

Appendix G2

Low Impact Development



Thienes Engineering, Inc.

CIVIL ENGINEERING LAND SURVEYING



LOW IMPACT DEVELOPMENT (LID)

FOR:

SOUTH BAY INDUSTRIAL CENTER
N/E CORNER OF REDONDO BEACH BLVD. AND VERMONT AVE.
LOS ANGELES, CALIFORNIA 90247
APNs: 6120-001-013 & 6120-002-001, -002

OWNER:

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SEPTEMBER 6, 2019

JOB NO. 3491

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LOW IMPACT DEVELOPMENT (LID)

FOR

“SOUTH BAY INDUSTRIAL CENTER”



PREPARED BY LUIS PRADO
UNDER THE SUPERVISION OF:

REINHARD STENZEL
R.C.E. 56155
EXP. 12/31/2020

9/6/2019

DATE

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1.0 Project Description

The project site is located within the city of Los Angeles (Figure 1 - Vicinity Map), at APNs: 6120-001-013 & 6120-002-001, -002, of Los Angeles County. It's for light industrial use with a lot size of approximately 15.05 acres. It's located at the northeasterly corner of Redondo Beach Boulevard and Vermont Avenue.

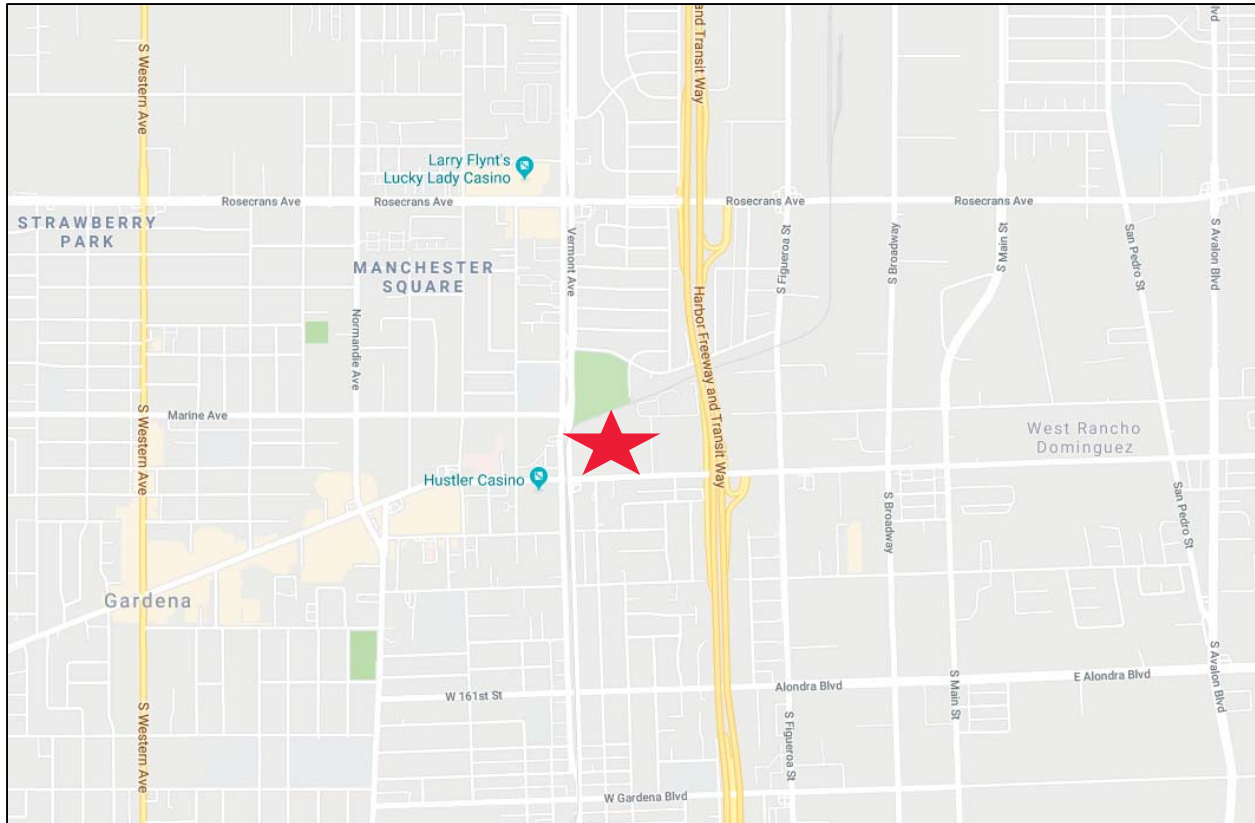


Figure 1 - Vicinity Map (North↑)

The proposed site is a Designated Project identified as a significant redevelopment where 50 percent or more of the impervious surface of a previously developed site is proposed to be altered and the previous development project was not subject to post-construction stormwater quality control measures. Hence, the entire development site must meet the requirements of the LID Standards Manual.

The project will treat stormwater runoff generated by the project through the use a capture and use BMP sized to treat the Stormwater Quality Design volume (SWQDv).

1.1 Existing Site Description

The project site currently consists of paved parking lots and several demolished industrial type buildings.

1.2 Proposed Site Description

The project site encompasses approximately 15.05 acres. Proposed improvements to the project site consist of one commercial type building of 315,298 square feet. There will be a truck yard on the north side of the building and vehicle parking lots on the east, south and west sides of the building. The remainder of the site will be reserved for landscaping.

The north half of the proposed building, the northerly truck yard, the north-westerly drive aisle and the westerly parking lot (Subareas 1A-2A, 9.70 acres) drain to catch basins in the drive aisle and truck yard. Runoff is then conveyed northerly via a proposed storm drain system to Project No. 74.

The south half of the proposed building, the southerly and easterly parking lots (Subareas 3A-4A, 4.90 acres) drain to catch basin in the parking lots. Runoff is then conveyed northerly via the same proposed storm drain system to Project No. 74.

The westerly landscape area fronting Vermont Avenue including the southerly landscaped area adjacent to Redondo Beach Boulevard (Subarea 1B, 0.45 acres) will surface drain to Redondo Beach Boulevard without being conveyed to the proposed capture and use BMP.

Before runoff discharges offsite, the SWQDv will be diverted to the proposed capture and use BMP. The captured stormwater will be utilized to irrigate the proposed onsite landscaping.

1.3 Infiltration Feasibility

Per the Water Board's Geotracker website, the easterly half of the project site, formerly known as the Pacific Electriccord Facility, manufactured electrical extension cords at the Site from 1961 to 2004. During manufacturing operations, copper wire and cleaning solvents were used and stored. These operations resulted in unauthorized discharges of contaminants into the subsurface, mainly volatile organic compounds (VOCs). VOCs such as tetrachloroethene (PCE) and trichloroethene (TCE) impacted soil and groundwater beneath the site and vicinity.

In 1988, metal-impacted soil was excavated from an alley outside the western side of the site. In 2005, approximately 123 tons of VOCs-impacted soil was excavated from a location in the northern western portion of the site and transported to a permitted offsite facility. Soil confirmation sampling done after the soil was removed showed no significant residual soil contamination at the Site.

To address groundwater contamination at the site and immediate vicinity, a cleanup plan has been submitted to the Regional Board. This plan is called Second Revised Remedial Action Plan

for Groundwater (RAP). The RAP proposes Monitored Natural Attenuation (MNA) to address PCE and TCE-impacted groundwater originating from the site. Refer to Appendix D for further details.

Under these circumstances, infiltration is not recommended. Instead, the project proposes a capture and use BMP sized to treat the Stormwater Quality Design volume (SWQDv).

2.0 Project Specific Requirements

The proposed site is a Designated Project identified as a significant redevelopment where 50 percent or more of the impervious surface of a previously developed site is proposed to be altered and the previous development project was not subject to post-construction stormwater quality control measures. Hence, the entire development site must meet the requirements of the LID Standards Manual.

2.1 Peak Storm Water Runoff Discharge Rates

Excerpt from “Hydrology Study” dated August 5, 2019, prepared by Thienes Engineering:

The proposed condition 50-year runoff from the project site (31.5 cfs) to Project No. 74 is higher than the allowable discharge (15.05 acres x 1.15 cfs/acre = 17.3 cfs). Detention in the northerly truck yard will be utilized to reduce overall proposed condition site discharge to below the allowable discharge.

Per detention calculations, approximately 5.1 cfs out of the proposed condition runoff tributary to the truck yard (20.1 cfs in Subareas 1A-2A) will be allowed to discharge via the proposed storm drain system. The remaining runoff of 15.0 cfs or 14,828 cubic feet will be detained in the truck yard at a depth of 1.27 ft or 48.20 W.S.E. Runoff from the remainder of the site (10.0 cfs from Subarea 3A + 1.4 cfs from Subarea 4A) will be allowed to discharge undetained via the proposed storm drain system. With detention in the truck yard, the total proposed condition 50-year discharge from the project site will be 16.5 cfs (5.1 cfs from Subareas 1A-2A + 10.0 cfs from Subarea 3A + 1.4 cfs from Subarea 4A), which is less than the allowable discharge of 17.3 cfs.

2.2 Source Controls

Source control measures are designed to prevent pollutants from contacting stormwater runoff or prevent discharge of contaminated stormwater runoff to the storm drain system and/or receiving water. This section describes structural-type, source control measures that must be considered for implementation in conjunction with appropriate nonstructural source control measures, such as good housekeeping and employee training, to optimize pollution prevention.

Source control measures should be implemented to the maximum extent practicable to mitigate pollutant mobilization from the project site in stormwater and non-stormwater runoff. A summary of the source control measures that should be implemented for each type of project is summarized below.

2.2.A Storm Drain Message and Signage (S-1)

All proposed and any existing inlets to remain will be stenciled with prohibitive language and/or graphical icons to prevent dumping. Legibility of the stencils/markers will be maintained on a yearly basis, or as needed.

2.2.B Outdoor Material Storage Area (S-2)

There are no proposed outdoor material storage areas for this project. Any and all materials will be stored indoors.

2.2.C Outdoor Trash Storage/Waste Handling Areas (S-3)

Trash enclosures will be located away from roof drainage. The bin's lid will remain closed when not in use and will be walled off.

2.2.D Outdoor Loading/Unloading Dock Area (S-4)

The proposed project will construct several loading docks. The concrete surface is designed to minimize run-on to the loading docks and will be treated by the capture and use BMP. Dock area flows are captured by inlets then conveyed through a hydrodynamic separator to filter out pollutants prior to entering the capture and use BMP. Additionally, the proposed building will be utilized as a warehouse for finished goods and consequently, items being loaded and unloaded do not have the potential to contribute to stormwater pollution.

2.2.F Outdoor Vehicle/Equipment Repair/Maintenance Area (S-5)

Not applicable

2.2.G Outdoor Vehicle/Equipment Accessory Wash Area (S-6)

Not applicable

2.2.H Fuel & Maintenance Area (S-7)

Not applicable

2.2.I Landscape Irrigation Practices (S-8)

Install irrigation systems that utilize a weather-based smart irrigation controller to minimize water usage and reduce dry weather urban runoff.

2.2.J Building Materials (S-9)

Alternative building materials could not be used in-lieu of traditional materials due to the nature of the project (industrial warehouse).

2.2.K Animal Care and Handling Facilities (S-10)

Not applicable

2.2.L Outdoor Horticulture Areas (S-11)

Not applicable

2.3 Low Impact Development (LID)

2.3.A Infiltration

Refer to section 1.3 Geotechnical Investigation/Infiltration Feasibility.

