUNTY

33°30'
33°15'
33°00'
32°45'
32°30'
117°30'
117°15'
117°00'
116°45'
116°30'
116°15'

DPW GIS
Department of Public Works Geographic Information Services

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N
W E
S

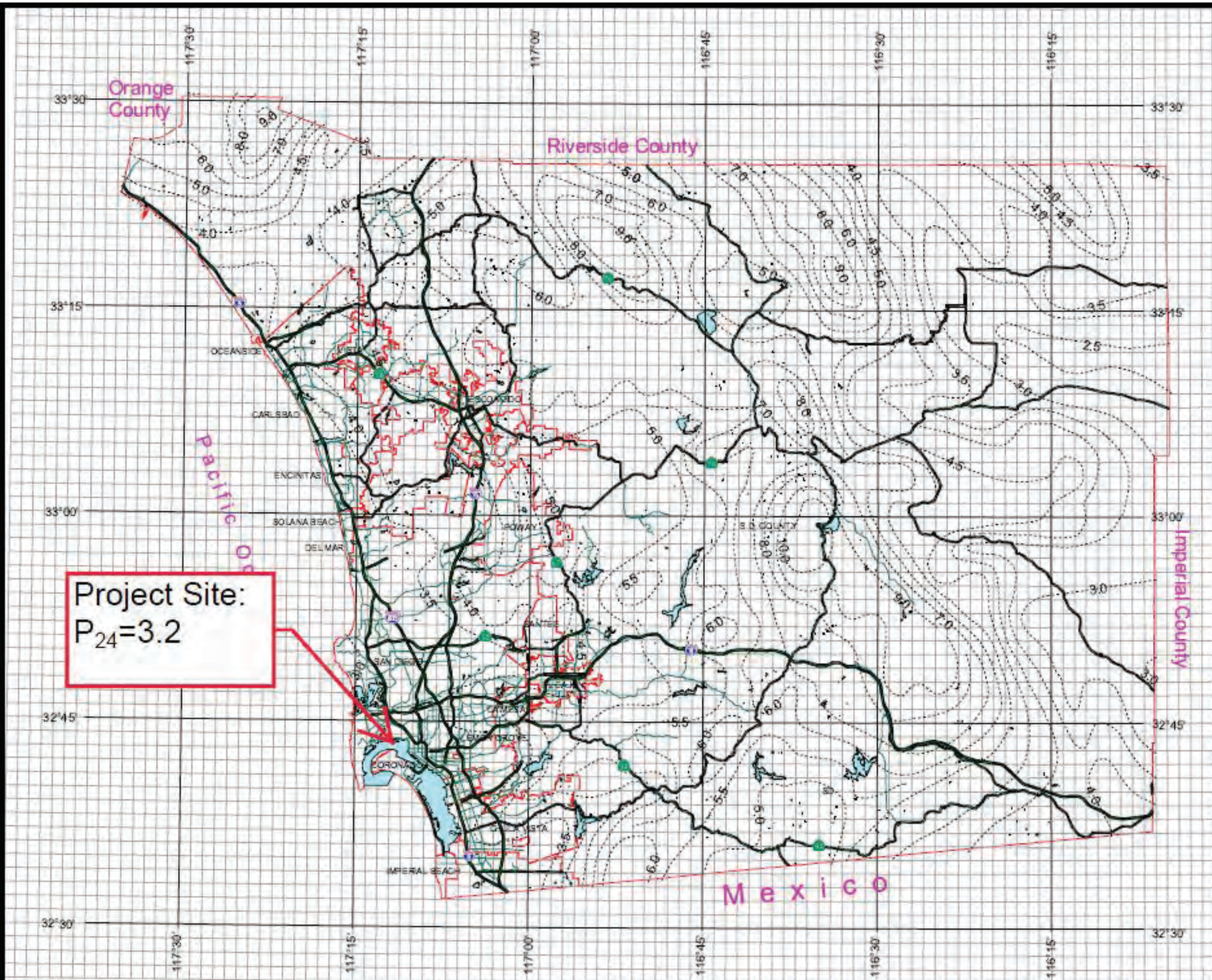
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

25 Year Rainfall Event - 24 Hours

-------- Isopluvial (inches)



DPW GIS
Department of Public Works Geographic Information Services

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N W E S

3 0 3 Miles

Appendix D. SMA Area Calculation

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Harris & Associates

Sht. 1 of 1

Project Name Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project

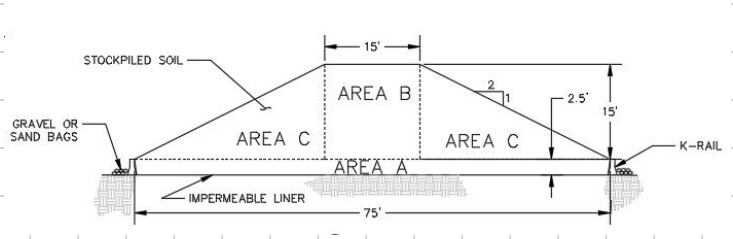
Client Port of San Diego

Description Calculations for the Sediment Management Area

Proj. No. _____ Phase _____ Task _____

By KJG Date 7/11/19 Chk'd By FL

Sediment Management Area (SMA)



Area A = (75')(75')(2.5')
(Foot Print)

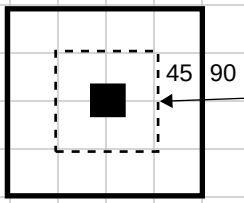
14,062.5'
or
521 CY

Area B = (15')(15')(15')
(Stockpile Area)

3,375'
or
125 CY

Area C = $\frac{1}{2}$(30')(15')(180')
(Stockpile Slope)

40,500'
or
1,500 CY



45 x 4 = 180'

<u>Total Settlement Management Area (SMA)</u> =

521 CY + 125 CY + 1,500 CY = **2,146 CY**

2,000 CY is the max allowable area for the SMA (if using 75' by 75'

(*Max capacity before hauling offsite*)

PORT OF SAN DIEGO
STORMWATER QUALITY MANAGEMENT PLAN
FOR STANDARD (MINOR) DEVELOPMENT PROJECT

PROJECT NAME: LOCKHEED MARTIN MARINE TERMINAL DEMOLITION AND OFFSHORE REMEDIATION PROJECT
PROJECT NUMBER:
PROJECT ADDRESS: 1160 NORTH HARBOR ISLAND DRIVE
DATE: MARCH 2020

PREPARED FOR:
Port of San Diego
3165 Pacific Highway
San Diego, California 92101-1128

PREPARED BY:
Harris & Associates
600 B Street, Suite 2000
San Diego, California 92101

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ACRONYMS

BMP	Best Management Practice
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project
PE	Professional Engineer
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWQMP	Storm Water Quality Management Plan

STANDARD SWQMP PROJECT APPLICANT CERTIFICATION PAGE

Project Name: Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project
Permit Application Number: [Insert Permit Application Number]

PROJECT APPLICANT'S CERTIFICATION

This Standard Project SWQMP has been prepared for PORT OF SAN DIEGO by HARRIS & ASSOCIATES. The Standard Project SWQMP is intended to comply with Standard Project requirements outlined in the Port of San Diego BMP Design Manual pursuant to local Port of San Diego and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. 2013-0001, as amended by Orders No. R9-2015-0001 and No. R9-2015-0100) requirements for storm water management.

The undersigned, while it owns the subject project, is responsible for the implementation of the provisions of this plan. This includes:

- **Installation of storm water BMPs,**
- **Verification of installed BMPs pursuant to the Port of San Diego's project closeout procedures,**
- **Maintenance of BMPs annually or more frequently when necessary to maintain BMP capacity,**

If the undersigned transfers its interests in the property, its successor-in-interest shall bear the aforementioned responsibility to implement the best management practices (BMPs) described within this plan, including ensuring on-going operation and maintenance of structural BMPs. A signed copy of this document shall be available on the subject property into perpetuity.

Signature 1: Pre-Construction *Project applicant's signature is required prior to approval of the SWQMP.*		
Project Applicant's Signature:		
Print Project Applicant's Name:	Company Name:	Date:

Signature 2: Post-Construction *Project applicant's signature is required for project closeout.*		
Project Applicant's Signature:		
Print Project Applicant's Name:	Company Name:	Date:

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CONSTRUCTION CHANGE RECORD

During construction of the project, any changes that affect the design of storm water management features must be reviewed and approved by the Port of San Diego. This might include changes to drainage patterns that occurred based on actual site grading and construction of storm water conveyance structures, or substitutions to storm water management features. The storm water management design must be revisited to ensure the revised project layout and features meet the requirements of the Port BMP Design Manual and the MS4 Permit.

Design changes must be reviewed and approved by the Engineer of Record and the Port of San Diego prior to continuing construction.

Use this Table to keep a record of changes that occur during construction.

Construction Change Number	**Date of Approval**	**Summary of Changes**

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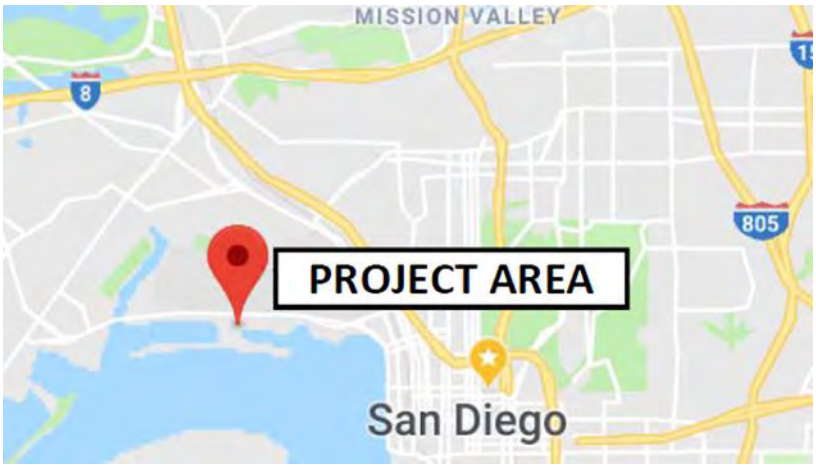
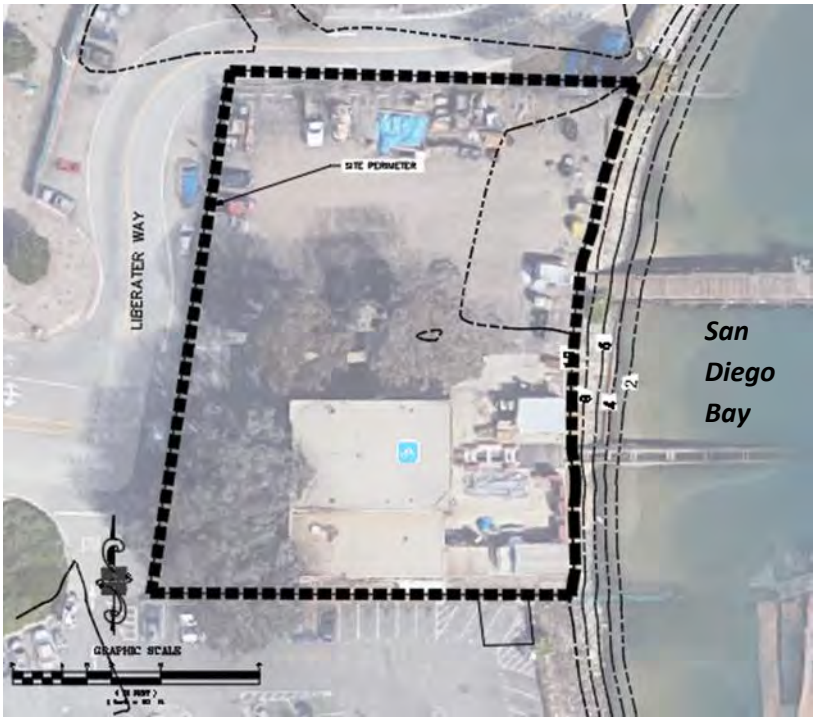
PROJECT VICINITY MAP

Project Name: Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project
Permit Application Number: [Insert Permit Application Number]





Vicinity Map Checklist

The Vicinity Map must identify:

- ☒ Major roadways, geographic features or landmarks
- ☒ Site perimeter
- ☒ Geographic features
- ☒ General topography
- ☒ Downstream receiving water body
- ☒ Scale
- ☒ North arrow

Applicability of Permanent, Post-Construction Storm Water BMP Requirements **(Storm Water Intake Form for all Development Permit Applications)**	**Form I-1**

Project Identification	
Project Name: Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project	
Permit Application Number:	Date:
Project Address: 1160 North Harbor Island Drive San Diego, CA 92101	

Determination of Permanent, Post-Construction Requirements

The purpose of this form is to identify permanent, post-construction requirements that apply to the project. This form serves as a short summary of applicable requirements, in some cases referencing separate forms that will serve as the backup for the determination of requirements.

Answer each step below, starting with Step 1 and progressing through each step until reaching "Stop". **Upon reaching a Stop, do not complete further Steps beyond the Stop.**

Refer to Port BMP Design Manual sections and/or separate forms referenced in each step below.

Step	Answer	Progression
Step 1: Is the project a "development project"? See Section 1.3 of the BMP Design Manual for guidance.	☒Yes	Go to Step 2.
	☐ No	Stop. Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.
Discussion / justification if the project is not a "development project" (e.g., the project includes *only* interior remodels within an existing building):		
Step 2: Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? To answer this item, see Section 1.4 of the BMP Design Manual *in its entirety* for guidance, AND complete Form I-2, Project Type Determination.	☒ Standard Project	Stop. Only Standard Project requirements apply, including Standard Project SWQMP.
	☐PDP	Standard and PDP requirements apply, including PDP SWQMP. Go to Step 3.
	☐ Exception to PDP definitions	Stop. Standard Project requirements apply, and any additional requirements specific to the type of project. Provide discussion and list any additional requirements below. Prepare Standard Project SWQMP.

Form I-1 Page 2		
[Step 2 Continued from Page 1] Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:		
Step 3 (PDPs only). Is the project subject to earlier PDP requirements due to a prior lawful approval? See Section 1.10 of the BMP Design Manual for guidance.	☐ Yes	Consult the Port of San Diego to determine requirements. Provide discussion and identify requirements below. Go to Step 4.
	☐ No	BMP Design Manual PDP requirements apply. Go to Step 4.
Discussion / justification of prior lawful approval, and identify requirements (*not required if prior lawful approval does not apply*):		
Step 4 (PDPs only). Do hydromodification flow control requirements apply? See Section 1.6 of the BMP Design Manual for guidance.	☐ Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification flow control (Chapter 6). Stop.
	☐ No	Stop. PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below.
Discussion / justification if hydromodification control requirements do <u>not</u> apply:		
Note: No potential critical coarse sediment yield areas have been identified within Port of San Diego jurisdiction. Therefore when hydromodification management requirements apply, only the flow control requirements apply.		

Applicability of Construction Phase Storm Water Requirements **(Storm Water Intake Form for all Development Permit Applications)**	**Form I-1b**
Project Identification	
Project Name: Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project	
Permit Application Number:	Date:
Project Address: 1160 North Harbor Island Drive San Diego, CA 92101	
Determination of Requirements	
The purpose of this form is to identify construction phase storm water requirements that apply to the project. If the answer to question 1 below is "Yes", your project is subject to the General Construction Activities Permit and will be required to submit Permit fees, a completed Notice of Intent to comply with the Permit and submit a **Storm Water Pollution Prevention Plan (SWPPP) for Projects Greater Than 1 Acre** to the Port. If the answer to question 1 below is "No", but the answer to question 2 or 3 is "yes", you must prepare a Port Construction BMP Plan for projects less than 1 acre. If the answer to questions 4 or 5 is "Yes" then BMPs will be required but no document submittal will be required. If every question below is answered "No", no additional storm water documentation is required.	

Would the project meet any of these criteria during construction?		
1. Will this project include clearing, grading, and disturbances to ground such as stockpiling, or excavation that results in soil disturbances of at least one acre total land area?	☒Yes	☐ No
2. Does the project propose pavement resurfacing, grading or soil disturbance greater than 100 square feet?	☒Yes	☐ No
3. Will the project occur over or within a receiving water?	☒Yes	☐ No
4. Would storm water or urban runoff have the potential to contact any portion of the construction area, including washing and staging areas?	☒Yes	☐ No
5. Would the project use any construction materials that could negatively affect water quality if discharged from the site (such as paints, solvents, concrete, and stucco)?	☒Yes	☐ No
Note: The Port requires the use of Port SWPPP and Construction BMP Plan templates. The templates are available on the Port website http://www.portofsandiego.org/environment/stormwater/838-swppp-templates.html or, to request a copy, please contact Planning & Green Port at (619) 686-6254.		

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Project Type Determination Checklist			Form I-2
Project Information			
Project Name: Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project			
Permit Application Number:			Date:
Project Address: 1160 North Harbor Island Drive San Diego, CA 92101			
Project Type Determination: Standard Project or Priority Development Project (PDP)			
The project is (select one): ☐ New Development ☒ Redevelopment			
The total proposed newly created or replaced impervious area is: ____0____ ft^2 (___0____) acres			
Is the project in any of the following categories, (a) through (f)?			
Yes ☐	No ☒	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☒	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☒	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

Form I-2 Page 2			
Yes ☐	No ☒	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See BMP Design Manual Section 1.4.2 for additional guidance.*
Yes ☐	No ☒	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
Yes ☐	No ☒	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See BMP Design Manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the Priority Development Project categories (a) through (f) listed above?
☒ No – the project is <u>not</u> a Priority Development Project (Standard Project).
☐ Yes – the project is a Priority Development Project (PDP).

The following is for redevelopment PDPs only:

The area of existing (pre-project) impervious area at the project site is: _____ ft^2 (A)
The total proposed newly created or replaced impervious area is _____ ft^2 (B)
Percent impervious surface created or replaced (B/A)*100: _____%
The percent impervious surface created or replaced is (select one based on the above calculation):
☐ less than or equal to fifty percent (50%) – only new impervious areas are considered PDP
OR
☐ greater than fifty percent (50%) – the entire project site is a PDP

Site Information Checklist For Standard Projects		Form I-3A (Standard Projects)
Project Summary Information		
Project Name	Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project	
Project Address	1160 North Harbor Island Drive San Diego, CA 92101	
Permit Application Number		
Project Hydrologic Unit Select One:	Project Hydrologic Area Select One:	Project Hydrologic Subarea Select One When Applicable:
☒ Pueblo San Diego 908	☐ 908.10 Point Loma	
	☒ 908.20 San Diego Mesa	☒ 908.21 Lindbergh
		☐ 908.22 Chollas
	☐ 908.30 National City	☐ 908.31 El Toyon
		☐ 908.32 Paradise
☐ Sweetwater 909	☐ 909.10 Lower Sweetwater	☐ 909.11 Telegraph
		☐ 909.12 La Nacion
☐ Otay 910	☐ 910.10 Coronado	
	☐ 910.20 Otay Valley	
Port Parcel Area (total area of Parcel(s) associated with the project)	__0.775_____ Acres (34,151 Square Feet)	
Area to be Disturbed by the Project (Project Area)	__1.51____ Acres (65,776 Square Feet)	
Project Proposed Impervious Area (subset of Project Area)	____0____Acres (0 Square Feet)	
Project Proposed Pervious Area (subset of Project Area)	____1.51____ Acres (65,776 Square Feet)	
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.		

Form I-3A Page 2 of 6
Description of Existing Site Condition
Current Status of the Site (select all that apply): ☒ Existing development ☐ Previously graded but not built out ☐ Demolition completed without new construction ☐ Agricultural or other non-impervious use ☐ Vacant, undeveloped/natural Description / Additional Information: The current site contains a 5,500-square-foot building with two 280-square-foot sheds and small landscaped areas that currently drain into the San Diego Bay. Additionally, there is a 165-foot-long pier, 328-foot-long marine railway, and some associated support structures on the bay-side of the site.
Existing Land Cover Includes (select all that apply): ☒ Vegetative Cover ☐ Non-Vegetated Pervious Areas ☒ Impervious Areas Description / Additional Information: The existing project site is an inactive lot that is approximately 90 percent impervious and 10 percent pervious.
Underlying Soil belongs to Hydrologic Soil Group (select all that apply): ☐ NRCS Type A ☐ NRCS Type B ☐ NRCS Type C ☒ NRCS Type D Soil Type D was assumed since the Soil Hydrologic Map identified the project site as “Undetermined.”
Existing Natural Hydrologic Features (select all that apply): ☒ Watercourses ☐ Seeps ☐ Springs ☐ Wetlands ☐ None Description / Additional Information: The existing project site runoff is directed to outfalls that drain directly into the San Diego Bay.

Form I-3B Page 3 of 6

Description of Existing Site Drainage Patterns

How is storm water runoff conveyed from the site? At a minimum, this description should answer:
(1) whether existing drainage conveyance is natural or urban;
(2) Is runoff from offsite conveyed through the site? if yes, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site;
(3)Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels; and
(4) Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Describe existing site drainage patterns:
The existing project site is commercial/industrial with 90% impervious surfaces. The existing project site consists of four distinct Drainage Management Areas (DMAs), outlined in the Drainage Study included in Attachment 1. Runoff is allowed to sheet flow across the site into the San Diego Bay.

DMA A (pink)**:** Stormwater sheet flows into the bay at Outlet A. This area is approximately 10 percent pervious due to landscaped areas and 90 percent impervious because of the existing paved parking lot. .

DMA B (green)**:** Stormwater is generated from a portion of the existing building's roof which is collected in a roof drain and directed into the bay via Outlet B. This DMA is completely impervious.

DMA C (blue)**:** Stormwater sheet flows offsite into an adjacent parking structure. This DMA consist of an existing landscaped area that is completely pervious.

DMA D (purple)**:** Stormwater that is generated from the eastern half of the building roof is collected in a roof drain on the eastern side of the building. Stormwater flows underneath the mobile structures/sheds and flows into a natural channel that sheet flows the bay. An adjacent channel sheet flows along the south side of this DMA and directly sheet flows into the Bay. This DMA is approximately 98 percent impervious.

The entire project site, in its existing conditions, generates approximately 2.41 cfs of stormwater runoff (based on 25-year storm event)that drains offsite through existing outlets into the San Diego Bay. Outlets are identified in the pre-project conditions exhibit in Appendix B of the Drainage Study (Included as Attachment 1). No conveyance system has been identified on site and all discharge locations have been identified within the Drainage Study.

Form I-3A Page 4 of 6

Description of Proposed Site Development and Drainage Patterns

Project Description / Proposed Land Use and/or Activities:

The project intends to demolish the existing building and any associated paving to restore the site to original conditions with pervious surfaces. The proposed demolition will convert the approximately 0.775 acre site into an empty, completely pervious and landscaped lot. In addition to the demolition, the projects includes construction activity within the San Diego Bay as described below.

