Appendix B:
Biological Resources Supporting Information

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B.1 - Database Search Results

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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Mare Island (3812213) OR Cordelia (3812222) OR Briones Valley (3712282) OR Richmond (3712283) OR Benicia (3812212) OR Petaluma Point (3812214) OR Cuttings Wharf (3812223) OR Sears Point (3812224) OR San Quentin (3712284))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Adela oplerella Opler's longhorn moth	IILEE0G040	None	None	G2	S2	
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Amorpha californica var. napensis Napa false indigo	PDFAB08012	None	None	G4T2	S2	1B.2
Amsinckia lunaris bent-flowered fiddleneck	PDBOR01070	None	None	G3	S3	1B.2
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Archoplites interruptus Sacramento perch	AFCQB07010	None	None	G2G3	S1	SSC
Arctostaphylos pallida pallid manzanita	PDERI04110	Threatened	Endangered	G1	S1	1B.1
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Asio flammeus short-eared owl	ABNSB13040	None	None	G5	S3	SSC
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Blennosperma bakeri Sonoma sunshine	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
Blepharizonia plumosa big tarplant	PDAST1C011	None	None	G1G2	S1S2	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G2	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branta hutchinsii leucopareia cackling (=Aleutian Canada) goose	ABNJB05035	Delisted	None	G5T3	S3	WL
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calochortus pulchellus Mt. Diablo fairy-lantern	PMLIL0D160	None	None	G2	S2	1B.2
Calochortus tiburonensis Tiburon mariposa-lily	PMLIL0D1C0	Threatened	Threatened	G1	S1	1B.1
Calystegia purpurata ssp. saxicola coastal bluff morning-glory	PDCON040D2	None	None	G4T2T3	S2S3	1B.2
Carex lyngbyei Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
Castilleja affinis var. neglecta Tiburon paintbrush	PDSCR0D013	Endangered	Threatened	G4G5T1T2	S1S2	1B.2
Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1	None	None	G3T1T2	S1S2	1B.1
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
Chloropyron molle ssp. molle soft salty bird's-beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAPI0M051	None	None	G5T4T5	S2?	2B.1
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Cirsium andrewsii Franciscan thistle	PDAST2E050	None	None	G3	S3	1B.2
Coastal Brackish Marsh Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Coastal Terrace Prairie Coastal Terrace Prairie	CTT41100CA	None	None	G2	S2.1	
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	Candidate	None	G4T2T3	S2S3	
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2T3	S3	
Dipodomys heermanni berkeleyensis Berkeley kangaroo rat	AMAFD03061	None	None	G4T1	S1	
Dirca occidentalis western leatherwood	PDTHY03010	None	None	G2	S2	1B.2
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eriogonum luteolum var. caninum Tiburon buckwheat	PDPGN083S1	None	None	G5T2	S2	1B.2
Eryngium jepsonii Jepson's coyote-thistle	PDAPI0Z130	None	None	G2	S2	1B.2
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Fissidens pauperculus minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.2
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Helianthella castanea Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
Helminthoglypta nickliniana bridgesi Bridges' coast range shoulderband	IMGASC2362	None	None	G3T1	S1S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Hesperolinon congestum Marin western flax	PDLIN01060	Threatened	Threatened	G1	S1	1B.1
Hoita strobilina Loma Prieta hoita	PDFAB5Z030	None	None	G2?	S2?	1B.1
Holocarpha macradenia Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
Hydroprogne caspia Caspian tern	ABNNM08020	None	None	G5	S4	
Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
Isocoma arguta Carquinez goldenbush	PDAST57050	None	None	G1	S1	1B.1
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G3G4	S3S4	
Lasiurus cinereus hoary bat	AMACC05030	None	None	G3G4	S4	
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3T1	S1	FP
Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Leptosiphon jepsonii Jepson's leptosiphon	PDPLM09140	None	None	G2G3	S2S3	1B.2
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Masticophis lateralis euryxanthus Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
Meconella oregana Oregon meconella	PDPAP0G030	None	None	G2G3	S2	1B.1
Melospiza melodia maxillaris Suisun song sparrow	ABPBXA301K	None	None	G5T3	S3	SSC
Melospiza melodia pusillula Alameda song sparrow	ABPBXA301S	None	None	G5T2?	S2S3	SSC
Melospiza melodia samuelis San Pablo song sparrow	ABPBXA301W	None	None	G5T2	S2	SSC
Microcina leei Lee's micro-blind harvestman	ILARA47040	None	None	G1	S1	
Microcina tiburona Tiburon micro-blind harvestman	ILARA47060	None	None	G1	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Microtus californicus sanpabloensis San Pablo vole	AMAFF11034	None	None	G5T1T2	S1S2	SSC
Nannopterum auritum double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Northern Maritime Chaparral Northern Maritime Chaparral	CTT37C10CA	None	None	G1	S1.2	
Northern Vernal Pool Northern Vernal Pool	CTT44100CA	None	None	G2	S2.1	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S3	SSC
Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Pentachaeta bellidiflora white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
Plagiobothrys glaber hairless popcornflower	PDBOR0V0B0	None	None	GX	SX	1A
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Polygonum marinense Marin knotweed	PDPGN0L1C0	None	None	G2Q	S2	3.1
Rallus obsoletus obsoletus California Ridgway's rail	ABNME05011	Endangered	Endangered	G3T1	S1	FP
Rana boylii foothill yellow-legged frog	AAABH01050	None	Endangered	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Serpentine Bunchgrass Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Sorex ornatus sinuosus Suisun shrew	AMABA01103	None	None	G5T1T2Q	S1S2	SSC
Sorex vagrans halicoetes salt-marsh wandering shrew	AMABA01071	None	None	G5T1	S1	SSC
Spergularia macrotheca var. longistyla long-styled sand-spurrey	PDCAR0W062	None	None	G5T2	S2	1B.2
Speyeria callippe callippe callippe silverspot butterfly	IILEPJ6091	Endangered	None	G5T1	S1	
Speyeria zerene sonomensis Sonoma zerene fritillary	IILEPJ6083	None	None	G5T1	S1	
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Streptanthus glandulosus ssp. niger Tiburon jewelflower	PDBRA2G0T0	Endangered	Endangered	G4T1	S1	1B.1
Suaeda californica California seablite	PDCHE0P020	Endangered	None	G1	S1	1B.1
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Syncaris pacifica California freshwater shrimp	ICMAL27010	Endangered	Endangered	G2	S2	
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thaleichthys pacificus eulachon	AFCHB04010	Threatened	None	G5	S2	
Trifolium amoenum two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Triquetrella californica coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Viburnum ellipticum oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3
Xanthocephalus xanthocephalus yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 121

CNPS Rare Plant Inventory

California Native Plant Society

Search Results

13 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [**1A:1B:2A:2B:3**] Fed List is one of [**FE:FT:FC**] **or** State List is one of [**CE:CT:CR:CE:CT**] , 9-Quad include [**3812222:3712282:3712283:3812212:3812213:3812214:3812223:3812224:3712284**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Arctostaphylos pallida	pallid manzanita	Ericaceae	perennial evergreen shrub	Dec-Mar	FT	CE	G1	S1	1B.1	No Photo Available
Blennosperma bakeri	Sonoma sunshine	Asteraceae	annual herb	Mar-May	FE	CE	G1	S1	1B.1	No Photo Available
Calochortus tiburonensis	Tiburon mariposa-lily	Liliaceae	perennial bulbiferous herb	Mar-Jun	FT	CT	G1	S1	1B.1	No Photo Available
Castilleja affinis var. *neglecta*	Tiburon paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Jun	FE	CT	G4G5T1T2	S1S2	1B.2	No Photo Available
Chloropyron molle ssp. *molle*	soft salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Nov	FE	CR	G2T1	S1	1B.2	No Photo Available
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	Apr-Jul	FT	CT	G1	S1	1B.1	 © 2009 Neal Kramer
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	FT	CE	G1	S1	1B.1	 © 2011 Dylan Neubauer
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	FE	None	G1	S1	1B.1	 © 2013 Neal Kramer
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	No Photo Available
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	FE	CE	G1	S1	1B.1	No Photo Available
Streptanthus glandulosus ssp. *niger*	Tiburon jewelflower	Brassicaceae	annual herb	May-Jun	FE	CE	G4T1	S1	1B.1	No Photo Available

Suaeda californica	California seablite	Chenopodiaceae	perennial evergreen shrub	Jul-Oct	FE	None	G1	S1	1B.1	No Photo Available
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	FE	None	G1	S1	1B.1	No Photo Available

Showing 1 to 13 of 13 entries

Suggested Citation:
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IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Contra Costa County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse Reithrodontomys raviventris Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Clapper Rail Rallus longirostris obsoletus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern Sterna antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Northern Spotted Owl Strix occidentalis caurina Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) Masticophis lateralis euryxanthus Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/5524	Threatened

Amphibians

NAME	STATUS

California Red-legged Frog Rana draytonii — Threatened
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/2891

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus	Threatened

Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/321

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus	Candidate

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9743

Crustaceans

NAME	STATUS
California Freshwater Shrimp Syncaris pacifica	Endangered

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7903

Conservancy Fairy Shrimp Branchinecta conservatio — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/8246

Flowering Plants

NAME	STATUS
Contra Costa Goldfields Lasthenia conjugens	Endangered

Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/7058

Soft Bird's-beak Cordylanthus mollis ssp. mollis Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/8541

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird

species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Black Oystercatcher Haematopus bachmani This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591	Breeds Apr 15 to Oct 31
Black Turnstone Arenaria melanocephala This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

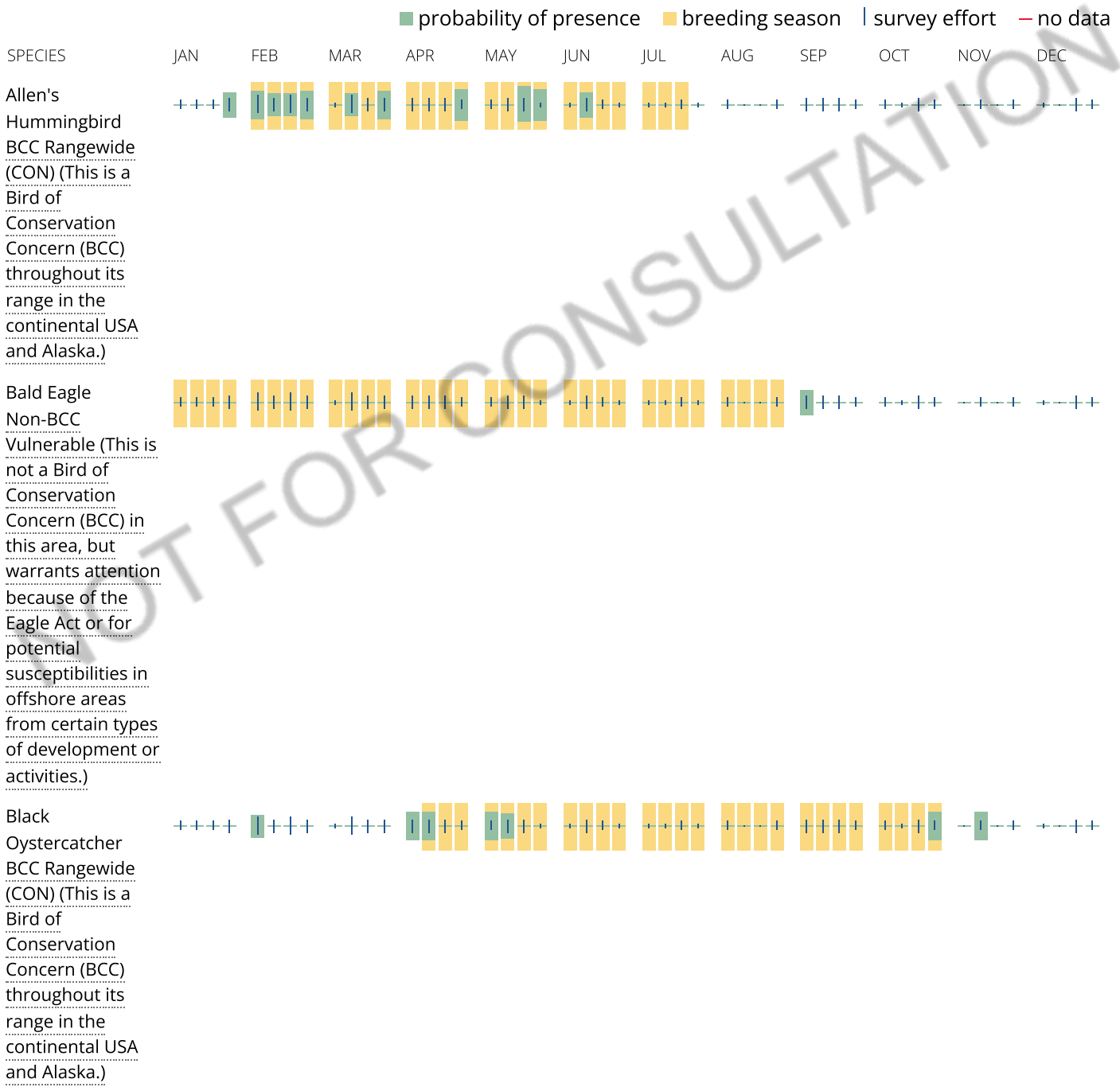
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

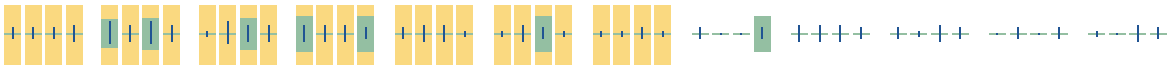
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



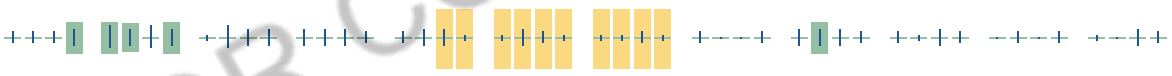
Black Turnstone BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

California Thrasher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

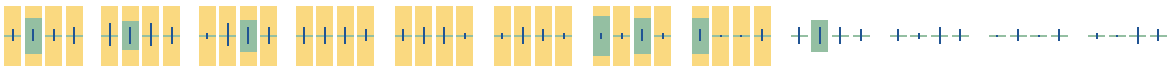


Clark's Grebe BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

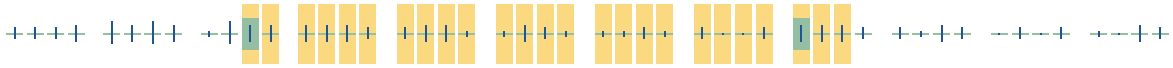
Common Yellowthroat BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Golden Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

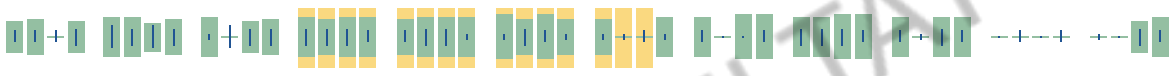


Lawrence's Goldfinch BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

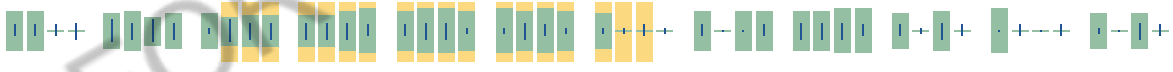


Marbled Godwit BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Nuttall's Woodpecker BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