2.3.B Capture and Use

Since infiltration is not recommended due to groundwater contamination, the project proposes a capture and use BMP sized to treat the Stormwater Quality Design volume (SWQDv). See calculations below.

Per City of Los Angeles Infiltration Guidelines (Local Implementation of AB 1881).

Estimated Total Water Usage (ETWU) from October 1 through April 30:

ETWU = (ETo)(0.62)((PF x HA)/IE+SLA), where:

ETo = 21.7 (from October 1 through April 30)

PF = 0.3 (Native Drought Tolerant Plants)

HA = 68,244 square-feet

IE = 0.71

SLA = 0

ETWU = 387,953 gallons

SWQDv = (42,038 cu-ft)(7.48 gal/cu-ft) = 314,444 gallons per storm event

ETWU7-month > SWQDv (capture and use is feasible)

2.3.C Biofiltration

Not applicable, the project proposes a capture and use BMP sized to treat the Stormwater Quality Design volume (SWQDv)

2.4 Hydromodification

The proposed site is tributary to an engineered channel (Dominguez Channel) that is regularly maintained and is not susceptible to hydromodification impacts. In addition, the onsite water quality BMPs will assist in increasing the time of concentration and discharging flows at a controlled rate.

2.5 Conserve Natural Areas

During the subdivision design and approval process, the site layout must be consistent with the applicable General Plan and Local Area Plan policies and implement the following:

- *Concentrate or cluster development on portions of the site while leaving the remaining land in a natural undisturbed condition;*
- *Limit clearing and grading of native vegetation at the site to the minimum amount needed to build lots, allow access, and provide fire protection;*
- *Maximize trees and other vegetation at the site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants;*
- *Promote natural vegetation by using parking lot islands and other landscaped areas;*
- *Preserve riparian areas and wetlands.*

The property was previously developed with no natural areas to conserve.

2.6 Minimize Storm Water Pollutants of Concern

Stormwater runoff from a site has the potential to contribute oil and grease, suspended solids, metals, gasoline, pesticides, and pathogens to the stormwater conveyance system. The development must be designed so as to minimize, to the maximum extent practicable, the introduction of pollutants of concern that may result in significant impacts, generated from site runoff of directly connected impervious areas (DCIA), to the stormwater conveyance system as approved by the building official. Pollutants of concern, consist of any pollutants that exhibit one or more of the following characteristics: current loadings or historic deposits of the pollutant are impacting the beneficial uses of a receiving water, elevated levels of the pollutant are found in sediments of a receiving water and/or have the potential to bioaccumulate in organisms therein, or the detectable inputs of the pollutant are at concentrations or loads considered potentially toxic to humans and/or flora and fauna.

In meeting this specific requirement, “minimization of the pollutants of concern” will require the incorporation of a BMP or combination of BMPs best suited to maximize the reduction of pollutant loadings in that runoff to the Maximum Extent Practicable.

Anticipated pollutants generated from the proposed development are:

- Suspended Solids
- Total Phosphorus

- Total Nitrogen
- Total Kjeldahl Nitrogen
- Cadmium, Total
- Chromium, Total
- Copper, Total
- Lead, Total
- Zinc, Total

The receiving waters and their impairments are:

- Dominguez Channel (lined portion above Vermont Ave): Copper, Diazinon, Indicator Bacteria, Lead, Toxicity, and Zinc.
- Dominguez Channel Estuary (unlined portion below Vermont Ave): Benthic Community Effects, Benzo(a)pyrene (3-4-Benzopyrene-7-d), Benzo(a)anthracene, Chlordane (tissue), Chrysene (C1-C4), Copper, Indicator Bacteria, DDT (tissue & sediment), Dieldrin (tissue), Lead, PCBs (Polychlorinated biphenyls), Phenanthrene, Pyrene, Toxicity and Zinc (sediment).
- Los Angeles/Long Beach Inner Harbor: Beach Closures, Benthic Community Effects, Benzo(a)pyrene (3-4-Benzopyrene-7-d), Chrysene (C1-C4), Copper, DDT (Dichlorodiphenyltrichloroethane), PCBs (Polychlorinated biphenyls), Toxicity, and Zinc.

The pollutants of concern of the project site are:

- Heavy Metals
- Nutrients

The proposed project will treat stormwater runoff and disconnect runoff from impervious areas by means of a capture and use BMP.

2.7 Protect Slopes and Channels

Project plans must include BMPs consistent with local codes and ordinances and LID to decrease the potential of slopes and/or channels from eroding and impacting stormwater runoff:

- *Convey runoff safely from the tops of slopes and stabilize disturbed slopes.*
- *Utilize natural drainage systems to the maximum extent practicable.*
- *Control or reduce or eliminate flow to natural drainage systems to the maximum extent practicable.*
- *Stabilize permanent channel crossings.*
- *Vegetate slopes with native or drought tolerant vegetation.*
- *Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion, with the approval of all agencies with jurisdiction, e.g., the U.S. Army Corps of Engineers and the California Department of Fish and Game.*

The proposed project site is located on a flat terrain. There are no slopes, natural drainage systems, or channel crossings to protect.

2.8 Provide Proof of Ongoing BMP Maintenance

Improper maintenance is one of the most common reasons why water quality controls will not function as designed or which may cause the system to fail entirely. It is important to consider who will be responsible for maintenance of a permanent BMP, and what equipment is required to perform the maintenance properly. If Structural or Treatment Control BMPs are required or included in project plans, the applicant must provide verification of maintenance provisions through such means as may be appropriate, including, but not limited to legal agreements, covenants, CEQA mitigation requirements and/or Conditional Use Permits.

The verification will include the developer's signed statement, as part of the project application, accepting responsibility for all Structural and Treatment Control BMP maintenance until the time the property is transferred and, where applicable, a signed agreement from the public entity assuming responsibility for Structural or Treatment Control BMP maintenance. The transfer of property to a private or public owner must have conditions requiring the recipient to assume responsibility for maintenance of any Structural or Treatment Control BMP to be included in the sales or lease agreement for that property, and will be the owner's responsibility. The condition of transfer shall include a provision that the property owners conduct maintenance inspection of all Structural or Treatment Control BMPs at least once a year and retain proof of inspection. For residential properties where the Structural or Treatment Control BMPs are located within a common area, which will be maintained by a homeowner's association, language regarding the responsibility for maintenance must be included in the project's conditions, covenants and restrictions (CC&Rs). Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what stormwater management facilities are present, signs that maintenance is needed, how the necessary maintenance can be performed, and assistance that the Permittee can provide. The transfer of this information shall also be required with any subsequent sale of the property.

Structural or Treatment Control BMPs located within a public area proposed for transfer will be the responsibility of the developer until accepted for transfer by the appropriate public agency. Structural or Treatment Control BMPs proposed for transfer must meet design standards adopted by the public entity for the BMP installed and should be approved by the appropriate public agency prior to its installation.

The property owner/operator will maintain proof of ongoing maintenance at the site as recorded in the covenant and agreement (see Appendix C).

2.9 Design Standards for Structural or Treatment Controls BMPs

The project is required to incorporate appropriate stormwater mitigation measures into the design plan for the entire site. The proposed project will treat and mitigate flows per LID guidelines by effectively treating the pollutants of concern by means of a capture and use BMP.

2.10 Provisions Applicable to Individual Priority Project Categories

2.10.A Parking Lots

2.10.A.1 Properly Design Parking Area

Parking lots contain pollutants such as heavy metals, oil and grease, and polycyclic aromatic hydrocarbons that are deposited on parking lot surfaces by motor-vehicles. These pollutants are directly transported to surface waters. To minimize the offsite transport of pollutants, the following design criteria are required:

- *Reduce impervious land coverage of parking areas.*
- *Infiltrate runoff before it reaches storm drain system.*
- *Treat runoff before it reaches storm drain system.*

The proposed project is designed so that pollutants from the impervious surfaces are disconnected prior to discharging offsite. Runoff from the parking lots is conveyed to the capture and use BMP for treatment.

2.10.A.2 Properly Design to Limit Oil Contamination and Perform Maintenance

Parking lots may accumulate oil, grease, and water insoluble hydrocarbons from vehicle drippings and engine system leaks.

- *Treat to remove oil and petroleum hydrocarbons at parking lots that are heavily used (e.g. fast food outlets, lots with 25 or more parking spaces, sports event parking lots, shopping malls, grocery stores, discount warehouse stores).*
- *Ensure adequate operation and maintenance of treatment systems particularly sludge and oil removal, and system fouling and plugging prevention control.*

The project owner will ensure that grease and oil are contained. The parking lot will be swept on a monthly basis, minimum, and before any rain events. Absorbent materials will be used to collect any spilled oil, and disposed of properly, to ensure they do not contaminate stormwater. A hydrodynamic separator will be installed as pretreatment to the capture and use BMP. The oil baffle located inside the hydrodynamic separator is highly effective in the removal of hydrocarbons.

2.11 Waiver

A Permittee may, through adoption of an ordinance or code incorporating the treatment requirements of LID, provide for a waiver from the requirement if impracticability for a specific property can be established. A waiver of impracticability shall be granted only when all other Structural or Treatment Control BMPs have been considered and rejected as infeasible. Recognized situations of impracticability include, (i) extreme limitations of space for treatment on a redevelopment project, (ii) unfavorable or unstable soil conditions at a site to attempt

infiltration, and (iii) risk of ground water contamination because a known unconfined aquifer lies beneath the land surface or an existing or potential underground source of drinking water is less than 10 feet from the soil surface. Any other justification for impracticability must be separately petitioned by the Permittee and submitted to the Regional Board for consideration. The Regional Board may consider approval of the waiver justification or may delegate the authority to approve a class of waiver justifications to the Regional Board Executive Officer. The supplementary waiver justification becomes recognized and effective only after approval by the Regional Board or the Regional Board Executive Officer. A waiver granted by a Permittee to any development or redevelopment project may be revoked by the Regional Board Executive Officer for cause and with proper notice upon petition.

The proposed project does not require a waiver of impracticability from any LID conditions.

2.12 Mitigation Funding

The Permittees may propose a management framework, for endorsement by the Regional Board Executive Officer, to support regional or sub-regional solutions to storm water pollution, where any of the following situations occur:

- *A waiver for impracticability is granted;*
- *Legislative funds become available;*
- *Off-site mitigation is required because of loss of environmental habitat; or*
- *An approved watershed management plan or a regional storm water mitigation plan exists that incorporates an equivalent or improved strategy for storm water mitigation.*

No management framework for mitigation funding is necessary for the proposed project.

Funding will be the responsibility of the owner:

PROLOGIS

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ONTARIO, CA 91764

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CONTACT: SCOTT MULKAY

2.13 Limitation on Use of Infiltration BMPs

Three factors significantly influence the potential for storm water to contaminate ground water. They are (i) pollutant mobility, (ii) pollutant abundance in storm water, (iii) and soluble fraction of pollutant. The risk of contamination of groundwater may be reduced by pretreatment of storm water. A discussion of limitations and guidance for infiltration practices is contained in, Potential Groundwater Contamination from Intentional and Non-Intentional Stormwater Infiltration, Report No. EPA/600/R-94/051, USEPA (1994).

In addition, the distance of the groundwater table from the infiltration BMP may also be a factor determining the risk of contamination. A water table distance separation of ten feet depth in California presumptively poses negligible risk for storm water not associated with industrial activity or high vehicular traffic.

Infiltration BMPs are not recommended for areas of industrial activity or areas subject to high vehicular traffic (25,000 or greater average daily traffic (ADT) on main roadway or 15,000 or more ADT on any intersecting roadway) unless appropriate pretreatment is provided to ensure groundwater is protected and the infiltration BMP is not rendered ineffective by overload.