The project will incorporate the following activities:

- Removal of the 5,500 sf building
- Removal of all concrete, asphalt paving, and utilities
- Removal of the 165-foot-long pier, 328-foot-long marine railway, and all support structures (i.e., piles) that extend into the bay
- Minor dredging associated with removal of the in-water improvements
- Dredging of approximately 15,000 cubic yards of contaminated sediment from the waterside portion of the site.

List proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

No impervious features are proposed.

List proposed pervious features of the project (e.g., landscape areas):

The entire project site will be restored to a 100% pervious lot with drought tolerant grass.

Does the project include grading and changes to site topography?

☒ Yes
☐ No

Description / Additional Information:
After demolition has been completed, the site should be slightly regraded to infiltrate and minimize any discharge off site. All discharge generated by medium to high storm events will be graded to route into the sediment basins that will be added in the post-project conditions.

Form I-3A Page 5 of 6

Description of Proposed Site Drainage Patterns

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☒ Yes
☐ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

The existing and proposed peak flows generated by a 25-year storm event were determined in the attached Drainage Study (Attachment 1). With the proposed demolition, regrade of the site, and removal of all pavement, the project's existing runoff of 2.41 cubic feet per second (cfs) will be reduced to 0.68 cfs; resulting in a decrease of runoff. No adverse downstream impacts are anticipated.

The post-project condition will consist of a natural pervious surface covered in drought tolerant grass. This site will be re-graded to promote infiltration and minimize stormwater discharge into the San Diego Bay. The site is required to capture volume of storm water runoff resulting from the 85th percentile, 24-hr storm event. This volume was determined to be 422 cubic feet, per the calculations in Attachment 3, and should be captured within proposed BMPs from the future developer of the site. For any storm larger than this event, the existing project site runoff should be directed through sediment traps located at the outfalls that drain directly into the San Diego Bay. Attachment 3 shows the calculation for the design capture volume. Riprap will be placed at the outfalls for erosion protection along the eastern shoreline of the site in order to mitigate any potential erosion. Runoff from the site will sheet flow into sediment traps added upstream of the outfalls, where sediment would be captured to avoid sediment entering the bay directly. DMA E (yellow) has been included in the Post Project Conditions BMP & DMA Exhibit in Appendix B of the Attached Drainage Study for reference.

Form I-3A Page 6 of 6
Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply): ☐ On-site storm drain inlets ☐ Interior floor drains and elevator shaft sump pumps ☐ Interior parking garages ☐ Need for future indoor & structural pest control ☐ Landscape/Outdoor Pesticide Use ☐ Pools, spas, ponds, decorative fountains, and other water features ☐ Food service ☐ Refuse areas ☐ Industrial processes ☐ Outdoor storage of equipment or materials ☐ Vehicle and Equipment Cleaning ☐ Vehicle/Equipment Repair and Maintenance ☐ Fuel Dispensing Areas ☐ Loading Docks ☐ Fire Sprinkler Test Water ☐ Miscellaneous Drain or Wash Water ☐ Plazas, sidewalks, and parking lots Description / Additional Information: N/A.

Source Control BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)	Form I-4

Project Identification

Project Name: Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project

Permit Application Number

Source Control BMPs

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual for information to implement source control BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.

Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-1 not implemented: The post-project condition will consist of landscaped lot with no drainage system. Therefore, an illicit discharge is not expected to occur due to the use of the site.			
SC-2 Storm Drain Stenciling or Signage	☐ Yes	☒ No	☐ N/A
Discussion / justification if SC-2 not implemented: There are no proposed storm drain conveyance systems, therefore no stenciling or signage is required.			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☒ No	☐ N/A
Discussion / justification if SC-3 not implemented: The post-project conditions will not have any outdoor material storage areas since they site will be converted into a pervious, unpaved lot.			
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☒ No	☐ N/A
Discussion / justification if SC-4 not implemented: The post-project conditions will not have any outdoor material storage areas since they site will be converted into a pervious, unpaved lot.			

Form I-4 Page 2 of 2			
Source Control Requirement	**Applied?**		
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☒ No	☐ N/A
Discussion / justification if SC-5 not implemented: The post-project conditions will not have any trash storage areas since they site will be converted into a pervious, unpaved lot.			
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
☐ On-site storm drain inlets	☐ Yes	☐ No	☒ N/A
☐ Interior floor drains and elevator shaft sump pumps	☐ Yes	☐ No	☒ N/A
☐ Interior parking garages	☐ Yes	☐ No	☒ N/A
☐ Need for future indoor & structural pest control	☐ Yes	☐ No	☒ N/A
☐ Landscape/Outdoor Pesticide Use	☐ Yes	☐ No	☒ N/A
☐ Pools, spas, ponds, decorative fountains, and other water features	☐ Yes	☐ No	☒ N/A
☐ Food service	☐ Yes	☐ No	☒ N/A
☐ Refuse areas	☐ Yes	☐ No	☒ N/A
☐ Industrial processes	☐ Yes	☐ No	☒ N/A
☐ Outdoor storage of equipment or materials	☐ Yes	☐ No	☒ N/A
☐ Vehicle and Equipment Cleaning	☐ Yes	☐ No	☒ N/A
☐ Vehicle/Equipment Repair and Maintenance	☐ Yes	☐ No	☒ N/A
☐ Fuel Dispensing Areas	☐ Yes	☐ No	☒ N/A
☐ Loading Docks	☐ Yes	☐ No	☒ N/A
☐ Fire Sprinkler Test Water	☐ Yes	☐ No	☒ N/A
☐Miscellaneous Drain or Wash Water	☐ Yes	☐ No	☒ N/A
☐ Plazas, sidewalks, and parking lots	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for all "No" answers shown above. None of the above listed items are applicable to the project scope since the site will consist of a landscapes lot with no official use.			

Site Design BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)	Form I-5

Project Identification

Project Name: Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project

Permit Application Number

Site Design BMPs

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual for information to implement site design BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided.

Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-1 not implemented:			
SD-2 Conserve Natural Areas, Soils, and Vegetation	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-2 not implemented: The project consists of returning the developed site to a natural/landscaped lot.			
SD-3 Minimize Impervious Area	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-3 not implemented:			
SD-4 Minimize Soil Compaction	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-4 not implemented: The site will be regraded to promote infiltration of runoff, therefore, compaction will be minimized to allow for this.			
SD-5 Impervious Area Dispersion	☐ Yes	☐ No	☒ N/A
Discussion / justification if SD-5 not implemented:			

Form I-5 Page 2 of 2			
Site Design Requirement	**Applied?**		
SD-6 Runoff Collection	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-6 not implemented:			
SD-7 Landscaping with Native or Drought Tolerant Species	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-7 not implemented:			
SD-8 Harvesting and Using Precipitation	☐ Yes	☐ No	☒ N/A
Discussion / justification if SD-8 not implemented:			

ATTACHMENT 1
Copy of Plan Sheets Showing Permanent Storm Water BMPs

This is the cover sheet for Attachment 1.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

☒ Entire property included on one map (use key map if multi-sheets) - ***See Attached Drainage Study***
☒ BMP Sheet which includes the following (BMP type, size, dimensions for location, cross section and elevation detail); global positioning system coordinates of property - ***See Attached Drainage Study***
☒ Drainage areas and direction of flow - ***See Attached Drainage Study***
☐ Storm drain system(s) –***N/A The project site is entirely sheet flow discharged into the San Diego Bay via outfalls***
☒ Nearby water bodies and municipal storm drain inlets - ***See Attached Drainage Study. San Diego Bay is directly adjacent to the site.***
☒ Location and details of storm water conveyance systems (ditches, inlets, outlets, storm drains, overflow structures, etc.)-**Existing outfalls are identified *in the Attached Drainage Study. There are no proposed drainage conveyance systems.***
☒ Location of existing and proposed storm water controls - ***See Attached Drainage Study***
☒ Location of "impervious" areas – paved areas, buildings, covered areas - ***See Attached Drainage Study. No proposed "impervious" areas.***
☐ Locations where materials would be directly exposed to storm water – ***N/A. No materials will be stored on site.***
☒ Location of building and activity areas (e.g., fueling islands, garages, waste container area, wash racks, hazardous material storage areas, etc.) - ***See Attached Drainage Study***
☒ Areas of potential soil erosion (including areas downstream of the project)
☐ Location of existing drinking water wells- ***N/A***
☐ Location of existing vegetation to be preserved –***N/A. No vegetation to be preserved.***
☐ Location of LID landscaping features, site design BMPs- N/A
☒ Proposed demolition-***See LMCO Marine Terminal Demo Drawings***
☒ Proposed grading- ***See LMCO Marine Terminal Demo Drawings***
☐ Proposed impervious features - **N/A. Post project site conditions shall be entirely pervious.**
☐ Proposed design features and surface treatments used to minimize imperviousness - **N/A. Post project site conditions shall be entirely pervious.**
☐ Location of "impervious" areas – paved areas, buildings, covered areas - **N/A. Post project site conditions shall be entirely pervious.**
☐ Locations where materials would be directly exposed to storm water- ***N/A. No materials will be stored on site.***
☒ Potential pollutant source areas and corresponding required source controls (see BMP Design Manual Chapter 4 and Appendix E.1) **- *See Attached Drainage Study***
☒ Show all applicable permanent site design and source control BMPs as noted in Forms I-4 and I-5 ***See Attached Drainage Study***

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DRAFT

Drainage Study

Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project

March 2020

Prepared for:

Port of San Diego
3165 Pacific Highway
San Diego, California 92101-1128

Prepared by:

600 B Street, Suite 2000
San Diego, California 92101
(619) 236-1778
Frank Lopez, PE, QSD, CFM

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Acronyms and Abbreviations

BMP	best management practice
cfs	cubic feet per second
DMA	Drainage Management Area
project	Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project
SDHM	San Diego County Hydrology Manual
SMA	sediment management area

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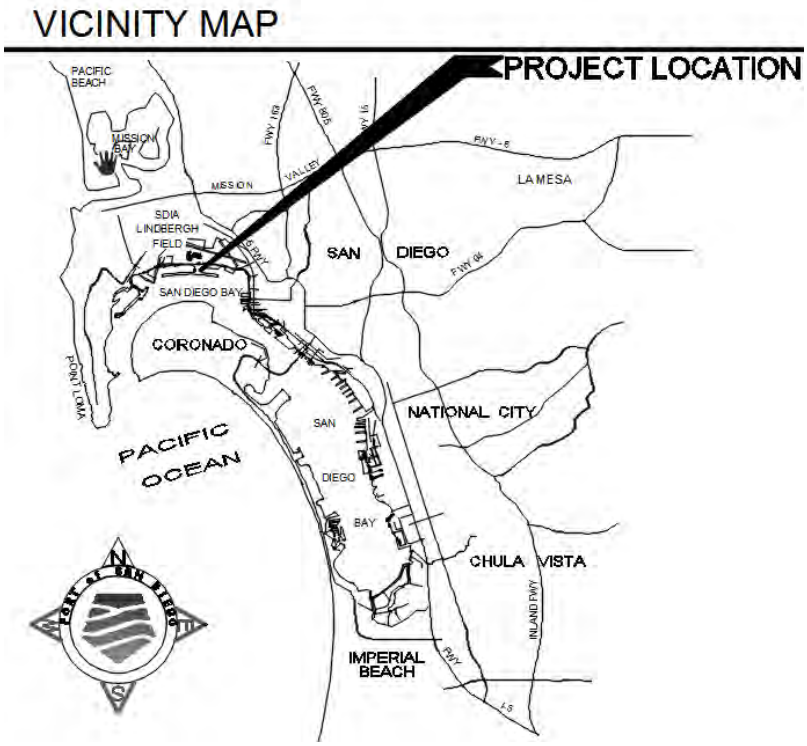
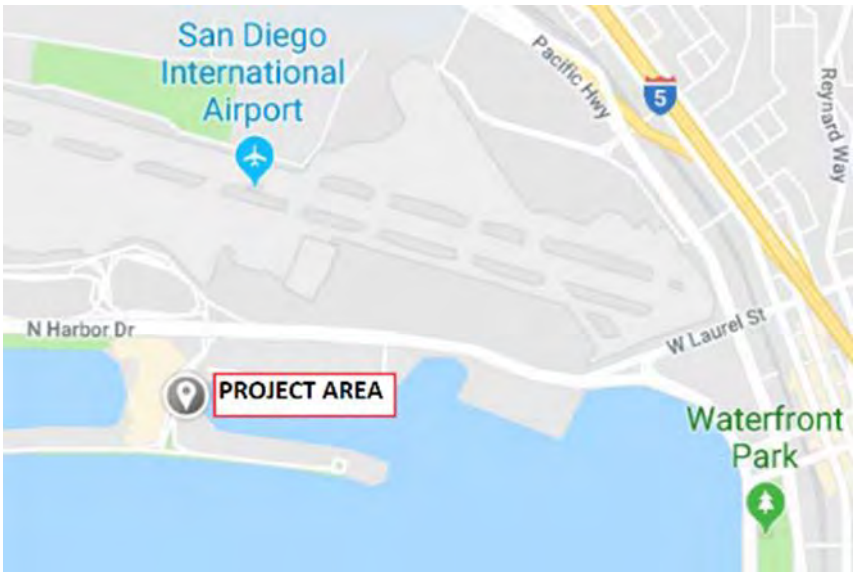
Vicinity Map





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Project Description

The Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project (project) is located east of Harbor Drive on Liberator Way at 1160 North Harbor Island Drive. The project site is occupied by an abandoned Lockheed Martin Corporation facility that was previously used for the maintenance of deep water submersibles, utilizing bay front property to test the designs of boats, submarines and other submersibles, and seaplanes, as well as other maintenance and industrial uses.

Due to concerns of contaminated sediments, and the Regional Water Quality Control Board's findings of concentrations of pollutants, the San Diego Unified Port District filed a lawsuit against Lockheed Martin Corporation under state law and the Comprehensive Environmental Response, Compensation, and Liability Act to ensure remediation of the contaminated sediments would occur. A settlement was reached in 2017, where all parties expressly denied any liability; however, they agreed to contribute time and resources toward remediation of the site.

The intent of the project is to demolish all existing landside and waterside improvements to the roughly 1.5-acre site. The approximately 0.78-acre landside portion of the site shall be returned to its original, undeveloped state, a completely pervious landscaped lot. The waterside area of the project, approximately 0.74 acre of the San Diego Bay, has no drainage pattern impacts on the site. Activities performed to remediate the waterside portion of the project will be listed and addressed in a Remediation Plan and stormwater impacts developed by the construction activities within the waterside will be addressed in a Stormwater Pollution Prevention Plan (SWPPP) prior to project approval. We have summarized these activities within the interim condition analysis discussion.

Demolition within the project scope will incorporate the following tasks:

- Removal of the 5,500-square-foot building
- Removal of all concrete, asphalt paving, and utilities
- Removal of the 165-foot-long pier, 328-foot-long marine railway, and all support structures (i.e., piles) that extend into the bay
- Minor dredging associated with removal of the in-water improvements
- Dredging of approximately 3,500 cubic yards of contaminated sediment from the waterside portion of the site

All phases of activities will be addressed in a Remediation Plan, the Stormwater Quality Management Plan, and the required Stormwater Pollution Prevention Plan that Lockheed Martin Corporation will develop in order to properly address the water quality concerns and protection of the bay from any contaminated sediments.

The proposed post-project condition is to remove the impervious area completely and regrade the existing soils to promote infiltration. The post-project condition would consist of a natural pervious surface covered in non-invasive, drought-tolerant vegetation, such as grass. Existing mature trees would be left undisturbed. The Stormwater Quality Management Plan identifies a number of site design best management practices (BMPs) to ensure that water quality is maintained in post-project conditions.

The purpose of this drainage study is to evaluate the pre-project, interim project, and post-project drainage conditions to identify mitigation efforts associated with each project condition.

Section 1 Methodology

1.1 County of San Diego Drainage Design Criteria

The Port of San Diego criteria uses a 25-year storm event. The design criteria guidance, as found in the 2003 County of San Diego Department of Public Works Flood Control Division Hydrology Manual, specifies the design runoff conditions within the San Diego County Flood Control District will be based on the storm frequency from the following guidance.

1.2 Rational Method Hydrologic Analysis

Computer Software Package – CivilD was originally anticipated for the project, but after reviewing the site it was determined that multiple nodes and confluence points were not necessary due to the project size. The proposed project reduces the amount of impervious surface, resulting in a decrease in flow from the existing condition. Therefore, continuous simulation software models were deemed unnecessary.

Design Storm – 25-year return interval.

Land Use – Industrial (General); the values used for this analysis are based on the Soil Group D and the selection from Table 3-1 of the SDHM (Appendix A).

Soil Type – The Hydrologic Soil Map identified the project site as "Undetermined;" therefore, Hydrologic Soil Group D was assumed for the project site. Group D soils have very slow infiltration rates when thoroughly wetted. Consisting chiefly of clay soils with a high swelling potential, soils with a high permanent water table, soils with clay pan or clay layer at or near the surface, and shallow soils over nearly impervious materials, Group D soils have a very slow rate of water transmission.

Runoff Coefficient – In accordance with the San Diego Hydrology Manual (SDHM), runoff coefficients were selected from Table 3-1 of the SDHM and used in the weighed calculation of a C factor for each area within the site. Weighted C factors were determined for Drainage Management Areas (DMAs) A and D, since they contain landscaped areas. Table 1 summarizes the weighted runoff calculation for DMAs A and D.

$$C = \frac{(Pervious\ Area(Acres) * C_{Open\ Space}) + \left(Impervious\ Area\ (Acres) * C_{impervious}\right)}{Total\ Area\ (Acres)}$$

Table 1. Weighted C Value Calculations

DMA	Area (Pervious)	Area (Impervious)	C (Pervious)	C (Impervious)	Weighted C Value
Existing Conditions					
DMA A	0.051	0.449	0.35	0.85	0.80
DMA D	0.003	0.156	0.35	0.85	0.84

Note: DMA = Drainage Management Area, C = Runoff Coefficient
Area measurements are in acres.

Method of Analysis – The Rational Method is the most widely used hydrologic model for estimating peak runoff rates. Applied to small urban and semi-urban areas with drainage areas less than 0.5 square mile, the Rational Method relates storm rainfall intensity, a runoff coefficient, and drainage area to peak runoff rate. This relationship is expressed by the equation:

$$Q = CIA, \text{where,}$$

Q = peak runoff rate in cubic feet per second at the point of analysis

C = runoff coefficient representing the area (usually the averaged ratio of runoff to rainfall intensity)

I = time-averaged rainfall intensity in inches per hour corresponding to the time of concentration

A = drainage basin area in acres

Section 2 Project Conditions

The project is located in Region 9 of the State Water Quality Control Board. The proposed project site is located within the Pueblo San Diego Watershed (908) and Lindbergh Hydrologic Subarea (HAS- 908.21), as defined by the Water Quality Control Plan for the San Diego Basin (9). This project site drains directly into the Pacific Ocean.

2.1 Existing Conditions

The existing site is an inactive site that is approximately 90 percent impervious and consists of a 5,500-square-foot building with two 280-square-foot sheds and small landscaped areas; all of which drain into the San Diego Bay. Currently, there are four DMAs within the project site's land side. They have been delineated and identified as DMAs A, B, C, and D. DMAs A, B, and D currently flow overland into San Diego Bay, while DMA C is directed off site into an adjacent parking structure and captured by an existing conveyance system. These flow patterns are shown on the Existing Drainage Management Exhibit in Appendix B:

- **DMA A (pink):** Stormwater sheet flows into the bay at Outlet A. This area is approximately 10 percent pervious due to landscaped areas and 90 percent impervious because of the existing paved parking lot.
- **DMA B (green):** Stormwater is generated from a portion of the existing building's roof and collected in a roof drain and directed into the bay via Outlet B. This DMA is completely impervious.
- **DMA C (blue):** Stormwater sheet flows off site into an adjacent parking structure. This DMA consist of an existing landscaped area that is completely pervious.
- **DMA D (purple):** Stormwater that is generated from the eastern half of the building roof is collected in a roof drain on the eastern side of the building. Stormwater flows underneath the mobile structures/sheds and flows into a natural channel that sheet flows the bay. An adjacent channel sheet flows along the south side of this DMA and directly sheet flows into the bay. This DMA is approximately 98 percent impervious.

2.2 Interim Conditions

The overall project goal is to restore the site back to its original grade and conditions. In order to do so, there are some considerations to be made with concerns for on-site hydrology and drainage prior to the post-project conditions. The construction activities for the project will take place in a three-phase process, as noted below:

- **Phase 1:** The components of Phase 1 consist of but are not limited to the removal and disconnection of existing utilities, demolition of landside structures, removal of the building foundation and fill of any depressions resulting from the demolition activities.

A portion of the existing pavement to the northwest will remain a sediment management area (SMA) for storage of dredged material.

- **Phase 2:** Phase 2 activities consist of in-water demolition, dredging in the bay, placement of clean sand, sediment management and disposal, and outfall protection.
- **Phase 3:** Phase 3 activities would return the site to an unoccupied, undeveloped site. Once the sediment has been dredged and disposed of, the existing asphalt and concrete paved areas that were used as the SMA would be demolished. The site would be regraded such that slopes would be shallow and allow stormwater to be absorbed and excess water from larger storm events would be directed to the post-project BMPs.

The applicant will be required to prepare a Stormwater Pollution Prevention Plan in compliance with 2009-0009-DWQ Construction General Permit to address stormwater runoff and potential pollutants during construction.

The interim condition of the project site will have three delineated DMAs (F, G, and H). The interim DMAs were delineated into three areas to control the discharge of sediment and other pollutants from entering the bay. Construction activities should be monitored and runoff should route through the Construction BMPs prior to leaving the site. It is the responsibility of the contractor to reduce any potential for negative impacts and prepare for rain events accordingly.

- **DMA F (orange):** This DMA would convert the existing paved parking area to a SMA for stockpile of dredged material. Perimeter control measures such as gravel or sand bags should be considered to prevent sediments from leaving the project site.
- **DMA G (indigo):** This DMA will function as a buffer from DMA F and the San Diego Bay. Perimeter control measures such as gravel or sand bags should be considered to prevent sediments from leaving the project site.
- **DMA H (red):** This DMA, which would be the construction staging area, would be restored to an unpaved surface during the construction phase and would be roughly graded in order to minimize direct drainage into the bay. Perimeter control will be used to prevent sediments from discharging off site.