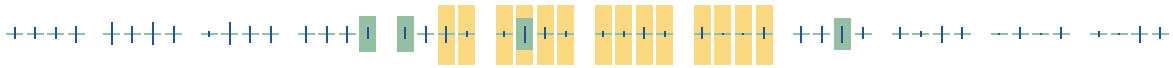


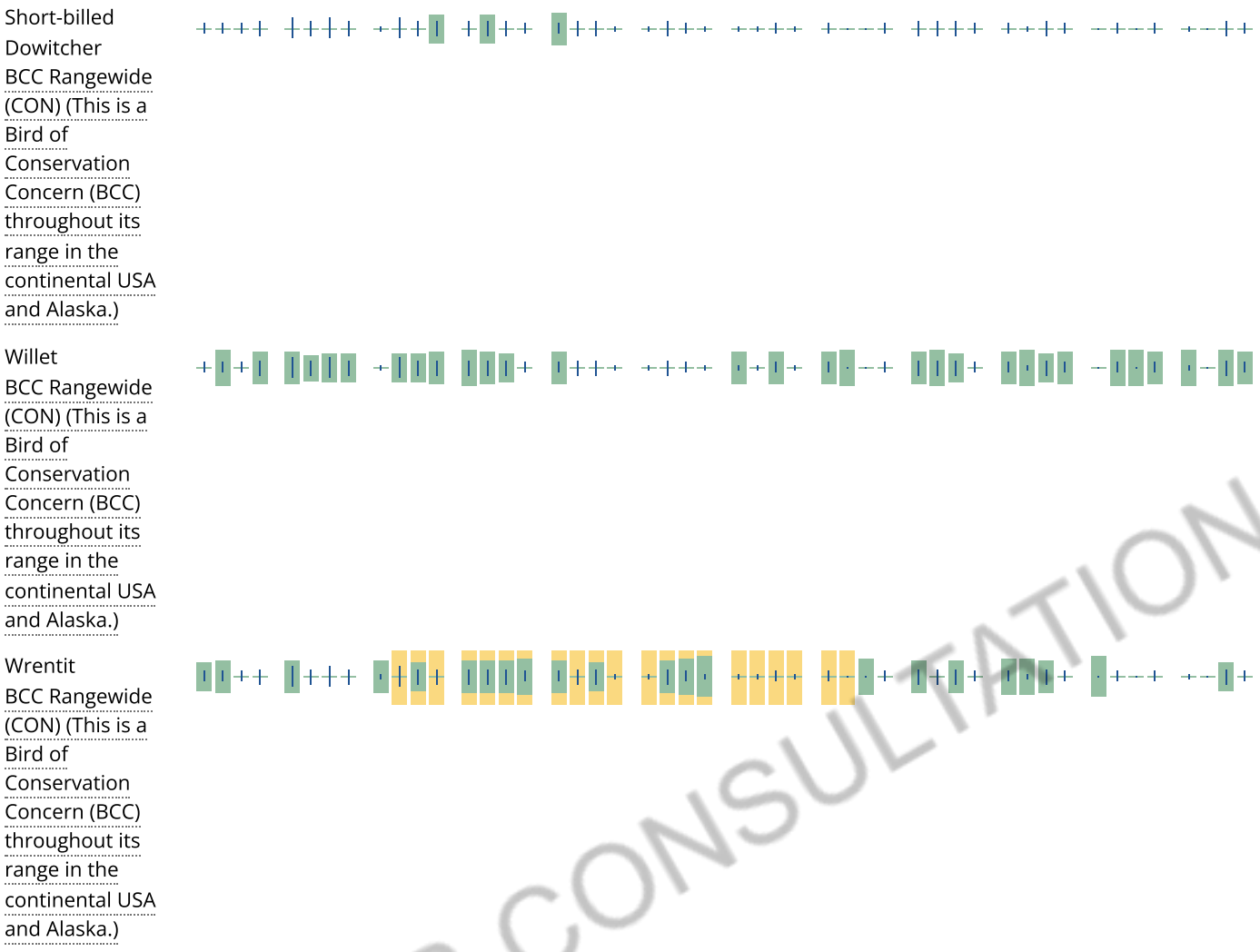
Oak Titmouse BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Olive-sided Flycatcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)





Short-billed Dowitcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Willet BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wrentit BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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B.2 - Biological Resources Analysis Report

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BIOLOGICAL RESOURCES ANALYSIS REPORT

FOR THE

SKELLY PROPERTY

CITY OF HERCULES, CONTRA COSTA COUNTY, CALIFORNIA

Prepared for:

D.R. HORTON
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Pleasanton, California 94588

Prepared by:

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E-mail: jeff@olberdingenv.com
Contact: Jeff Olberding

MARCH 2022 (Amended)

TABLE OF CONTENTS

LIST OF ATTACHMENTS

This report should be cited as: Olberding Environmental, Inc. March 2022. *Biological Resources Analysis Report for the Skelly Property, City of Hercules, Contra Costa County, California*. Prepared for D.R. Horton, Pleasanton, California.

SUMMARY

On November 11, 2020, Olberding Environmental, Inc. conducted a field reconnaissance survey of the Skelly Property (Property) for the purpose of identifying sensitive plant and wildlife species, sensitive habitats, and biological constraints potentially occurring on the Property. The Property surveyed is comprised of approximately 7.49 acres located in the City of Hercules, Contra Costa County, California.

Results of the reconnaissance survey identified a small drainage feature at the southern portion of the property and two isolated seasonal wetlands that had developed in shallow topographical depressions associated with a horse paddock along the northern boundary. It was determined that these wetlands/waters might be considered jurisdictional by the U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), and/or the California Department of Fish and Wildlife (CDFW). A jurisdictional delineation was prepared and presented to the Corps for verification purposes. Following an onsite verification, the Corps concluded that the perennial drainage was a jurisdiction feature. However, the two seasonal wetlands Were determined to be non-jurisdictional by the Corps due to their isolation and lack of connectivity to jurisdictional waters. Both the perennial drainage and the isolated wetlands qualify as jurisdictional "Waters of the State" by the RWQCB. The CDFW would have jurisdiction over the perennial drainage.

The proposed project would incorporate project design features to avoid the two seasonal wetlands. These design features include the creation of a bio retention basin surrounding the isolated wetlands with a 5-foot setback buffer to avoid impacts to the wetlands. Additionally, treated stormwater runoff water would be directed to the isolated wetlands from the retention basin, augmenting hydrology to support the functions and values being provided by the wetland habitat. The project will avoid the perennial drainage area entirely. There are no anticipated impacts to either the perennial drainage or the two seasonal wetlands. As such, no Corps, CDFW or RWQCB permits will be required.

A query of the California Natural Diversity Database (CNDDB) showed that thirteen special-status plant species have been recorded within a 5-mile radius of the Property. Eleven species were identified as having no potential to occur on the Property, based on the absence of suitable habitat, soil composition, and the development and disturbance of the Property. Suitable habitats for these species include vernal pool, serpentine environments, chaparral, broad-leafed upland forest, cismontane woodlands, coastal prairie, coastal scrub, freshwater wetland, brackish or freshwater marsh, none of which are found on the Property. Two plants, Diablo helianthella (*Helianthella castanea*) and Santa Cruz tarplant (*Holocarpha macradenia*) were both found to have marginally suitable habitat within the Property due to the presence of riparian woodland and grassland habitat with clay soils; however, it was determined that both species are not likely to occur on the Property due to the development and high level of disturbance historically to the

site through livestock activities such as grazing. In addition to the disturbance to the Property, the lack of nearby extant occurrences of Santa Cruz tarplant also made it unlikely that this species would occur onsite. For these reasons, a rare plant survey is not needed.

A total of four avian species were identified to have a high potential to occur on the Property. The red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperii*), and white-tailed kite (*Elanus leucurus*) all have a high potential to occur in both a foraging and nesting capacity. The red-tailed hawk was the only raptor observed foraging on or near the Property during the time of the survey. If project construction-related activities such as vegetation removal or grading take place during the nesting season (February through August), preconstruction surveys for nesting passerine birds and raptors are recommended.

No sign of bat use was observed on the Property during the November 2020 survey; however, based on habitat suitability, it was determined that bats have a moderate to high potential to utilize the site in a roosting and foraging capacity. These bat species include pallid bat (*Antrozous pallidus*), hoary bat (*Lasiurus cinereus),* Townsend's big-eared bat (*Corynorhinus townsendii*), silver-haired bat (*Lasionycteris noctivagans*), and Yuma myotis (*Myotis yumanensis*). If project construction-related activities such as tree removal or the removal of the existing structures take place it is recommended that a bat habitat assessment is conducted by a qualified bat biologist during seasonal periods of bat activity to determine suitability of the on-site habitat. If special-status bat species are discovered, construction activities may be timed to minimize impacts and additional mitigation may be required.

CNDDB listed 8 occurrences of California red-legged frog (*Rana draytonii*) in the 5-mile radius of the Property. The potential seasonal wetland and perennial drainage on the Property do not provide suitable breeding habitat within the site. The Property contains suitable dispersal corridors and foraging habitat for CRLF; however, the closest occurrence of CRLF to the Property is approximately 1.5 miles east of the Property outside of the known 1-mile dispersal distance and separated by extensive residential development and Interstate 80. USFWS designated CRLF critical habitat is recorded 3.5 miles southeast of the Property, and the majority of the CNDDB occurrences are recorded in this region. For these reasons, CRLF has a low potential to occur on the Property and is not likely to occur.

The monarch butterfly *(Danaus plexippus)* was identified as having a moderate potential to overwinter on the Property. Monarchs generally overwinter beginning in September or October. If project construction-related activities such as tree and vegetation removal take place during the overwintering season, preconstruction surveys for monarch butterfly are recommended during the months of September or October.

1.0 INTRODUCTION

Olberding Environmental, Inc. has conducted a biological resources analysis (biological constraints assessment) of the Skelly Property, located in the City of Hercules in Contra Costa County, California. This biological resources analysis included a review of pertinent literature on relevant background information and habitat characteristics of the site. Our review included researching existing information in the California Natural Diversity Database (CNDDB) maintained by the CDFW and the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California*. Also included was a review of information related to species of plants and animals that could potentially utilize the described habitats identified on and immediately surrounding the Property. To assist in the assessment, a field reconnaissance investigation of the Property was conducted on November 11, 2020. This report documents the methods, results, and conclusions for the reconnaissance-level survey associated with the biological resources analysis for the Property.

2.0 LOCATION

The Property is located west of Interstate 80, and directly north of San Pablo Avenue in the city of Hercules, within Contra Costa County, California. Attachment 1, Figure 1 depicts the regional location of the Property in Contra Costa County, and Attachment 1, Figure 2 illustrates the vicinity of the Property in relationship to the City of Hercules. Attachment 1, Figure 3 identifies the location of the Property on the USGS 7.5 Quadrangle Map for Mare Island. An aerial photograph of the Property has been included as Attachment 1, Figure 4.

Access to the Property is provided from Highway 4. Traveling west on Highway 4, turn left onto San Pablo Avenue. Continue on San Pablo Avenue for 0.8 miles, and then take a right onto Hercules Avenue. Continue on Hercules Avenue for 0.2 miles, and then take a left onto Skelly. Continue on Skelly for 0.2 miles and the Property will be at the terminus of the road.

3.0 PROPERTY DESCRIPTION

The Property encompasses approximately 7.49 acres in a roughly rectangular shape, bounded on all sides by residential housing. A concrete v-ditch approximately two feet wide lies along the north, east, and western perimeter of the site, outside of the Property boundary. This feature did not contain water during the time of the survey and was surrounded by ruderal grassland and eucalyptus woodland habitat and lined with native and ornamental trees which separate the Property from the adjacent residential housing. To the south of the Property lies railroad tracks and the Pinole Senior Center, and to the west, a public walking trail separates the Property from the adjacent Pinole Creek. The Property supports six habitat types: developed, ruderal grassland, perennial drainage, riparian woodland, eucalyptus woodland, and seasonal wetland habitat (Attachment 1, Figure 10).

The Property was previously a residence that contained numerous barns and paddocks for housing horses and other livestock. The Property still contains the residence and many of the barn structures, paddocks, and outbuildings, all of which are vacant. An asphalt and gravel driveway associated with the residence is present throughout the northeast corner of the Property, and remnants of old farm equipment and vehicles are found throughout the Property. Several large blue gum eucalyptus trees (*Eucalyptus globulus*) surround the driveway to the residence and many of the horse stalls on the Property. The residence and vacant structures are surrounded by ornamental vegetation and trees such as English ivy (*Hedera helix*), date palm (*Phoenix* sp.), olive (*Olea europaea*), pampas grass (*Cortaderia selloana*), English walnut (*Juglans regius*), blue gum eucalyptus, and Peruvian peppertree (*Schinus molle*). In addition to these structures, the Property contains a water storage tank located in the southwestern portion of the site, and a cell tower and associated utilities located in the southeastern corner of the Property.

Much of the ruderal grassland habitat throughout the site is located in areas once used as paddocks, and these locations have been regularly disturbed for over twenty years through both grazing and livestock activity as observed through analysis of aerial imagery (Google Earth 2020). The majority of the ruderal grassland habitat has been disked recently, with patches of ruderal vegetation scattered throughout, and concentrated along the margins of the habitat. The remaining vegetation is dominated by wild oat (*Avena fatua*), barbed wild oat (*Avena barbata*), field bindweed (*Convolvulus arvensis*), ripgut brome (*Bromus diandrus*), bristly ox-tongue (*Helminthotheca echioides*), soft chess (*Bromus hordeaceus*), and a mix of other non-native species.

A perennial drainage feature is found along the southern boundary of the site, and enters from the southeastern corner, flowing west and exiting the Property via a culvert near the southwestern corner. This feature was surrounded by a mix of native and non-native riparian vegetation such as English walnut, eucalyptus, Himalayan black berry (*Rubus armeniacus*), northern California black walnut (*Juglans hindsii),* California buckeye (*Aesculus californica*), and Lombardy poplar (*Populus nigra*). This feature contained water throughout much of its length and had a defined bed and bank.

Two seasonal wetlands were located along the northern boundary of the Property adjacent to an old horse stall and paddock. Dominant species include common plantain (*Plantago major*), annual beard grass (*Polypogon monspeliensis*), Bermuda grass (*Cynodon dactylon*), and bristly oxtongue.

The topography of the Property is relatively flat with a gentle slope near the southeastern corner, and ranges between 9 feet above sea level at the northwestern boundary and 53 feet above sea level near the southeastern boundary.