See Section 1.3 of this LID report for details.

2.14 Alternative Certification for Storm Water Treatment Mitigation

In lieu of conducting detailed BMP review to verify Structural or Treatment Control BMPs adequacy, a Permittee may elect to accept a signed certification from a Civil Engineer or a Licensed Architect registered in the State of California, that the plan meets the criteria established herein. The Permittee is encouraged to verify that certifying person(s) have been trained on BMP design for water quality, not more than two years prior to the signature date. Training conducted by an organization with storm water BMP design expertise (e.g., a University, American Society of Civil Engineers, American Society of Landscape Architects, American Public Works Association, or the California Water Environment Association) may be considered qualifying.

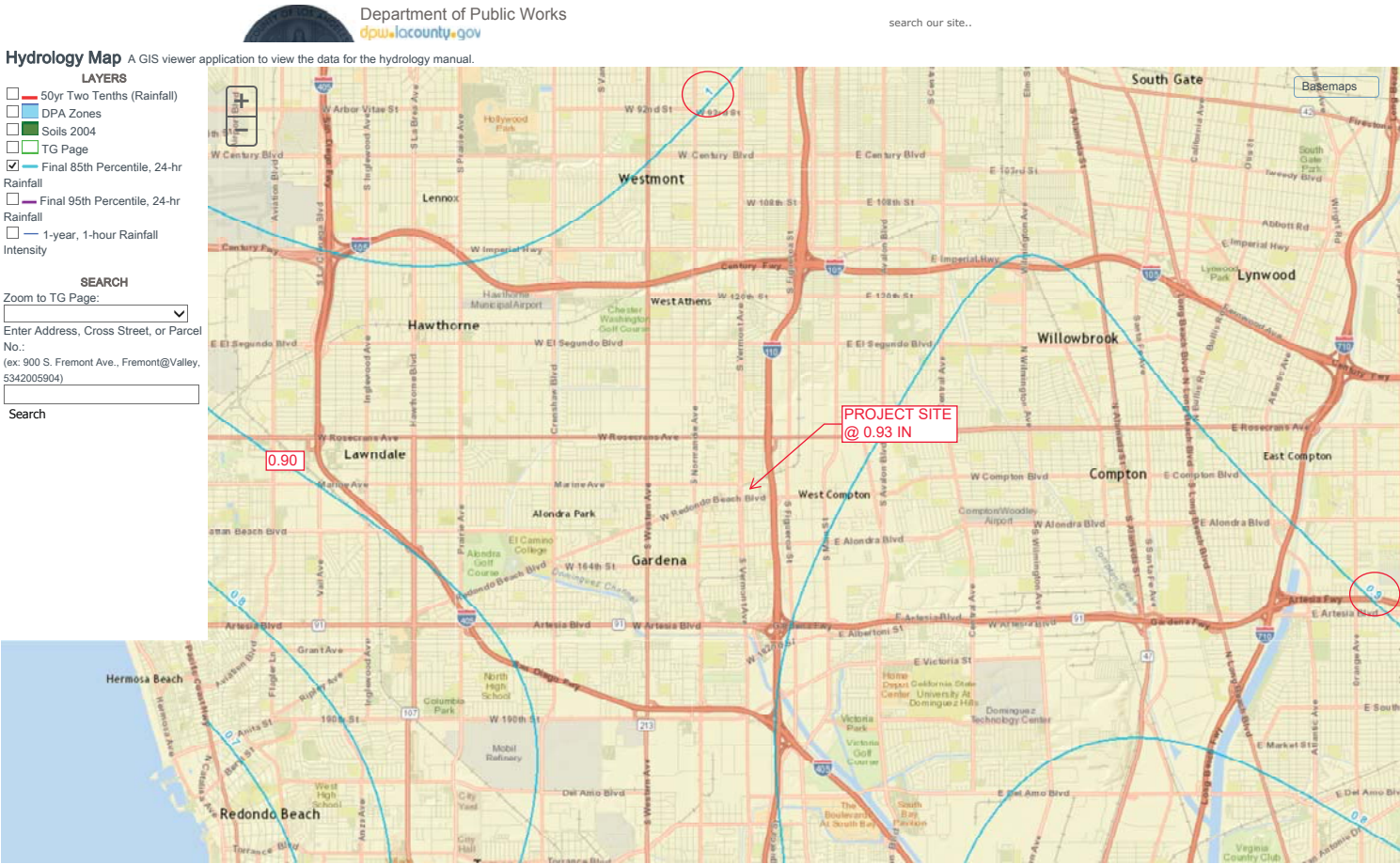
A California licensed civil engineer has provided a detailed BMP review of this report.

2.15 Resources and Reference

California Storm Water Best Management Practices Handbooks for Construction Activity (2009), Municipal (2003), and Industrial/Commercial (2003).

APPENDIX A

Stormwater Quality Design Calculations (SWQDv)



Peak Flow Hydrologic Analysis

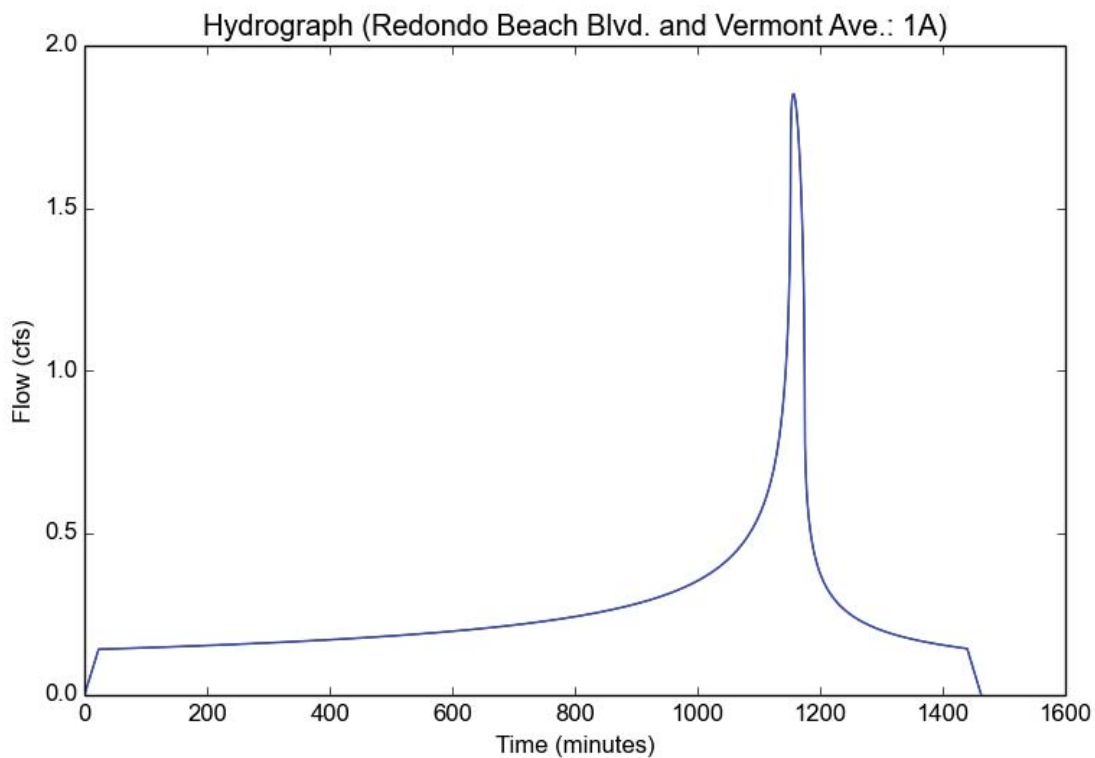
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	Redondo Beach Blvd. and Vermont Ave.
Subarea ID	1A
Area (ac)	7.95
Flow Path Length (ft)	460.0
Flow Path Slope (vft/hft)	0.0118
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.2708
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.86
Time of Concentration (min)	23.0
Clear Peak Flow Rate (cfs)	1.8516
Burned Peak Flow Rate (cfs)	1.8516
24-Hr Clear Runoff Volume (ac-ft)	0.5255
24-Hr Clear Runoff Volume (cu-ft)	22890.4298



Peak Flow Hydrologic Analysis

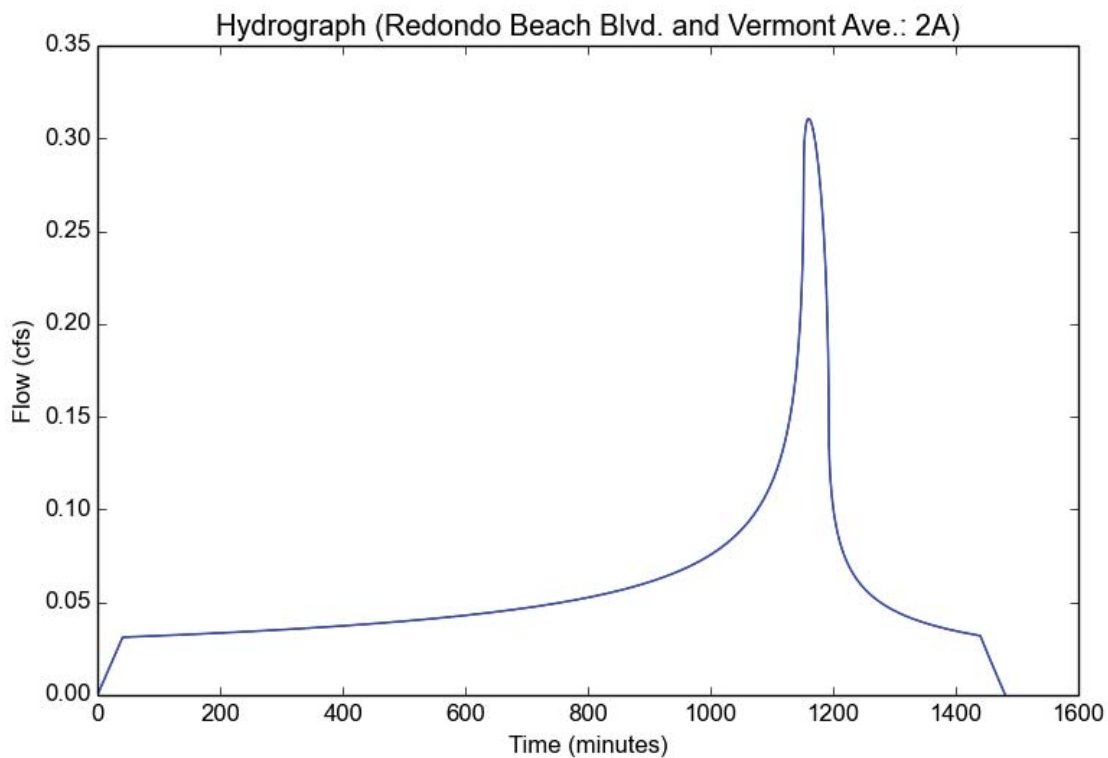
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	Redondo Beach Blvd. and Vermont Ave.
Subarea ID	2A
Area (ac)	1.75
Flow Path Length (ft)	721.0
Flow Path Slope (vft/hft)	0.0025
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.2064
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.86
Time of Concentration (min)	41.0
Clear Peak Flow Rate (cfs)	0.3106
Burned Peak Flow Rate (cfs)	0.3106
24-Hr Clear Runoff Volume (ac-ft)	0.1157
24-Hr Clear Runoff Volume (cu-ft)	5038.8488