2.3 Post-Project Condition

The post-project condition will consist of a natural pervious surface covered in non-invasive, drought-tolerant vegetation, such as grass. This site will be regraded to promote infiltration and minimize stormwater discharge into the San Diego Bay. Riprap will be placed at the outfalls for erosion protection along the eastern shoreline of the site in order to mitigate any potential erosion. Runoff from the site will sheet flow into sediment traps added upstream of the outfalls, where sediment would be captured to avoid sediment entering the bay directly. DMA E (yellow) has been included in the Post-Project Conditions DMA and BMP Exhibit in Appendix B for reference.

2.3.1 Flow Calculations

The existing and proposed peak flows generated by a 25-year storm event are included in Table 2.

Stormwater generated by the proposed development will surface flow into a proposed sediment trap to avoid sediment entering the bay. With the proposed demolition, regrade of the site, and removal of all pavement, the project's existing runoff of 2.41 cubic feet per second (cfs) will be reduced to 0.68 cfs; resulting in a decrease of runoff. No adverse downstream impacts are anticipated.

Table 2. Flow Determination Calculations

DMA ID	Area (acres) A	25-Year P6	Runoff Coefficient C	Time of Concentration (minutes) D	50-Year Intensity (inches/hour) I	Flow (cfs) Q
Existing Conditions						
DMA A	0.501	1.8	0.80	8.21	3.45	1.38
DMA B	0.092	1.8	0.85	5.03	4.72	0.37
DMA C	0.023	1.8	0.35	9.06	3.23	0.03
DMA D	0.159	1.8	0.84	5.01	4.74	0.63
Total	**0.775**	—	—	—	—	**2.41**
Proposed Conditions						
DMA E	0.775	1.8	0.35	13.39	3.0	**0.68**

Notes: cfs = cubic feet per second; DMA = Drainage Management Area

Calculations and exhibits are located in Appendices A through D.

2.4 Results and Conclusions

The drainage management areas were analyzed in order to determine the runoff that would generate from the project site for the existing, interim and post condition. Calculations for the design were made using methodology presented in the County of San Diego Drainage Design Manual using the 25-year storm event.

In the existing condition, 3 percent of the stormwater (DMA C) is conveyed into an adjacent parking lot that will flow into an eventual drainage conveyance system, while 97 percent of the runoff is conveyed through surface flow into existing outlets into the San Diego Bay. This 97 percent of stormwater runoff is currently being captured by roof drains and high points that exist within the site.

Interim construction conditions will need to implement multiple BMPs on site in order to protect the bay. Calculations were performed to determine the appropriate sizing for the SMA. We have accounted for approximately 2,000 cubic yards as the max allowable volume for the proposed sizing of the SMA within DMA F.

The proposed condition removes the building, associates sheds, and all pavement from the site, which would increase the site's infiltration capabilities and significantly decrease stormwater discharge from the site into the bay. Upon completion of demolition and waterside dredging and remediation activities, the project site would be returned to its original undeveloped state and would not involve the use of hazardous materials. The post-project condition would consist of a natural pervious surface covered in non-invasive, drought-tolerant vegetation, such as grass. Existing mature trees would be left undisturbed. The Stormwater Quality Management Plan identifies a number of site design BMPs to ensure that site drainage and water quality is maintained after demolition and waterside dredging and remediation activities.

Appendix A. Soils Map and Runoff Coefficient Table

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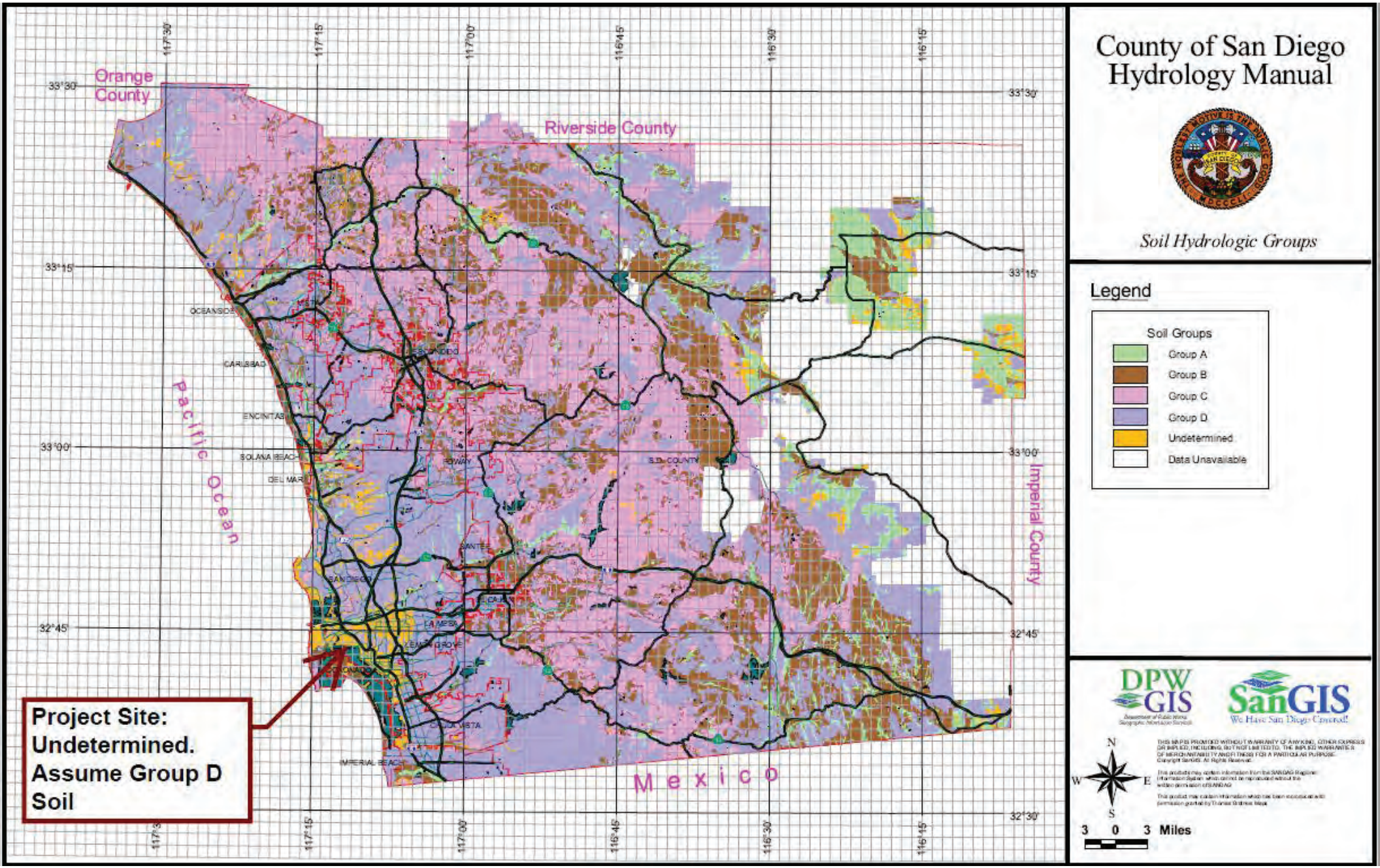
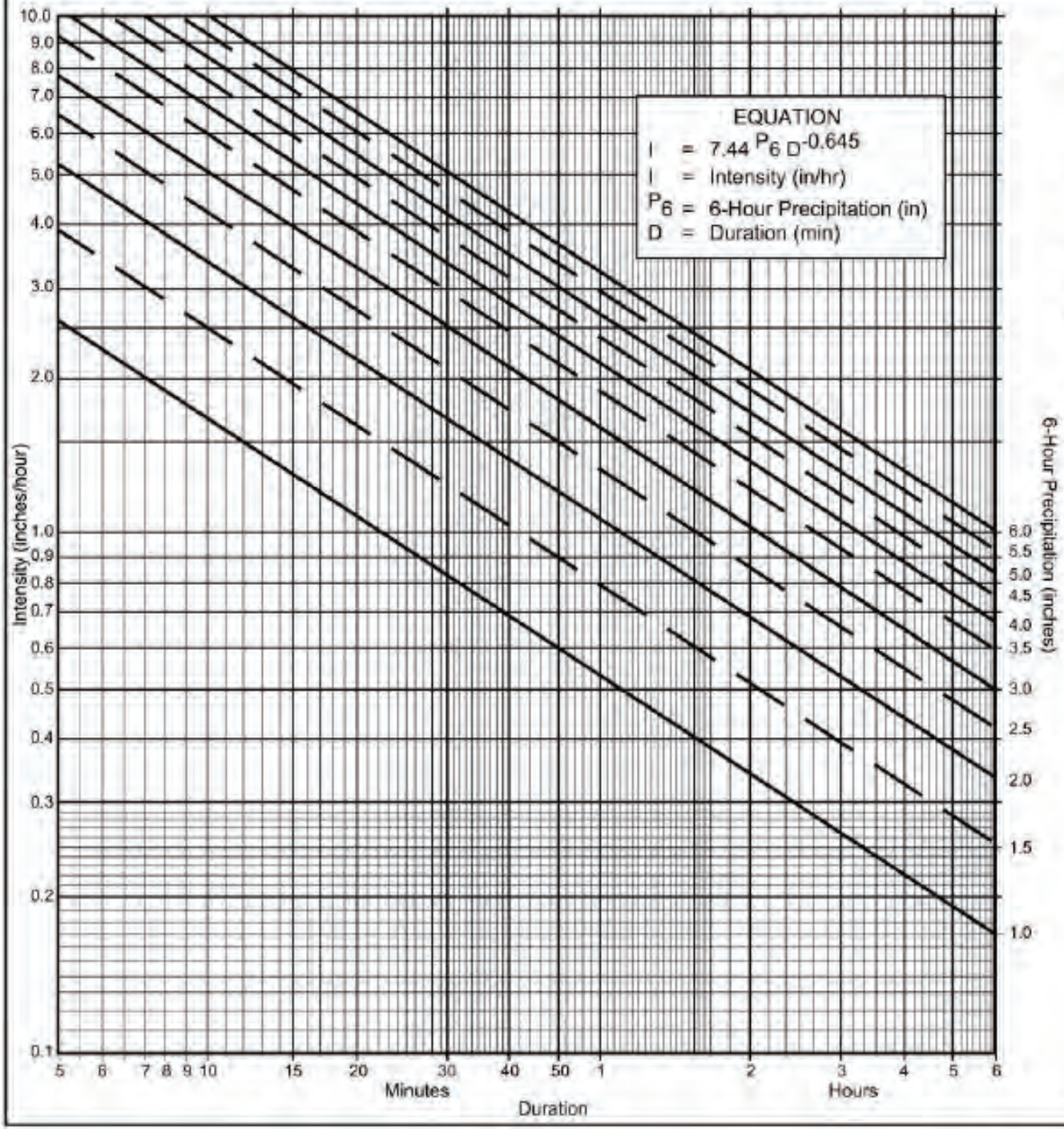

County of San Diego
Hydrology Manual
Soil Hydrologic Groups
Legend
Soil Groups
Group A
Group B
Group C
Group D
Undetermined
Data Unavailable
Orange County
Riverside County
Imperial County
Pacific Ocean
Mexico
OCEANSIDE
CARLSBAD
ENCINITAS
SOLANA BEACH
DEL MAR
ESCONDIDO
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
LA MESA
LEMON GROVE
CORONADO
CHULA VISTA
IMPERIAL BEACH
Project Site:
Undetermined.
Assume Group D
Soil
DPW GIS
SanGIS
We Have San Diego Covered!
N
W
E
S
3 0 3 Miles



Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency 25 year

(b) P_6 = 1.8 in., P_{24} = 3.2 $\frac{P_6}{P_{24}}$ = 56 %(2)

(c) Adjusted P_6(2) = _____ in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6 / Duration	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE

3-1

Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS

Land Use		Runoff Coefficient "C"				
			Soil Type			
NRCS Elements	County Elements	% IMPER.	A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78	0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78	0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81	0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, Cp, for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).
DU/A = dwelling units per acre
NRCS = National Resources Conservation Service

Appendix B. Drainage Basin Maps

Existing Drainage Management Exhibit

Interim Conditions DMA and BMP Exhibit

Post-Project DMA and BMP Exhibit

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AREA CALCULATIONS:

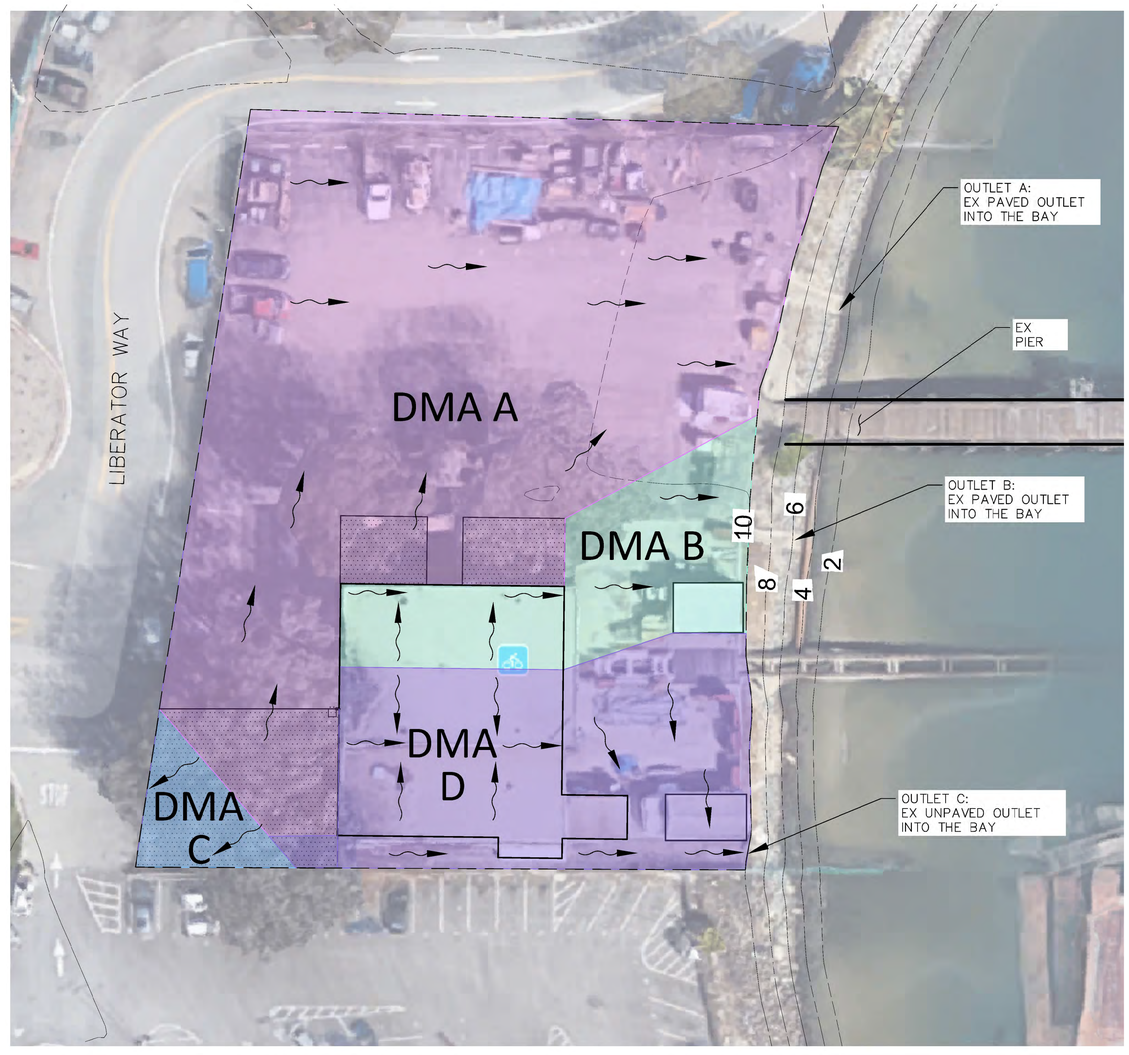
TOTAL PROJECT AREA: 0.775 ACRES

DMA A = 0.501 ACRES
PERVIOUS: 0.051 ACRES
IMPERVIOUS: 0.449 ACRES

DMA B = 0.092 ACRES
PERVIOUS: N/A
IMPERVIOUS: 0.092 ACRES

DMA C = 0.023 ACRES
PERVIOUS: 0.023 ACRES
IMPERVIOUS: N/A

DMA D = 0.159ACRES
PERVIOUS: 0.003 ACRES
IMPERVIOUS: 0.156 ACRES



LEGEND:

EXIST. CONTOUR 2

FLOW DIRECTION

LANDSCAPING

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LOCKHEED MARTIN MARINE TERMINAL DEMOLITION AND OFFSHORE REMEDIATION PROJECT

EXISTING DRAINAGE MANAGEMENT EXHIBIT

HARRIS & ASSOCIATES
600 B Street, Suite 2000
San Diego, CA 92101
(619) 236-1778 • (619) 236-1179

LEGEND:

- FLOATING SILT CURTAINS WITH OIL BOOM
- LIMIT OF WORK
- SE-1 SLIT FENCE
- TC-1 CONSTRUCTION ENTRANCE
- GRAVEL OR SAND BAGS
- FLOW PATH
- CONTRACTOR ACTIVITY AREA

CASQA BMPS TO BE CONSIDERED

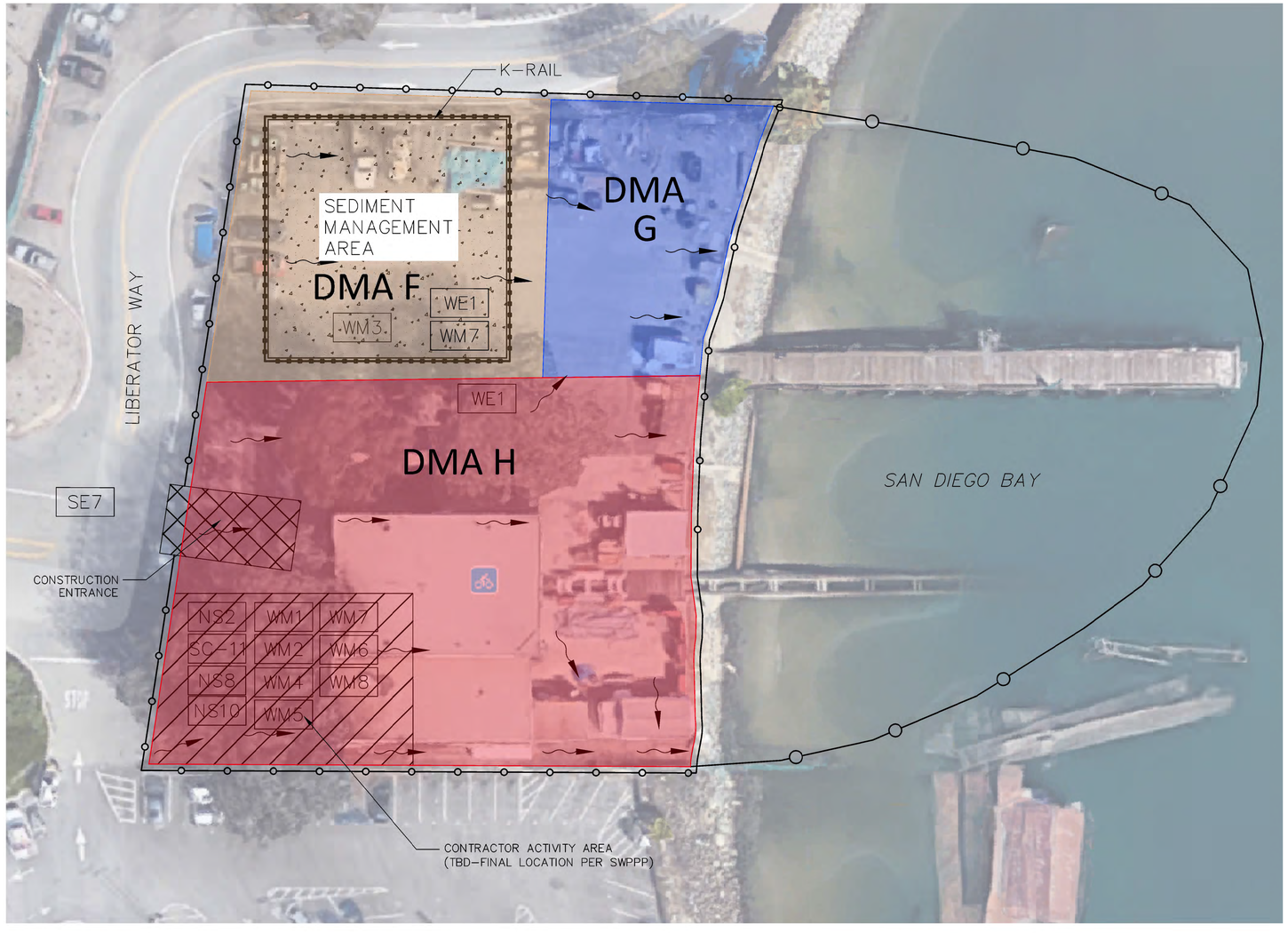
SE7	STREET SWEEPING AND VACUUMING
WE1	WIND EROSION CONTROL
NS8	VEHICLE AND EQUIPMENT CLEANING
NS10	VEHICLE AND EQUIPMENT MAINTENANCE
WM1	MATERIAL DELIVERY AND STORAGE
WM2	MATERIAL USE
WM3	STOCKPILE MANAGEMENT
WM4	SPILL PREVENTION AND CONTROL
WM5	SOLID WASTE MANAGEMENT
WM6	HAZARDOUS WASTE MANAGEMENT
WM7	CONTAMINATED SOIL MANAGEMENT
WM8	CONCRETE WASTE MANAGEMENT
NS2	DEWATERING OPERATIONS
SC-11	SPILL, PREVENTION, CONTROL AND CLEANUP

AREA CALCULATIONS:

DMA F = 0.2 ACRES
(100% IMPERVIOUS)

DMA G = 0.12 ACRES
(100% IMPERVIOUS)

DMA H = 0.45 ACRES
(100% PERVIOUS)



NOTES

1. BMPS SHOWN ARE RECOMMENDED. THE PROJECT SWPPP WILL TAKE PRECEDENCE.
2. STABILIZED CONSTRUCTION ENTRANCE IS SHOWN FOR REFERENCE ONLY.
3. CONTRACTOR TO MAINTAIN/REVISE EROSION CONTROL MEASURES AS NEEDED TO PROTECT AND PREVENT SEDIMENT FROM LEAVING THE SITE DURING VARIOUS STAGES/PHASES OF REMOVAL NOT SHOWN ON THE EROSION CONTROL PLAN. CONTRACTOR TO COMPLY WITH SWPPP AT ALL TIMES.
4. CONTRACTOR SHALL SWEEP THE PUBLIC ROAD IN THE VICINITY OF THE ENTRANCE AS OFTEN AS NECESSARY THROUGHOUT THE WORK DAY TO COMPLETE REMOVE ALL DEBRIS ASSOCIATED WITH PROJECT ACTIVITIES.
5. SEDIMENT MANAGEMENT AREA IS FOR PLACEMENT OF DREDGED MATERIAL.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