4.0 REGULATORY SETTING

4.1 Federal Regulatory Setting

4.1.1 Plants and Wildlife

The federal Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq., as amended) prohibits federal agencies from authorizing, permitting, or funding any action that would result in biological jeopardy to a plant or animal species listed as Threatened or Endangered under the Act. Listed species are taxa for which proposed and final rules have been published in the Federal Register (U.S. Fish and Wildlife Service [USFWS] 2020). If a proposed project may jeopardize listed species, Section 7 of the ESA requires consideration of those species through formal consultations with the USFWS. Federal Proposed species (USFWS, 2019) are species for which a proposed listing as Threatened or Endangered under ESA has been published in the Federal Register. If a proposed project may jeopardize proposed species, Section 7 of the ESA affords consideration of those species through informal conferences with USFWS. The USFWS defines federal Candidate species as "those taxa for which we have on file sufficient information on biological vulnerability and threats to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded by other higher priority listing actions" (USFWS, 2019). Federal Candidate species are not afforded formal protection, although USFWS encourages other federal agencies to give consideration to Candidate species in environmental planning.

4.1.2 Wetlands/Waters

The federal government, acting through the Corps and the Environmental Protection Agency (EPA), has jurisdiction over all "waters of the United States" as authorized by §404 of the Clean Water Act (CWA) and §10 of the Rivers and Harbors Act of 1899 (33 CFR Parts 320-330). Properties that cause the discharge of dredged or fill material into waters of the United States require permitting by the Corps. Actions affecting small areas of jurisdictional waters of the United States may qualify for a Nationwide Permit (NWP), provided conditions of the permit are met, such as avoiding impacts to threatened or endangered species or to important cultural sites. Properties that affect larger areas or which do not meet the conditions of an NWP require an Individual Permit. The process for obtaining an Individual Permit requires a detailed alternatives analysis and development of a comprehensive mitigation/monitoring plan.

On January 23, 2020 the EPA and the Corps enacted the Navigable Waters Protection Rule (NWPR) to redefine "waters of the United States" to include four categories. Their landward extent was defined following the definitions provided in the Corps of Engineers regulations [33 CFR §328.3]:

(a) *Jurisdictional waters.* The Clean Water Act defines "waters of the United States" as:

(1) The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide;

(2) Tributaries;

(3) Lakes and ponds, and impoundments of jurisdictional waters; and

(4) Adjacent wetlands.

Wetlands are transitional habitats between upland terrestrial areas and deeper aquatic habitats such as rivers and lakes. Adjacent wetlands are wetlands that abut, meaning to touch at least at one point or side of, jurisdictional waters or are inundated by flooding from jurisdictional waters in a typical year (33 CFR Section 328 (c)(1)). Under federal regulation, wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR Section 328 (c)(16)). Swamps, marshes, bogs, fens, and estuaries are all defined as wetlands, as are seasonally saturated or inundated areas such as vernal pools, alkali wetlands, seeps, and springs. In addition, portions of the riparian habitat along a river or stream may be a wetland where the riparian vegetation is at or below the ordinary high-water mark and thus also meets the wetland hydrology and hydric soil criteria.

Navigable waters include all waters subject to the ebb and flow of the tides, including the open ocean, tidal bays, and tidal sloughs. Navigable waters also include some large, non-tidal rivers and lakes, which are important for transportation in commerce. The jurisdictional limit over navigable waters extends laterally to the entire water surface and bed of the waterbody landward to the limits of the mean high tide line. For non-tidal rivers or lakes, which have been designated (by the Corps) to be navigable waters, the limit of jurisdiction along the shoreline is defined by the ordinary high-water mark. Ordinary high-water mark is that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Section 328(c)(7)). The Corps regulates other waters to the outward limit of the ordinary high-water mark. Streams should exhibit a defined channel, bed and banks to be delineated as other waters.

The 2020 NWPR defines non-jurisdiction waters as:

(1) Waters or water features that are not identified in (a)(1) through (4) above;

(2) Groundwater, including groundwater drainage through subsurface drainage systems;

(3) Ephemeral features, including ephemeral streams, swales, gullies, rills, and pools;

(4) Diffuse stormwater run-off and direction sheet flow over upland;

(5) Ditches that are not territorial seas or traditional navigable waters, or tributaries, and those portions constructed in adjacent wetlands that do not satisfy the conditions of adjacent wetlands;

(6) Prior converted cropland;

(7) Artificially irrigated areas, including fields flooded for agricultural production, that would revert to upland should application of irrigation water to that area cease;

(8) Artificial lakes and ponds, including water storage reservoirs and farm, irrigation, stock watering, and clog cleaning ponds, constructed of excavated in upland or in non-jurisdictional waters, so long as those artificial lakes and ponds are not impoundments of jurisdictional waters that meet the conditions of lakes and ponds, and impoundments of jurisdictional waters;

(9) Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel;

(10) Stormwater control features constructed of excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater run-off;

(11) Groundwater recharge, water reuse, and wastewater recycling structures, including detention, retention, and infiltrations basins and ponds, constructed or excavated in upland or in non-jurisdictional waters; and

(12) Waste treatment systems.

However, the preamble also states “the Corps reserves the right on a case-by-case basis to determine that a particular waterbody within these categories” can be regulated as jurisdictional water. The EPA also has authority to determine jurisdictional waters of the U.S. on a case-by-case basis. Riparian habitat that is above the ordinary high-water mark and does not meet the three-parameter criteria for a wetland would not be regulated as jurisdictional waters of the United States, but is regulated by CDFW.

4.1.3 Migratory Bird Treaty Act

Raptors are migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Sections 3503, 3503.5, and 3800 of the California Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that Property-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (generally February 1 – September 1, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend, is considered "taking" and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g., MBTA).

4.1.4 Federal Bald and Golden Eagle Protection Act

In addition to protection under the MBTA, both the bald eagle and the golden eagle are also protected by the Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668-668c). The Bald and Golden Eagle Protection Act, and amended several times since being enacted in 1940, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts, nests, or eggs (USFWS 2007). The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (USFWS 2007).

For purposes of these guidelines, "disturb" means: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (USFWS 2007).

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment (USFWS 2007).

4.2 State Regulatory Setting

4.2.1 Plants and Wildlife

Property permitting and approval requires compliance with California Environmental Quality Act (CEQA), the 1984 California Endangered Species Act (CESA), and the 1977 Native Plant Protection Act (NPPA). The CESA and NPPA authorize the California Fish and Game Commission to designate Endangered, Threatened and Rare species and to regulate the taking of these species (§§2050-2098, Fish & Game Code). The California Code of Regulations (Title 14, §670.5) lists animal species considered Endangered or Threatened by the State.

The Natural Heritage Division of the CDFW administers the state rare species program. The CDFW maintains lists of designated Endangered, Threatened, and Rare plant and animal species (CDFW 2020b and 2019). Listed species either were designated under the NPPA or designated by the Fish and Game Commission. In addition to recognizing three levels of endangerment, the CDFW can afford interim protection to candidate species while they are being reviewed by the Fish and Game Commission.

The CDFW also maintains a list of animal species of special concern (CDFW 2019), most of which are species whose breeding populations in California may face extirpation. Although these species have no legal status, the CDFW recommends considering them during analysis of proposed property impacts to protect declining populations and avoid the need to list them as endangered in the future.

Under provisions of §15380(d) of the CEQA Guidelines, the CEQA lead agency and CDFW, in making a determination of significance, must treat non-listed plant and animal species as equivalent to listed species if such species satisfy the minimum biological criteria for listing. In general, the CDFW considers plant species on List 1A (Plants Presumed Extinct in California), List 1B (Plants Rare, Threatened, or Endangered in California and elsewhere), or List 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere) of the CNPS *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 1994) as qualifying for legal protection under §15380(d). Species on CNPS Lists 3 or 4 may, but generally do not, qualify for protection under this provision.

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species and CDFW Species of Special Concern, areas of high biological diversity, areas providing important wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the CNDDB working list of “high priority” habitats (i.e., those habitats that are rare or endangered within the borders of California) (Holland 1986).

4.2.2 Wetlands/Waters

The RWQCB regulates activities in wetlands and other waters through §401 of the Clean Water Act. Section 401 requires a state water quality certification for properties subject to 404 regulations. Requirements of the certification include mitigation for loss of wetland habitat. In the San Francisco Bay region, the RWQCB may identify additional wetland mitigation beyond the mitigation required by the Corps. California Fish and Game Code §§1600-1607 require the CDFW be notified of any activity that could affect the bank or bed of any stream that has value to fish and wildlife. Upon notification, the CDFW has the discretion to execute a Streambed Alteration Agreement. The CDFW defines a stream as follows:

> *"... a body of water that flows at least periodically...through a bed or channel having banks and supporting fish and other aquatic life. This includes watercourses having a subsurface flow that supports or has supported riparian vegetation."*
>
> (Source: Streambed Alteration Program, California Department of Fish and Wildlife, 2016).

In practice, CDFW authority is extended to any "blue line" stream shown on a USGS topographic map, as well as unmapped channels with a definable bank and bed. Wetlands, as defined by the Corps, need not be present for CDFW to exert authority.

4.2.3 California Environmental Quality Act

According to Appendix G of the CEQA (CEQA 2020) Guidelines, a proposed project would have a significant impact on biological resources if it would:

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 CDFW and USFWS?

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?

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 local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

4.2.4 City of Hercules Municipal Code

According to the City of Hercules Municipal Code, Title 4. Public Welfare, Morals, and Conduct, the removal of mature trees is prohibited from any undeveloped or partially developed property, whether public or private, within the City of Hercules for any reason. Some exceptions apply (Ord. 331 § 1 (part), 1996).

Definitions for the above terms:

(a) "Mature tree" includes any living tree with a trunk diameter measuring twelve (12) inches or greater when measured at "breast height," which is roughly four and one-half (4-1/2) feet above the surface of the ground.

(b) "Tree removal" shall include any one or more of the following:

(1) Complete removal of a mature tree.

(2) Any action foreseeably leading to the death of a mature tree or permanent damage to its health.

(3) Removal of more than one-third (1/3) of the foliage of a mature tree, except where such removal of foliage is necessary for periodic maintenance appropriate to the particular tree species in question.

(c) "Undeveloped or partially developed property" includes all properties which are available for future development or redevelopment but does not include developed residential or non-residential properties. (Ord. 331 § 1 (part), 1996)

Exemptions to the above municipal code are as follows:

Section 4-15.04

(a) If a mature tree poses an immediate and substantial threat to the safety of persons or property, the property owner may contact the Public Works Director and request approval to remove the tree. After consultation with the City Manager if at all possible, the Public Works Director shall confirm that an emergency situation exists. The Public Works

Director may then authorize removal. The Public Works Director may consult with a certified arborist if deemed necessary to confirm the necessity for tree removal. The removal of a mature tree under emergency conditions with approval by the Public Works Director shall be reported to the City Council at the next regularly scheduled City Council meeting (4-15.04).

Section 4-15.05 Tree Removal In Conjunction with Development

Mature trees may be removed in conjunction with development projects for which the City has issued all necessary land use approvals, provided however, that the City approves, and the developer implements a tree replacement plan. In addition, mature trees may be removed in conjunction with development projects for which the California Department of Toxic Substances Control, U.S. Army Corps of Engineers and/or the California Department of Fish and Game has issued a permit, provided that the following conditions are satisfied:

(a) The property owner has obtained and is in compliance with a Grading Permit and Erosion and Sediment Control Plan pursuant to Chapter 7-2 of this Code;

(b) The City has approved and the property owner is implementing a tree replacement plan as part of an environmental mitigation program approved by the applicable state or federal agency; and

(c) The proposed pre-development activities are consistent with the City's General Plan, as determined by the Community and Business Development Director. (Ord. 331 § 1 (part), 1996)

Violation of any of the provisions of this Chapter or the knowing or intentional misrepresentation to any officer or employee of the City of any material fact when requesting tree removal under Sections 4-15.04 or 4-15.05 shall constitute a misdemeanor punishable by a fine of not more than One Thousand Dollars ($1,000), or by imprisonment for a period not to exceed six (6) months, or by both such fine and imprisonment. (Ord. 331 § 1 (part), 1996).

5.0 METHODS OF ANALYSIS FOR GENERAL BIOLOGICAL RESOURCES

A special-status plant and wildlife species database search and review was conducted using the CNDDB and other sources. An additional search was conducted for special-status plants using CNPS *Inventory* on-line. Special-status species reports were accessed by searching the CNDDB database for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point USGS 7.5-minute quadrangles which surround the Property, and by examining those species that have been identified in the vicinity of the Property. These quadrangles will be henceforth noted as surrounding quads. The database report identified special-status species known to occur in the region or those that have the potential to

occur in the vicinity of the Property. The CNDDB report was used to focus special-status species analysis of the site prior to the reconnaissance surveys.

Olberding Environmental biologists conducted a reconnaissance-level survey of the Property on November 11, 2020. The survey consisted of walking throughout the Property and evaluating the site and adjacent lands for potential biological resources. Existing conditions observed plants and wildlife, adjacent land use, soils and potential biological resource constraints were recorded during the visit. Plant and wildlife species observed within and adjacent to the Property during the reconnaissance survey are listed in Attachment 2, Table 1. Site photographs are provided in Attachment 3 of this document. Attachment 1, Figure 9 shows where each site photo was taken.

The objectives of the field survey were to determine the potential presence or absence of special-status species habitat listed in the CNDDB database report and to identify any wetland areas that could be potentially regulated by the Corps, RWQCB, and/or CDFW (CNDDB 2020). In addition, the Olberding Environmental biologists looked for other potential sensitive species or habitats that may not have been obvious from background database reports or research. Surveys conducted after the growing season or conducted outside of the specific flowering period for a special-status plant cannot conclusively determine the presence or absence of such plant species; therefore, site conditions and habitat type were used to determine potential for occurrence. When suitable habitat was observed to support a special-status plant or animal species, it was noted in the discussion for that particular species. Regulatory agencies evaluate the possibility of occurrence based on habitats observed on-site and the degree of connectivity with other special-status animal habitats in the vicinity of the Property. These factors are discussed in each special-status plant or animal section. Potential for occurrence of each special-status or protected plant and animal species was evaluated using the following criteria.

- **Present**: The species has been recorded by CNDDB or other literature as occurring on the Property and/or was observed on the Property during the reconnaissance survey or protocol surveys.

- **May Occur**: The species has been recorded by CNDDB or other literature as occurring within five miles of the Property, and/or was observed within five miles of the Property, and/or suitable habitat for the species is present on the Property or its immediate vicinity.

- **Not Likely to Occur**: The species has historically occurred on or within five miles of the Property, but has no current records. The species occurs within five miles of the Property but only marginally suitable habitat conditions are present. The Property is likely to be used only as incidental foraging habitat or as an occasional migratory corridor.

- **Presumed Absent**: The species will not occur on the Property due to the absence of suitable habitat conditions, and/or the lack of current occurrences. Alternatively, if

directed or protocol-level surveys were done during the proper occurrence period and the species was not found, it is presumed absent.

Sources consulted for agency status information include USFWS (2020) for federally listed species and CDFW (2019) for State of California listed species. Based on information from the above sources, Olberding Environmental developed a target list of special-status plants and animals with the potential to occur within or in the vicinity of the Property (Attachment 2, Table 2).