Peak Flow Hydrologic Analysis

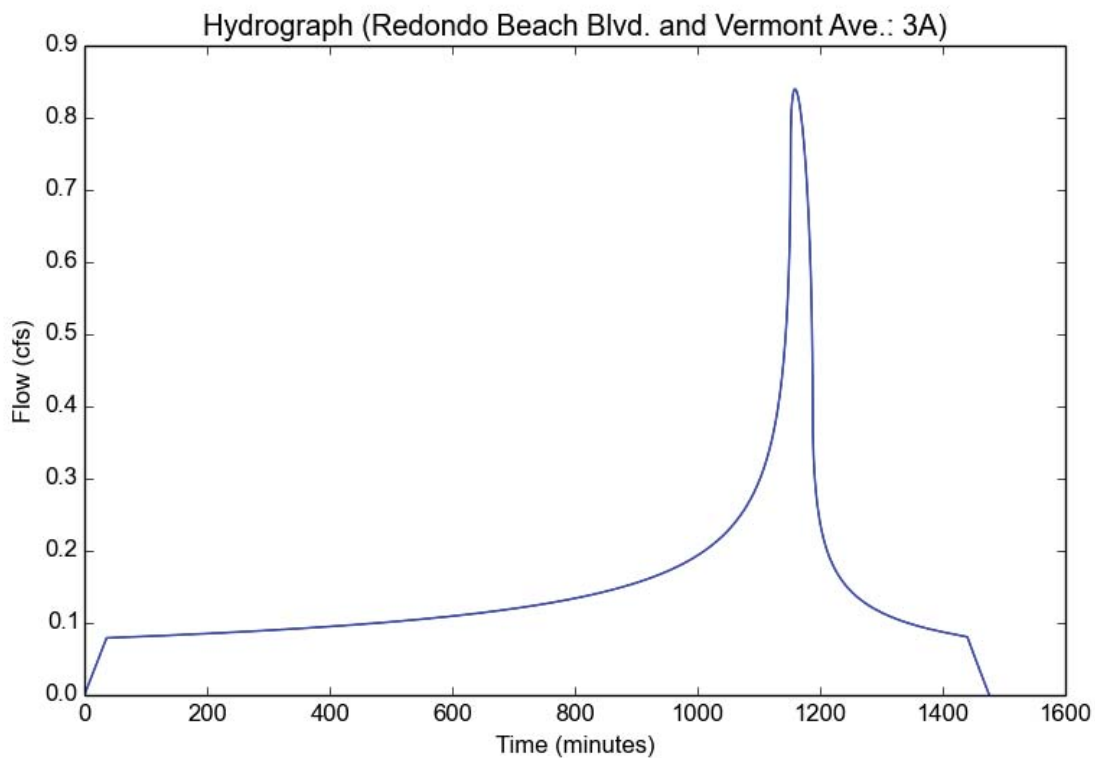
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	Redondo Beach Blvd. and Vermont Ave.
Subarea ID	3A
Area (ac)	4.45
Flow Path Length (ft)	846.0
Flow Path Slope (vft/hft)	0.0096
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.2194
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.86
Time of Concentration (min)	36.0
Clear Peak Flow Rate (cfs)	0.8397
Burned Peak Flow Rate (cfs)	0.8397
24-Hr Clear Runoff Volume (ac-ft)	0.2941
24-Hr Clear Runoff Volume (cu-ft)	12813.0087



Peak Flow Hydrologic Analysis

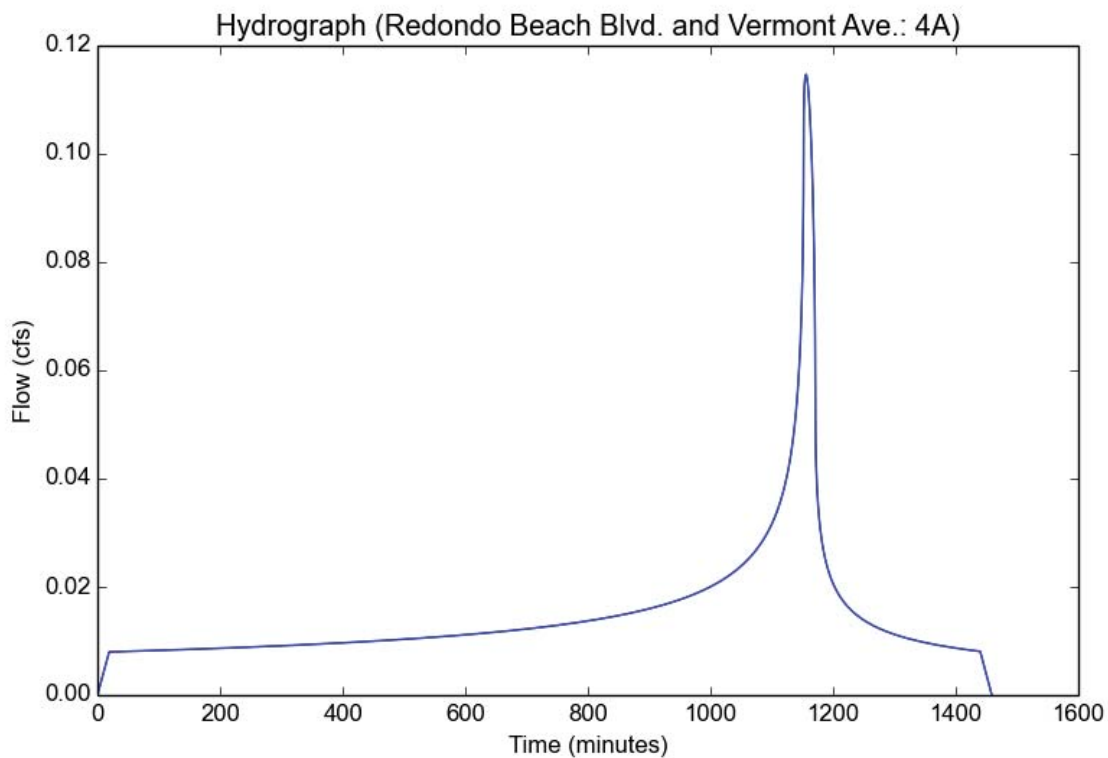
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Version: HydroCalc 1.0.3

Input Parameters

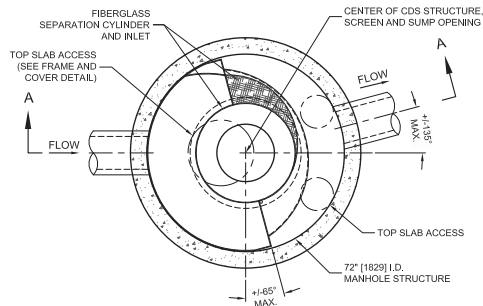
Project Name	Redondo Beach Blvd. and Vermont Ave.
Subarea ID	4A
Area (ac)	0.45
Flow Path Length (ft)	289.0
Flow Path Slope (vft/hft)	0.0072
85th Percentile Rainfall Depth (in)	0.93
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

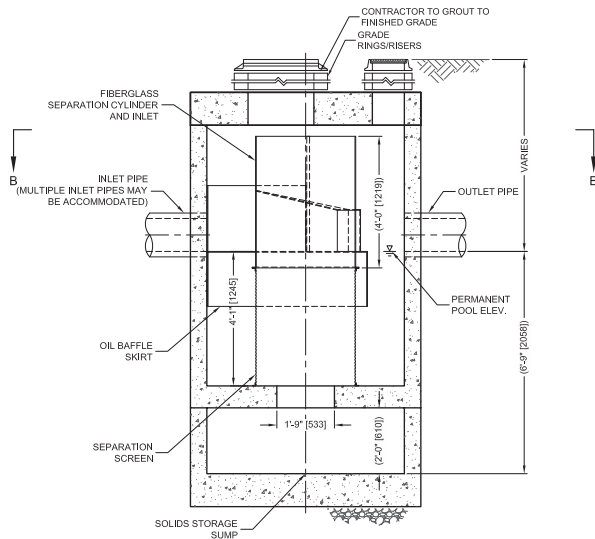
Modeled (85th percentile storm) Rainfall Depth (in)	0.93
Peak Intensity (in/hr)	0.2963
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.86
Time of Concentration (min)	19.0
Clear Peak Flow Rate (cfs)	0.1147
Burned Peak Flow Rate (cfs)	0.1147
24-Hr Clear Runoff Volume (ac-ft)	0.0297
24-Hr Clear Runoff Volume (cu-ft)	1295.6819



J:\STORMWATER\COMP\22 CDS\40 STANDARD DRAWINGS\IN LINE CDS\CONTECH\3035-6-C-DTL.DWG 5/13/2014 5:08 PM



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.



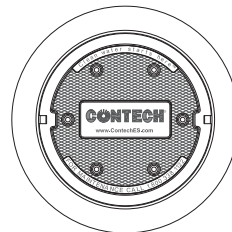
CDS3035-6-C DESIGN NOTES

CDS3035-6-C RATED TREATMENT CAPACITY IS 3.8 CFS [107.6 L/s] OR PER LOCAL REGULATIONS. MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY IS 20.0 CFS [566 L/s]. IF THE SITE CONDITIONS EXCEED 20.0 CFS [566 L/s], AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

THE STANDARD CDS3035-6-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION

GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)		*	
PEAK FLOW RATE (CFS OR L/s)		*	
RETURN PERIOD OF PEAK FLOW (YRS)		*	
SCREEN APERTURE (2400 OR 4700)		*	
PIPE DATA:		I.E.	MATERIAL
			DIAMETER
INLET PIPE 1		*	*
INLET PIPE 2		*	*
OUTLET PIPE		*	*
RIM ELEVATION		*	
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
- PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

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CDS3035-6-C
INLINE CDS
STANDARD DETAIL

NAME: SOUTHBAY INDUSTRIAL CENTER, LOS ANGELES, CA
STATION MODEL: SHSTV-2-(7K)-1.5-460-3-40-40
STATION TOTAL PERFORMANCE: 40 GPM @ 40 PSI
PUMP HORSEPOWER:
PUMP NO.1: 1 1/2 HP (3600RPM)
MIN SUGGESTED CIRCUIT BREAKER: 30 AMP
POWER REQUIREMENTS: 460V, 3PH, 60HZ, 7 FLA

PUMP WILL START VIA PRESSURE DROP SENSED IN WATER MAINLINE AND REGULATE A CONSTANT PRESSURE AT VARIABLE FLOW RATE. PUMP WILL RETIRE BASED UPON AN ADJUSTABLE MINIMUM WATER DEMAND (FLOW) AND SUSTAINED REGULATE PRESSURE.

LOW LEVEL ALARM MUST BE MANUALLY RESET FOR PUMP TO START.

PUMP SYSTEM WILL TOTALIZE ALL WATER PUMPED

DISCHARGE FILTRATION SHALL BE MANUAL FLUSH.

WATER IN STORAGE TANK IS ASSUMED TO BE FILLED

OWNER RESPONSIBLE FOR CITY WATER METER, BACK FLOW PREVENTER AND ANY OTHER REGULATING DEVICES THAT MAY BE REQUIRED. OWNER RESPONSIBLE FOR VERIFYING CITY WATER CAPACITY MUST SUPPLY A MIN 40 GPM @ 40 PSI TO RAINWATER CONTROL SKID, AND NOT EXCEED 125PSI.

OWNER RESPONSIBLE FOR CITY WATER METER, BACK FLOW PREVENTER AND ANY OTHER REGULATING DEVICES THAT MAY BE REQUIRED. OWNER RESPONSIBLE FOR VERIFYING CITY WATER CAPACITY MUST SUPPLY A MIN 40 GPM @ 40 PSI TO RAINWATER CONTROL SKID, AND NOT EXCEED 125PSI.