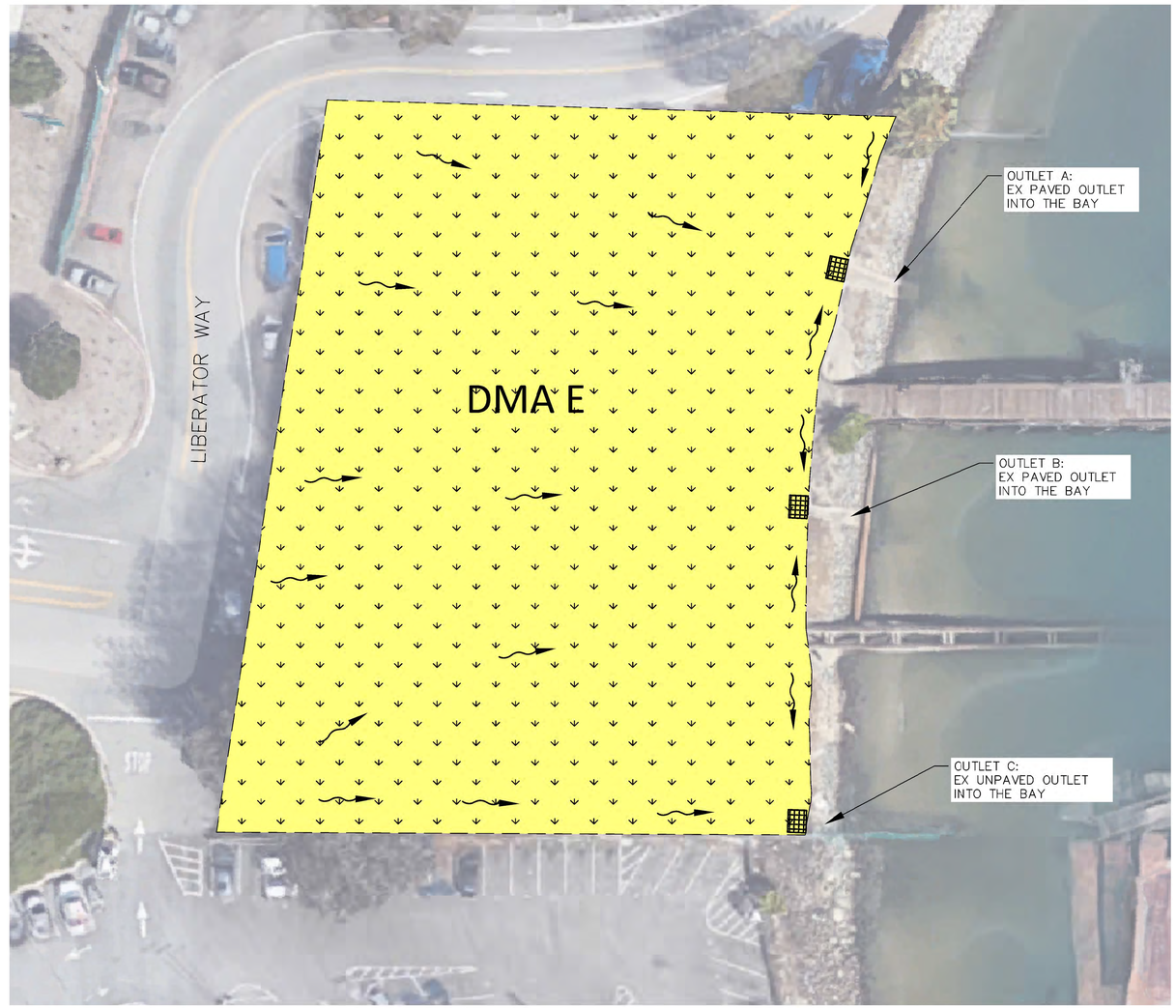
LOCKHEED MARTIN MARINE TERMINAL DEMOLITION AND OFFSHORE REMEDIATION PROJECT

INTERIM CONDITIONS DMA & BMP EXHIBIT

HARRIS & ASSOCIATES
600 B Street, Suite 2000
San Diego, CA 92101
(619) 236-1778 ● (619) 236-1179

AREA CALCULATIONS:

DMA E = 0.775 ACRES
(100% PERVIOUS)



LEGEND:

FLOW DIRECTION

SEDIMENT TRAP

LANDSCAPED DROUGHT TOLERANT GRASS

NOTES:

1. ALL STORMWATER RUNOFF RESULTING FROM THE 85TH PERCENTILE, 24 HOUR STORM SHALL BE CAPTURED AND RETAINED ON SITE. THE DEVELOPER SHALL DEFINE THE LOCATION, SIZE, AND TYPE OF BMP IMPLEMENTED TO RETAIN THE DESIGN CAPTURE VOLUME OF 422 CUBIC FEET.

2. ANY STORM EVENT ABOVE THE 85TH PERCENTILE, 24 HOUR STORM EVENT LEVEL SHOULD FLOW THROUGH THE SEDIMENT TRAPS SHOWN ON THIS EXHIBIT FOR FLOOD CONTROL PURPOSES.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LOCKHEED MARTIN MARINE TERMINAL DEMOLITION AND OFFSHORE REMEDIATION PROJECT

POST-PROJECT DMA & BMP EXHIBIT

HARRIS & ASSOCIATES
600 B Street, Suite 2000
San Diego, CA 92101
(619) 236-1778 • (619) 236-1179

Appendix C. 25-Year Storm Event Isopluvial Maps

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County of San Diego Hydrology Manual

Rainfall Isopluvials

25 Year Rainfall Event - 6 Hours

Isopluvial (inches)

Project Site:
P_6=1.8

Orange County

Riverside County

Imperial County

Pacific Ocean

Mexico

OCEANSIDE
CARLSBAD
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
SANTEE
SAN DIEGO
LA MESA
EL CAJON
CORONADO
CHULA VISTA
IMPERIAL BEACH
S.D. COUNTY

33°30'
33°15'
33°00'
32°45'
32°30'
117°30'
117°15'
117°00'
116°45'
116°30'
116°15'

DPW GIS
Department of Public Works Geographic Information Services

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N
W E
S

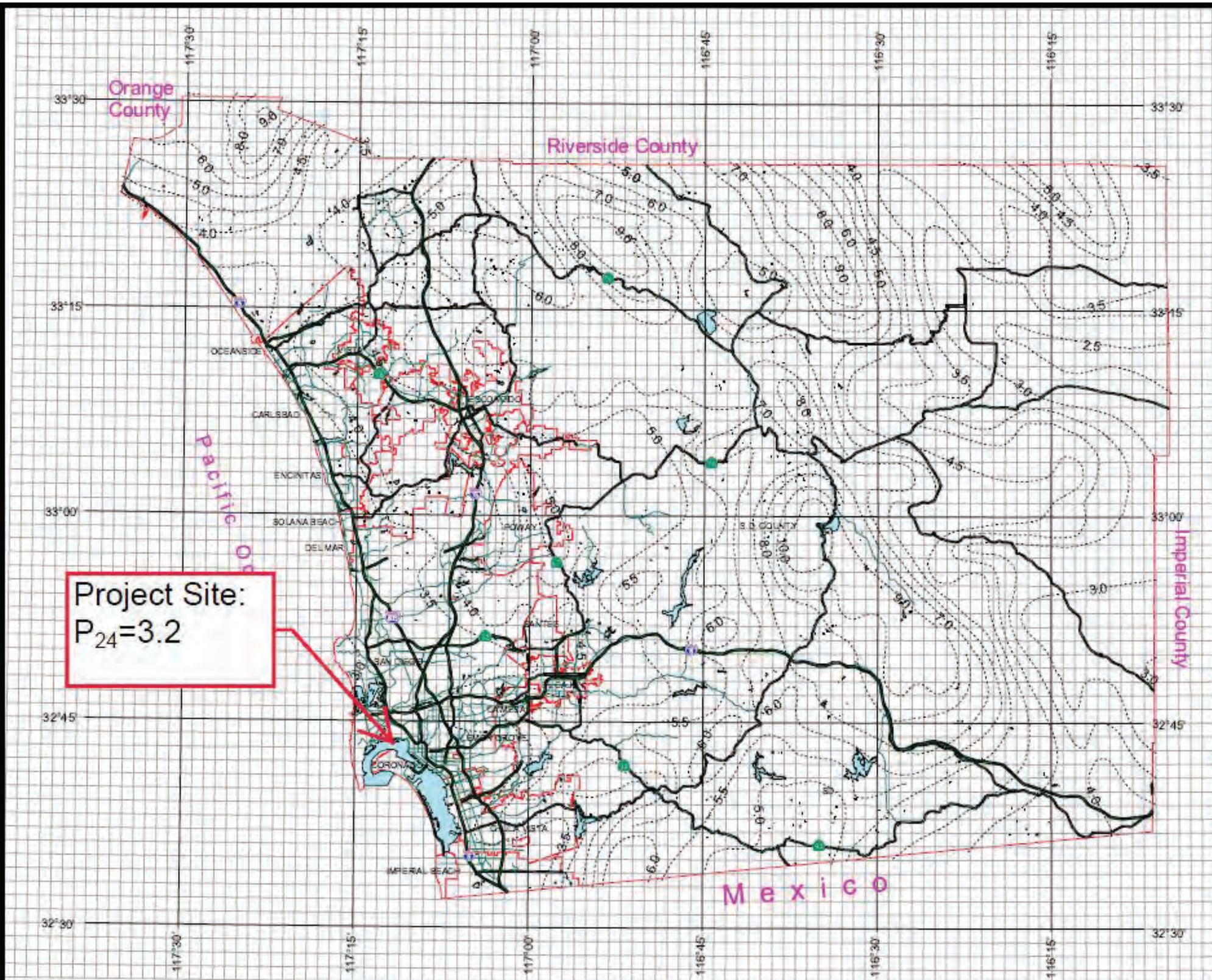
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

25 Year Rainfall Event - 24 Hours

-------- Isopluvial (inches)



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N W E S

3 0 3 Miles

Appendix D. SMA Area Calculation

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Harris & Associates

Sht. 1 of 1

Project Name Lockheed Martin Marine Terminal Demolition and Offshore Remediation Project

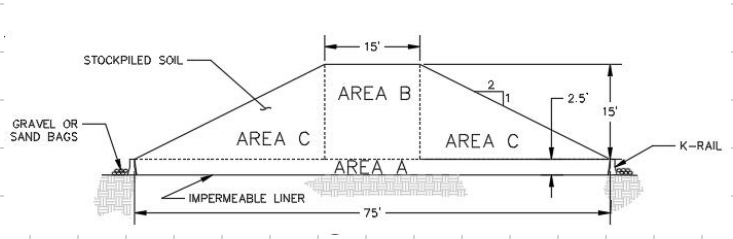
Client Port of San Diego

Description Calculations for the Sediment Management Area

Proj. No. _____ Phase _____ Task _____

By KJG Date 7/11/19 Chk'd By FL

Sediment Management Area (SMA)



Area A = (75')(75')(2.5')
(Foot Print)

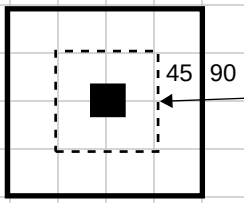
14,062.5'
or
521 CY

Area B = (15')(15')(15')
(Stockpile Area)

3,375'
or
125 CY

Area C = $\frac{1}{2}$(30')(15')(180')
(Stockpile Slope)

40,500'
or
1,500 CY



45 x 4 = 180'

<u>Total Settlement Management Area (SMA)</u> =

521 CY + 125 CY + 1,500 CY = **2,146 CY**

2,000 CY is the max allowable area for the SMA (if using 75' by 75'

(*Max capacity before hauling offsite*)

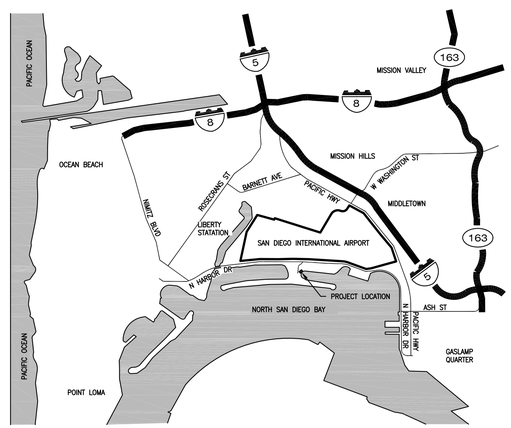
LMCO MARINE TERMINAL DEMO

1160 HARBOR ISLAND DRIVE
SAN DIEGO, CALIFORNIA 92101

ABBREVIATIONS

AC	ASPHALT CONCRETE
CO	CLEANOUT
CONC.	CONCRETE
ELEC.	ELECTRICAL
EL	ELEVATION
FW	FIREWATER
FDC	FIRE DEPARTMENT
FS	FINISH SURFACE
FF	FINISHED FLOOR
FG	FINISHED GRADE
A.	
GB	GRADE BREAK
GV	GAS VALVE
GP	GUARD POLE
LP	LIGHT POLE
NG	NATURAL GAS
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
TC	TOP OF CURB

VICINITY MAP



DRAWING INDEX

SHEET NO.	DRAWING NO.	SHEET TITLE
	TITLE	
1	T1.1	TITLE SHEET
	CIVIL	
2	C1.1	DEMOLITION PLAN
3	C1.2	ROUGH GRADING PLAN
4	EC 1	EROSION AND SEDIMENT CONTROL PLAN
5	EC 2	EROSION AND SEDIMENT CONTROL DETAILS
	REFERENCE DRAWINGS	
6	REF 1	REFERENCE SHEET 1 EXISTING BUILDING RECORD DRAWINGS

SEEDING AND LANDSCAPE

IRRIGATION NOTES:

CONTRACTOR SHALL FIELD LOCATE ALL EXISTING IRRIGATION HEADS, VALVES AND APPURTENANCES IN THE AREA OF WORK. RELOCATE, MODIFY AND/OR ADD NEW AS REQUIRED TO PROVIDE COMPLETE COVERAGE OF TURF/LANSCAPE AREAS WHILE ENSURING NO OVERSPRAY ONTO THE BUILDING OR HARDSCAPE.

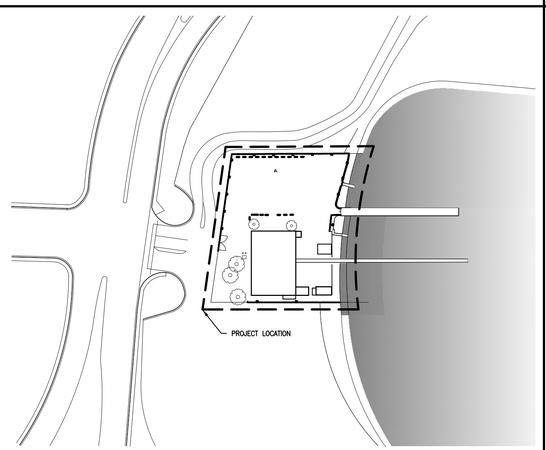
SEEDING NOTES:

CONTRACTOR SHALL PREPARE SOIL, ADD AMENDMENTS, AND SPREAD SEED MIX AS REQUIRED OVER THE GRADED AND WORK SCARRED AREAS. THE SEED MIX SHALL MATCH THE EXISTING TURF. PORT AUTHORITY OR CITY SHALL MAINTAIN THE SEEDED AREA UNTIL THE TURF MATCHES THE ADJACENT.

LEGEND & SYMBOLS

— — GB — —	GRADE BREAK
· · · · (100) · · · · ·	EXISTING CONTOUR
(2.0%)	EXISTING SLOPE
2.0%	NEW SLOPE
(100.00)	EXISTING ELEVATION
100.00	NEW ELEVATION
◇X	DEMOLITION KEYNOTE
(X)	PROTECT IN PLACE KEYNOTE
X	EROSION AND SEDIMENT CONTROL KEYNOTE

OVERALL SITE PLAN



LEGAL DESCRIPTION

THERE IS NO AVAILABLE LEGAL DESCRIPTION FOR THE APN 760-010-07-00 PARCEL SINCE THE PORPERTY IS CONSIDERED "TITELAND AREA". THIS INFORMATION WAS FURNISHED BY CITY OF SAN DIEGO SENIOR CADASTRAL TECHNICIAN, RAUL CORTES ON NOVEMBER 20, 2015. IF ADDITIONAL INFORMATION IS REQUIRED, PLEASE CONTACT MR. CORTEZ AT (619) 531-5776.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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JCCA #15720-1

California State Fire Marshal
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Reviewed by: _____

Issue

No.	Date	Description

Project

LMCO MARINE TERMINAL DEMO

LOCKHEED MARTIN
HARBOR ISLAND
1160 HARBOR ISLAND DRIVE
SAN DIEGO, CA 92101

Approved	Checked	Designed	CAD
TPK	TPK	TPK	AC

File Date	Vault File Number
12/16/2015	---

Sheet Title

TITLE SHEET

Job Reference No.	Work Order
-	-

Reference North

Sheet Scale
AS SHOWN

Sheet Number
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DATE/TIME: 15 Dec 2015, 05:27PM
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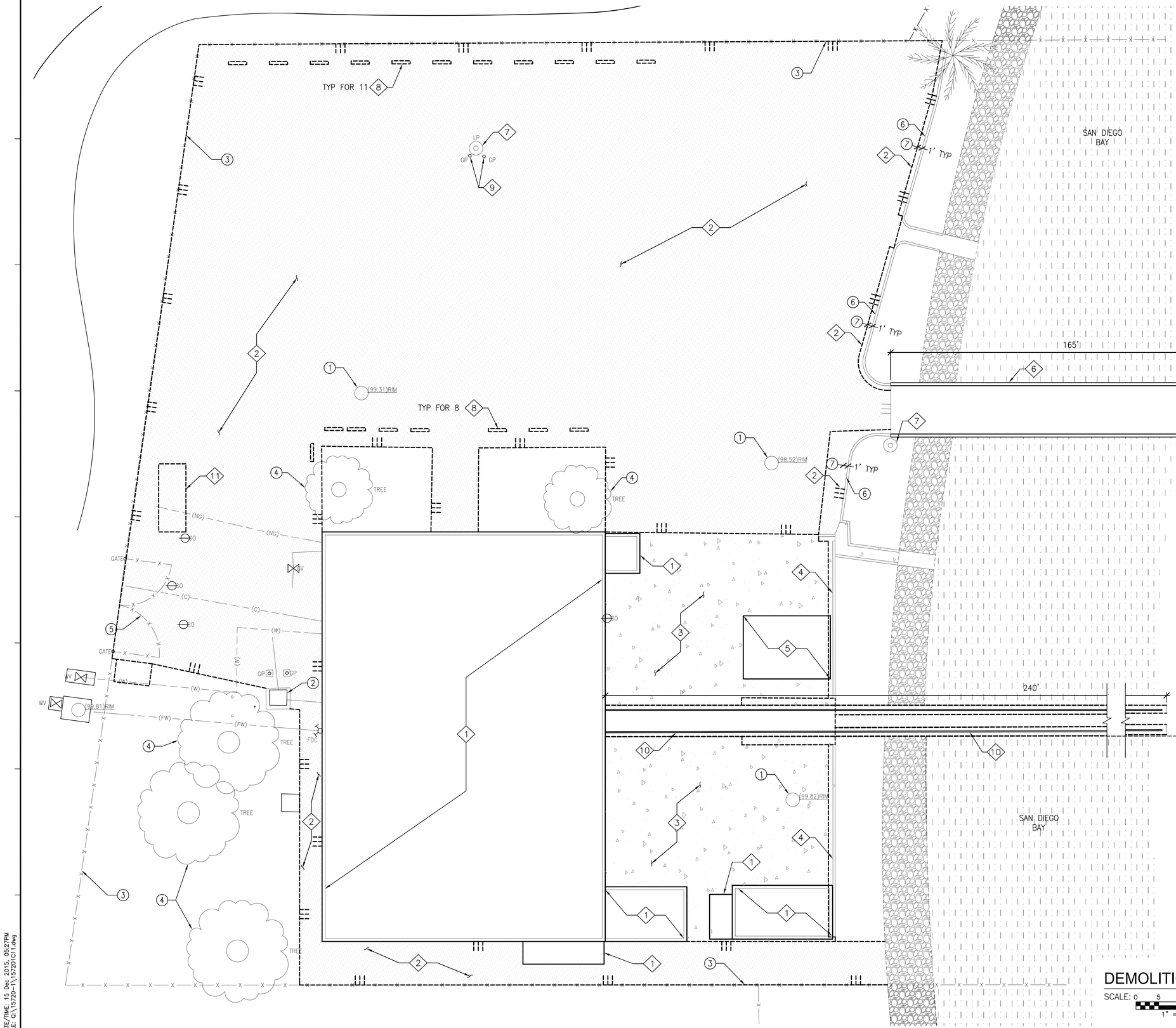

EXISTING UTILITY NOTES:

1. SEE ATTACHED REFERENCE DRAWINGS FOR RECORD LOCATION OF EXISTING UTILITIES.
2. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION AND REMOVE EXISTING UTILITIES. CAP AT PROPERTY LINE EXCEPT FOR ELECTRICAL SERVICE, SEE NOTE 3 BELOW.
3. PROTECT EXISTING UNDERGROUND PRIMARY ELECTRICAL SERVICE AND TRANSFORMER. REMOVE SECONDARY CONDUCTOR, CONDUITS ETC. FROM TRANSFORMER, INCLUDING THE METER. COORDINATE WITH SAN DIEGO GAS AND ELECTRIC PRIOR TO STARTING ELECTRICAL DEMOLITION. COMPLY WITH THEIR REQUIREMENTS.