5.1 Soils Evaluation

The soils present on a property may determine if habitat on the site is suitable for certain special-status plants and animals. The host plants of some special-status invertebrates may also require specific soil conditions. In the absence of suitable soil conditions, special-status plants or animals requiring those conditions would be presumed absent. Information regarding soil characteristics for the Property was obtained by viewing the Natural Resources Conservation Service (NRCS) Web Soil Survey report for the Property (NRCS 2020).

5.2 Plant Survey Methods

The purposes of the botanical surveys were (1) to characterize the habitat types (plant communities) of the study area; (2) to determine whether any suitable habitat for any special-status plant species occurs within the study area; and (3) to determine whether any sensitive habitat types (wetlands) occur within the study area. Site conditions and plant habitat surveys are important tools in determining the potential occurrence of plants not recorded during surveys (e.g., special-status plants) because presence cannot conclusively be determined if field surveys are conducted after the growing season or conducted outside a specific flowering period.

5.2.1 Review of Literature and Data Sources

The biologists conducted focused surveys of literature and special-status species databases in order to identify special-status plant species and sensitive habitat types with potential to occur in the study area. Sources reviewed included the CNDDB occurrence records (CNDDB 2020) and CNPS *Inventory* (Skinner and Pavlik 1994) for the surrounding quads; and standard flora (The Jepson Manual 2012). From the above sources, a list of special-status plant species with potential to occur in the Property vicinity was developed (Attachment 2, Table 2).

5.2.2 Field Surveys

Biologists from Olberding Environmental conducted a reconnaissance-level survey to determine habitat types and the potential for special-status plants based on the observed habitat types. All

vascular plant species that were identifiable at the time of the survey were recorded and identified using keys and descriptions in The Jepson Manual (2012).

The habitat types occurring on the Property were characterized according to pre-established categories. In classifying the habitat types on the site, the generalized plant community classification schemes of *A Manual of California Vegetation* (Sawyer, Keeler-Wolf, and Evens 2009) were consulted. The final classification and characterization of the habitat types of the study area were based on field observations.

5.3 Wildlife Survey Methods

The purposes of the wildlife survey were to identify special-status wildlife species and/or potential special-status wildlife habitats within the study area.

5.3.1 Review of Literature and Data Sources

A focused review of literature and data sources was conducted in order to determine which special-status wildlife species had potential to occur in the vicinity of the Property. Current agency status information was obtained from USFWS (2020) for species listed as Threatened or Endangered, as well as Proposed and Candidate species for listing, under the federal ESA; and from CDFW (2020b, 2019) for species listed as Threatened or Endangered by the state of California under the CESA or listed as "species of special concern" by CDFW. From the above sources, a list of special-status wildlife species with potential to occur in the Property vicinity was developed (Attachment 2, Table 2).

5.3.2 Field Surveys

General Wildlife Survey – Olberding Environmental biologists conducted a survey of species habitat within the entire study area, including visible portions of the adjacent properties. The purpose of the habitat survey was to evaluate wildlife habitats and the potential for any protected species to occur on or adjacent to the Property.

Reconnaissance-Level Raptor Survey – A reconnaissance-level raptor survey was conducted on the Property. Observation points were established on the periphery of the site to view raptor activity over a fifteen- to thirty-minute time period. This survey was conducted with the use of binoculars and notes were taken for each species occurrence. Additionally, utility poles and perch sites in the vicinity of the Property were observed. All raptor activity within and adjacent to the Property was recorded during the reconnaissance-level observation period.

Reconnaissance-Level Burrowing Owl (Athene cunicularia) Survey – A reconnaissance-level burrowing owl (*Athene cunicularia*) survey was also conducted on the Property to identify

potential burrow sites or burrowing owl use of on-site habitat. The general presence and density of suitable burrow sites (e.g., rodent burrows) was evaluated for the Property.

6.0 RESULTS FOR GENERAL BIOLOGICAL RESOURCES

The search and review of the CNDDB database reports revealed the occurrence of special-status plant and wildlife species that occur in the habitats found within the Property boundaries (CNDDB 2020). The CNDDB database and background data were reviewed for the surrounding quads. Animal occurrences shown on Attachment 1, Figure 5 and plant occurrences shown on Attachment 1, Figure 6 are located within 5 miles of the Property and were reviewed for their potential to occur on the Property based on general habitat types. Results of the species review are tabulated on Attachment 2, Table 2. Critical habitat within the surrounding quads is shown on Attachment 1, Figure 7.

6.1 Soil Evaluation Results

The NRCS (2020) reports three soil types within the Property. A map of the soil types can be found in Attachment 1, Figure 8. The soil type mapped included the following:

- **Cc: Clear Lake Clay, 0 to 15 percent slopes –** Clear Lake clay soils can be found at elevations between 25 and 2,000 feet with 0 to 2 percent slopes. The composition of this soil type within the Property consists of 85 percent Clear Lake and similar soils, and 15 percent of minor components including Pescadero (4%), Cropley (4%), Conejo (4%), and Unnamed (3%).

  The Clear Lake series consists of very deep, poorly drained soils that formed in fine textured alluvium derived from sandstone and shale. Clear Lake soils are in basins and in swales of drainageways. Clear Lake soils exhibit slow to very slow permeability and negligible to high runoff (if assumed concave runoff is always negligible). These soils are used for growing many row crops such as tomatoes, beans and sugar beets, dry farmed to grain, or irrigated and dry farmed pasture, and for rangeland. Native vegetation consists of grasses and forbs. This series shows no frequency of ponding or flooding and is nonsaline. A water table is at depths of 4 to 10 feet in the late summer and in some areas is very near the surface during the wet months of winter. Some areas are artificially drained. Its stratified layers consist of the following (colors are for dry soil unless otherwise stated):

  Ag--0 to 13 inches; dark gray clay, very dark gray moist; very hard, firm; neutral (pH 7.0).
  Bssg1--13 to 19 inches; dark gray clay, very dark gray moist; extremely hard, very firm; moderately alkaline (pH 8.0).

Bssg2--19 to 45 inches; dark gray clay, very dark gray moist; extremely hard, very firm; moderately alkaline (pH 8.0).
Bssk--45 to 60 inches; grayish brown clay, light olive brown moist; very hard, very firm; moderately alkaline (pH 8.0).

- **LcE: Lodo Clay Loam, 9 to 30 percent slopes–** The Lodo Clay Loam series consists of somewhat excessively drained soils with a parent material of residuum weathered from sandstone and shale. These soils are found on steep hills at elevations of 300 to 3,000 feet. This soil type has no frequency of flooding or ponding. The composition of this soil type within the Property consists of 85 percent Lodo and similar soils and 15 percent of minor components including Millsholm (5%), Los Osos (5%), Tiera (3%), and Rock Outcrop (2%).

  A--0 to 7 inches; grayish brown shaly clay loam, very dark grayish brown moist; weak fine subangular blocky structure; slightly acid.

  R--7 inches; shattered warped and folded dark grayish brown hard shale.

- **CoE: Cut and Fill Land – Millsholm Complex, 9-30 percent slopes –** The composition of this soil type within the Property consists of 75 percent cut and fill land (fill part, which is composed of 0-60 inches of silty clay loam), 15 percent Millsholm and similar soils, and 10 percent of minor components including Lodo (5%), Gilroy (3%), and Los Gatos (2%). This soils type has a parent material of residuum weathered from sandstone and shale. This soil type never experiences flooding or ponding and has a very low water capacity.

6.2 Plant Survey Results

6.2.1 Floristic Inventory and Habitat Characterization

The Property supports six habitat types consisting of developed habitat, potential seasonal wetlands, a perennial drainage, riparian woodland, eucalyptus woodland, and ruderal grassland. In classifying the habitat types on the Property, generalized plant community classification schemes were used (Sawyer, Keeler-Wolf, and Evens 2009). The final classification and characterization of the habitat type of the Property was based on field observations. Plant species that occurred within 5 miles of the Property are shown in Attachment 1, Figure 6.

The habitat type and a description of the plant species present within the habitat type are provided below. The habitats found on the Property are mapped on Attachment 1, Figure 10.

Dominant plant species are also noted. A complete list of plant species observed on the Property can be found within Attachment 2, Table 1.

Developed

The existing residence, outbuildings, water storage tank, cell tower, and driveway comprise 1.94 acres of developed habitat. The residence and outbuildings are surrounded by fallow grass lawns and cultivated ornamental trees and shrubs such as date palm, giant yucca (*Yucca gigantea*), English ivy, weeping willow (*Salix babylonica*), olive, Peruvian peppertree, blue gum eucalyptus, English walnut, pampas grass, and coast redwood (*Sequoia sempervirens*). The large water storage tank and cell tower are surrounded by ruderal grassland habitat.

Perennial Drainage

The perennial drainage feature is located along the southern boundary of the Property and contained water throughout the majority of its length. Dominant species observed include Himalayan blackberry, and English ivy. The westernmost stretch of this feature did not contain surface water; however, this section was dominated by hydrophytic species such as narrow-leaved cattail (*Typha angustifolia*), and umbrella sedge (*Cyperus eragrostis*). This feature was surrounded by riparian woodland habitat. Figure 10 indicates Perennial Drainage (0.10 AC, 454 LNFT).

Potential Seasonal Wetland

Two seasonal wetlands comprising approximately 0.034 acres, were located along the northern boundary of the Property. Dominant vegetation observed within this section includes but is not limited to bristly ox-tongue, annual beard grass, salt grass (*Distichlis spicata*), and common plantain (*Plantago major*).

Riparian Woodland

The riparian woodland habitat is approximately 0.17 acres and is located along the southern boundary of the site and surrounds the perennial drainage feature on the Property. This habitat is dominated by a mix of both native and non-native trees such as blue gum eucalyptus, coast redwood, California buckeye, English walnut, northern California black walnut, Lombardy poplar, arroyo willow (*Salix lasiolepis*), and red willow (*Salix laevigata*).

Eucalyptus Woodland

The eucalyptus woodland habitat within the Property is comprised of approximately 0.83 acres of large blue gum eucalyptus trees. Numerous eucalyptus trees line the driveway to the Property and are also found surrounding the developed and riparian woodland habitat near the southern boundary of the site.

Ruderal Grassland

A majority of the Property (4.40 acres) is characterized by ruderal grassland habitat that has been disturbed by past grazing and livestock activities, and recent land management practices such as disking for weed abatement. In the areas where disking has occurred, little to no living vegetation was observed. The remaining ruderal grasslands occurred in areas that were previously used as paddocks or grazing land for horses and other livestock. Dominant vegetation includes non-native annual grasses such as wild oat, Johnsongrass, soft chess (*Bromus hordeaceus*) and other bromes (*Bromus* spp.). Additional species observed include alkali mallow (*Malvella leprosa*), prickly lettuce (*Lactuca serriola*), and clover (*Trifolium hybridum*). Several large trees are present along the western boundary of the Property within the ruderal grassland habitat and consist of species such as English walnut and California buckeye.

Special-Status Plant Species

Special-status plant species include species listed as Rare, Threatened, or Endangered by the USFWS (2020) or by the State of California (CDFW 2020b). Federal Proposed and Candidate species (USFWS, 2019) are also special-status species. Special-status species also include species listed on List 1A, List 1B, or List 2 of the CNPS Inventory (Skinner and Pavlik, 1994; CNPS 2020). All species in the above categories fall under state regulatory authority under the provisions of CEQA and may also fall under federal regulatory authority. Considered special-status species are species included on List 3 (Plants About Which We Need More Information—A Review List) or List 4 (Plants of Limited Distribution—A Watch List) of the CNPS *Inventory*. These species are considered to be of lower sensitivity and generally do not fall under specific state or federal regulatory authority. Specific mitigation considerations are not generally required for List 3 and List 4 species.

Attachment 2, Table 2 includes a list of special-status plants with the potential to occur within or in the immediate vicinity of the Property based on a review of the surrounding quads. The special-status plant species identified by the CNDDB as potentially occurring on the Property are known to grow only from specific habitat types. The specific habitats or “micro-climate” necessary for many of the plant species to occur are not found within the boundaries of the Property. The habitats necessary for the CNDDB reported plant species consist of valley and foothill grassland, cismontane woodlands, closed-cone coniferous forest, chaparral, playas, chenopod scrub, alkaline soils, serpentine soils, alkali flats, flooded lands, coastal prairie, coastal scrub, coastal salt marsh, vernal pools, seeps, meadows and sinks, swamps, freshwater or brackish marsh, cismontane woodlands, freshwater wetlands, oak woodlands, and broad-leafed upland forest. Occurrence distance from the Property is estimated from this center point (Attachment 1, Figure 6).

A query of the California Natural Diversity Database (CNDDB) showed that thirteen special-status plant species occur in a 5-mile radius of the Property. The majority of these species were

identified as having no potential to occur on the Property based on the absence of suitable habitat, soil composition, and the development and disturbance of the Property. Suitable habitats for these species include vernal pool, serpentine environments, chaparral, broad-leafed upland forest, cismontane woodlands, coastal prairie, coastal scrub, freshwater wetland, brackish or freshwater marsh, none of which are found on the Property. The Property contains ruderal grassland, developed, riparian woodland, seasonal wetland, perennial drainage, and eucalyptus woodland habitats that are frequently disturbed by human activity and livestock grazing. Additionally, the frequent tilling throughout the Property for weed abatement and property maintenance makes it highly unlikely for these species to occur, particularly those relying on vernal pools or grassland habitat. For these reasons, it is unlikely that these special status plant species would occur.

Two species that had one or more occurrences within the immediate vicinity of the Property are discussed in detail below.

Diablo Helianthella (*Helianthella castanea*). CNPS List 1B.

Diablo helianthella is a perennial that exhibits yellow sunflowers that bloom between April and June. The plant has simple broad leaves that are attached at the base of the stem and grows up to two feet in height. The Diablo helianthella is known to grow on open grassy sites in cismontane woodland and closed-cone coniferous forests.

CNDDB listed eight occurrences within five miles of the Property. The closest occurrence (Occurrence # 106) was observed approximately 3.0 miles south of the Property in 2007. The exact location was unknown; therefore, the occurrence was broadly documented as occurring within Pinole Valley Park, with an unspecified number of plants collected from the hillside and canyon above Wright Road. The most recent occurrence (Occurrence # 87) was documented approximately 5.0 miles southeast of the Property, near Pinole Peak, north of Pinole Creek in 2014. In this occurrence, numerous plants were observed in the region dating back to 1993, with three plants observed in a very small portion of the range in 2014. No plants were observed at the time of the November survey. The Property contains ruderal grassland habitat, as well as a perennial drainage which is surrounded by riparian woodland habitat consisting of a mixture of native and non-native trees. Diablo helianthella prefers rocky axonal soil; however, the soils present on the Property contain high clay content with areas of sandstone and shale alluvium, making the soils within the Property less suitable habitat. Additionally, the Property was historically used for housing livestock such as horses, and many areas of the Property were either developed or utilized as grazing pastures for these livestock leading to a high level of disturbance to the site. For these reasons, Diablo helianthella is not likely to occur on the Property.