SYSTEM SHALL HAVE THE FOLLOWING ALARMS AT MINIMUM

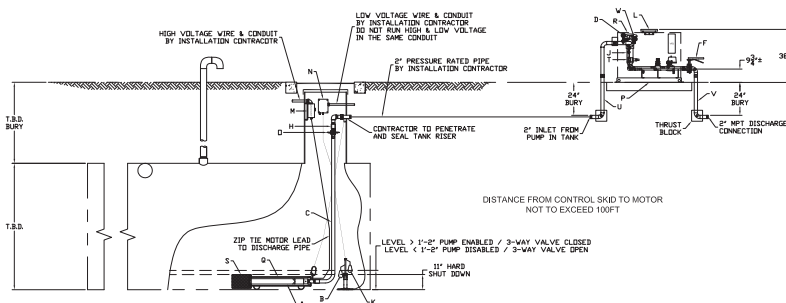
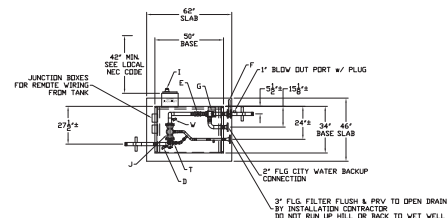
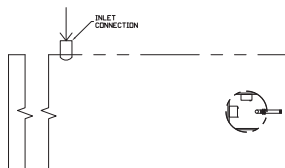
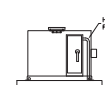
- HIGH DISCHARGE PRESSURE
- LOW DISCHARGE PRESSURE
- VFD FAULT
- LOW LEVEL SHUT DOWN (HARD FAULT)
- LOSS OF PHASE OR PHASE REVERSAL
- HIGH VOLTAGE
- LOW VOLTAGE

- CONTROL PANEL TO OPERATOR
- MULTI-LINE LCD OPERATOR INTERFACE
- FLOW SENSOR DISPLAY AND TOTALIZER
- PSI DISPLAY AND SET POINT
- PUMP RUNNING STATUS & RUN-TIME HRS
- USER ABILITY TO ADJUST ALL SYSTEM PARAMETERS
- VFD PRESSURE REGULATION FOR ENERGY EFFICIENCY
- BRANCH CIRCUIT PROTECTION
- UL 508 LISTED ELECTRICAL PANEL ASSEMBLY
- NON-FUSABLE MAIN DISCONNECT

- A 1 1/2 HP PUMP AND MOTOR
- B LOW LEVEL FLOAT SWITCH
- C 100 PSI PRESSURE DISCHARGE VALVE
- D PRESSURE TRANSDUCER w/ GAUGE
- E PUMP FLOW SENSOR
- F 24" DIAMETER ISOLATION VALVE
- G BACK UP WATER 3-WAY VALVE
- H CHECK VALVE
- I DISCONNECT ENCLOSURE
- J MANUAL FILTER w/ 100 MICRON SCREEN
- K 3-WAY ISOLATE FLOAT SWITCH
- L 1/2" HOOD MOUNT ENGINE FAN
- M NEMA 4X REMOTE DISCONNECT
- N 120 VOLTAGE JUNCTION BOX
- O QUICK CONNECT
- P PAINTED STEEL BASE (CASTSTONE)
- Q PAINTED STEEL INDOOR SLEEVE FOR MOTOR
- R 120 VOLT DISCONNECT
- S PAINTED STEEL ENCLOSURE (CASTSTONE)
- T 1/2" PUMP FLANGE SCREEN
- U PRESSURE RELIEF VALVE
- V 1" MPT INLET DROP PIPE
- W PRESSURE DISCHARGE DROP PIPE
- X PRESSURE RELIEF VALVE

3-WAY VALVE FLOAT: 14 AWG (2) COND.
LEVEL FLOAT: 14 AWG (2) COND.
MOTOR WIRE: 10 AWG (3) COND. PLUS GROUND

DO NOT RUN MOTOR WIRE IN SAME CONDUIT AS LEVEL
SENSOR WIRE.



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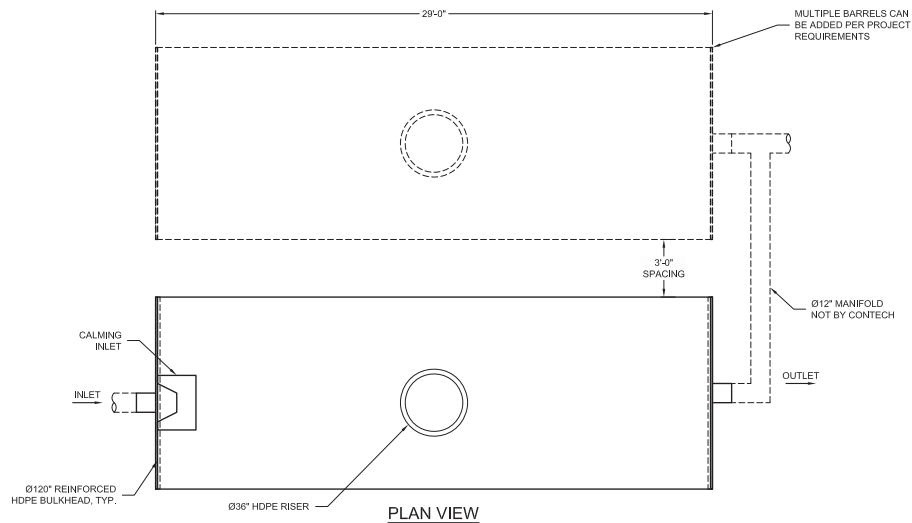
HADY	DATE	REVISION DESCRIPTION

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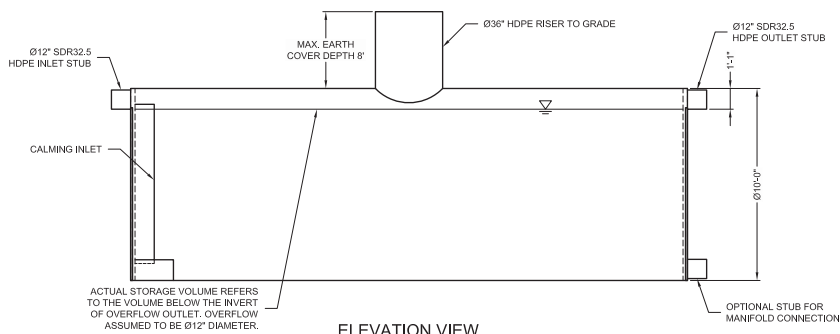
UrbanGreen RWH MECHANICAL SYSTEM - 553103-030
SOUTH BAY INDUSTRIAL CENTER
LOS ANGELES, CA
SITE DESIGNATION: OUTDOOR ENCLOSURE

PROJECT No:	SEQ. No.:	DATE:
553103	030	11/22/16
DESIGNED:	DRAWN:	
KET	N/A	
CHECKED:	APPROVED:	
—	—	
SHEET NO:		
1 OF 1		



ASSEMBLY
SCALE: 1" = 5'

TOTAL CISTERN VOLUME: 16,503 GAL. (2,206 C.F.)
ACTUAL STORAGE VOLUME: 15,492 GAL.
ESTIMATED HEAVIEST PICK WEIGHT = 4,750 LBS.
LOADING: H20/H25



NOTES

- MULTIPLE TANK LAYOUTS AVAILABLE.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM D3350.
- ALL RISERS AND STUBS ARE HIGH DENSITY POLYETHYLENE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- FLOTATION CONTROL IS CRITICAL AND THE RESPONSIBILITY OF THE INSTALLER. THE INFORMATION IS SUBMITTED AS A GUIDELINE ONLY. CONTECH IS NOT RESPONSIBLE FOR THE USE AND INTERPRETATION OF THIS INFORMATION.
- ALL TANKS ARE TESTED FOR WATERTIGHTNESS PRIOR TO SHIPMENT.

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If discrepancies between the supplied information upon which the drawing is based and actual field conditions are encountered on site work programs, these discrepancies must be reported to Corbitt immediately for consideration of the design. Corbitt accepts no liability for designs based on missing, inaccurate or incomplete information supplied by others.

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Ø120" URBANGREEN RWH SRPE CISTERN
Ø120" X 29' LONG
16,500 GAL

PROJECT No.: ---	SEQ. No.: ---	DATE: 2/10/16
DESIGNED: DRA	DRAWN: ASB	
CHECKED:	APPROVED:	
SHEET NO.: 1 OF 4		

SCOPE

DESCRIPTION

MATERIAL PROPERTIES
VIRGIN HIGH DENSITY POLYETHYLENE PRESSURE-RATED RESINS ARE USED TO MANUFACTURE DUROMAXX PIPE. RESINS SHALL CONFORM TO THE MINIMUM REQUIREMENTS OF CELL CLASSIFICATION 345464 C AS DEFINED AND DESCRIBED IN THE LATEST VERSION OF ASTM D3350 "STANDARD SPECIFICATION FOR POLYETHYLENE PLASTICS PIPE AND FITTINGS MATERIALS".

FITTINGS

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

INSTALLATION

INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321 "PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS" ALONG WITH PRODUCT-SPECIFIC RECOMMENDATIONS CONTAINED IN CONTECH INSTALLATION GUIDELINES FOR DUROMAXX PIPE.

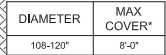
INSTALLATION

PRE-CONSTRUCTION MEETING

INSTALLATION OF PIPE:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR PROJECT ENGINEER TO ENSURE THAT ALL QUESTIONS ABOUT INSTALLATION ARE ADDRESSED PRIOR TO APPROVAL OF SYSTEM. ALL DETAILS FOR INSTALLATION ARE LOCATED IN THIS DRAWING PACKAGE ANY QUESTIONS CONCERNING THESE STANDARD DETAILS CAN BE ADDRESSED BY YOUR CONTECH REPRESENTATIVE PRIOR TO APPROVAL.

BACKFILL SHALL BE PLACED TO THE PROPER ELEVATION OVER THE SYSTEM AS OUTLINED IN THE PLANS. MINIMUM COVER FOR CONSTRUCTION LOADING NEEDS TO BE DETERMINED BASED ON THE TYPE OF EQUIPMENT THAT IS PLANNED FOR CONSTRUCTION. PROPER COVER FOR CONSTRUCTION EQUIPMENT SHALL BE DETERMINED PRIOR TO THE PRE-CONSTRUCTION MEETING BY THE ENGINEER.



*FOR INITIAL BACKFILL USE ASTM D2321, CLASS I, II MATERIAL.