PROTECT IN PLACE KEYNOTES:

(E) EXISTING
(D) DEMOLISH

1. (E) MONITORING WELL
2. (E) ELECTRICAL TRANSFORMER
3. (E) CHAINLINK FENCE
4. (E) TREE
5. (E) GATE
6. (E) AC CURB
7. (E) AC PAVING

DEMOLITION KEYNOTES:

1. (D) EXISTING BUILDING
2. SAWCUT AND REMOVE EXISTING AC PAVING
3. SAWCUT AND REMOVE EXISTING CONCRETE PAVING
4. (D) CURB AND FOOTINGS
5. (D) EXISTING CANOPY
6. (D) EXISTING PIER AND PILES
7. (D) EXISTING LIGHT POLE
8. (D) EXISTING WHEELSTOP
9. (D) EXISTING BOLLARD
10. (D) EXISTING RAIL, SUPPORTS AND COLUMNS
11. (D) EXISTING UNDERGROUND 2000 GALLON SEWAGE HOLDING TANK

DEMOLITION PLAN

SCALE: 0 5 10 FEET 20
1" = 10'

N

0 1/2 1
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LMCO MARINE TERMINAL DEMO

LOCKHEED MARTIN
HARBOR ISLAND
1160 HARBOR ISLAND DRIVE
SAN DIEGO, CA 92101

Approved	Checked	Designed	CAD
TPK	TPK	TPK	AC

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DEMOLITION PLAN

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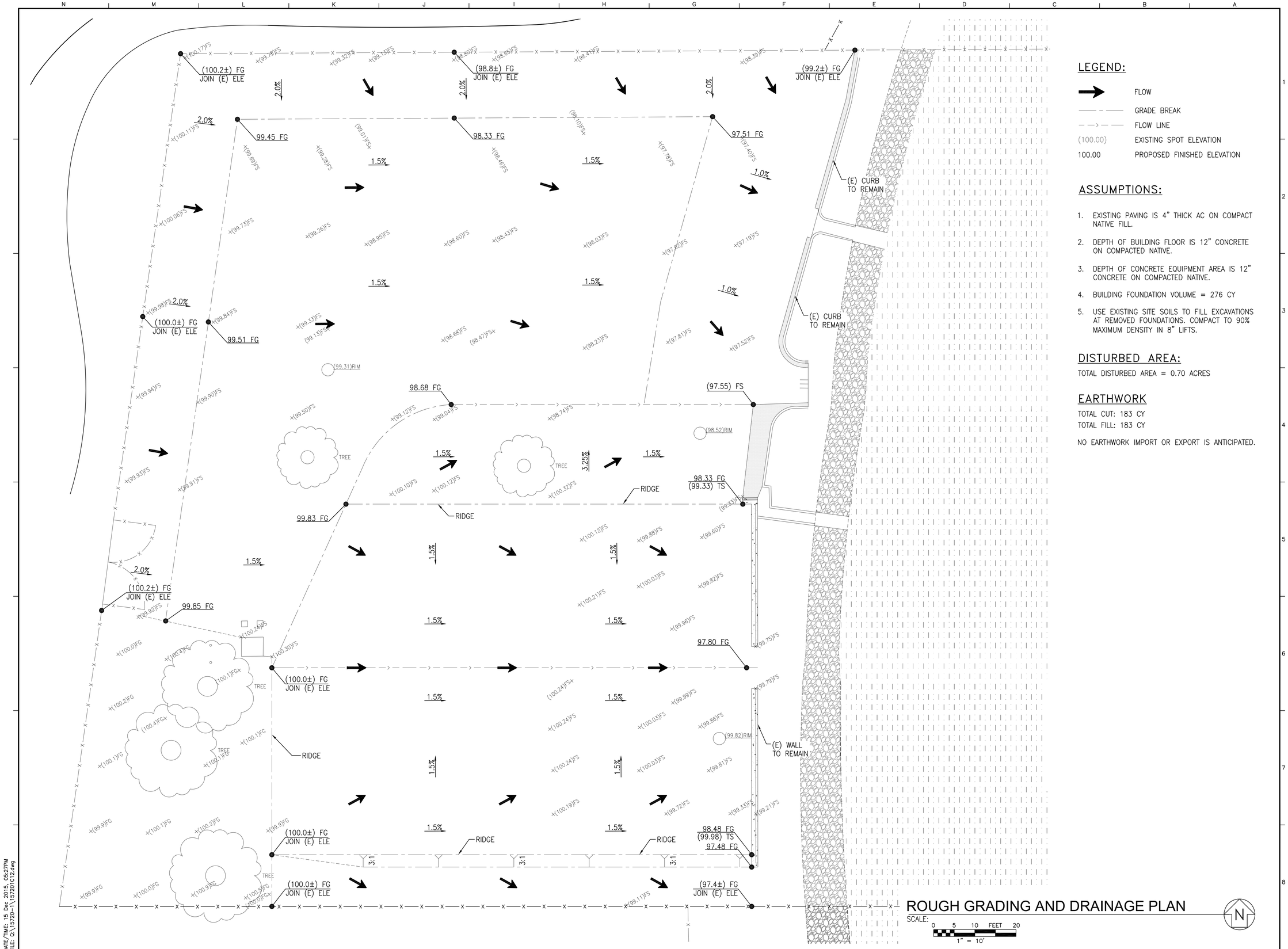

ROUGH GRADING AND DRAINAGE PLAN

SCALE: 0 5 10 FEET 20
1" = 10'

LEGEND:

→	FLOW
— — —	GRADE BREAK
— —›— —	FLOW LINE
(100.00)	EXISTING SPOT ELEVATION
100.00	PROPOSED FINISHED ELEVATION

ASSUMPTIONS:

1. EXISTING PAVING IS 4" THICK AC ON COMPACT NATIVE FILL.
2. DEPTH OF BUILDING FLOOR IS 12" CONCRETE ON COMPACTED NATIVE.
3. DEPTH OF CONCRETE EQUIPMENT AREA IS 12" CONCRETE ON COMPACTED NATIVE.
4. BUILDING FOUNDATION VOLUME = 276 CY
5. USE EXISTING SITE SOILS TO FILL EXCAVATIONS AT REMOVED FOUNDATIONS. COMPACT TO 90% MAXIMUM DENSITY IN 8" LIFTS.

DISTURBED AREA:

TOTAL DISTURBED AREA = 0.70 ACRES

EARTHWORK

TOTAL CUT: 183 CY
TOTAL FILL: 183 CY

NO EARTHWORK IMPORT OR EXPORT IS ANTICIPATED.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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Issue

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Project
LMCO MARINE TERMINAL DEMO

LOCKHEED MARTIN
HARBOR ISLAND
1160 HARBOR ISLAND DRIVE
SAN DIEGO, CA 92101

Approved	Checked	Designed	CAD
TPK	TPK	TPK	AC

File Date	Vault File Number
12/16/2015	---

Sheet Title
ROUGH GRADING AND DRAINAGE PLAN

Job Reference No.	Work Order
-	-

Reference North

Sheet Scale
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Sheet Number
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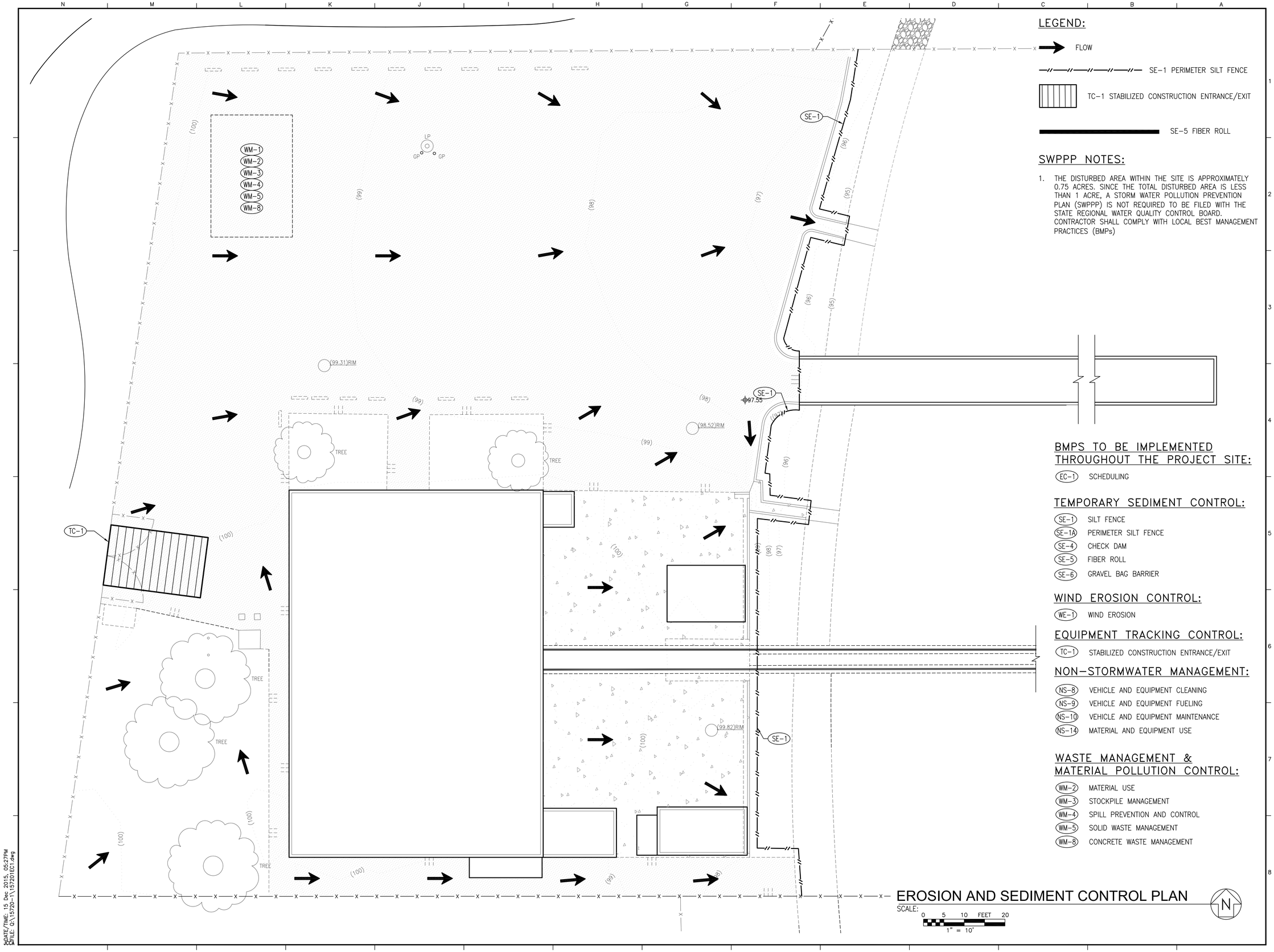

LEGEND:

- FLOW
- SE-1 PERIMETER SILT FENCE
- TC-1 STABILIZED CONSTRUCTION ENTRANCE/EXIT
- SE-5 FIBER ROLL

SWPPP NOTES:

1. THE DISTURBED AREA WITHIN THE SITE IS APPROXIMATELY 0.75 ACRES. SINCE THE TOTAL DISTURBED AREA IS LESS THAN 1 ACRE, A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS NOT REQUIRED TO BE FILED WITH THE STATE REGIONAL WATER QUALITY CONTROL BOARD. CONTRACTOR SHALL COMPLY WITH LOCAL BEST MANAGEMENT PRACTICES (BMPs)

BMPS TO BE IMPLEMENTED THROUGHOUT THE PROJECT SITE:

EC-1 SCHEDULING

TEMPORARY SEDIMENT CONTROL:

- SE-1 SILT FENCE
- SE-1A PERIMETER SILT FENCE
- SE-4 CHECK DAM
- SE-5 FIBER ROLL
- SE-6 GRAVEL BAG BARRIER

WIND EROSION CONTROL:

- WE-1 WIND EROSION

EQUIPMENT TRACKING CONTROL:

- TC-1 STABILIZED CONSTRUCTION ENTRANCE/EXIT

NON-STORMWATER MANAGEMENT:

- NS-8 VEHICLE AND EQUIPMENT CLEANING
- NS-9 VEHICLE AND EQUIPMENT FUELING
- NS-10 VEHICLE AND EQUIPMENT MAINTENANCE
- NS-14 MATERIAL AND EQUIPMENT USE

WASTE MANAGEMENT & MATERIAL POLLUTION CONTROL:

- WM-2 MATERIAL USE
- WM-3 STOCKPILE MANAGEMENT
- WM-4 SPILL PREVENTION AND CONTROL
- WM-5 SOLID WASTE MANAGEMENT
- WM-8 CONCRETE WASTE MANAGEMENT

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 0 5 10 FEET 20
1" = 10'

N

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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Issue

No.	Date	Description

Project

LMCO MARINE TERMINAL DEMO

LOCKHEED MARTIN
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1160 HARBOR ISLAND DRIVE
SAN DIEGO, CA 92101

Approved	Checked	Designed	CAD
TPK	TPK	TPK	AC

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12/16/2015	---

Sheet Title
EROSION AND SEDIMENT CONTROL PLAN

Job Reference No.	Work Order
-	-

Reference North

Sheet Scale
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Sheet Number
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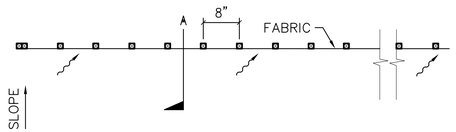
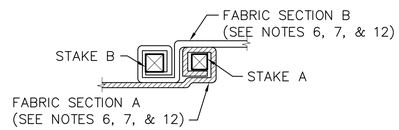
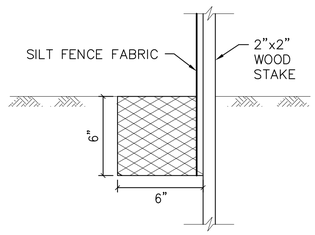


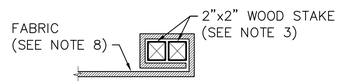
PLAN SILT FENCE



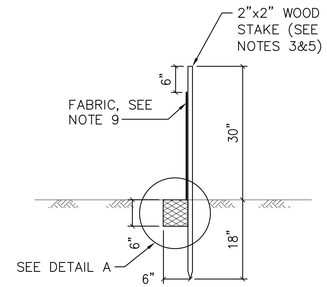
JOINING SECTION DETAIL (TOP VIEW)



DETAIL A



END STAKE DETAIL (TOP VIEW)



SECTION A

SE-1 SILT FENCE

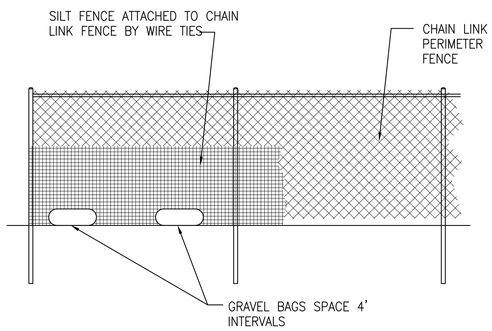
LEGEND

- TAMPED BACKFILL
- SLOPE DIRECTION
- DIRECTION OF FLOW

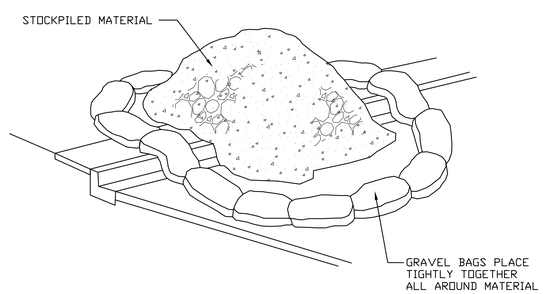
NOTES:

1. STAKE DIMENSIONS ARE NOMINAL.
2. DIMENSION MAY VARY TO FIT FIELD CONDITION.
3. STAKES SHALL BE SPACED AT 8'-0" MAXIMUM AND SHALL BE POSITIONED ON DOWNSTREAM SIDE OF FENCE.
4. STAKES TO OVERLAP AND FENCE FABRIC TO FOLD AROUND EACH STAKE ONE FULL TURN. SECURE FABRIC TO STAKE WITH 4 STAPLES.
5. STAKES SHALL BE DRIVEN TIGHTLY TOGETHER TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT OF JOINT. THE TOPS OF THE STAKES SHALL BE SECURED WITH WIRE.
6. FOR END STAKE, FENCE FABRIC SHALL BE FOLDED AROUND TWO STAKES ONE FULL TURN AND SECURED WITH 4 STAPLES.
7. MINIMUM 4 STAPLES PER STAKE. DIMENSIONS SHOWN ARE TYPICAL.
8. JOINING SECTIONS SHALL NOT BE PLACED AT SUMP LOCATIONS.

SE-1A SILT PERIMETER FENCE



WM-3 STOCKPILE MANAGEMENT



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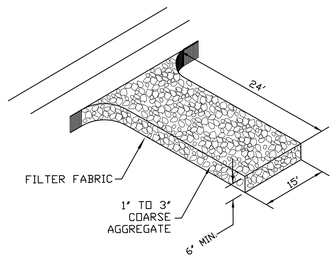

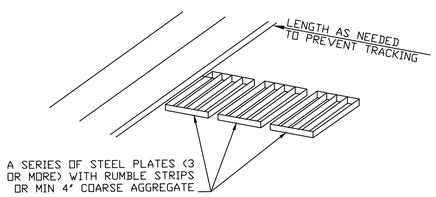

EROSION AND SEDIMENT CONTROL PLAN (ESCP) GENERAL NOTES:

1. IN CASE OF EMERGENCY, CALL (RESPONSIBLE PERSON - TBD) AT (24-HOUR TELEPHONE - TBD).
2. TOTAL DISTURBED AREA: 9,500 SF, 0.22 ACRES WDID #: N/A .
3. A STAND-BY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON (NOVEMBER 1 TO APRIL 15). NECESSARY MATERIALS SHALL BE AVAILABLE ON-SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF EMERGENCY DEVICES WHEN RAIN IS IMMINENT.
4. EROSION CONTROL DEVICES SHOWN ON THIS PLAN MAY BE REMOVED WHEN APPROVED BY THE BUILDING OFFICIAL IF THE GRADING OPERATION HAS PROGRESSED TO THE POINT WHERE THEY ARE NO LONGER REQUIRED.
5. GRADED AREAS ADJACENT TO FILL SLOPES LOCATED AT THE SITE PERIMETER MUST DRAIN AWAY FROM THE TOP OF SLOPE AT THE CONCLUSION OF EACH WORKING DAY. ALL LOOSE SOILS AND DEBRIS THAT MAY CREATE A POTENTIAL HAZARD TO OFF-SITE PROPERTY SHALL BE STABILIZED OR REMOVED FROM THE SITE ON A DAILY BASIS.
6. ALL SILT AND DEBRIS SHALL BE REMOVED FROM ALL DEVICES WITHIN 24 HOURS AFTER EACH RAINSTORM AND BE DISPOSED OF PROPERLY.
7. A GUARD SHALL BE POSTED ON THE SITE WHENEVER THE DEPTH OF WATER IN ANY DEVICE EXCEEDS TWO FEET. THE DEVICE SHALL BE DRAINED OR PUMPED DRY WITHIN 24 HOURS AFTER EACH RAINSTORM. PUMPING AND DRAINING OF ALL BASINS AND DRAINAGE DEVICES MUST COMPLY MUST COMPLY WITH THE APPROPRIATE BMP FOR DEWATERING OPERATIONS.
8. THE PLACEMENT OF ADDITIONAL DEVICES TO REDUCE EROSION DAMAGE AND CONTAIN POLLUTANTS WITHIN THE SITE IS LEFT TO THE DISCRETION OF THE FIELD ENGINEER. ADDITIONAL DEVICES AS NEEDED SHALL BE INSTALLED TO RETAIN SEDIMENTS AND OTHER POLLUTANTS ON SITE.
9. DESILTING BASINS MAY NOT BE REMOVED OR MADE INOPERABLE BETWEEN NOVEMBER 1 AND APRIL 15 OF THE FOLLOWING YEAR WITHOUT THE APPROVAL OF THE BUILDING OFFICIAL.
10. STORM WATER POLLUTION AND EROSION CONTROL DEVICES ARE TO BE MODIFIED, AS NEEDED, AS THE PROJECT PROGRESSES, THE DESIGN AND PLACEMENT OF THESE DEVICES IS THE RESPONSIBILITY OF THE FIELD ENGINEER. PLANS REPRESENTING CHANGES MUST BE SUBMITTED FOR APPROVAL IF REQUESTED BY THE BUILDING OFFICIAL.
11. EVERY EFFORT SHOULD BE MADE TO ELIMINATE THE DISCHARGE OF NON-STORM WATER FROM THE PROJECT SITES AT ALL TIMES.
12. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON-SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, OR WIND.
13. STOCKPILES OF EARTH AND OTHER CONSTRUCTION-RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
14. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOILS AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.
15. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON-SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
16. DEVELOPERS/CONTRACTORS ARE RESPONSIBLE TO INSPECT ALL EROSION CONTROL DEVICES AND BMPS ARE INSTALLED AND FUNCTIONING PROPERLY IF THERE IS A 50% OR GREATER PROBABILITY OF PREDICTED PRECIPITATION, AND AFTER ACTUAL PRECIPITATION. A CONSTRUCTION SITE INSPECTION CHECKLIST AND INSPECTION LOG SHALL BE MAINTAINED AT THE PROJECT SITE AT ALL TIMES AND AVAILABLE FOR REVIEW BY THE BUILDING OFFICIAL (COPIES OF THE SELF-INSPECTION CHECK LIST AND INSPECTION LOGS ARE AVAILABLE UPON REQUEST).
17. TRASH AND CONSTRUCTION-RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
18. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
19. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
20. AS THE ENGINEER/QSD OF RECORD, I HAVE SELECTED APPROPRIATE BMPS TO EFFECTIVELY MINIMIZE THE NEGATIVE IMPACTS OF THIS PROJECT'S CONSTRUCTION ACTIVITIES ON STORM WATER QUALITY. THE PROJECT OWNER AND CONTRACTOR ARE AWARE THAT THE SELECTED BMPS MUST BE INSTALLED, MONITORED, AND MAINTAINED TO ENSURE THEIR EFFECTIVENESS.

_____ _____

CIVIL ENGINEER SIGNATURE DATE

21. THE FOLLOWING NOTES MUST BE ON THE PLAN:

    AS THE PROJECT OWNER OR AUTHORIZED AGENT OF THE OWNER, "I CERTIFY THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH THE SYSTEM DESIGNED TO ENSURE THAT A QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE INFORMATION SUBMITTED IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT SUBMITTING FALSE AND/ OR INACCURATE INFORMATION, FAILING TO UPDATE THE ESCP TO REFLECT CURRENT CONDITIONS, OR FAILING TO PROPERLY AND/OR ADEQUATELY IMPLEMENT THE ESCP MAY RESULT IN REVOCATION OF GRADING AND/OR OTHER PERMITS OR OTHER SANCTIONS PROVIDED BY LAW."