Santa Cruz Tarplant (*Holocarpha macradenia*). Federally Threatened, State Endangered, CNPS List 1B.

Santa Cruz tarplant is an annual herb of the Asteraceae family. It is found along coastal terraces in Alameda, Contra Costa, Monterey, Marin and Santa Cruz Counties. It is found in coastal prairie and valley and foothill grassland habitats in sandy clay soils, often amongst non-native plants. Yellow flowers bloom between June and October.

CNDDB listed nine occurrences (Occurrence # 16, 27, 28, 29, 35, 36, 38, 39, and 44) within five miles of the Property. Occurrences 16, 27, 36, and 39 are all extirpated, and 35 and 42 are likely extirpated as well. The only extant populations (#28, 29) are on located approximately 4.0 to 4.5 miles from the Property on protected lands. Occurrence #28 was recorded in Wildcat Canyon Regional Park, 1.0 mile east of Hillview School, approximately 4.0 miles south of the Property. In this occurrence, 203 plants were observed on a west-facing slope in association with non-native avena and bromus grass species in 2009. Occurrence #29 was recorded on the Mezue Trail, 1.5 miles east of Hillview School, in Wildcat Canyon Regional Park, approximately 4.5 miles south of the Property. In this occurrence, 401 plants were observed in 2009. No plants were observed at the time of the November survey. Santa Cruz tarplant prefers coastal prairie, coastal scrub, and valley grassland habitat; however, the Property contains ruderal grassland habitat that has been historically disturbed by human disturbance such as disking for weed management, as well as livestock activity such as grazing. The Property does contain marginally suitable soil for this species with its high clay and sand content, however due to the extensive disturbance and development to the Property, along with the lack of nearby extant populations, it is not likely that Santa Cruz tarplant would occur on the Property.

6.3 Wildlife Survey Results

6.3.1 General Wildlife Species and Habitats

A complete list of wildlife species observed within the Property can be found in Attachment 2, Table 1. Wildlife species commonly occurring within habitat types present on the Property are discussed below:

Developed

The Property contains a vacant residence along with numerous out buildings and barns, many of which contained openings that could provide opportunities for numerous species of wildlife to utilize these structures for shelter or nesting purposes. Several horse stalls on the Property appeared to have evidence of old nests along the walls, potentially made by species such as black phoebes (*Sayornis nigricans*). Additionally, the large open barns on the Property contained evidence of white wash from birds perching along the rafters, and this structure could also

provide nesting opportunities for owl species such as the barn owl (*Tyto alba*). In addition to avian species, these vacant structures could provide roosting opportunities for numerous structure-roosting bat species such as the Yuma myotis (*Myotis yumanensis*), pallid bat (*Antrozous pallidus*), and Towsend's big-eared bat (*Corynorhinus townsendii*). Other species observed within the developed habitat include several domestic cats (*Felis catus*).

The Property also contained a gravel and asphalt driveway surrounded by ornamental plants, and a fallow lawn associated with the residence. The large ornamental trees surrounding the structures could provide nesting opportunities for numerous avian species, as well as roosting opportunities for foliage roosting bat species such as the hoary bat (*Lasiurus cinereus*). Avian species observed foraging in the developed habitat include bushtits (*Psaltriparus minimus*) and dark-eyed junco (*Junco hyemalis*).

Ruderal Grassland

The majority of the Property consists of ruderal grassland habitat, much of which appears to have been that has been recently disked leading to reduced vegetation throughout this habitat. Passerine species observed during the survey include lesser goldfinch (*Spinus psaltria*), golden-crowned sparrow (*Zonotrichia atricapilla*), white-crowned sparrow (*Zonotrichia leucophrys*), and western bluebird (*Sialia mexicana*). Other avian species observed include American crow (*Corvus bracyrynchos*), and turkey vulture (*Cathartes aura*). The red-tailed hawk (*Buteo jamaicensis*) was the only raptor species observed during the survey.

Small mammal burrows were observed throughout the Property, belonging to small rodent species such as the California vole (*Microtus californicus*) and mice (*Peromyscus spp.*).

The ruderal grassland habitat, along with the cover from old farm equipment and debris could offer suitable habitat for various reptile species such as western fence lizard (*Sceloporus occidentalis*), and pacific gopher snake (*Pituophis catenifer catenifer*).

Drainage

The perennial drainage along the southern boundary of the Property contained water throughout much of its length, which could provide numerous foraging opportunities to a number of species. The wetted sections of the drainage could provide potential habitat for amphibian species such as Sierran treefrogs (*Pseudacris sierra*). Additionally, the drainage may support an array of insects, allowing for abundant foraging opportunities for various bat and passerine species. Species observed in this habitat include black phoebe (*Sayornis nigricans*), ruby-crowned kinglet (*Regulus calendula*), and spotted towhee (*Pipilo maculatus*).

Potential Seasonal Wetland

Two seasonal wetlands occur along the northern boundary of the Property and did not contain surface water during the time of the survey. These features could provide an abundance of insects and additional vegetative cover that could provide foraging opportunities for a variety of passerines and during the wet season. Species observed utilizing the potential seasonal wetland habitat include the lesser goldfinch.

Riparian Woodland

The riparian woodland habitat along the southern boundary of the Property provides numerous foraging and nesting opportunities for many avian and foliage roosting bat species. The mature trees, and dense, shrubby understory provide an abundance of nesting opportunities for a variety of avian species. Species observed utilizing this habitat include yellow-rumped warbler (*Setophaga coronata*), chestnut-backed chickadee (*Poecile rufescens*), hairy woodpecker (*Leuconotopicus villosus*), Nuttall's woodpecker (*Picoides nuttallii*), northern flicker (*Colaptes auratus*), and cedar waxwings (*Bombycilla cedrorum*). Eastern fox squirrels (*Sciurus niger*) were also observed nesting and foraging in this habitat.

Eucalyptus Woodland

The large eucalyptus trees within this habitat provides suitable nesting habitat for a variety of raptor species. In addition to avian species, this habitat could also provide suitable overwintering habitat for monarch butterflies.

BIRDS

Red-Tailed Hawk (*Buteo jamaicensis*). State Protected.

The red-tailed hawk is a large *Buteo* that is distinct due to the red color of its tail feathers in contrast to the brown color of its body. Not all red-tailed hawks exhibit the distinct coloration on their tail and gradations may occur especially in young birds. Red-tailed hawks hunt rodents by soaring over grassland habitat. Nest trees for red-tailed hawks are usually tall trees with a well-developed canopy that includes a strong branching structure on which to build a nest.

The CNDDB does not track occurrences of red-tailed hawk; however, several red-tailed hawks were observed foraging in the area during the November survey. No large stick nests were observed on the Property; however, the Property contains numerous large trees such as the blue gum eucalyptus, that would make for suitable nesting habitat within the Property. In addition, foraging opportunities occur along the ruderal grassland habitat due to the abundance of small mammals. Given the information above the red-tailed hawk has high potential to occur on the Property in a nesting capacity and is present in a foraging capacity.

Red-shouldered Hawk (Buteo lineatus). State Protected.

The red-shouldered hawk is a medium-sized, slender *Buteo* with long legs and a long tail and is smaller than the red-tailed hawk. Upperparts are dark with pale spotting, and rusty-reddish feathers on the wing create the distinctive shoulder patch. The tail has several wide, dark bars; the intervening narrow stripes and the tip of the tail are white, and there is variation in the number of tail bars among adults and juveniles. The habitat that the red-shouldered hawk prefers varies from bottomland hardwoods and riparian areas to upland deciduous or mixed deciduous-conifer forest, and almost always includes some form of water, such as a swamp, marsh, river, or pond. In the west, the red-shouldered hawk sometimes occurs in coniferous forests, and has been expanding its range of occupied habitats to include various woodlands, including stands of eucalyptus trees amid urban sprawl. They typically place their nests in a broad-leaved tree (occasionally in a conifer), below the forest canopy but toward the tree top, usually in the crotch of the main trunk. Nest trees are often near a pond, stream, or swamp, and can be in suburban neighborhoods or parks. These hawks eat mostly small mammals, lizards, snakes, and amphibians. They also eat toads, snakes, and crayfish. They occasionally eat birds, sometimes from bird feeders; recorded prey includes sparrows, starlings, and doves.

The CNDDB does not track occurrences of red-shouldered hawk. The large trees present within the riparian and eucalyptus woodland offer suitable nesting habitat. Additionally, the abundance of small mammals within the ruderal grassland habitat on the Property provides numerous foraging opportunities. Given the information above the red-shouldered hawk has high potential to occur on the Property in a nesting and foraging capacity.

Cooper's Hawk (*Accipiter cooperii*). State Protected.

Coppers' hawk is a medium to large-size raptor, reaching an average of 28-34 in wingspan. They are distinctive for the black and white horizontal banding on the elongated tail, blue gray head, back and upperwings. Rusty red horizontal barring on a white breast. Large square head. Long yellow legs and feet. Cooper's hawk hunt in woodlands, riparian areas, and can even be observed hunting in densely vegetated urban areas for small birds, rodents and reptiles. Specialists at hunting avian prey, Copper's hawk often hunt along the edges of woodlands, shorelines, and riparian habitats where migrating passerines typically occur. Cooper's hawk typically nests within the vegetation of tall trees near riparian habitat and nesting habitat for these raptors consists of woodlands, coniferous forest, and dense oak woodland.

CNDDB listed one occurrence (Occurrence #70) of Cooper's hawk within the vicinity of the Property. In this occurrence, numerous adults along with a nest and one fledgling were observed in 1999, south of Franklin Canyon Road, east of Hercules, approximately 3.5 miles east of the Property. No Cooper's hawks were observed during the November survey; however, the Property contains suitable nesting habitat due to the abundance of large trees within the site, and numerous foraging opportunities exist throughout the Property due to the abundance of small

birds present throughout the site. Given the information above the Cooper's hawk may occur in both a nesting and foraging capacity.

White-tailed Kite (Elanus leucurus). Federal Species of Concern, CDFW: Fully Protected.

The white-tailed kite is falcon-shaped with a long white tail. This raptor has black patches on the shoulders that are highly visible while the bird is flying or perching, long, pointed gray wings, and deep red eyes with black eye ring. This species forages in annual grasslands, farmlands, orchards, chaparral, and at the edges of marshes and meadows. They are found nesting in trees and shrubs such as willows (*Salix* sp.), California sycamore (*Platanus racemosa*), and coast live oak (*Quercus agrifolia*) often near marshes, lakes, rivers, or ponds. This raptor often hovers while inspecting the ground below for prey. The white-tailed kite eats mainly small mammals, as well as some birds, lizards, and insects. Annual grasslands are considered good foraging habitat for white-tailed kites, which will forage in human-impacted areas.

CNDDB did not list any nearby occurrences of white-tailed kite within the vicinity of the Property; however, the Property contains suitable foraging habitat throughout the ruderal grassland due to the abundance of small mammals, and the riparian and eucalyptus woodland habitat onsite provide suitable nesting habitat. Given the information above the white-tailed kite may occur in both a nesting and foraging capacity.

San Pablo Song Sparrow (*Melospiza melodia samuelis*). California Species of Special Concern.

The San Pablo song sparrow is a song sparrow subspecies that is endemic to the tidal saltmarshes surrounding North San Francisco Bay and San Pablo Bay. These birds utilize habitat with California cord grass, pickleweed, and gumplant. They require sites with dense vegetation for nesting, for song perches, and for cover from predators.

CNDDB listed six occurrences (Occurrence #9, 26, 29, 30, 37, and 42) of San Pablo song sparrow within five miles of the Property. The majority of these occurrences are historical (occurring 20 or more years ago). Occurrence #30 is the closest record to the Property, and the Property lies within the boundary of this occurrence. This record is a historical occurrence from specimens collected in 1947. The exact location of the specimen collection is unknown, and was mapped roughly to a salt marsh 4.0 miles north of Richmond. The most recent occurrence (Occurrence # 9) is documented approximately 4.5 miles northeast of the Property, at the southwestern tip of Mare Island, southwest of Vallejo. In this occurrence, 130 adults were detected in April and May in 2004. No San Pablo song sparrows were observed during the November survey. The San Pablo song sparrow's range is restricted mainly to the fringes of the San Pablo Bay portion of the San Francisco Bay estuary (Shuford and Gardali, 2008). The Property did not contain California chordgrass, pickleweed, or gumplant vegetation which this species prefers, and it lacked the tidal saltmarsh habitat necessary for foraging and nesting.

Although Occurrence #30 overlaps with the Property boundary, this historical record was an approximation, with a maximum error distance of up to 1.0 mile. Additionally, since the collection of this specimen in 1947, the surrounding area has been developed extensively by both residential and commercial development which could create potential barriers to the dispersal of this species onto the Property from the more suitable tidal marsh habitat north of the site. For these reasons, the San Pablo song sparrow is presumed absent from the Property.

Swainson's Hawk (*Buteo swainsoni*). State Threatened.

The Swainson's hawk is a raptor that is slightly smaller than the red-tailed hawk with long wings that taper slightly toward the outer wing tip. This hawk has a brown bib that covers its head and extends down the chest. The leading portion of the wing is light in color. In flight, this bird has an inverse color pattern in comparison to a red-tailed hawk. This hawk has three potential color morphs---light, intermediate and dark. Swainson's hawks are summer migrants to the Central Valley and Delta region where they nest within larger-sized trees.

CNDDB did not list any occurrences of Swainson's hawks within a five-mile radius of the Property, however there were eight occurrences of this species documented in the surrounding quadrants. This species was not observed during the November survey. The Property contained suitable nesting trees for Swainson's hawk with the numerous large eucalyptus trees; however, the site is less suitable for nesting due to the high level of urbanization and disturbance within and surrounding the Property. Swainson's hawks prefer to forage in open fields, agricultural areas, and sites with an abundance of small mammals. The surrounding areas are largely developed, with residential and commercial buildings, and the ruderal grassland habitat within the Property provides only marginally suitable foraging habitat. For these reasons and due to the lack of nearby nesting occurrences, the Swainson's hawk is not likely to occur on the Property.

MAMMALS

Special-status Bats

Bats (Order - *Chiroptera*) are the only mammals capable of "true" flight. They are nocturnal feeders and locate their prey, which consists of small to medium sized insects by echolocation. Bats consume vast amounts of insects making them very effective pest control agents. They may eat as much as their weight in insects per day. Maternity roosts comprised of only females, may be found in buildings or mine shafts with temperatures up to 40 degrees Celsius and a high percentage of humidity to ensure rapid growth in the young. Female bats give birth to only one or two young annually and roost in small or large numbers. Males may live singly or in small groups, but scientists are still unsure of the whereabouts of most males in summer.