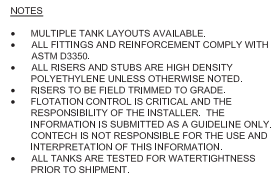
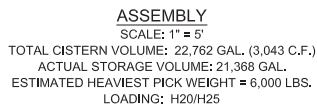
- ① MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER PIPE. MIN. WIDTH = $(1.25 \times \text{DIAMETER}) + 12"$ (FOLLOW ASTM D2321)
- ② MINIMUM EMBANKMENT WIDTH IS 3 PIPE DIAMETERS.
- ③ FOUNDATION SHALL BE WELL CONSOLIDATED & STABLE.
- ④ BEDDING MATERIAL SHALL BE A RELATIVELY LOOSE MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 4" TO 6" IN DEPTH.
- ⑤ DUPOMAXX STEEL REINFORCED (SRPE) PIPE.
- ⑥ INITIAL BACKFILL FOR PIPE EMBEDMENT MATERIAL TO MEET ASTM D2321 CLASS 1 OR APPROVED EQUAL, COMPACTED TO 90% STANDARD PROCTOR (NATIVE MATERIAL CAN BE UTILIZED THAT MEETS ASTM D2321 OR APPROVED EQUAL).
 - ALL LIFTS PLACED IN CONTROLLED MANNER, TO PREVENT UNEVEN LOADING, IT IS RECOMMENDED THAT LIFTS NOT EXCEED 8" UNCOMPACTED LIFT HEIGHTS.
- ⑦ HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION.
- ⑧ INITIAL BACKFILL ABOVE PIPE MAY INCLUDE ROAD BASE MATERIAL AND RIGID PAVEMENT, MINIMUM COVER STILL APPLIES, OTHERWISE: 18" MINIMUM FOR PIPE DIAMETERS 108" - 120"
- ⑨ HEIGHT OF COMPACTION COVER PER DIAMETER FOR CONVENTIONAL HIGHWAY LOADS (DISTANCE MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT):
 - 8" MINIMUM FOR PIPE DIAMETERS 120" - 144"

NOTES:

- GEOTEXTILE SHALL BE USED AS REQUIRED TO PREVENT SOIL MIGRATION.
- FOR MULTIPLE BARREL INSTALLATION THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE = PIPE DIA./2 OR 3' FOR PIPE DIAMETERS 72" AND LARGER. CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING.
- BACKFILL REQUIREMENTS SHALL FOLLOW ASTM D2321. IN THE EVENT OF DISCREPANCIES, ASTM D2321 SHALL SUPERCEDE THIS DETAIL.

1 BACKFILL DETAIL
2 SCALE: N.T.S.

[illegible]



						Ø120" URBANGREEN RW# SRPE CISTERN Ø120" X 40' LONG 22,500 GAL		<table><tr><td>PROJECT No.</td><td>DES. No.</td><td>DATE</td></tr><tr><td>---</td><td>---</td><td>2/10/16</td></tr><tr><td>DRAWN BY</td><td>CHECKED BY</td><td>APPROVED BY</td></tr><tr><td>DRB</td><td>ASB</td><td></td></tr><tr><td colspan="3">SHEET No. 1 OF 4</td></tr></table>		PROJECT No.	DES. No.	DATE	---	---	2/10/16	DRAWN BY	CHECKED BY	APPROVED BY	DRB	ASB		SHEET No. 1 OF 4		
PROJECT No.	DES. No.	DATE																						
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SHEET No. 1 OF 4																								
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MARK	DATE	REVISION	DESCRIPTION	BY																				

CONTECH ENGINEERED SOLUTIONS LLC 200 ENTERPRISE DRIVE, SCARBOROUGH, ME 04074 877-907-8676 207-885-9830 207-885-9625 FAX

SPECIFICATION FOR STEEL REINFORCED POLYETHYLENE PIPE

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE STEEL REINFORCED POLYETHYLENE PIPE DETAILED IN THE PROJECT PLANS.

DESCRIPTION

DUROMAXX IS A REINFORCED POLYETHYLENE PIPE WITH A SMOOTH WATERWAY WALL AND EXTERIOR PROFILE THAT IS REINFORCED WITH HIGH STRENGTH GALVANIZED STEEL RIBS. THE CONTINUOUS REINFORCING RIBS ARE COMPLETELY ENCASED WITHIN THE POLYETHYLENE PROFILE. DUROMAXX IS MANUFACTURED USING A HELICAL WINDING PROCESS THAT RESULTS IN A CONTINUOUSLY FUSION WELDED CIRCUMFERENTIAL LAP SEAM. THE PIPE PROFILE IS MANUFACTURED USING A HIGH QUALITY PRESSURE-RATED THERMOPLASTIC MEETING THE REQUIREMENTS OF ASTM F2562 "STANDARD SPECIFICATION FOR STEEL REINFORCED THERMOPLASTIC RIBBED PIPE AND FITTINGS FOR NON-PRESSURE DRAINAGE AND SEWERAGE". FOR THE PURPOSE OF HYDRAULIC DESIGN, THE RECOMMENDED MANNING'S "N" VALUE SHALL BE 0.012 FOR PIPE DIAMETERS INCLUDED WITHIN THIS SPECIFICATION. PIPE LENGTH & ALL DIMENSIONS SHOWN ARE SUBJECT TO MANUFACTURERS TOLERANCES OF ±1% ACCORDING TO ASTM F2562.

MATERIAL PROPERTIES

VIRGIN HIGH DENSITY POLYETHYLENE PRESSURE-RATED RESINS ARE USED TO MANUFACTURE DUROMAXX PIPE. RESINS SHALL CONFORM TO THE MINIMUM REQUIREMENTS OF CELL CLASSIFICATION 345464 C AS DEFINED AND DESCRIBED IN THE LATEST VERSION OF ASTM D3350 "STANDARD SPECIFICATION FOR POLYETHYLENE PLASTICS PIPE AND FITTINGS MATERIALS".

FITTINGS

ALL FITTINGS SHALL BE FABRICATED FROM DUROMAXX PIPE. ANY FITTINGS 30" AND BELOW WILL BE HDPE PIPE.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

INSTALLATION

INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321 PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS' ALONG WITH PRODUCT-SPECIFIC RECOMMENDATIONS CONTAINED IN CONTECH INSTALLATION GUIDELINES FOR DUROMAXX PIPE.

INSTALLATION

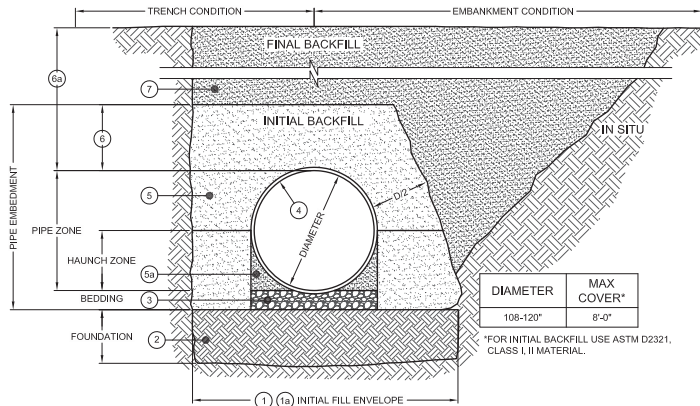
PRE-CONSTRUCTION MEETING

PRIOR TO INSTALLATION OF THE DRAINAGE SYSTEM A PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED. THOSE REQUIRED TO ATTEND ARE THE SUPPLIER OF THE DRAINAGE SYSTEM, THE GENERAL CONTRACTOR, SUB CONTRACTORS AND THE ENGINEER.

INSTALLATION OF PIPE

IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR PROJECT ENGINEER TO ENSURE THAT ALL QUESTIONS ABOUT INSTALLATION ARE ADDRESSED PRIOR TO APPROVAL OF SYSTEM. ALL DETAILS FOR INSTALLATION ARE LOCATED IN THIS DRAWING PACKAGE ANY QUESTIONS CONCERNING THESE STANDARD DETAILS CAN BE ADDRESSED BY YOUR CONTECH REPRESENTATIVE PRIOR TO APPROVAL.

BACKFILL SHALL BE PLACED TO THE PROPER ELEVATION OVER THE SYSTEM AS OUTLINED IN THE PLANS. MINIMUM COVER FOR CONSTRUCTION LOADING NEEDS TO BE DETERMINED BASED ON THE TYPE OF EQUIPMENT THAT IS PLANNED FOR CONSTRUCTION. PROPER COVER FOR CONSTRUCTION EQUIPMENT SHALL BE DETERMINED PRIOR TO THE PRE-CONSTRUCTION MEETING BY THE ENGINEER.



- 1 MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER PIPE. MIN. WIDTH = (1.25 x DIAMETER) + 12" (FOLLOW ASTM D2321)
- 1a MINIMUM EMBANKMENT WIDTH IS 3 PIPE DIAMETERS.
- 2 FOUNDATION SHALL BE WELL CONSOLIDATED & STABLE.
- 3 BEDDING MATERIAL SHALL BE A RELATIVELY LOOSE MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 4" TO 6" IN DEPTH.
- 4 DUROMAXX STEEL REINFORCED (SRPE) PIPE.
- 5 INITIAL BACKFILL FOR PIPE EMBEDMENT MATERIAL TO MEET ASTM D2321 CLASS I OR APPROVED EQUAL, COMPACTED TO 90% STANDARD PROCTOR (NATIVE MATERIAL CAN BE UTILIZED THAT MEETS ASTM D2321 OR APPROVED EQUAL).
 - ALL LIFTS PLACED IN CONTROLLED MANNER. TO PREVENT UNEVEN LOADING, IT IS RECOMMENDED THAT LIFTS NOT EXCEED 8" UNCOMPACTED LIFT HEIGHTS.
- 5a HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION.
- 6 INITIAL BACKFILL ABOVE PIPE MAY INCLUDE ROAD BASE MATERIAL AND RIGID PAVEMENT. MINIMUM COVER STILL APPLIES. OTHERWISE: 18" MINIMUM FOR PIPE DIAMETERS 108" - 120"
- 6a HEIGHT OF COMPACTED COVER PER DIAMETER FOR CONVENTIONAL HIGHWAY LOADS (DISTANCE MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT): 36" MINIMUM FOR PIPE DIAMETERS 120"
- 7 FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS PER THE PROJECT PLANS, SPECIFICATIONS, ENGINEER OF RECORD.

NOTES:

- GEOTEXTILE SHALL BE USED AS REQUIRED TO PREVENT SOIL MIGRATION.
- FOR MULTIPLE BARREL INSTALLATION THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE = PIPE DIA/2 OR 3' FOR PIPE DIAMETERS 72" AND LARGER. CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING.
- BACKFILL REQUIREMENTS SHALL FOLLOW ASTM D2321. IN THE EVENT OF DISCREPANCIES, ASTM D2321 SHALL SUPERCEDE THIS DETAIL.

1 BACKFILL DETAIL
2 SCALE: N.T.S.

The design and fabrication shown on this drawing is provided as a service to the customer. The design and fabrication are the responsibility of the customer. The customer is responsible for ensuring that the design and fabrication are in accordance with the applicable codes and standards. The customer is responsible for ensuring that the design and fabrication are in accordance with the applicable codes and standards. The customer is responsible for ensuring that the design and fabrication are in accordance with the applicable codes and standards.