_____ _____

OWNER OR AUTHORIZED REPRESENTATIVE (PERMITTEE) DATE

22. DEVELOPERS/CONTRACTORS ARE RESPONSIBLE TO INSPECT ALL EROSION CONTROL DEVICES AND BMPS ARE INSTALLED AND FUNCTIONING PROPERLY AS REQUIRED BY THE STATE CONSTRUCTION GENERAL PERMIT. A CONSTRUCTION SITE INSPECTION CHECKLIST AND INSPECTION LOG SHALL BE MAINTAINED AT THE PROJECT SITE AT ALL TIMES AND AVAILABLE FOR REVIEW BY THE BUILDING OFFICIAL.
23. THE FOLLOWING BMPS FROM THE "CASQA CONSTRUCTION BMP ONLINE HANDBOOK" MUST BE IMPLEMENTED FOR ALL CONSTRUCTION ACTIVITIES AS APPLICABLE. AS AN ALTERNATIVE, DETAILS FROM "CALTRANS STORMWATER QUALITY HANDBOOKS, CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMP) MANUAL" MAY BE USED. ADDITIONAL MEASURES MAY BE REQUIRED IF DEEMED APPROPRIATE BY THE BUILDING OFFICIAL.

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JCCA J.C. CHANG & ASSOCIATES, INC.
ENGINEERS • ARCHITECTS • PLANNERS
385 VAN NESS WAY, SUITE 208
TORRANCE, CALIFORNIA 90501
PH (310) 212-7644
FAX (310) 212-5272

JCCA #15720-1

California State Fire Marshal
APPROVED

Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.
Reviewed by: _____

Issue

No.	Date	Description

Project

LMCO MARINE TERMINAL DEMO

LOCKHEED MARTIN
HARBOR ISLAND
1160 HARBOR ISLAND DRIVE
SAN DIEGO, CA 92101

Approved	Checked	Designed	CAD
TPK	TPK	TPK	AC

File Date	Vault File Number
12/16/2015	---

Sheet Title

EROSION AND SEDIMENT CONTROL DETAILS

Job Reference No.	Work Order
-	-

Reference North

Sheet Scale
AS SHOWN

Sheet Number
EC2

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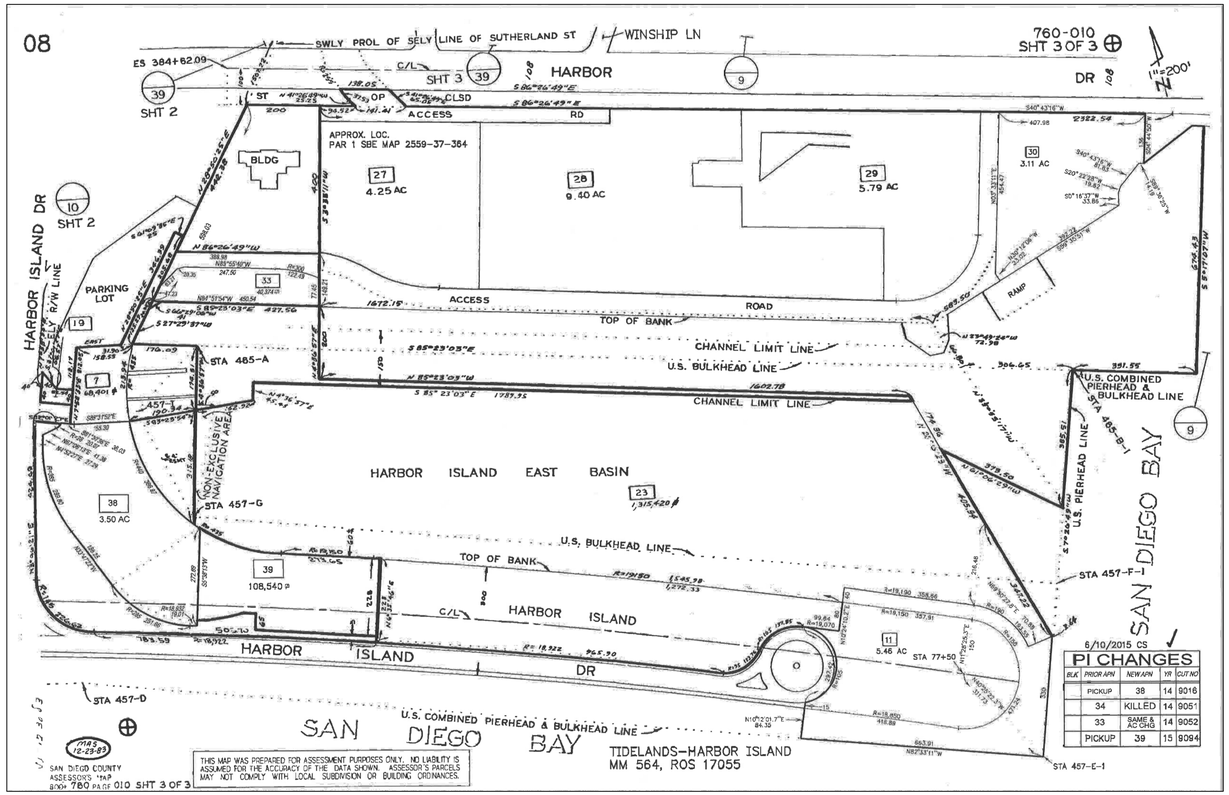

COUNTY OF SAN DIEGO ASSESSOR MAP

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FI: 1   NCNS LOCKHEED ENGINEERING&SCIENCES COMPANY

 PO BOX 61511 BLDG 100 RM U4632 KING OF PRUSSIA, PA 19406-09 19406-0911
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COUNTY OF SAN DIEGO ASSESSOR PARCEL INFORMATION

LEGAL DESCRIPTION

THERE IS NO AVAILABLE LEGAL DESCRIPTION FOR THE APN 760-010-07-00 PARCEL SINCE THE PORPERTY IS CONSIDERED "TITELAND AREA". THIS INFORMATION WAS FURNISHED BY CITY OF SAN DIEGO SENIOR CADASTRAL TECHNICIAN, RAUL CORTES ON NOVEMBER 20, 2015. IF ADDITIONAL INFORMATION IS REQUIRED, PLEASE CONTACT MR. CORTEZ AT (619) 531-5776.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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PH (310) 212-7644
FAX (310) 212-5272

JCCA #15720-1

California State Fire Marshal
APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.
Reviewed by: _____

Issue

No.	Date	Description

Project

LMCO MARINE TERMINAL DEMO

LOCKHEED MARTIN HARBOR ISLAND
1160 HARBOR ISLAND DRIVE
SAN DIEGO, CA 92101

Approved	Checked	Designed	CAD
TPK	TPK	TPK	AC

File Date	Vault File Number
12/16/2015	---

Sheet Title

REFERENCE SHEET 1

Job Reference No.	Work Order
-	-

Reference North

Sheet Scale
AS SHOWN

Sheet Number
REF 1

DATE/TIME: 15 Dec 2015, 05:28PM
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ATTACHMENT 2
Project Closeout Documentation

This is the cover sheet for Attachment 2.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	**Contents**	**Checklist**
Attachment 2a	Copy of Review and Acceptance of SWQMP from Adjacent Jurisdiction (When Applicable*) *Required for projects along jurisdictional boundaries when portions of the project are within other jurisdiction	☐ Not Applicable ☒ Pending ☐ Included
Attachment 2b	SWQMP Changes During Construction See SWQMP Construction Change Documentation Checklist on the back of this cover sheet for required documentation	☐ Not Applicable ☐ Included
Attachment 2c	Port of San Diego Verification Closeout Form	☐ Blank Form Included (Construction not complete) ☐ Completed and Signed

Use this checklist to ensure the required information is provided for construction change documentation:

When applicable, Attachment 2b must:

☐ Describe the construction change
☐ Describe the impact to the storm water management design
☐ Describe how the project will maintain compliance with storm water requirements
☐ Provide a revised construction plan

ATTACHMENT 3
Design Capture Volume Calculations

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Worksheet B.2-1. DCV

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.5	inches
2	Area tributary to BMP (s)	A=	.775	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.3	unitless
4	Street trees volume reduction	TCV=		cubic-feet
5	Rain barrels volume reduction	RCV=		cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	422	cubic-feet

Table B.1-1: Runoff factors for surfaces draining to BMPs – Pollutant Control BMPs

Surface	Runoff Factor
Roofs[1]	0.90
Concrete or Asphalt[1]	0.90
Unit Pavers (grouted)[1]	0.90
Decomposed Granite	0.30
Cobbles or Crushed Aggregate	0.30
Amended, Mulched Soils or Landscape	0.10
Compacted Soil (e.g., unpaved parking)	0.30
Natural (A Soil)	0.10
Natural (B Soil)	0.14
Natural (C Soil)	0.23
Natural (D Soil)	0.30

1. Surface is considered impervious and could benefit from use of Site Design BMPs and adjustment of the runoff factor per Section B.2.1.

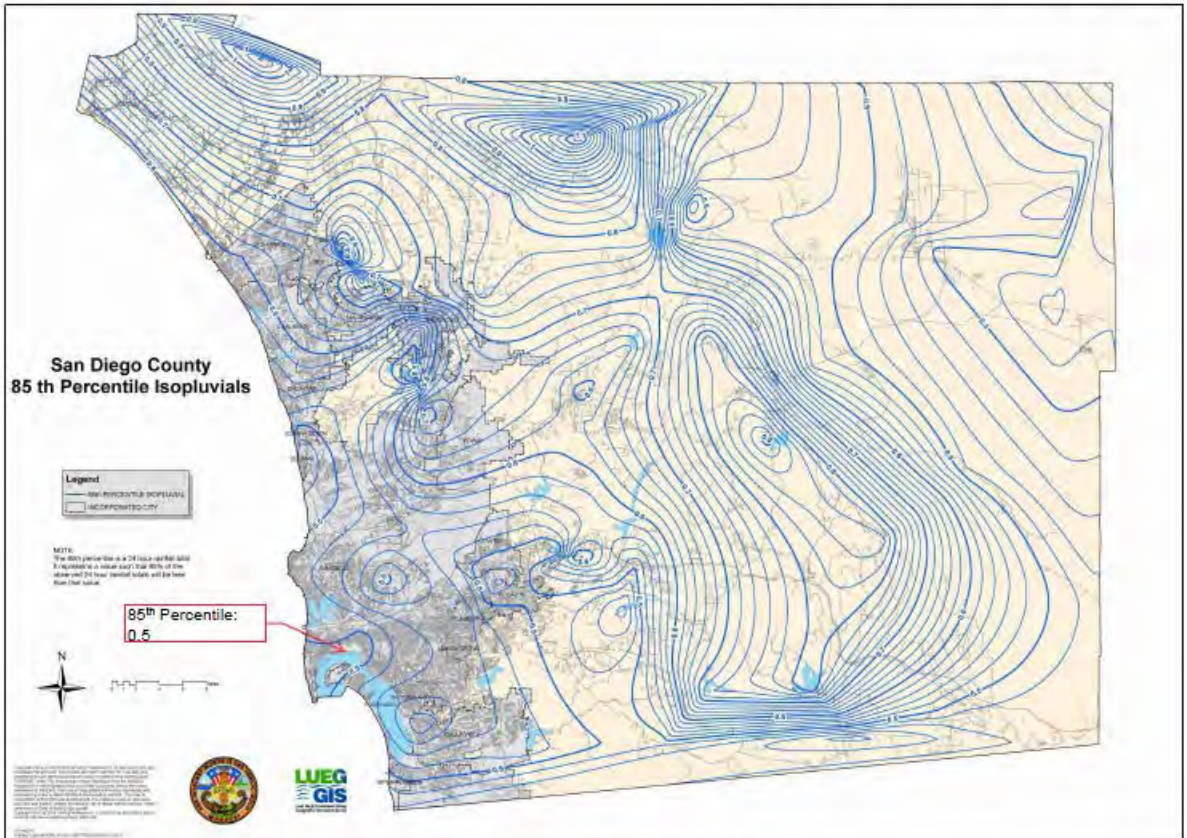

Figure B.1-1: 85th Percentile 24-hour Isopluvial Map

Appendix H. Noise Technical Report

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DRAFT

Noise Technical Report

Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project

May 2020

Prepared for:

San Diego Unified Port District
3165 Pacific Highway
San Diego, California 92101
Juliette Orozco

Prepared by:

600 B Street, Suite 2000
San Diego, California 92101
(619) 481-5002
Contact: Sharon Toland

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Appendix A. Noise Data

Acronyms and Abbreviations

ADT	average daily trips
CNEL	community noise equivalent level
dB	decibels
dBA	A-weighted decibels
FTA	Federal Transit Administration
IUDP	Individual User Discharge Permit
L_{dn}	day-night noise level
L_{eq}	equivalent energy level
NA	not applicable
PPV	peak particle velocity
project	Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project
RCNM	Roadway Construction Noise Model
SDIA	San Diego International Airport
SMA	Sediment Management Area
VdB	vibration decibels

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Section 1 Summary

This report assesses potential noise and vibration impacts of demolition and remediation activities associated with the proposed Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project (project). Due to the future undeveloped condition of the project site, operational noise is not anticipated to occur and, therefore, is not examined in this report. This report examines the impacts of the project and proposes mitigation measures where necessary and feasible to address significant noise impacts. Impacts to sensitive habitat and wildlife as a result of noise from project implementation are addressed in the Biological Technical Study and Essential Fish Habitat Assessment prepared by Merkel & Associates (2019) and are not included in this report.

In summary, the proposed remediation activities would not result in excessive noise. Impacts related to vibration and aircraft noise would also be less than significant. No mitigation measures are required.

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Section 2 Project Description

The proposed project involves the demolition of the existing Lockheed Martin Company Marine Terminal improvements located at 1160 Harbor Island Drive in San Diego, California (Figure 1, Regional Location). The project site is approximately 64,000 square feet, with the landside comprising approximately 32,000 square feet and the waterside comprising approximately 32,000 square feet (Figure 2, Project Site). The existing landside and waterside improvements were constructed in 1966 and were primarily used by the Lockheed Martin Company (now the Lockheed Martin Corporation) as a maintenance facility for deepwater submersible vehicles. Lockheed Martin Corporation now proposes to demolish existing landside and waterside improvements to return the site to its original undeveloped state. Activities would be broken down into three phases and would include landside demolition, waterside demolition, dredging, sediment remediation, and post-remediation activities (Figure 3, Project Components). It is anticipated that the project would be completed in approximately 5 to 6 months, with Phase 1 occurring from November through December 2020, Phase 2 occurring from September through November 2021, and Phase 3 beginning in May 2022.

Phase 1

Landside Demolition

The first phase would include the demolition of the Lockheed Martin Company Marine Terminal improvements. Existing utilities within the existing 5,500-square-foot marine terminal building would be disconnected and removed. This would include removing power to the San Diego Gas & Electric transformer vault, removing the gas lines to the nearest valve box, capping the fire sprinkler lines 6 inches above grade, removing the sewage tank and associated pipes, capping the outlets to the sewage tank, and removing the water to the backflow preventer on site. The project would then demolish the marine terminal building. After building demolition, the foundation would be removed, and any resulting depressions would be filled with compactable clean fill. The site would then be graded to match the existing elevation. The existing concrete and asphalt parking areas would remain to be used as part of the Sediment Management Area (SMA) during the offshore remediation component. The SMA would be confined with an impermeable barrier (potentially through an asphalt berm or K-rails sealed at the base with an impervious fabric) to prevent discharge into San Diego Bay or into underlying soils.

Phase 2

Waterside Dredging

Phase 2 would include the offshore component of the project beginning with the waterside demolition. The project would demolish the in water 165-foot pier and the 328-foot-long marine railway structure and support structures extending into the bay. The piles from the pier would be removed using

equipment staged on a barge or from the landside. The project barge would be the storage area for the removed piles. Outfall erosion protection would be constructed along the northern shoreline using 400 square feet of riprap and gravelly sand. Silt curtains would be used as necessary to minimize the transport of suspended solids. In addition, a floating surface debris boom would be deployed equipped with skirts and absorbent pads to capture floating surface debris and control potential oil sheen movement. The water's turbidity levels would be monitored during demolition activities. Debris would be removed from the water by a heavy clamshell bucket. Removed piles and debris would be brought ashore and transported for disposal through haul truck trips.

Dredging

Once the existing waterside facilities are demolished, offshore sediments would be dredged within an approximately 90,000-square-foot area. Approximately 3,500 cubic yards of contaminated sediments with elevated mercury levels would be dredged while maintaining navigation beneficial use on the project site. The sediments would be removed using mechanical dredging means through a barge-mounted derrick crane, an enclosed clamshell bucket, or a standard clamshell bucket.

Throughout dredging operations, silt curtains would be used to contain re-suspended sediment during dredging, and debris removal operations. Each silt curtain would include an oil boom component contained within the silt curtain, which would float on the water surface. Silt curtains would be weighted and positioned using anchors or marine structures or by being connected to shoreline locations.

Dredged material would then be placed in water-tight scows, a large flat-bottomed boat with square ends used for transporting bulk materials, that would be transferred to the upland SMA for processing or transfer. Prior to offloading sediments, any ponded water would be pumped within the scow into a water treatment system. The on-site water treatment system would consist of a series of holding and weir tanks and would be sufficient to meet the discharge requirements into the City of San Diego's (City's) sewer system (through an Individual User Discharge Permit [IUDP]). Prior to discharge, water samples would be collected in accordance with the IUDP. If the effluent contains analytical concentrations that exceed IUDP standards, the water would then be treated on site or removed from the site by a licensed waste hauler and disposed of in accordance with local, state, and federal requirements.

At the SMA, dredged sediment would be stabilized with Portland cement (as necessary to pass the paint filter test) to accelerate the drying process. The sediment would be tested based on selected upland disposal landfill's profile requirements and then loaded into lined haul trucks and transported to an upland disposal location. Dredged materials would be disposed of at an approved Class III (or Class II) landfill. The nearest available landfill would be the Otay Landfill, located in Chula Vista, California.

Sediment Remediation

Once dredging is complete, the project would place 4,500 cubic yards of clean sand cover on up to 92,170 square feet of the site. The clean sand cover would be placed on areas targeted for remediation. As time passes, the clean cover would mix into the underlying sediment through benthic interactions, such as organism burrowing. Equipment required for placement would be similar to the equipment used during dredging but would be supplemented with a conveyor. The clean sand would be transported to the project site by haul truck or barge. If the material arrives by truck, it would be loaded onto barges and transported to the placement area. A silt curtain would be placed around the sand placement area to reduce turbidity caused by placement operations.

Phase 3

Once the sediment has been dredged and disposed of, the SMA would be removed. The asphalt and concrete paving areas would be demolished with the exception of a retaining wall just above the shore protection. The retaining wall would allow the site to be graded in such a way that slopes would be shallow to allow stormwater to be absorbed and to minimize erosion. The existing shoreline riprap and the existing concrete spillways would remain and the site would be graded so that the excess water from storm events is directed to those spillways.

The existing mature trees would be left undisturbed. Non-invasive, drought-tolerant vegetation would be planted, and an irrigation system, if necessary, would be installed. The irrigation system would be connected to the existing backflow flow protector on site and would have manual valves due to the lack of on-site power.

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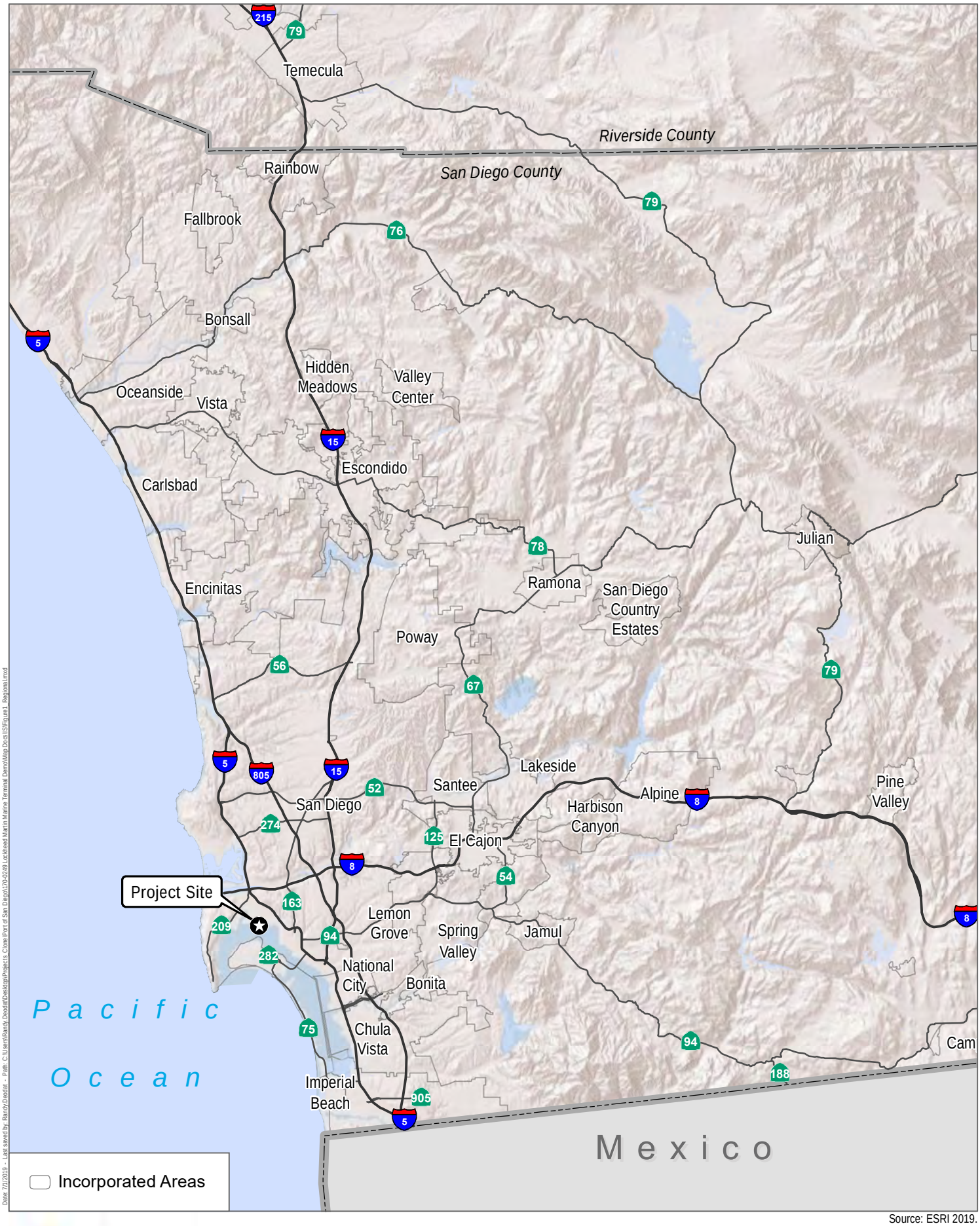

Source: ESRI 2019.