Special-status bats with the potential to occur on the Property are listed below:

- Hoary bat (*Lasiurus cinereus*)
- Silver-haired bat (*Lasionycteris noctivagans*)
- Pallid bat (*Antrozous pallidus*)
- Yuma myotis (*Myotis yumanensis*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)

CNDDB listed one occurrence (Occurrence #139) of pallid bat within 5-miles of the Property. In this historical occurrence, recorded in 1937, several specimens were collected from an unknown location mapped approximately to an area west of Pinole at sea level, approximately 4.0 miles east of the Property. In addition to this occurrence, CNDDB listed several occurrences of Townsend's big-eared bat, hoary bat, pallid bat, and silver-haired bat in the surrounding 9 quadrants. No bats, or sign of bat occupation was observed during the November survey; however, the site contains an abundance of suitable roosting habitat throughout the Property. The large trees present throughout the site contain dense foliage, peeling bark, and tree cavities, all of which provide roosting opportunities for foliage and cavity roosting species such as the hoary bat, Yuma myotis, and silver-haired bat. The Property also contains numerous vacant structures which could provide roosting habitat for structure roosting species such as Townsend's big-eared bat, pallid bat, and Yuma Myotis. Additionally, the grassland, perennial drainage, and riparian habitats provide an array of insects, allowing for abundant foraging opportunities throughout the site. Given the above information, Yuma myotis, hoary bat, pallid bat, and Townsend's big-eared bat have a high potential to occur on the Property in both a roosting and foraging capacity, while the silver-haired bat has a moderate potential to occur in both a roosting and foraging capacity.

AMPHIBIANS

California Red-Legged Frog (*Rana draytonii*). Federally Threatened, California Species of Special Concern.

California red-legged frog (CRLF) was listed as a Federal threatened species on May 31, 1996 (61 FR 25813) and is considered threatened throughout its range. If a proposed Property may jeopardize listed species, Section 7 of the ESA requires consideration of those species through formal consultations with the USFWS. Federal Proposed species (USFWS 2006c) are species for which a proposed listing as Threatened or Endangered under the ESA has been published in the Federal Register. If a proposed Property may jeopardize proposed species, Section 7 of the ESA affords consideration of those species through informal conferences with USFWS. On April 13, 2006, USFWS designated critical habitat for the CRLF under the ESA. In total, approximately 450,288 acres fell within the boundaries of critical habitat designation. A new ruling by the USFWS on March 17, 2010, revised the designation of critical habitat for CRLF (75 FR 12815 12959). In total, approximately 1,636,609 acres of critical habitat in 27 California

counties fall within the boundaries of the final revised critical habitat designation. This rule became effective on April 16, 2010.

The CRLF is a rather large frog, measuring one and a half to five inches in length. They are reddish-brown to gray in color, with many poorly defined dark specks and blotches. Dorsolateral folds are present. The underside of the CRLF is washed with red on the lower abdomen and hind legs. The CRLF has a dark mask bordered by a light stripe on the jaw, smooth eardrums, and not fully webbed toes. The male has enlarged forearms and swollen thumbs. Its vocals consist of a series of weak throaty notes, rather harsh, and lasting two to three seconds. Breeding occurs from December to March with egg masses laid in permanent bodies of water.

The CRLF is found in lowlands, foothill woodland and grasslands, near marshes, lakes, ponds or other water sources. These amphibians require dense shrubby or emergent vegetation closely associated with deep still or slow-moving water. Generally, these frogs favor intermittent streams with water at least two and a half feet deep and where the shoreline has relatively intact emergent or shoreline vegetation. CRLF is known from streams with relatively low gradients and those waters where introduced fish and bullfrogs are absent. CRLF are known to take refuge upland in small mammal burrows during periods of high-water flow. CRLF occurs west of the Sierra Nevada-Cascade and in the Coast Ranges along the entire length of the state. Historically, they occurred throughout the Central Valley and Sierra Nevada foothills south to northern Baja California. Now they are found from Sonoma and Butte Counties south to Riverside, but mainly in Monterey, San Luis Obispo, and Santa Barbara Counties.

CNDDB listed 8 occurrences of the CRLF occurring within five miles of the Property, with the majority of these occurrences recorded southeast of Interstate 80 within the USFWS designated critical habitat for CRLF (Unit D02D) (Attachment 1, Figure 7). The closest occurrence (Occurrence #407) is approximately 1.5 miles east of the Property. In this occurrence, two adults and nine juveniles were observed in a tributary to Refugio Creek, southeast of the intersection of Interstate 80 and Highway 4, in 2000. The most recent occurrence (Occurrence #1113) was documented in 2008 approximately 4.5 miles southeast of the Property. The perennial drainage and potential seasonal wetland features on the Property, do not offer suitable habitat to support breeding for this species due to the lack of deep ponding water onsite. Additionally, the closest occurrence of CRLF is approximately 1.5 miles from the Property, which is outside of the one-mile dispersal range known for this species. The site contains wetted riparian habitat which could provide adequate shelter, foraging opportunities, and predator avoidance for this species; however, the closest occurrence is located outside the known dispersal distance for this species, and is separated from the Property by extensive residential development, roads, and Interstate 80, all of which could be potential barriers to the dispersal of CRLF onto the Property from more suitable breeding habitat elsewhere. For these reasons, CRLF is not likely to occur on the Property.

INVERTEBRATES

Monarch Butterfly (*Danaus plexippus*). Winter Roost Sites State Protected.

The monarch butterfly is identified by its bright orange color. The wings have a wide black border and black veins. The apex and borders of the wings contain white spots and the wingspan is approximately three to four inches. This species of butterfly ranges from southern Canada throughout the United States, Central and South America. Each autumn (August through October) monarch butterflies migrate south to overwinter in massive aggregations in coastal California and in central Mexico. Monarchs typically reach their overwintering grounds by September or October. Monarchs select overwintering sites based on protection from high wind and storms, absence of freezing temperatures, presence of spatially variable light such as full sun, shade, and dappled sunlight, the presence of high humidity, and availability of water. These aggregations of sometimes millions of individuals can be found in sheltered groves of trees such as eucalyptus, Monterey Pine and cypress. The host plant of the monarch butterfly is the milkweed (*Ascelepius* sp.). Eggs are laid on the underside of the leaves. Upon hatching, the larvae feed on the poisonous host plant, storing these toxins as protection from predators. Monarch butterfly overwintering sites are protected in California.

CNDDB listed one occurrence (Occurrence #24) of a monarch butterfly overwintering site within five miles of the Property. In this occurrence, a population of overwintering monarchs was observed within blue gum eucalyptus trees at Point Pinole Regional Shoreline from 1980 to 2011, approximately 3.5 miles west of the Property. The Property contains plenty of blue gum eucalyptus trees that would provide suitable habitat for overwintering monarchs. For these reasons, the monarch butterfly has a moderate potential to occur on the Property.

7.0 CONCLUSIONS

7.1 Wetlands

Results of the biological resource analysis survey conducted by Olberding Environmental indicate that the Property contains wetlands/waters considered jurisdictional by the Corps, RWQCB or CDFW. The Property has a perennial drainage feature, and two isolated seasonal wetlands. The Corp has determined that they would only have jurisdiction over the perennial drainage feature. Similarly, the CDFW would only have jurisdiction over the drainage and associated riparian habitat. However, the RWQCB would regulate both the perennial drainage and isolated seasonal wetland features. a. Site development would avoid all three jurisdictional features and incorporate avoidance and project design features such as setback buffers and augmentation of hydrology, to protect and maintain the drainage and wetlands..

7.2 Special-status Plants

No special-status plant species were determined to have a potential to occur on the Property. This was based on the frequent disturbance by livestock activity and land management practices within the Property, as well as the absence of suitable habitats and soil types, and nearby or recent CNDDB occurrences.

7.3 Special-status Wildlife

Foraging or Nesting Raptor/Passerine Species – A total of four bird species were identified as having potential to occur on the Property. Red-tailed hawk, red-shouldered hawk, white-tailed kite, and Cooper's hawk had a high potential to occur on the Property in both a nesting and foraging capacity. The red-tailed hawk was the only raptor species observed foraging on the Property during the time of the survey.

Special-Status Mammals – Given the presence of suitable onsite habitat; the pallid bat, hoary bat, Townsend's big-eared bat, silver-haired, and Yuma myotis have a high to moderate potential to occur on the Property in a foraging and roosting capacity. No immediate signs of bats were present during the initial survey but the large redwood, eucalyptus, and palm trees, as well as the vacant residence, barns, and outbuildings within the Property could provide potential roosting habitat.

Special-Status Amphibians – CNDDB lists 8 occurrences of CRLF and USFWS designated critical habitat within the vicinity of the Property. The Property contains potential seasonal wetlands and a perennial drainage feature; however, they do not provide suitable breeding habitat for this species. The Property contains marginally suitable foraging and dispersal habitat for this species, although the closest occurrence is outside of the one-mile dispersal distance for CRLF. For these reasons, CRLF is not likely to occur on the Property.

Special-Status Invertebrates– CNDDB lists one occurrence of a monarch butterfly overwintering site within the vicinity of the Property. The Property contains suitable overwintering habitat with the presence of eucalyptus woodland and the presence of water within the site. For these reasons, monarch butterfly has a moderate potential to overwinter on the Property.

8.0 RECOMMENDATIONS

- **Pre-Construction Avian Survey** – If project construction-related activities would take place during the nesting season (February through August), preconstruction surveys for nesting passerine birds and raptors (birds of prey) within the Property should be conducted by a competent biologist 14 days prior to the commencement of the tree removal or site grading activities. If any bird listed under the Migratory Bird Treaty Act

is found to be nesting within the project site or within the area of influence, an adequate protective buffer zone should be established by a qualified biologist to protect the nesting site. This buffer shall be a minimum of 75 feet from the project activities for passerine birds, and a minimum of 200 feet for raptors. The distance shall be determined by a competent biologist based on the site conditions (topography, if the nest is in a line of sight of the construction and the sensitivity of the birds nesting). The nest site(s) shall be monitored by a competent biologist periodically to see if the birds are stressed by the construction activities and if the protective buffer needs to be increased. Once the young have fledged and are flying well enough to avoid project construction zones (typically by August), the project can proceed without further regard to the nest site(s).

- **Pre-construction Bat Survey –** To avoid "take" of special–status bats, the following mitigation measures shall be implemented prior to the removal of any existing trees or structures on the project site:

  a) A bat habitat assessment shall be conducted by a qualified bat biologist during seasonal periods of bat activity (mid–February through mid–October – ca. Feb. 15 – Apr. 15, and Aug. 15 – October 30), to determine suitability of each existing structure as bat roost habitat.

  b) Structures found to have no suitable openings can be considered clear for project activities as long as they are maintained so that new openings do not occur.

  c) Structures found to provide suitable roosting habitat, but without evidence of use by bats, may be sealed until project activities occur, as recommended by the bat biologist. Structures with openings and exhibiting evidence of use by bats shall be scheduled for humane bat exclusion and eviction, conducted during appropriate seasons, and under supervision of a qualified bat biologist.

  d) Bat exclusion and eviction shall only occur between February 15 and April 15, and from August 15 through October 30, in order to avoid take of non–volant (non–flying or inactive, either young, or seasonally torpid) individuals.

  OR

  A qualified wildlife biologist experienced in surveying for and identifying bat species should survey the portion of the Property with large trees and abandoned structures. If tree removal is proposed to determine if any special–status bats reside in the trees. Any special–status bats identified should be removed without harm. Bat houses sufficient to shelter the number of bats removed should be erected in open space areas that would not be disturbed by project development.

- **Monarch Butterfly Survey** – The monarch butterfly arrives at California overwintering sites in September and October. Due to the CNDDB occurrence of an overwintering site within a five-mile radius of the Property, an overwintering monarch survey is recommended in late September or the month of October to confirm the presence or absence of overwintering monarch butterflies on the Property.

- **Riparian Habitat Replacement** - Riparian woodland habitat exists along a perennial drainage located along the southern boundary of the project site. Native tree species such as California buckeye, California black walnut, and willow species are present throughout this habitat. If removal of any trees deemed "protected" by the City of Hercules Municipal Code (Title 4, Chapter 15 – Removal of Mature Trees) from the riparian habitat during project activities were to occur, all ordinances and codes must be adhered to. An arborist report may be necessary to determine the identity of trees planned for removal or alteration, the impact of alteration, and measures that may be required to address tree removal if tree removal should occur. The City requires a tree replacement plan to be submitted and approved prior to any tree removal. Olberding Environmental recommends that all trees over 12 diameters at breast height (DBH) in size slated for removal shall be replaced at a 3:1 ratio of 15-gallon trees. 15-gallon containers have been in the pots/nursery for the least amount of time and have the greatest potential to have well formed, but not defective, root system. Adherence to Title 4, Chapter 15 - Removal of Mature Trees of the City of Hercules Municipal Code would result in a less than significant impact to riparian habitat or other sensitive natural community.

- **Biological Monitoring** - Wildlife exclusion fencing shall be installed around the perimeter of the work area in order to prevent native and migratory wildlife species from entering the project site during construction activities. Daily biological monitoring during initial grubbing and weekly checks of wildlife exclusion fencing after initial grubbing has concluded. These monitoring activities will be conducted by a qualified biologist having local wildlife experience. Daily wildlife surveys would be included. All contractors and construction crews working onsite will receive environmental and biological sensitivity training in order to reduce or avoid effects on covered species during construction activities.

- **Erosion Control** – Grading and excavation activities could expose soil to increased rates of erosion during construction periods. During construction, runoff from the Property could adversely affect aquatic life within the adjacent water features. Surface water runoff could remove particles of fill or excavated soil from the site, or could erode soil down-gradient, if the flow were not controlled. Deposition of eroded material in adjacent water features could increase turbidity, thereby endangering aquatic life, and reducing wildlife habitat. Implementation of appropriate mitigation measures would ensure that impacts to aquatic organisms would be avoided or minimized. Mitigation measures may

include use of best management practices (BMP's) such as hay bales, silt fencing, placement of straw mulch and hydro seeding of exposed soils after construction as identified in a project Storm Water Pollution Prevention Plan (SWPPP).