MARK	DATE	REVISION DESCRIPTION	BY

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URBANGREEN

Ø120" URBANGREEN RWH SRPE CISTERN

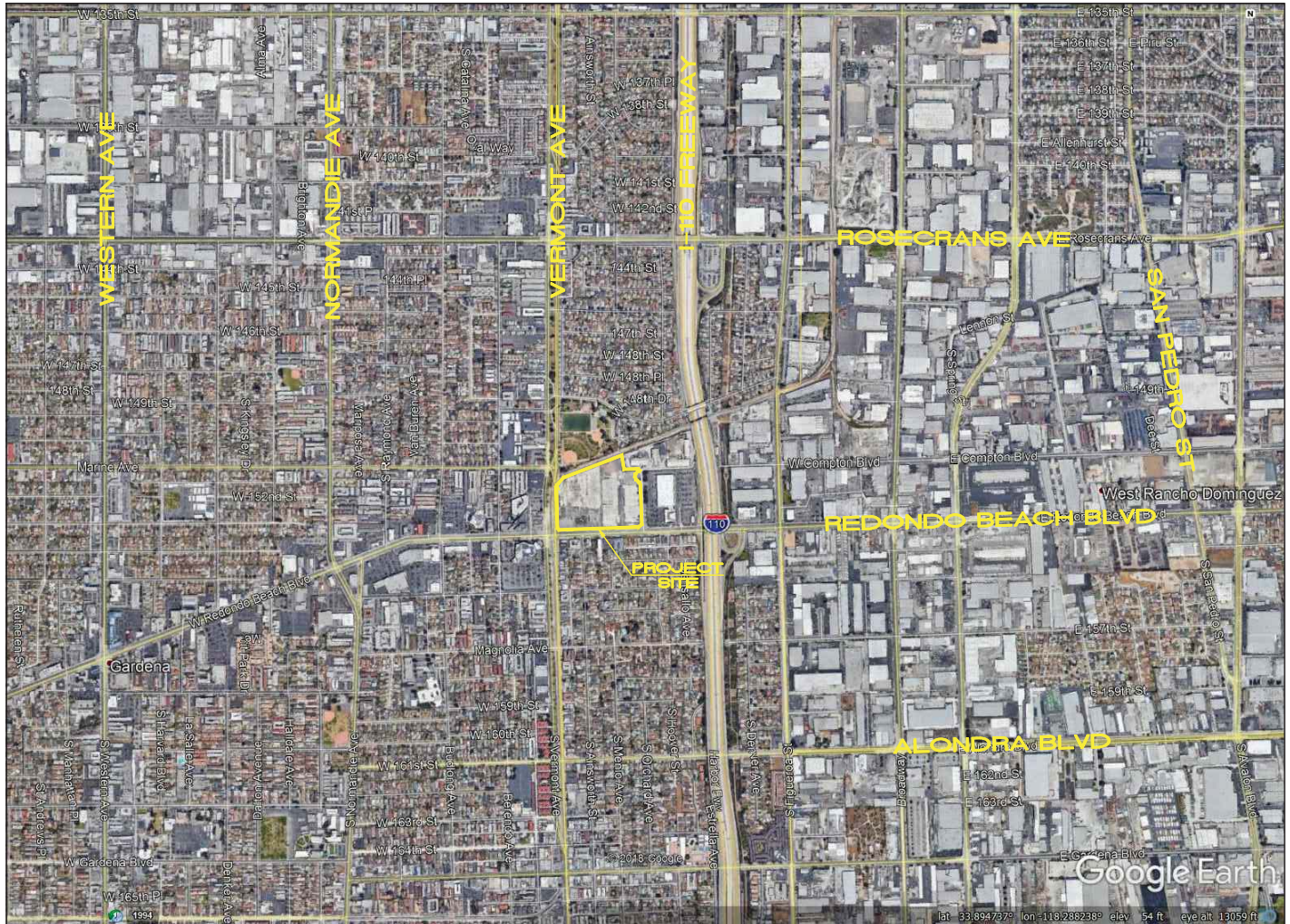
Ø120" X 40' LONG

22,500 GAL

PROJECT No:	SEQ. No:	DATE:
DESIGNED:	DRA	2/10/16
CHECKED:	ASB	
APPROVED:		
SHEET No:	2	OF 4

APPENDIX B

LID Site Plan

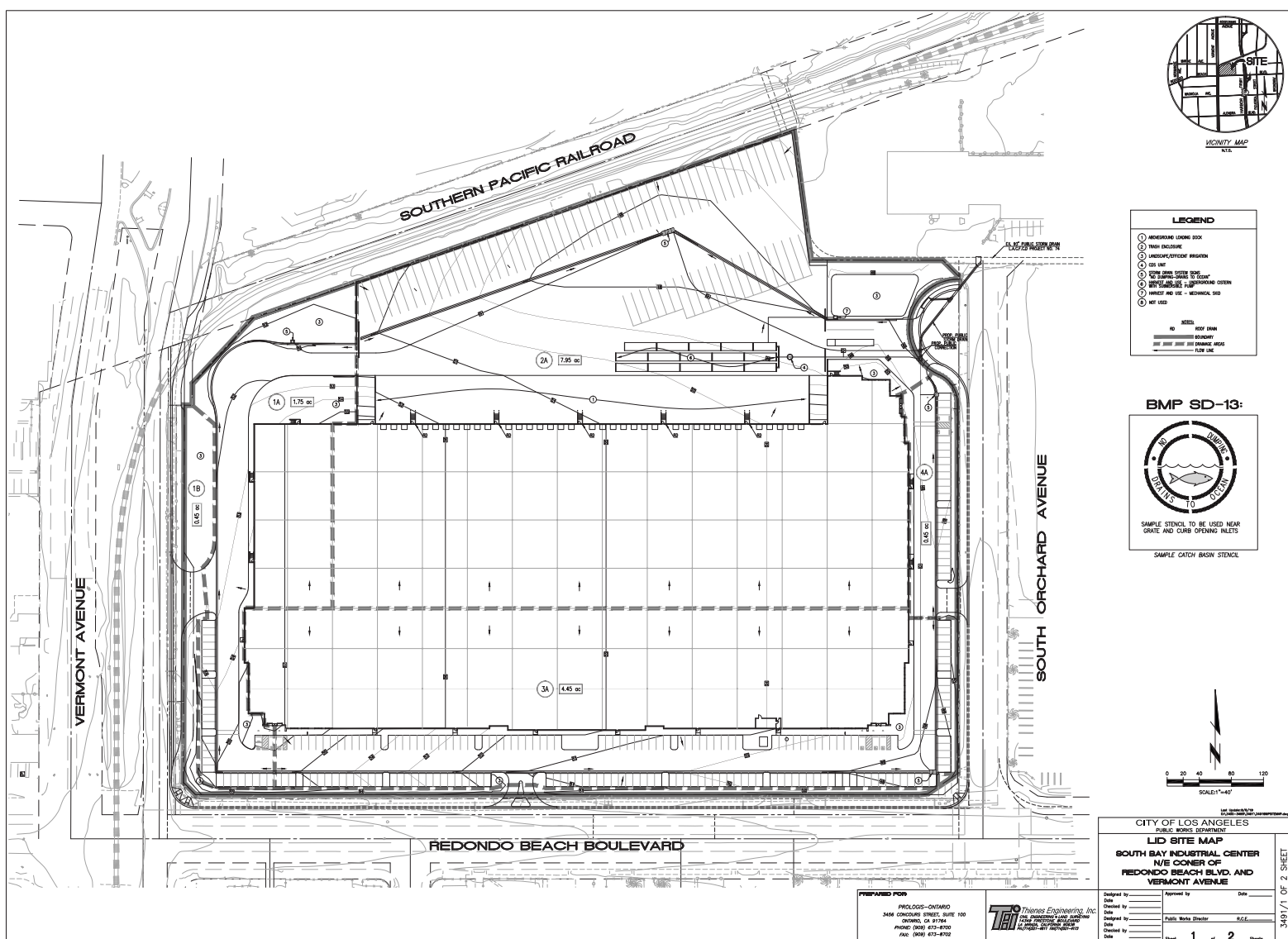


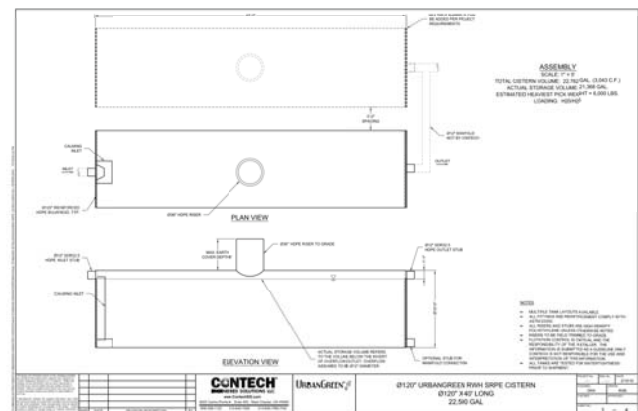
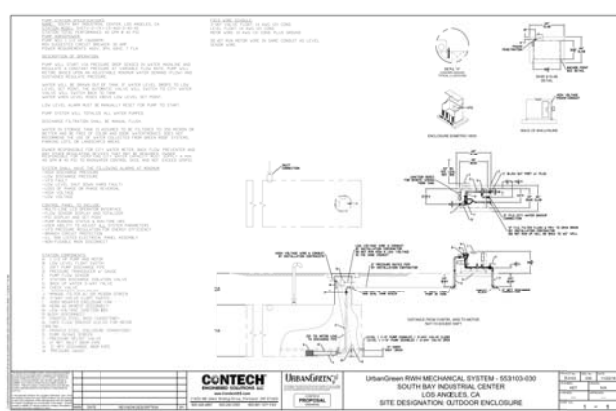
TH Thienes Engineering, Inc.
 CIVIL ENGINEERING • LAND SURVEYING
 14349 FIRESTONE BOULEVARD
 LA MIRADA, CALIFORNIA 90638
 PH: (714) 521-4811 FAX: (714) 521-4173

"VICINITY MAP"
 FOR

REDONDO BEACH BLVD. AND VERMONT AVE.
 LOS ANGELES, CA







APPENDIX C

Maintenance Agreement

INSTRUCTIONS FOR FILING COVENANT AND AGREEMENT FORMS

1. Provide 8.5" x 11" Plot Plan showing location and size of all stormwater Best Management Practices (BMPs) – Exhibit 1.
2. Fill out, in BLACK INK ONLY, one copy of the Covenant and Agreement Form.
3. Property owner(s) must print and sign their name(s) – **SIGNATURE(S) MUST BE NOTARIZED.**
4. Submit the completed Covenant & Agreement (C&A) Form to Bureau of Sanitation for review. Upon approval, Bureau of Sanitation will provide Operation and Maintenance (O&M) Plan(s) and sign the Covenant and Agreement.
5. Record the C&A Form and the O&M Plan with the Los Angeles County Registrar-Recorder and obtain a certified copy. County Recorder located at:
 - 1) 12400 Imperial Highway
Norwalk, CA 90650
(Near the intersection of the 5 and 605 freeways)
 - 2) 14340 Sylvan Street
Van Nuys, CA 91401
(Near Van Nuys City Hall)
 - 3) 11701 S. La Cienega Blvd., 6th Floor
Los Angeles, CA 90045
(LAX Courthouse)
6. Return the certified copy of the recorded form to the Bureau of Sanitation requiring the covenant (should be a purple stamp on the back of the last page of document recorded).

NO FINAL APPROVAL/CLEARANCE WILL BE GRANTED WITHOUT BUREAU OF SANITATION RECEIPT OF THE CERTIFIED COPY OF THE C&A, PLOT PLAN AND O&M PLAN.