Harris & Associates

N

0 5 10 Miles

Figure 1

Regional Location

Date: 7/1/2019 - Last saved by: Randy.Dedat - Path: C:\Users\Randy.Dedat\Desktop\Projects_Clone\Port of San Diego\170-02491 Lockheed Martin Marine Terminal Demo\Map Docs\SI\Figure1_Regional.mxd

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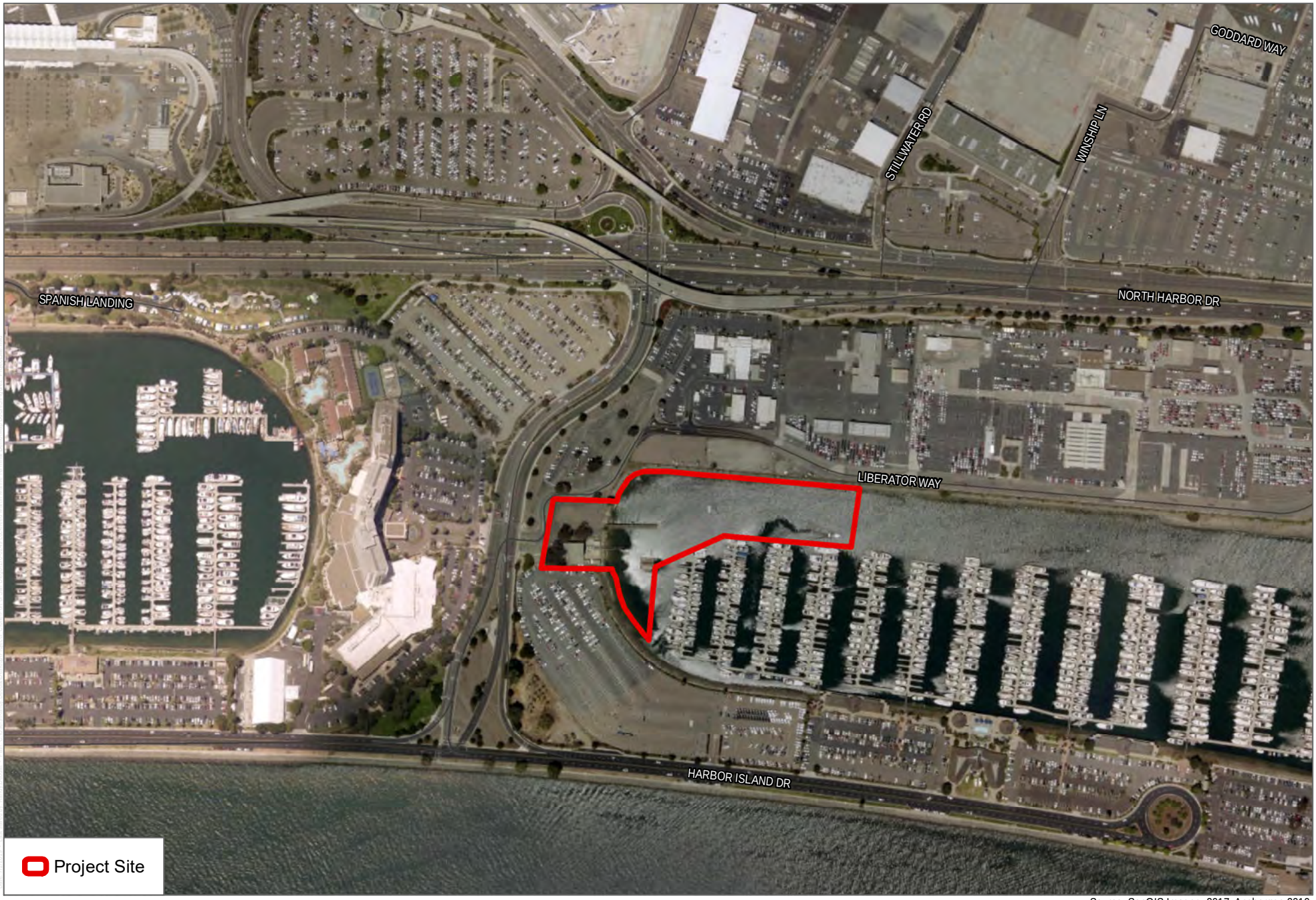

Source: SanGIS Imagery 2017; Anchorqea 2019.

Harris & Associates

N

0 100 200 Feet

Figure 2

Project Site

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Source: SanGIS Imagery 2017; Anchorqea 2019.

Harris & Associates

N

0 100 200 Feet

Figure 3

Project Components

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Section 3 Environmental Setting

3.1 Noise Basics

3.1.1 Quantification of Noise

The California Department of Transportation defines "noise" as sound that is loud, unpleasant, unexpected, or undesired. Further, for the purposes of noise analysis, noise only exists if a source, path, and receiver are present. Sound pressure waves must be produced by a source and transmitted through a medium, such as air. The sound must be perceived by, registered by, or affect a receptor, such as an ear or noise-monitoring device (Caltrans 2013a).

Sound pressure levels are quantified using a logarithmic ratio of actual sound pressures to a reference pressure squared, called "bels." A bel is typically divided into tenths, or decibels (dB). Sound pressure alone is not a reliable indicator of loudness because frequency (or pitch) also affects how receptors respond to the sound. To account for the pitch of sounds and the corresponding sensitivity of human hearing to them, the raw sound pressure level is adjusted with a frequency-dependent A-weighting scale that is stated in units of decibels (dBA) (Caltrans 2013a). Typical A-weighted noise levels are listed in Table 1, Typical A-Weighted Noise Levels.

A receptor's response to a given noise may vary depending on the sound level, duration of exposure, character of the noise sources, the time of day during which the noise is experienced, and the activity affected by the noise. Activities most affected by noise include rest, relaxation, recreation, study, and communications. In consideration of these factors, different measures of noise exposure have been developed to quantify the extent of the effects from a variety of noise levels. For example, some measures consider the 24-hour noise environment of a location by using a weighted average that penalizes noise levels during normal relaxation and sleep hours. Other measures consider an average noise level over a period of time that includes ambient noise and a steady-state noise source for a given period of time within the averaging period (Caltrans 2013a). The indices for measuring community noise levels used in this report are defined below:

- **L_{eq}**, the equivalent energy level, provides an average acoustical or sound energy content of noise, measured during a prescribed period, such as 1 minute, 15 minutes, 1 hour, or 8 hours. The sound level may not be constant over the measured time period, but the average dB sound level, given as dBA L_{eq}, contains an equal amount of energy as the fluctuating sound level.
- **L_{dn}**, the day-night noise level, is a 24-hour weighted average with a 10 dBA penalty applied to the nighttime hours of 10:00 p.m. to 7:00 a.m. This penalty attempts to account for the fact that nighttime noise levels are potentially more disturbing than equal daytime noise levels.

- **CNEL**, the community noise equivalent level, is a 24-hour average that applies weights to noise levels during evening and nighttime hours to compensate for the increased disturbance response of people at those times (relaxation and sleep). A +5 dBA weighting is applied to sound occurring between 7:00 p.m. and 10:00 p.m., and a +10 dBA weighting is applied to sound occurring between 10:00 p.m. and 7:00 a.m. L_{dn} and CNEL are typically within 1 dBA of each other and, for most intents and purposes, are interchangeable.

Table 1. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	**— 70 —**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**— 60 —**	
		Large business office
Quiet urban daytime	**— 50 —**	Dishwasher next room
Quiet urban nighttime	**— 40 —**	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	**— 0 —**	Lowest threshold of human hearing

Source: Caltrans 2013a.
Notes: dBA = A-weighted decibel

The dB level of a sound decreases (or attenuates) as the distance from the source of that sound increases. For a single-point source, such as a piece of mechanical equipment, the sound level

normally decreases by approximately 6 dBA for each doubling of distance from the source. Sound that originates from a linear, or "line," source, such as vehicular traffic, attenuates by approximately 3 dBA per doubling of distance. Other contributing factors that affect sound reception include ground absorption, natural topography that provides a natural barrier, meteorological conditions, or the presence of human-made obstacles such as buildings and sound barriers (Caltrans 2013a).

3.1.2 Noise Effects

Reaction to a given sound varies depending on acoustical characteristics of the source and the environment of the receptor. The A-scale de-emphasizes low-frequency sounds because humans are more sensitive to high-frequency sounds, and high-frequency sounds are more likely to cause hearing damage. People tend to compare an intruding noise with existing background noise levels. If a new noise is considerably louder or noticeable above existing levels, it is generally considered objectionable. The activity that the receptor is engaged in also affects response. For example, the same noise source, such as constant freeway traffic, may be more objectionable to people sleeping than to workers in a factory. A 3 dBA change is the smallest increment that is perceivable by most receivers, and a 5 dBA change in community noise levels is clearly noticeable. Generally, 1 to 2 dBA changes generally are not detectable, except under controlled laboratory conditions. A sound that is 10 dBA greater than the reference sound is typically perceived as twice as loud (Caltrans 2013a).

3.2 Environmental Vibration Basics

Vibration is defined as dynamic excitation of an elastic system, such as the ground or a structure, which results in oscillatory movement of the system (Caltrans 2013b). Typical human-made causes of earthborne vibration include trains and construction activities such as blasting, pile driving, and operation of heavy earthmoving equipment (FTA 2018). The resulting waves transmitted through solid material are referred to as "structureborne vibration" or "groundborne vibration." Vibration energy spreads out as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. The vibration levels inside a building depend on the vibration energy that reaches the building foundation and the characteristics of the building that affect propagation of the vibration through the building. A heavier building will typically experience lower vibration levels. The most common impact associated with vibration is annoyance resulting from the effects of vibration such as building movement, rattling of windows, shaking on items on shelves or walls, and rumbling sounds. In more extreme cases, building damage may occur. Because the effects of vibration elicit a greater response than the vibration itself, vibration is typically only perceptible to people inside buildings (FTA 2018).

Vibration levels are typically expressed in terms of the peak particle velocity (PPV) and root mean square amplitude, both in inches per second. PPV is most appropriate for evaluating building damage potential. The California Department of Transportation estimates that continuous

vibration levels of less than 0.08 PPV and single-event vibration levels of less than 0.12 PPV do not result in damage to even the most fragile historic buildings (Caltrans 2013b). PPV does not account for human response to vibration. The root mean square amplitude is used to represent average vibration amplitude, which accounts for the time it takes for the human body to respond to vibration signals. The root mean square amplitude is also given in dB notation, referred to as "vibration decibels" (VdB), which serves to compress the range of numbers required to describe vibration relative to human response (FTA 2018). The general human response to different levels of groundborne vibration velocity levels is described in Table 2.

Table 2. Human Response to Different Levels of Groundborne Vibration

Vibration Velocity Level	Noise Level		Human Reaction
	Low Frequency	Mid Frequency	
65 VdB	25 dBA	40 dBA	Approximate threshold of perception for many humans. Low-frequency sound: usually inaudible. Mid-frequency sound: excessive for quiet sleeping areas.
75 VdB	35 dBA	50 dBA	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find transit vibration at this level annoying. Low-frequency noise: tolerable for sleeping areas. Mid-frequency noise: excessive in most quiet occupied areas.
85 VdB	45 dBA	60 dBA	Vibration tolerable only if there are an infrequent number of events per day. Low-frequency noise: excessive for sleeping areas. Mid-frequency noise: excessive even for infrequent events for some activities.

Source: FTA 2018.

Notes: dBA = A-weighted decibel; VdB = vibration decibels

The rumbling sound caused by the vibration of room surfaces is called "groundborne noise." Like broadband noise, groundborne noise is measured in dBA. The sound level accompanying vibration is generally 25 to 40 dBA lower than the vibration velocity level in VdB, as shown in Table 2. Due to the low-frequency components of groundborne noise, groundborne noise sounds louder than broadband noise with the same noise level (FTA 2018). Typical human response to groundborne noise levels are shown in Table 2. The background vibration velocity level in residential areas is usually around 50 VdB, which is below the 65 VdB threshold of human perception (FTA 2018). The same human reaction corresponds to a given vibration velocity level and its resulting noise level; therefore, for simplicity, this analysis refers only to a source's VdB to describe potential human response to groundborne vibration and noise.

3.3 Regulatory Framework

3.3.1 Federal

Noise Control Act

The Noise Control Act of 1972 identifies uncontrolled noise as a danger to health and welfare, particularly for people in urban areas. Responsibility for noise control remains primarily a state and local issue; however, the act established a means for effective coordination of federal research and noise control activities (USEPA 2015). The act includes a directive that the U.S. Environmental Protection Agency develops and publishes information on noise levels to protect public health and welfare with an adequate margin of safety. In 1974, the U.S. Environmental Protection Agency published the Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. The document identifies an interior noise level of 45 dBA L_{dn} in indoor residential areas to be adequate to protect indoor activity from interference and annoyance. An exterior noise level of 55 dBA L_{dn} was identified as the maximum noise level to avoid interference and annoyance in residential areas and other areas in which quiet is a basis for use. A maximum 24-hour average outdoor noise level of 70 dBA L_{eq} is recommended to prevent hearing loss (USEPA 1974).

Federal Aviation Administration Standards

Enforced by the Federal Aviation Administration, Code of Federal Regulations, Title 14, Part 150, prescribes the procedures, standards, and methods governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. Title 14 also identifies those land uses which are normally compatible with various levels of exposure to noise by individuals. The Federal Aviation Administration considers residential land uses to be compatible with exterior noise levels at or less than 65 dBA L_{dn}.

Federal Transit Administration Standards

Although the Federal Transit Administration (FTA) standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included in the FTA Transit Noise and Vibration Impact Assessment Manual (2018) are routinely used for projects proposed by local jurisdictions. The manual includes guideline criteria for assessing the impacts of groundborne vibration, as presented in Table 3.

Table 3. Federal Transit Administration Groundborne Vibration Impact Criteria

Land Use Category	Impact Levels (VdB)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
1: Buildings where vibration would interfere with interior operations	65	65	65
2: Residences and buildings where people normally sleep	72	75	80
3: Institutional land uses with primarily daytime uses	75	78	83

Source: FTA 2018.

Note: VdB = vibration decibels

Vibration levels are measured in or near the vibration-sensitive use.

[1] "Frequent Events" is defined as more than 70 vibration events of the same source per day.

[2] "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

[3] "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

3.3.2 Local

City of San Diego Noise Ordinance

The City's regulations with respect to noise are included in Chapter 5, Article 9.5, Noise Abatement and Control, of the Municipal Code. This chapter is referred to as the City's Noise Ordinance in this analysis. The purpose of the Noise Ordinance is to secure and promote the public health, comfort, convenience, safety, welfare, prosperity, peace, and quiet of the City and its inhabitants. Restrictions on operational noise and construction-related noise are discussed below. Generally, ordinances of the City and other municipalities do not apply to the District, which is an independent entity. However, for the purposes of CEQA noise analyses, the District uses applicable municipality noise ordinances to assess potentially significant impacts.

Operational Noise. Section 59.5.0401 of the Noise Ordinance establishes the exterior noise standards for various land uses. Noise may not exceed the applicable standard at any location in the City on or beyond the boundaries of the property on which the noise is produced. The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts. The City's exterior noise level limits are presented in Table 4.

Table 4. Exterior and Interior Noise Limits

Land Use	Time of Day	1-Hour Average Sound Level
Single-Family Residential	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	50 45 40
Multi-Family Residential (up to a maximum density of 1/2000)	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	55 50 45
All Other Residential	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 55 50
Commercial	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 60 60
Industrial or Agricultural	Anytime	75

Source: City of San Diego 2019.

Construction Noise. Section 59.5.0404 of the City's Noise Ordinance regulates construction noise. The Noise Ordinance prohibits noise generated by construction activities between the hours of 7:00 p.m. and 7:00 a.m. of any day and on Sundays and holidays. However, the City's Noise Abatement and Control Administrator could permit construction at night where noise levels could be in excess of 75 dBA on limited basis where nighttime construction is deemed necessary and the construction is found to be in the public interest. Additionally, construction noise levels at or beyond the property lines of any property zoned residential are not permitted to exceed an average sound level greater than 75 dB during the 12-hour period from 7:00 a.m. to 7:00 p.m. Monday through Saturday.

3.4 Existing Noise Environment

Existing noise sources that affect the project site are described below.

3.4.1 Existing Noise Levels

The project site currently consists of a 5,500-square-foot building, a 165-foot pier, a 328-foot-long marine railway, concrete, asphalt paving, utilities, and support structures. Currently, the building is unoccupied, and the marine terminal is not in use. The project site does not contain significant noise-generating sources. The primary existing sources of noise in the vicinity of the project site are boat activity in the adjacent marina, vehicular traffic on local roads, and aircraft traffic associated with the San Diego International Airport (SDIA).

3.4.2 Transportation Noise Sources

Aviation

The nearest airport to the project site is the SDIA, located approximately 0.2 mile north of the site. SDIA is owned and operated by the San Diego County Regional Airport Authority. The airport served approximately 225,058 annual operations in 2018 (SDCRAA 2018). The project site is located with the SDIA Airport Influence Area and Overflight Area and is located within the 60–65 dBA CNEL noise contour (SDCRAA 2014).

Roadways

Vehicular traffic along roadways in the vicinity of the project site contributes to the overall noise environment on the project site. Major roadways that bound the proposed project include Harbor Island Drive, which runs in a north–south direction directly west of the project, and North Harbor Drive, which runs in an east–west direction approximately 0.1 mile north. Interstate 5 is the nearest major freeway, located approximately 1.5 miles east of the project site (City of San Diego 2015). Noise levels from major streets, such as North Harbor Drive, typically range from 65 to 75 dBA CNEL at an adjacent receptor (City of San Diego 2007).

3.4.3 Noise-Sensitive Land Uses

NSLUs are land uses that may be subject to stress or interference from excessive noise. These uses typically include residences, transient (hotel/motel) lodging, dormitories, hospitals, educational facilities, and libraries. Industrial and commercial land uses, including the project site, are generally not considered sensitive to noise. There is no residential development or zoned residential development within the vicinity of the project site. The closest NSLU to the project site is the Sheraton San Diego Hotel & Marina, located approximately 0.1 mile west of the site. The hotel is considered noise sensitive during nighttime hours only because it provides facilities where people normally sleep (FTA 2018).

3.4.4 Vibration-Sensitive Land Uses

Land uses in which groundborne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations, are considered vibration sensitive (FTA 2018). The degree of sensitivity depends on the specific equipment that would be affected by the groundborne vibration. Excessive levels of groundborne vibration of either a regular or an intermittent nature can result in annoyance to residential uses, including hotels. There is no zoned residential development within the vicinity of the project site; however, the Sheraton San Diego Hotel & Marina is located approximately 0.1 mile west of the site. The hotel is considered a vibration-sensitive use during nighttime hours only. Normal operations are not vibration sensitive, but excessive vibration would have the potential to interfere with sleep. Rental car and public parking lots surround the project site directly to the north and south and are not considered vibration sensitive.

Section 4 Methods and Significance Criteria

4.1 Methods

4.1.1 Excessive Noise Levels

Impacts related to temporary increases in ambient noise levels from landside project remediation activities are assessed using estimates of sound levels from typical construction equipment provided by the Federal Highway Administration in the Roadway Construction Noise Model (FHWA 2008). Noise levels from waterside activities are estimated based on noise level estimates for the Draft Environmental Impact Statement/Environmental Impact Report for the Berth 136-147 [TraPac] Container Terminal Project at the Port of Los Angeles (Port of Los Angeles 2007). The analysis assumes an attenuation rate of 6 dBA per doubling of distance from the source.

4.1.2 Groundborne Vibration

Groundborne vibration impacts are assessed based on the vibration impact criteria published by the FTA (2018) and use of typical vibration source levels provided by the FTA.

4.1.3 Aircraft Noise

The potential for the proposed project to expose sensitive receptors to excessive noise levels from the SDIA was assessed by reviewing the SDIA's land use compatibility planning documents (SDCRAA 2014).

4.2 Significance Criteria

Based on Appendix G of the California Environmental Quality Act Guidelines, implementation of the propose project would result in a significant adverse impact if it would:

- **Threshold 1:** Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies. Section 59.5.0404 of the City's Noise Ordinance is the applicable regulation for the project analysis.
- **Threshold 2:** Generate groundborne vibration in excess of FTA criteria, presented in Table 3. With respect to human annoyance, FTA guidance indicates 72 VdB as a threshold for residential land uses and other buildings where people normally sleep, which could be applied to temporary lodging.
- **Threshold 3:** For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public use airport or private airstrip, expose people residing or working in proximity to the project site to excessive noise.

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Section 5 Impact Analysis and Mitigation Measures

5.1 Impact Analysis

Potential project-related noise and vibration impacts from remediation activities are discussed in this section.

5.1.1 Issue 1: Excessive Noise Levels

Impact Analysis

Proposed remediation activities would have the potential to generate excessive noise levels as a result of operation of heavy construction equipment.

Phase 1

The first phase would include the demolition of the Lockheed Martin Company Marine Terminal improvements. Site preparation, demolition, fill, and grading activities would require the use of an excavator, backhoe, loader, and dozer. Noise levels from operation of this fleet were determined based on typical equipment noise levels determined by the Roadway Construction Noise Model (RCNM) (FHWA 2008). See Appendix A, Noise Data, for model output. The RCNM model estimates that average noise level on the project site during Phase 1 remediation activities would be approximately 82 dBA L_{eq} at 50 feet. Remediation activities would have the potential to exceed 75 dBA L_{eq} up to 115 feet from the construction area. There are no land uses zoned for residential use within 115 feet of the project site. The Sheraton San Diego Hotel & Marina, which may include receptors sensitive to noise, would both be located more than 200 feet from landside activities and would not be exposed to noise levels in excess of 75 dBA L_{eq}. Additionally, construction would only occur during the allowable hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. Also, the hotel is not on property designated as residential. Thus, the City's 75 dB 12-hour daytime construction noise standard is inapplicable to the project, and the City's Noise Ordinance would not be violated. Further, the project would include the following project design feature (PDF):

PDF-NO-1: **Nighttime Construction**. Nighttime construction would be prohibited. In addition, no lights would be used to illuminate the project site at night.

Therefore, impacts during Phase 1 would be less than significant.

Phase 2

Construction activities on land during Phase 2 would include the use of pumps, a loader, a dozer, and trucks. The RCNM estimates that average noise level on the project site from operation of this fleet would be approximately 82 dBA L_{eq} at 50 feet. See Appendix A for model output. Similar to Phase 1,

impacts during landside activities during Phase 2 would be less than significant because noise levels at nearby receptors and construction hours would comply with the City's Noise Ordinance.