9.0 LITERATURE CITED

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ATTACHMENTS

ATTACHMENT 1
FIGURES

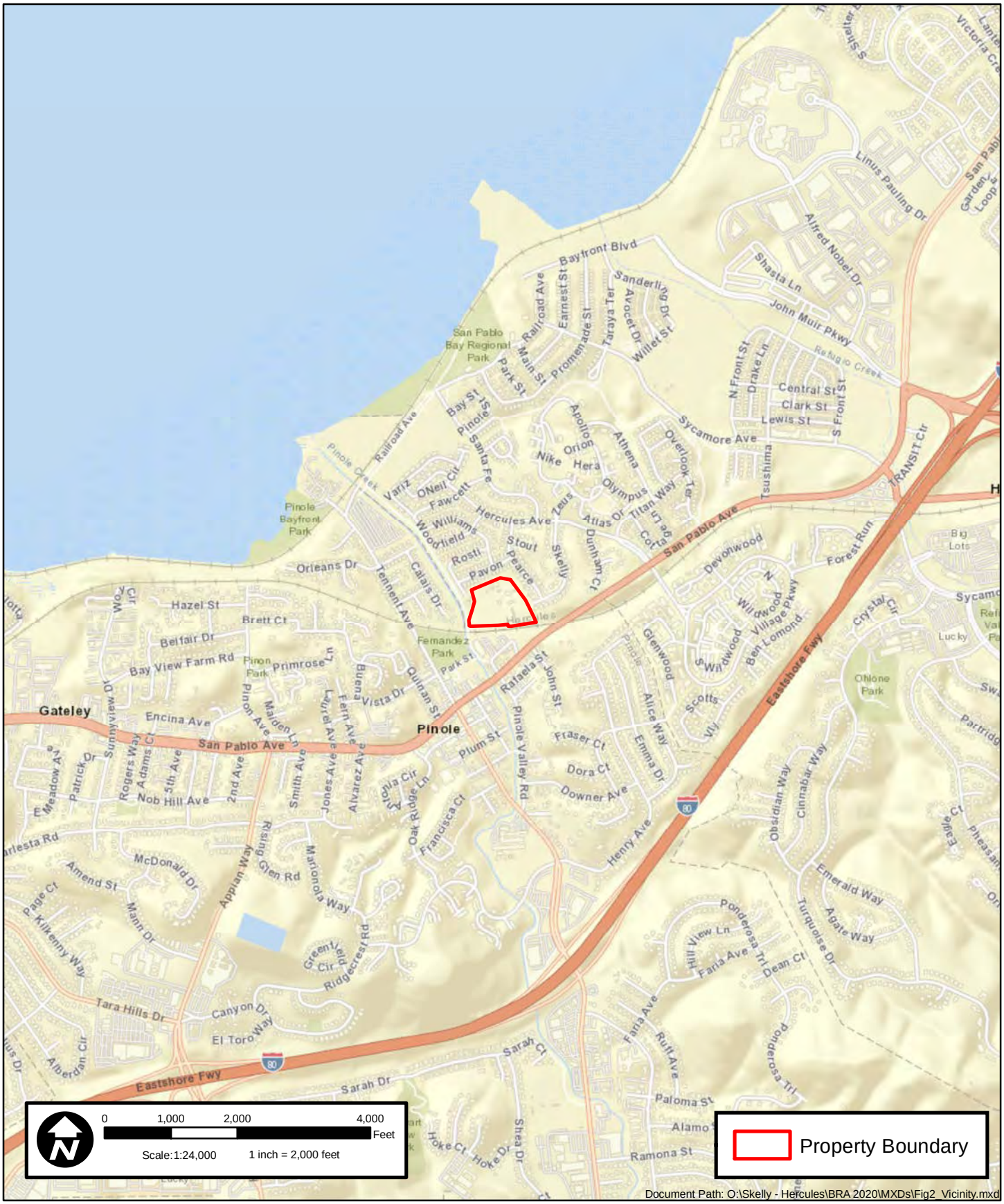
Figure 1
Regional Map

Figure 1: Regional Map
Skelly Property
City of Hercules, Contra Costa County, California

OLBERDING -ENVIRONMENTAL-
193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Revision Date: 11/16/2020

Figure 2
Vicinity Map



OLBERDING -ENVIRONMENTAL-

193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Figure 2: Vicinity Map
Skelly Property
City of Hercules, Contra Costa County, California

Revision Date: 11/16/2020

Figure 3
USGS Quadrangle Map

Figure 3: USGS Topographic Map
Skelly Property
City of Hercules, Contra Costa County, California

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Revision Date: 11/16/2020

Figure 4
Aerial Photograph

Figure 4: Aerial Map
Skelly Property
City of Hercules, Contra Costa County, California

OLBERDING -ENVIRONMENTAL-

193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Revision Date: 11/16/2020

Figure 5
CNDDB Wildlife Occurrences within 5 miles

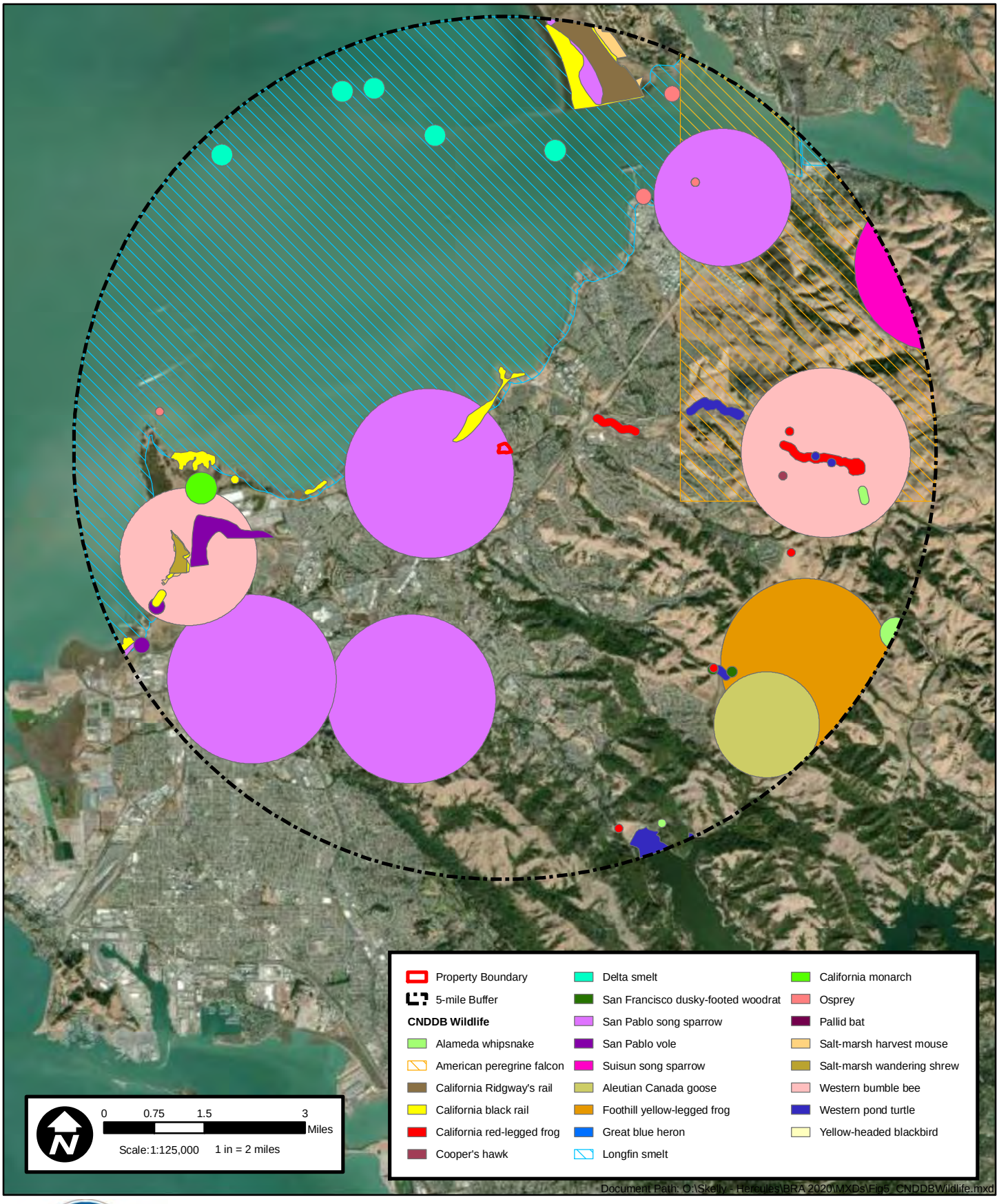

Figure 5: CNDDB Wildlife Occurrences within 5 Miles
Skelly Property
City of Hercules, Contra Costa County, California

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Phone: (916) 985-1188

Revision Date: 11/16/2020

Figure 6
CNDDB Plant Occurrences within 5 miles

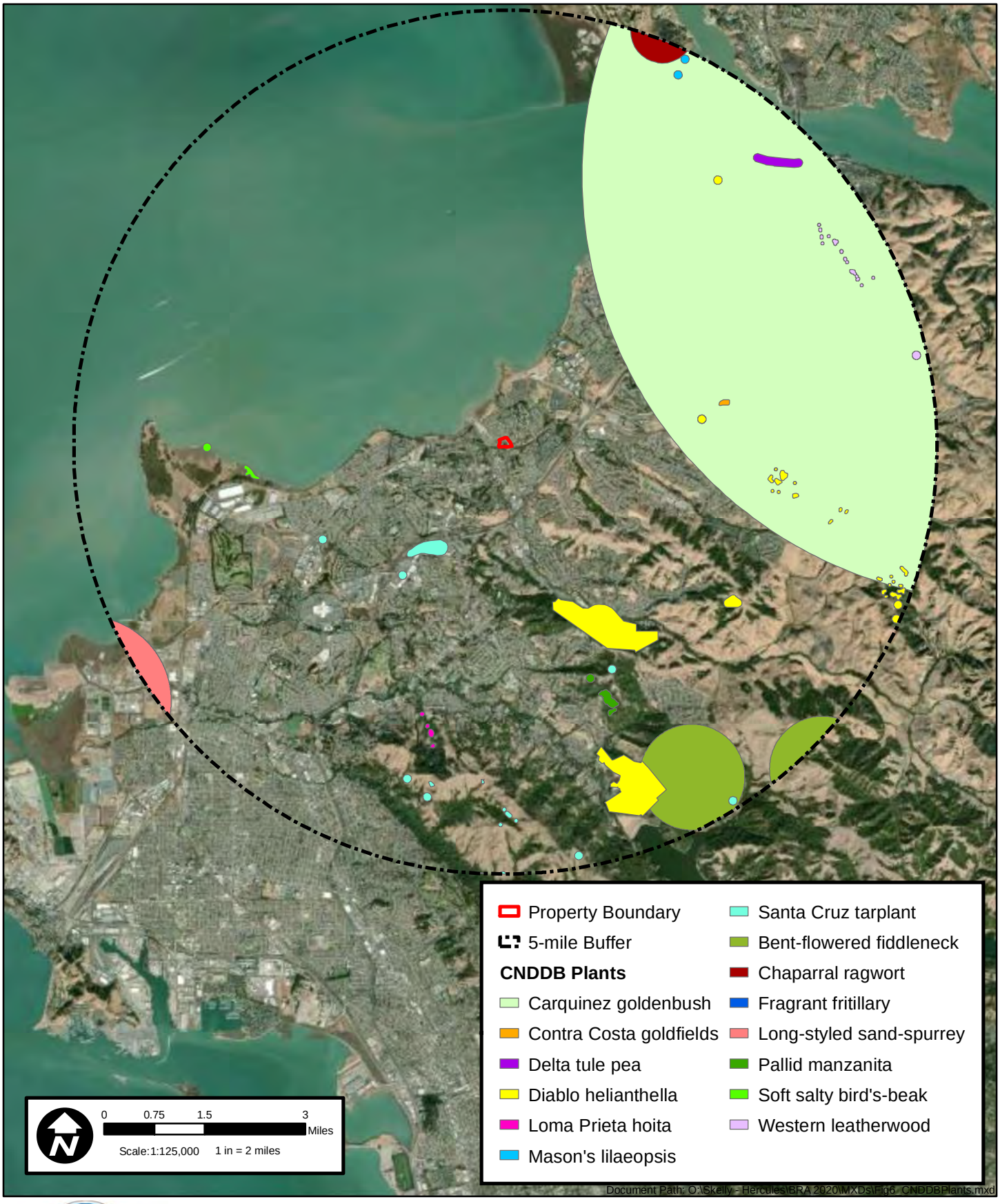

Figure 6: CNDDB Plant Occurrences within 5 Miles
Skelly Property
City of Hercules, Contra Costa County, California

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193 Blue Ravine Rd., Ste. 165
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Figure 7
USFWS Designated Critical Habitat

Figure 7: USFWS Designated Critical Habitat Map

Skelly Property
City of Hercules, Contra Costa County, California

OLBERDING -ENVIRONMENTAL-

193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Revision Date: 11/16/2020

Figure 8
Soils Map

Figure 8: Soils Map
Skelly Property
City of Hercules, Contra Costa County, California

OLBERDING -ENVIRONMENTAL-

193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
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Revision Date: 11/16/2020

Figure 9
Photo Location Map

Figure 9: Photo Points Map
Skelly Property
City of Hercules, Contra Costa County, California

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Folsom, CA 95630
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Revision Date: 11/16/2020

Figure 10
Habitat Map

Figure 10: Habitat Map
Skelly Property
City of Hercules, Contra Costa County, California

OLBERDING -ENVIRONMENTAL-

193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Revision Date: 12/3/2020

ATTACHMENT 2

TABLES

Table 1

Plant and Wildlife Species Observed

Within/Adjacent to the Survey Area

Table 1

Plant and Wildlife Species Observed Within/Adjacent to the Survey Area

Scientific Name	Common Name
Plant Species Observed	
Aesculus californica	California buckeye
Acacia melanoxylon	Blackwood acacia
Amaranthus retroflexus	Rough pigweed
Anagallis arvensis	Scarlet pimpernel
Asparagus officinalis	Wild asparagus
Avena barbata	Barbed wild oat
Avena fatua	Wild oat
Baccharis pilularis	Coyote brush
Brassica nigra	Black mustard
Brassica rapa	French breakfast mustard
Bromus catharticus	Chilean brome
Bromus diandrus	Ripgut brome
Bromus hordeaceus	Soft chess
Carduus pycnocephalus	Italian thistle
Cirsium vulgare	Bull thistle
Cortaderia selloana	Pampas grass
Convolvulus arvensis	Field bindweed
Cupressus sempervirens	Italian cypress
Croton setigerus	Dove weed
Cynodon dactylon	Bermuda grass
Cyperus eragrostis	Umbrella sedge
Dactylis glomerata	Orchardgrass
Distichlis spicata	Saltgrass
Dittrichia graveolens	Stinkwort
Echinochloa colona	Jungle rice
Echinochloa crus-galli	Barnyard grass
Ehrharta erecta	Upright veldt grass
Epilobium brachycarpum	Panicled willowherb
Euphorbia maculata	Spotted spurge
Erigeron canadensis	Canada horseweed
Erodium cicutarium	Filaree
Eucalyptus globulus	Blue gum

Table 1

Plant and Wildlife Species Observed Within/Adjacent to the Survey Area

Scientific Name	Common Name
Hedera helix	English ivy
Helminthotheca echioides	Bristly ox-tongue
Hordeum murinum	Wall barley
Juglans hindsii	Northern California black walnut
Juglans regius	English walnut
Lantana camara	Lantana
Lactuca serriola	Prickly lettuce
Lactuca virosa	Poison wild lettuce
Ligustricum sp.	Privet
Malva neglecta	Dwarf mallow
Malva nicaeensis	Bull mallow
Malva parviflora	Cheeseweed
Malvella leprosa	Alkali mallow
Medicago sativa	Alfalfa
Olea europaea	Olive
Populus nigra	Lombardy poplar
Pelargonium sp.	Garden geranium
Phoenix sp.	Date palm
Pinus canariensis	Canary Island pine
Pinus sp.	Ornamental pines
Plantago lanceolata	English ribwort
Plantago major	Common plantain
Polygonum aviculare	Prostrate knotweed