Recording requested by and mail to:

Name: Prologis

Address: 3456 Concourse Street, Suite 100

Ontario, CA 91764

***** Space Above This Line For Recorder's Use *****

MASTER COVENANT AND AGREEMENT

REGARDING ON-SITE STORMWATER MITIGATION MEASURES AND MAINTENANCE

I (We), the undersigned, hereby certify that I am (we are) the owner(s) of the hereinafter legally described real property ("Property") located in the City of Los Angeles, County of Los Angeles, State of California (please give the legal description):

LEGAL DESCRIPTION

ASSESSOR'S ID# 6120-001-013 and 6120-002-001, -002 TRACT NO. _____ BLOCK NO. _____ LOT NO _____

Site Address Redondo Beach Boulevard and Vermont Avenue, Los Angeles, CA 90247

In consideration of the City of Los Angeles allowing a re-development for a commercial type building of 315,298 square feet development on said Property, I (we) do hereby covenant and agree to install, operate and maintain in a good operable condition at all times, at my (our) sole cost, all on-site stormwater Best Management Practices (BMPs) per approved plans. The location and type of each BMP feature installed on the Subject Property is identified on the site diagram attached hereto as Exhibit 1. I (we) shall maintain, in accordance with the attached Operation & Maintenance Plan (Attachment 1), the following on-site stormwater BMPs:

- ☐ Rain Tank (min 55 gal): # of barrels _____; _____ total gallons, with minimum of _____ Sq. Ft of vegetated landscaping
- ☒ Rain Tank / Cistern: # of tanks / cistern 1; 331,500 total gallons, with minimum of 68,244 Sq. Ft of vegetated landscaping
- ☐ Porous pavement/pavers: _____ Sq. Ft (for incidental rainfall); and / or _____ Sq. Ft. with _____ ft sub base
- ☐ Rain Garden (lined): # of rain gardens _____; _____ total Sq. Ft. ☐ Dry Well: _____ Cu. Ft.
- ☐ Rain Garden (unlined): # of rain gardens _____; _____ total Sq. Ft. ☐ Infiltration Trench: _____ Cu. Ft.
- ☐ Flow Thru Planter: # of planters _____; _____ total Sq. Ft. ☐ Green Roof: _____ Sq. Ft.
- ☐ Other: _____

Owner further covenants and agrees that the above-described stormwater device(s) shall not be removed from the Subject Property unless a revised Plan is approved by the Bureau of Sanitation. In the event that any portion of the above-specified on-site stormwater pollution removal device(s) or BMPs is modified, I (we) shall immediately provide the Bureau of Sanitation of the City of Los Angeles with a revised Plan for their approval, and sign and record a Supplemental Covenant and Agreement, specifying all of the on-site stormwater pollution removal device(s) and BMPs, as modified (along with a modified O&M Plan). No Supplemental Covenant and Agreement shall, in any way, limit or diminish my (our) General Maintenance Obligation.

This Master Covenant and Agreement, and all obligations herein, shall run with the Property and shall be binding upon any future owners, encumbrancers, their successors, heirs or assigns and shall continue in effect until the Bureau of Sanitation approves the termination hereof.

Owner further covenants and agrees that if Owner hereafter sells the Subject Property, Owner shall provide printed educational materials to the buyer regarding the stormwater device(s) that are located on the Subject Property, including the type(s) and location(s) of all such devices, and instructions for properly maintaining all such devices.

(Print Name of Property Owner)

(Print Name of Property Owner)

(Signature of Property Owner)

(Signature of Property Owner)

Dated this _____ day of _____ 20____.

Dated this _____ day of _____ 20____.

(PLEASE ATTACH NOTARY ACKNOWLEDGEMENT)

***** Space Below This Line For Bureau Internal Use *****

Permit No. _____

Approved for recording by: Department of Public Works, Bureau of Sanitation

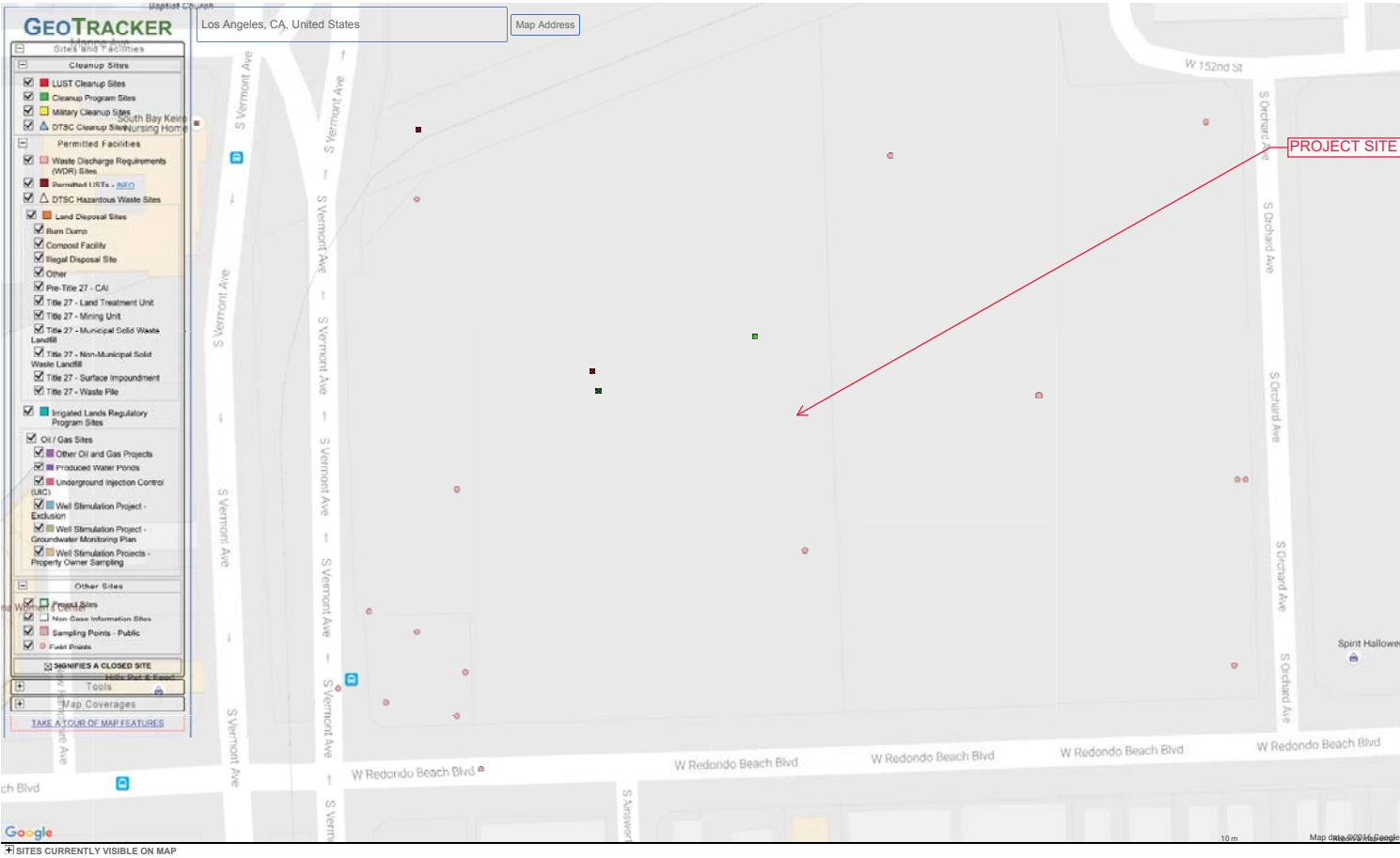
(Print Name) Engineering Associate

(Signature)

Date: _____

APPENDIX D

Infiltration Feasibility





State of California
California Environmental Protection Agency
Los Angeles Regional Water Quality Control Board

FACT SHEET AND NOTICE OF OPPORTUNITY TO COMMENT

Environmental Investigation and Cleanup

Former Pacific Electriccord Facility

747 West Redondo Beach Boulevard

Los Angeles, California

September 2016

Si necesita información en español, por favor llame a Luis Changkuon al (213) 576-6667

This fact sheet provides information on the status of environmental investigations and cleanup in the general vicinity of the Former Pacific Electriccord Facility, 747 West Redondo Beach Boulevard, Los Angeles, California (Site, Figure 1). Investigations are being conducted by APA III, Ltd (APA), under the direction of the Los Angeles Regional Water Quality Control Board (Regional Board).

At this time, the Regional Board is providing an opportunity for public review and comment on a document called "Second Revised Remedial Action Plan for Groundwater" (RAP). Information about the cleanup method proposed in the RAP is outlined in this fact sheet.

Background

Pacific Electriccord manufactured electrical extension cords at the Site from 1961 to 2004. During manufacturing operations, copper wire and cleaning solvents were used and stored. These operations resulted in unauthorized discharges of contaminants into the subsurface, mainly volatile organic compounds (VOCs). VOCs are chemical compounds found in cleaning solvents and other products, and used in industrial operations. VOCs such as tetrachloroethene (PCE) and trichloroethene (TCE) impacted soil and groundwater beneath the Site and vicinity. Currently the Site is vacant and all manufacturing buildings have been removed.

Investigation Activities

Site investigations began in 1998. Petroleum hydrocarbons, metals (chromium, nickel and copper), PCE and TCE were detected in soil. PCE and TCE were also detected in groundwater.

VOCs in groundwater can evaporate, allowing vapors to travel upward through the soil and potentially into indoor air in the buildings above. This process is called vapor intrusion.

Data from the VOCs concentrations in soil vapor was used to evaluate potential cancer risks to human health from vapor intrusion from below the ground into indoor air. The assessment indicated that the cancer risk from vapor intrusion is below the State regulatory level for a residential land use scenario.

Six groundwater monitoring wells have been installed to monitor changes in the groundwater plume originating from the Site. Figure 1 shows the concentration of PCE in groundwater at the Site and vicinity as of December 2015.

Groundwater beneath the Site is not being used as a source of community drinking water. Public tap water is provided by the Los Angeles Department of Water and Power.



Figure 1: Site Location Map showing PCE concentrations in groundwater

Cleanup Activities to Date

In 1988, metal-impacted soil was excavated from an alley outside the western side of the Site. In 2005, approximately 123 tons of VOCs-impacted soil was excavated from a location in the northern western portion of the Site and transported to a permitted offsite facility. Soil confirmation sampling done after the soil was removed showed no significant residual soil contamination at the Site.

Cleanup Plan

To address groundwater contamination at the Site and immediate vicinity, a cleanup plan has been submitted to the Regional Board. This plan is called Second Revised Remedial Action Plan for Groundwater (RAP).

The RAP proposes Monitored Natural Attenuation (MNA) to address PCE and TCE-impacted groundwater originating from the Site. MNA is a remedy that monitors the results of natural processes occurring in the subsurface which reduce the levels of contaminants in groundwater. The RAP estimates 5 to 8 years for current PCE and TCE levels in groundwater to reach their respective California drinking water Maximum Contaminant Level of 5 g/L, which is the proposed cleanup goal. If the cleanup goal is not reached within the estimated timeframe, the Regional Board will require APA to implement other alternatives to address the contaminants in groundwater.

Opportunity for Public Comment

The Regional Board is providing this Notice of Opportunity to Comment on the proposed RAP. The Regional Board will make a final decision to approve or require revision of the RAP after the public and interested parties have had a chance to review and comment.

Your participation is encouraged. The proposed RAP can be found on the internet at:

http://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5273115694/SL0603729001.PDF

Please submit written comments postmarked on or before **October 31, 2016**, to:

Luis Changkuon, Project Manager
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013

You may also email your written comments to:
luis.changkuon@waterboards.ca.gov

Information Repositories

Project related reports and correspondences are available for public review on the internet at the following link:

http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL0603729001

The complete administrative file for the Site is available at the Regional Board's office:

320 West 4th Street, Suite #200
Los Angeles, CA 90013

By appointment, please contact:

Laura Gallardo
(213) 576-6636 (phone)
(213) 576-6676 (fax)
RB4-PublicRecords@waterboards.ca.gov

Contacts

If you would like more information about this Site, please contact:

Luis Changkuon, Project Manager
(213) 576-6667
luis.changkuon@waterboards.ca.gov

Susana Lagudis, Public Participation
(213) 576-6694
susana.lagudis@waterboards.ca.gov

Figure 3
Proposed Soil Vapor Sample Locations

Former Pacific Electriccord
747 W Redondo Beach Blvd.
Los Angeles, CA