Noise levels from waterside activities are estimated based on the construction activity noise levels calculated for the Berth 136-147 [TraPac] Container Terminal Project in the Port of Los Angeles (Port of Los Angeles 2007). This project proposed similar construction activities, including the use of a barge and tugboat for waterside demolition and dredging. Similar to the proposed project, waterside demolition for the Berth 136-147 [TraPac] Container Terminal Project would involve the use of a crane, barge, excavator, tugboat, and vibratory hammer. Noise levels were estimated to be 92 dBA L_{eq} at 100 feet. Dredging activities would involve a dredge, barge, and tugboat, similar to the proposed project, and generate noise levels up to 88 dBA L_{eq} at 100 feet.

Worst-case noise levels from waterside demolition activities would have the potential to exceed 75 dBA L_{eq} up to 750 feet from the project site. Dredging activities would have the potential to exceed 75 dBA L_{eq} up to 450 feet from the project site. There is no land zoned for residential use within 750 feet of the project site. The Sheraton San Diego Hotel & Marina and the boats docked in the Sunroad Resort Marina would have the potential to be exposed to noise levels in excess of 75 dBA L_{eq} during waterside demolition and dredging activities. However, these uses are not zoned for residential use, and construction would only occur during the allowable hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. Therefore, although construction may be an intermittent nuisance, it would not disturb sleep and would not violate the City's Noise Ordinance. Additionally, the project includes PDF-NO-1, which would prohibit nighttime construction and the use of lights at night to illuminate the project site. Therefore, a significant impact would not occur during waterside demolition or dredging activities. Therefore, impacts during Phase 2 would be less than significant.

Phase 3

During Phase 3, minimal construction equipment would be required for grading and demolition to return the site to an undeveloped condition. Once the remediation is complete, there would be no further operations on the site, other than occasional maintenance trips for monitoring activities. Although construction specifics are unknown, because construction activities would be less intense during this phase than those in the earlier phases, it can be assumed that construction would not violate the City's Noise Ordinance. Therefore, excessive noise levels would not occur.

Traffic Noise

Remediation activity traffic volumes were calculated as part of the air quality analysis for the proposed project (Harris & Associates 2019). Remediation is anticipated to generate a worst-case maximum of 23 daily worker vehicle trips and a worst case of 139 truck trips per day during the 5- to 6-month project timeline. Construction traffic would exit the site onto Harbor Island Drive and proceed to North Harbor Drive, a major thoroughfare serving the Port of San Diego and the

SDIA, related industrial uses, and downtown San Diego. In 2015, average daily trips (ADT) on Harbor Island Drive from the traffic circle to North Harbor Drive was 17,800. The ADT on North Harbor Drive both east and west of Harbor Island Drive was more than 29,000 (SANDAG 2019). Vehicle traffic is the dominant noise source in the traffic area. The addition of approximately 100 vehicles intermittently over several weeks would have a negligible impact on ambient traffic noise levels. Additionally, construction would take place during the day would have no impact on nighttime noise levels. Therefore, impacts to traffic noise during remediation activities would be less than significant.

Mitigation Measures

Implementation of the proposed project would not generate excessive noise levels. This impact would be less than significant and no mitigation is required.

Cumulative Impacts

A cumulative ambient noise impact would occur if development associated with cumulative regional land use projects would result in an increase in ambient noise that would exceed the City's noise level standards. Following remediation activities, the project site would be passive and would not contribute to ambient noise levels. Construction noise impacts are localized in nature because they are limited to the construction site where construction equipment is operating. A cumulative impact would only occur if construction of multiple cumulative projects would occur simultaneously. Remediation activities would have the potential to exceed 75 dBA L_{eq} up to 750 feet from remediation activities. However, the project site is located in a built-out area, and major construction projects are not anticipated to occur in the immediate vicinity of the site during remediation activities. Additionally, there are no properties zoned for residential use in the area surrounding the project site, and construction would take place during the hours allowed under the City's Noise Ordinance. Therefore, it is unlikely that the project would result in temporary noise levels that would combine with construction noise levels from cumulative development to exceed noise standards at the same receptors at the same time. A significant cumulative impact would not occur. Therefore, implementation of the proposed project would not result in a cumulatively considerable contribution to a significant cumulative impact.

5.1.2 Issue 2: Groundborne Vibration

Impact Analysis

The main concern associated with groundborne vibration from this type of project to the surrounding area is annoyance from operation of heavy construction equipment. There are no vibration-sensitive land uses in the immediate vicinity of the project site. Similar to existing conditions, following construction, the uses proposed under the project would not generate groundborne vibration. Typical vibration levels for project construction are provided in Table 5.

The nearest receptor that would potentially experience groundborne vibration is the Sheraton San Diego Hotel & Marina, which is a place where people normally sleep. Therefore, the FTA threshold of 72 VdB is applicable. As shown in Table 5, vibration levels would be reduced to 72 VdB or below beyond 295 feet of landside remediation activities. There are no receptors located within 295 feet of the remediation area. Additionally, the hotel would only be vibration-sensitive during nighttime hours. Construction would take place during the day and would not interfere with sleep. Therefore, vibration impacts would be less than significant.

Table 5. Vibration Source Levels for Construction Equipment

Equipment	Approx. VdB at 25 Feet	Approx. VdB at 295 Feet[1]
Pile Driver	104	72
Large Bulldozer	87	55
Loaded Trucks	86	54
Small Bulldozer	58	26
Clam Shovel Drop	94	62

Source: FTA 2018.

Notes: VdB = vibration decibels

[1] Based on the formula VdB = VdB(25 feet) – 30log(d/25) provided by the FTA (2018).

Mitigation Measures

The proposed project would not result in significant vibration. No mitigation measures are required.

Cumulative Impacts

Similar to noise effects, vibration is a localized phenomenon and is progressively reduced as the distance from the source increases. Therefore, the area of projects that would be considered for the vibration cumulative analysis would only be those projects in close proximity to the project site. The proposed project would result in vibration levels that would not be a nuisance beyond 295 feet of remediation activities. Therefore, vibration generated by proposed remediation activities and construction on other sites would not be expected to combine to generate cumulative vibration impacts. Following remediation, the project site would not be a source of vibration. Therefore, a significant cumulative vibration impact would not occur.

5.1.3 Issue 3: Aircraft Noise

Impact Analysis

The project site is located with the SDIA Airport Influence Area and Overflight Area and is located within the 60–65 dBA CNEL noise contour (SDCRAA 2014). However, the proposed project does not propose any structures for human occupancy. Additionally, the project does not include any components that would interfere with air traffic patterns. Exposure of workers to overflight noise

would occur during remediation activities; however, exposure would be intermittent and limited to a few months or weeks. Workers would also likely be wearing ear protection required for equipment operation. Therefore, impacts related to aircraft noise would be less than significant.

Mitigation Measures

Impacts related to aircraft noise would be less than significant. No mitigation measures are required.

Cumulative Impacts

No sensitive receptors would be exposed to excessive noise levels from aviation as a result of the project. Impacts related to nuisance noise from overflights are site specific and are not cumulative in nature. Therefore, a cumulative impact related to aviation noise would not occur.

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Section 6 Conclusion

The proposed remediation activities would not result in excessive noise. Impacts related to vibration and aircraft noise would also be less than significant. No mitigation measures are required.

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Appendix A. Noise Data

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Roadway Construction Noise Model (RCNM),Version 1.1

Report dat 7/2/2019
Case Descr Lockheed Demo

---- Receptor #1 ----

Descriptior	Land Use	Baselines (dBA) Daytime	Evening	Night
Sheraton	Residential	65	55	50

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	50	0
Backhoe	No	40		77.6	50	0
Dozer	No	40		81.7	50	0
Front End Loader	No	40		79.1	50	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	81.7	82.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report dat 7/2/2019
Case Descr Lockheed Phase 2

---- Receptor #1 ----

Descriptior	Land Use	Baselines (dBA) Daytime	Evening	Night
Sunroad M	Residential	65	55	50

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Pumps	No	50		80.9	50	0
Front End Loader	No	40		79.1	50	0
Dozer	No	40		81.7	50	0
Dump Truck	No	40		76.5	50	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Pumps	80.9	77.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	76.5	72.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	81.7	82.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Appendix I. Assessment for Relocation

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Lockheed Martin Marine Terminal

Assessment for Relocation

Prepared for:

HARRIS & ASSOCIATES
600 B Street, Suite 2000
San Diego, CA 92101

Report prepared by:

HERITAGE ARCHITECTURE & PLANNING
832 Fifth Avenue,
San Diego, CA 92123

July 10, 2020

PROJECT DESCRIPTION AND REPORT SCOPE

The San Diego Unified Port (Port District) is considering a project proposed by Lockheed Martin – the Lockheed Martin Harbor Island Facilities Demolition and Sediment Remediation Project – that would, as a component of that project, remove the Lockheed Martin Marine Terminal. The Lockheed Martin Marine Terminal building was identified as a historical resource, as defined by CEQA. and demolition would result in a substantial adverse impact to the building. Therefore, consistent with comments received on the Notice of Preparation/Initial Study prepared for the project, this report evaluates the structural feasibility of building relocation as a means to lessen the significant impact on the building. The relocation of the building to an appropriate new site may provide an alternative, along with mitigation measures, such as Historic American Buildings Survey (HABS) archival documentation and installation of an interpretative exhibit in a public area.

Heritage Architecture & Planning has been engaged by Harris & Associates to conduct this architectural and structural Assessment for Relocation to address the architectural and structural feasibility of relocating the Lockheed Martin Harbor Island building from its current site on Harbor Island in San Diego to an as-yet undetermined new site. The structural assessment, prepared by Critical Structures, Inc. (CSI), supports the analysis in this report. This report/assessment included the following components:

<u>Task 1: Field Investigation, Research and Coordination</u>
Review documentation and perform a one-day field survey.

- Review existing documentation, plans, and photographs.
- Perform a building survey including exterior and interior investigation of spaces and features.
- Field photography.
- Coordination with the structural engineer.

<u>Task 2: Preparation of a Relocation Assessment</u>
The following is included in this report:

- Brief building history.
- Existing conditions summary.
- Relocation issues summary.
- Assess potential impacts to architectural features, such as original exterior siding, and needs for partial reconstruction.

<u>Task 3: Preparation of a Structural Assessment</u>
(Refer to Critical Structures' Structural Assessment dated June 5, 2020.)

- Review copies of drawings.
- Site visit to become familiar with the building using visual observation of accessible areas. (No probes or destructive testing was performed.)
- Provide brief letter report describing structural framing systems, conditions, and approximate weights. Report will include a section describing the approximate weights of

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building components, and representative approximate column and wall loads, if applicable. The report will include photo documentation if photos are allowed to be taken onsite.

EXISTING CONDITIONS

The Lockheed Martin Marine Terminal and associated pier and marine railway are located at 1160 Harbor Island Drive in San Diego, California. The complex was constructed in 1966 to house the internationally recognized research submarine "Deep Quest." The building was designed in the Contemporary style by Frank Hope, Jr., a City of San Diego Master Architect. The Lockheed Martin Marine Terminal, pier, and railway have been deemed eligible for historical designation by ASM Affiliates, Inc.

Heritage Architecture & Planning and Critical Structures, Inc. performed a site visit on May 26, 2020 to visually assess the building. The Marine Terminal has had only minor alterations since 1966 and has very good integrity. However, the building has been abandoned for several years and has fallen into disrepair and been vandalized. Refer to the photographs at the end of this report which show the building's state of disrepair. The Marine Terminal complex is divided into the following components:

1. Main building, consisting of:
    - Double-height Maintenance Shop
    - Shop wing (south)
    - Office wing (north)
    - Storage buildings
2. Outdoor work area slab
3. Marine railway, ramp, and rail car
4. Pier
5. Shade canopy
6. Parking lot

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Figure 1: Aerial photo showing the site (north is up). Source: Google Maps

This report only addresses the main terminal building. The overall plan dimensions of the Marine Terminal building are approximately 62'-4" long by 90'-2" wide. The high-bay Maintenance Shop is 42'-4" wide and has a flat roof approximately 32'-0" high. The office wing to the north is 20'-4" wide and the shop wing to the south is 27'-6" wide. Both low wings have a flat roofs approximately 11'-0" high.

The building is standard wood platform framed construction. The high-bay portion is post and beam with glulam timber beams that span 40 feet to glulam columns. The roof/exposed ceiling utilizes 4"-wide tongue-and-groove (T&G) decking. Refer to Photos 17-19. The partitions below the glulam beams are non-bearing. There are diagonal steel tie-rod braces beneath the roof glulams. Refer to Photo 23. At the west end, there are two additional glulam columns.

At the foundation, columns are on spread footings. A 6" thick concrete slab-on-grade slopes down from the west toward the large roll-up door (and bay beyond). There is a small equipment pit in the Maintenance Shop to operate the rail car. Refer to Photo 25. For more in-depth structural information refer to Critical Structures' Structural Assessment dated June 5, 2020.

The contemporary design of the building's exterior consists of unadorned rectilinear volumes of varying sizes, modular louvered grilles, ribbon windows, repeating shade fins, and horizontal redwood siding with a painted finish. The west façade of the building faces Harbor Island Drive. There is a large steel roll-up door on the east façade and projecting sign panels on the upper north and west facades. The building has flat gravel-topped roofs with no eaves or fascia. Refer to Photos 1-8.

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According to the original drawings, the interior of the building contained offices and a lounge to the north, a machine shop to the south, an instrument shop, diving storage area, and battery charging room to the south, and a central high-volume maintenance shop area. Refer to Photos 17-28. It is not known whether any of these uses changed over the years.

Known changes to the building include several storage rooms that were added to the exterior. Refer to Photo 3. Translucent green fiberglass panels were added behind the wood louvers at the shop wing. Refer to Photo 27. The current U-shape of the mezzanine doesn't match the original drawing. Refer to Photo 17. Overall the building's integrity is good.

Despite being abandoned for several years and suffering from vandalism the building's overall condition is fair to good. The areas that exhibit damage are:

1. The horizontal T&G redwood siding is 3 1/2" wide and 3/4" thick with a 3 1/8" exposure. The siding is warped in many locations and some boards are missing. There also appears to be some insect and dryrot damage. Much of the apparent damage to the siding is cosmetic, where paint has worn away. Refer to Photos 12 & 13.
2. The open louvered wood vents that project from the façades have many of the same condition issues as the siding and are repairable. Refer to Photos 6-8.
3. The jalousie windows on the north façade of the office wing have been damaged by vandalism and the hardware shows rust. Some areas have been patched with plywood. Refer to Photos 2, 14 & 28.
4. The flat gravel-topped roofs appear to be mostly weather-tight, although there is some visible staining on the ceiling of the Maintenance Shop. While the south wing's roof appears to be in good condition, the north wing's roof is covered in a layer of Eucalyptus leaves, dirt, and weeds. Refer to Photos 15 & 16. (The upper roof was not accessible.)
5. The projecting sign panel on the upper north facades is damaged and there appears to be a beehive in the area. The sign panel on the upper west facades is in good condition. Refer to Photo 1.

If the Lockheed Martin Marine Terminal is retained and/or relocated and rehabilitated, the damaged features listed above should be treated following *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (*The Standards*).

Local historic structures commonly only are required to retain or rehabilitate their exterior facades. Interior rehabilitation is usually only required for public gathering spaces like theaters and hotel lobbies. The Lockheed Martin Marine Terminal has unadorned, industrial interiors that do not need to be preserved or, if dismantled and moved, reconstructed. However, the terminal's interiors do speak to the building's historic use, especially in the main high-bay Maintenance Shop with its mezzanine, overhead hoist, exposed wood ceiling, work lights, and rails in the floor.

If feasible, depending on the eventual new use and interior layout, representative examples of character-defining interior features should be preserved and re-used in the rehabilitated building. The interior of the Maintenance Shop could be recreated as an interpretive space, retaining the features listed above. The rail car for the Deep Quest submarine could also be retained for display.

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RELOCATION ISSUES

As noted above, the high-bay Maintenance Shop is 42'-4" wide and has a flat roof approximately 32'-0" high. It is too large to be moved in one piece. Per Caltrans requirements, all loads "over 15 feet in width, over 17 feet in height, over 135 feet in length, or on special hauling equipment which exceeds the Caltrans standard method of weight classification must be approved by special processing. Written route surveys are required from the applicant for heights greater than 17 feet."

A qualified building mover should be consulted to tour the building and provide recommendations regarding a potential move. Of course, the new site will be critical to know as it will determine the move route and obstacles to be addressed.

Below is Heritage's initial assessment of the relocation issues:

1. The Lockheed Martin Marine Terminal cannot be moved in one piece, so dismantling building elements above the foundation will be necessary.
2. The high-bay Maintenance Shop will need to be dismantled prior to the relocation. The windows, wall cladding, and T&G roof sheathing should be labelled and salvaged and the glulam posts and beams and steel tie-rod braces should be labelled and unbolted for transport.
3. Elements that can be moved in one piece will need to be detached. These include the north office wing and south shop wing.
4. Steel beams will likely be used under the non-dismantled portions to raise and support them during relocation.
5. The moving company would likely crane the detached elements onto flatbed trucks for transport.
6. Refer to Critical Structures' Structural Assessment dated June 5, 2020 regarding building weights and dismantling.
7. The marine railway, ramp, and pier would not be relocated.
8. Non-historic elements shall not be relocated, such as the added sheds and shade canopy.
9. The rail car for the Deep Quest submarine should be retained for display or donated.
10. Exterior door and window openings may need to be braced for the move.
11. The proposed route of the move is unknown at this time.
12. Depending on the route, the move would likely require utility accommodations of overhead lines by AT&T, Cox, MTS, and SDG&E. Signal lights and streetlights along the route will need to be turned or temporarily moved to accommodate the move. Bridges and underpasses may need to be avoided.
13. It would be nearly impossible to find a new site with a similar relationship to San Diego Bay, or any body of water. Even though the marine railway, ramp, and pier would not be retained and relocated, a new site should be selected that recreates the building's historic context as much as possible.
14. The orientation of the relocated building should match its current orientation, with the front door facing west, if possible.

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SUMMARY OF APPLICABLE STANDARDS AND GUIDELINES

Any work undertaken on the historic Lockheed Martin Marine Terminal, including the potential relocation and rehabilitation, must be completed in compliance with *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (*The Standards*). There are separate standards for acquisition, protection, stabilization, preservation, rehabilitation, restoration, and reconstruction. Rehabilitation has been identified as the likely treatment for the Lockheed Martin Marine Terminal due to an anticipated change in use.

Rehabilitation is defined as "the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values." The ten standards for rehabilitation are:

<u>Rehabilitation Standards</u>

1. *A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.*
2. *The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.*
3. *Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.*
4. *Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.*
5. *Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.*
6. *Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.*
7. *Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.*
8. *Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.*
9. *New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.*
10. *New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

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The Port District will use *The Standards* as a guideline for confirming the appropriateness of proposed rehabilitation work for the building. Rehabilitation work and proposed alterations and modifications to the building will also need to comply with the current California Building Code and the Americans with Disabilities Act (ADA). Additionally, since the Lockheed Martin Marine Terminal is a potential historical resource, the provisions of the California Historical Building Code are applicable for all future relocation and rehabilitation work.

Relocation:
A qualified mover shall outline the route, schedule, and sequence of the move as well as the means by which the Lockheed Martin Marine Terminal will be secured for the relocation. The Historic Architect/Monitor and City staff shall approve the plan prior to the relocation date.

Security:
The Lockheed Martin Marine Terminal has been vacant for many years. A chain link fence has failed to protect the building from vagrancy and vandalism. Security measures will be needed at the new site until it is occupied. Plywood shall be used over all window and door openings. The site should have a 6-foot tall chain-link fence. Monitoring and visual inspection of the exterior of the building must be provided. All salvaged items must be stored on labeled and wrapped pallets and secured in a weather-tight, lockable, steel container(s) that will be located at the new site.

Mothballing:
During temporary storage, and until the building is successfully rehabilitated, it shall be securely mothballed. Mothballing essentially means closing up the building temporarily to protect it from weather and vandalism. Mothballing would include adequately eliminating and controlling pests, protecting the interior from moisture, providing adequate security, ensuring adequate interior ventilation, and following a maintenance and monitoring plan to ensure that the building is adequately secured and routinely inspected. Mothballing will follow the recommendations in National Park Service *Preservation Brief 31: Mothballing Historic Buildings*.

Rehabilitation Design:
The future rehabilitation of the building, if pursued, shall be completed in accordance with *The Standards*. In addition, the design architect must meet the Secretary of the Interior's Professional Qualification Standards. The rehabilitation design will require review and approval by the City of San Diego's Development Services Department and the Historical Resources Board staff and/or Design Assistance Subcommittee.

Construction Monitoring:
Periodic construction monitoring shall be provided during the rehabilitation process. Following periodic site visits, the construction monitor shall provide a Consultant Site Visit Record summarizing the field conditions and any recommendations for compliance with *The Standards*.

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Photo 1: Primary facades of the terminal, looking southeast.

Photo 2: North façade of the terminal and office wing, looking south.

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Photo 3: East façade of the terminal from the pier, looking southwest.

Photo 4: North and east façades with the roll-up door, looking southwest.

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Photo 5: A shed added in 1968 (right) and added office shed (left) east of the terminal, looking south.

Photo 6: South façade of the shop wing with wood louvers, looking northeast.

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Photo 7: South façade with added shed, looking northeast.

Photo 8: West and south façades, looking northeast.

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Photo 9: Marine railway (foreground) and pier, looking north.

Photo 10: Marine railway from the pier, looking south.

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Photo 11: Steel rail car used to move the Deep Quest submarine, looking east.

Photo 12: South façade showing warped and weathered redwood siding, looking northeast.

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Photo 13: End view of the T&G redwood siding, looking east.

Photo 14: Detail of the north jalousie-style office windows and shade fins, looking south.

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Photo 15: Roof above the office wing covered with leaves and weeds, looking east.

Photo 16: Gravel-topped roof above the shop wing, looking southeast.

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Photo 17: Maintenance Shop, looking west. Note the partial mezzanine.

Photo 18: Maintenance Shop and roll-up door, looking northeast.

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Photo 19: Maintenance Shop, looking southeast.

Photo 20: Maintenance Shop, equipment and hoist controller below the mezzanine, looking northwest.

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Photo 21: Maintenance Shop, mezzanine and instruments booth, looking northwest.

Photo 22: Maintenance Shop, row of clerestory windows on the north facade, looking northwest.

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Photo 23: Maintenance Shop, exposed wood ceiling, work lights, and 5-ton hoist, looking northwest.

Photo 24: Detail of the opening mechanism for the clerestory windows. All windows open together.

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Photo 25: Maintenance Shop, equipment pit to operate the rail car, looking south.

Photo 26: Shop wing, looking southwest. Note the exposed roof framing.

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Photo 27: Shop wing, looking south. The green fiberglass panels are not original.

Photo 28: Office wing, looking northwest.

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