Table 1

Plant and Wildlife Species Observed Within/Adjacent to the Survey Area

Scientific Name	Common Name
Polypogon monspeliensis	Annual beard grass
Quercus agrifolia	Coast live oak
Raphanus sativus	Wild raddish
Robinia pseudoacacia	Black locust
Rubus armeniacus	Armenian blackberry
Rumex acetosella	Sheep sorrel
Rumex crispus	Curly dock
Rumex pulcher	Fiddle dock
Salix babylonica	Weeping willow
Salix laevigata	Red willow
Salix lasiolepis	Arroyo willow
Salsola kali	Russian thistle
Salsola tragus	Tumbleweed
Schinus molle	Peruvian pepper tree
Sequoia sempervirens	Coast redwood
Sisymbrium officinale	London rocket
Salsola tragus	Tumbleweed
Sonchus asper	Spiny sowthistle
Sonchus oleraceus	Sowthistle
Tamarix parviflora	Tamarisk
Toxicodendron diversilobum	Poison oak
Trifolium hybridum	Alsike clover
Tropaeolum majus	Garden nasturtium
Typha angustifolia	Narrow-leaved cattail
Yucca gigantea	Giant yucca
Animal Species Observed	
Birds	
Aphelocoma californica	California scrub jay
Buteo jamaicensis	Red-tailed hawk
Bombycilla cedrorum	Cedar waxwing
Calypte anna	Anna’s hummingbird
Cathartes aura	Turkey vulture
Colaptes auratus	Northern flicker
Corvus brachyrhynchos	American crow

Table 1

Plant and Wildlife Species Observed Within/Adjacent to the Survey Area

Scientific Name	Common Name
Egretta thula	Snowy egret
Junco hyemalis	Dark-eyed junco
Leuconotopicus villosus	Hairy woodpecker
Melanerpes formicivorus	Acorn woodpecker
Melozone crissalis	California towhee
Pipilo maculatus	Spotted towhee
Picoides nuttallii	Nuttall's woodpecker
Poecile rufescens	Chestnut-backed chickadee
Psaltriparus minimus	Bushtit
Regulus calendula	Ruby-crowned kinglet
Sayornis nigricans	Black phoebe
Setophaga coronata	Yellow-rumped warbler
Sialia mexicana	Western bluebird
Spinus psaltria	Lesser goldfinch
Zonotrichia atricapilla	Golden-crowned sparrow
Zonotrichia leucophrys	White-crowned sparrow
Mammals	
Felis catus	Domestic cat
Microtus californicus	California vole (burrows)
Sciurus niger	Eastern fox squirrel
Peromyscus spp.	Mouse (burrows)

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
PLANTS					
Napa False Indigo (*Amorpha californica var.napenss*)	-/-/1B	April – July	Openings in broad leaf upland forest, chaparral, cismontane woodland.	Low No suitable habitat present	Presumed absent
Bent-flower Fiddleneck (*Amsinckia lunaris*)	-/-/1B	March – June	Coastal bluff scrub, cismontane woodland, and valley and foothill grassland	Low No suitable habitat present	Presumed absent
Pallid Manzanita (*Arctostaphylos pallida*)	T/E/1B	December – March	Siliceous shale, sandy or gravelly soils in broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland and coastal scrub.	Low No suitable habitat present	Presumed absent
Alkali Milk-Vetch (*Astragalus tener* var. *tener*)	-/-/1B	March – June	Playas, valley and foothill, and vernal pools in alkaline soils. Micro habitat consists of low ground, alkali flats, and flooded lands	Low No suitable habitat present	Presumed absent
Big-Scale Balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*)	-/-/1B	March – June	Chaparral, cismontane woodland, and valley and foothills grasslands, sometimes in serpentinite outcrops.	Low No suitable habitat present	Presumed absent
Sonoma Sunshine *(Blennosperma bakeri)*	E/E/1B	March – May	Wetlands, vernal pools, freshwater wetlands, valley grasslands and wetland-riparian	Low Suitable habitat present	Presumed absent
Big Tarplant (*Blepharizonia plumosa*)	-/-/1B.1	July – October	Valley and foothill grassland on clay soils.	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Mount Diablo Fairy-Lantern (*Calochortus pulchellus*)	-/-/1B	April – June	Chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland; on wooded and brushy slopes.	Low No suitable habitat present	Presumed absent
Tiburon Mariposa Lily (*Calochortus tiburonensis*)	T/T/1B	May – June	Open, rocky slopes in serpentine grassland.	Low No suitable habitat present	Presumed absent
Coastal Bluff Morning-Glory (*Calystegia purpurata ssp. Saxicola)*	-/-/1B	May – September	Coastal dunes and scrub.	Low No suitable habitat present	Presumed absent
Lyngbye's Sedge *(Carex lyngbyei)*	-/-/2B	April – August	Wetlands, coastal and salt-marsh, coastal salt marsh and wetland-riparian.	Low No suitable habitat present	Presumed absent
Tiburon Indian Paintbrush (*Castilleja affinis ssp. neglecta*)	E/T/1B	April – June	Rocky serpentine sites in valley and foothill grassland.	Low No suitable habitat present	Presumed absent
Congdon's Tarplant (*Centromadia parryi* ssp. *congdonii*)	-/-/1B	May – October	Valley and foothill grasslands in alkaline soils.	Low No nearby CNDDB	Presumed absent

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Pappose Tarplant (*Centromadia parryi ssp. parryi*)	-/-/1B.2	May – November	Often alkaline. Chaparral, Coastal prairie, meadows and seeps, marshes and swamps (coastal salt), valley and foothill grassland (vernally mesic).	Low No suitable habitat present	Presumed absent
Point Reyes Salty Bird's-Beak *(Chloropyron maritimum ssp. palustre)*	-/-/1B	June – October	Annual herb occurring in coastal salt marshes and swamps.	Low No suitable habitat present	Presumed absent
Soft Salty Bird's Beak (*Chloropyron molle ssp. molle*)	E/R/1B	July – November	Coastal salt marsh, wetland-riparian.	Low No suitable habitat present	Presumed absent
Bolander's Water-Hemlock (*Cicuta maculata var. bolanderi*)	-/-/2B	July – September	Coastal, salt marsh and wetland riparian.	Low No suitable habitat present	Presumed absent
Franciscan Thistle (*Cirsium andrewsii*)	-/-/1B	March – July	Grassy and riparian areas in seeps, wet areas, watercourse edges. Typically, along coastlines.	Low No nearby CNDDB	Presumed absent
Suisun Thistle (*Cirsium hydrophilum* var. *hydrophilum*)	E/-/1B	July – September	Salt marshes and swamps.	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Western Leatherwood (*Dirca occidentalis*)	-/-/1B	January – March	Mesic areas of broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest and riparian woodland.	Low No suitable habitat present	Presumed absent
Dwarf Downingia (*Downingia pusilla*)	-/-/2B	March – May	Mesic valley and foothill grasslands, vernal pools.	Low No suitable habitat present	Presumed absent
Tiburon Buckwheat (*Eriogonum luteolum var. caninum*)	-/-/1B	June – September	Serpentine soils in chaparral, coastal prairie, valley and foothill grassland.	Low No suitable habitat present	Presumed absent
Jepson's Coyote-Thistle (*Eryngium jepsonii*)	-/-/1B	April − August	Clay soils. Valley and foothill grasslands. Vernal pools.	Low No suitable habitat present	Presumed absent
San Joaquin Spearscale (*Extriplex joaquinana*)	-/-/1B	April-October	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland in seasonal alkali wetlands or alkali sink scrub with *Distichlis spicata*, *Frankenia*, etc.	Low No nearby CNDDB	Presumed absent
Minute Pocket Moss (*Fissidens pauperculus*)	-/-/1B	-	North Coast coniferous forest in damp coastal soil.	Low No suitable habitat present	Presumed absent
Fragrant Fritillary (*Fritillaria liliacea*)	-/-/1B	February – April	Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands, often in serpentine soils.	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Diablo Helianthella (*Helianthella castanea*)	-/-/1B	March – June	Broad-leafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils, often in partial shade.	Low Suitable habitat present	Not likely to occur
Marin Western Flax (*Hesperolinon congestum*)	T/T/1B	April – July	Serpentine areas in chaparral, valley and foothill grassland.	Low No suitable habitat present	Not likely to occur
Santa Cruz Tarplant (*Holocarpha macradenia*)	T/E/1B	June – October	Coastal prairie, coastal scrub, and valley and foothill grasslands, often with clay, sandy soils; often with non-natives.	low Suitable habitat present	Not likely to occur
Loma Prieta Hoita (*Hoita strobilina*)	-/-/1B	May – October	Chaparral, cismontane woodland, riparian woodland, usually in mesic, serpentine soils.	Low No suitable habitat present	Presumed absent
Carquinez Goldenbush (*Isocoma arguta*)	-/-/1B	August – December	Alkaline valley and foothill grassland.	Low Surveyed during blooming period	Presumed absent
Contra Costa Goldfields (*Lasthenia conjugens*)	E/-/1B	March – June	Valley and foothill grassland, cismontane woodland, and vernal pools, swales, and low depressions in open grassy areas.	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Delta Tule Pea (*Lathyrus jepsonii var. jepsonii*)	-/-/1B	May – July	Freshwater wetlands, wetland-riparian, freshwater marsh, brackish marsh.	Low No suitable habitat present	Presumed absent
Legenere *(Legenere limosa)*	-/-/1B	April – June	Occurs in wetlands, vernal-pools, freshwater wetlands, valley grassland and wetland-riparian.	Low No suitable habitat present	Presumed absent
Jepson's Leptosiphon *(Leptosiphon jepsonii)*	-/-/1B	March – May	Open or partially shaded grassy slopes.	Low No suitable habitat present	Presumed absent
Mason's Lilaeopsis (*Lilaeopsis masonii)*	-/R/1B	April – November	Freshwater wetland, wetland-riparian, freshwater marsh or brackish marsh.	Low No suitable habitat present	Presumed absent
Delta Mudwort (*Limosella australis*)	-/-/2B	May – August	Marshes and swamps (freshwater or brackish), riparian scrub. Usually found on mud banks.	Low No suitable habitat present	Presumed absent
Oregon Meconella (*Meconella oregana*)	-/-/1B	March – April	Coastal prairie, coastal scrub.	Low No suitable habitat	Presumed absent

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Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

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White-Rayed Pentachaeta (*Pentachaeta bellidiflora*)	E/E/1B	March – May	Cismontane woodland, valley and foothill grassland. Often serpentine.	Low No suitable habitat Present	Presumed absent
Hairless Popcorn-Flower (*Plagiobothrys glaber*)	-/-/1A	March – May	Meadows and seeps, marshes and swamps, coastal salt marshes and alkaline meadows.	Low No suitable habitat present	Presumed absent
Marin Knotweed (*Polygonum marinense*)	-/-/3	(April) May – August (October) Months in parentheses are uncommon	Coastal salt and brackish marshes and swamps.	Low No suitable habitat present	Presumed absent
Chaparral Ragwort (*Senecio aphanactis*)	-/-/2	January – April	Cismontane woodland, coastal scrub, drying alkaline flats, chaparral.	Low No suitable habitat present	Presumed absent
Long-Styled Sand Spurrey (*Spergularia macrotheca longistyla*)	-/-/1B	February – May	Alkaline meadows and seeps, marshes and swamps.	Low No suitable habitat present	Presumed absent
Tiburon Jewelflower (*Streptanthus glandulosus ssp. niger*)	E/E/1B	May – June	Shallow rocky serpentine slopes in valley and foothill grassland.	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
California Seablite (*Suaeda californica*)	E/-/1B	July – October	Marshes and swamps, margins of coastal salt marshes.	Low No suitable habitat present	Presumed absent
Suisun Marsh Aster (*Symphyotrichum lentum*)	-/-/1B	March – November	Freshwater and brackish marsh.	Low No suitable habitat present	Presumed absent
Two Fork Clover (*Trifolium amoenum*)	E/-/1B	April – June	Coastal bluff scrub, valley and foothill grassland. Sometimes serpentine.	Low No suitable habitat present	Presumed absent
Saline Clover (*Trifolium hydrophilum*)	-/-/1B	April – June	Marshes and swamps, valley and foothill grasslands with mesic, alkaline soils, and vernal pools.	Low No suitable habitat present	Presumed absent
Coastal Triquetrella (*Triquetrella california*)	-/-/1B	-	Coastal bluff scrub and coastal scrub.	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

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Oval-Leaved Viburnum (*Viburnum ellipticum*)	-/-/2B	May – June	Chaparral, cismontane woodland, lower montane coniferous forest.	Low No suitable habitat present	Presumed absent
BIRDS					
Cooper's Hawk (*Accipiter cooperii*)	-/CP/-	February – August	Oak woodlands, coniferous forests, riparian corridors. Often hunts on edges between habitats.	High Suitable habitat present	May occur
Tricolored Blackbird (*Agelaius tricolor*)	SOC/-/SSC	February – August	Nesting within seasonal wetland marshes, blackberry brambles or other protected substrates. Forages in annual grassland and wetland habitats.	Low No suitable habitat present	Presumed absent
Cackling Goose (Aleutian Canada) (*Branta hutchinsii leucopareia*)	D/-/-	Late Fall – Winter	Winters on lakes and inland prairies. Forages on natural pasture or that cultivated to grain; loafs on lakes, reservoirs, and ponds.	Low No suitable habitat present	Presumed absent
Burrowing Owl (*Athene cunicularia*)	-/SC/	February – August	Dry open annual or perennial grassland, desert and scrubland. Uses abandoned mammal burrows for nesting.	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Golden Eagle (*Aquila chrysaetos*)	FP/CP/-	February – August	Nests in cliff-walled canyons and tall trees in open areas. (Nesting and wintering) Rolling foothills mountain areas, sage-juniper flats, and desert.	Low No suitable habitat present	Presumed absent
Great Egret (*Ardea alba*) ROOKERIES	-/-/-	February – August	Freshwater, brackish and marine wetlands. Form breeding colonies on lakes, ponds, marshes, estuaries or islands. Forage in marshes, swamps, streams rivers, ponds, tidal flats, canals and flooded fam fields.	Low No suitable habitat present	Presumed absent
Great Blue Heron (*Ardea herodias*) ROOKERIES	-/-/-	February – August	Saltwater and freshwater habitats from open coasts, marshes, sloughs, riverbanks, and lakes to small ponds. Also forage in grasslands and agricultural fields.	Low No suitable habitat present	Presumed absent
Short-Eared Owl (*Asio flammeus*)	-/-/SSC	February – August	Open areas with low vegetation, including prairie and coastal grasslands, meadows, savannah, tundra, marshes, dunes and agricultural areas.	Low No suitable habitat present	Presumed absent
Red-Tailed Hawk (*Buteo jamaicensis*)	-/CP/-	February – August	Various grassland habitats, urban land, oak woodlands with grassland for foraging.	High Suitable habitat present	Present Foraging capacity

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

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Red-shouldered Hawk (*Buteo lineatus*)	-/CP/-	February – August	Forages in variety of semi-developed habitats including orchards. Forages in woodlands and riparian areas. Nests in riparian habitat but also eucalyptus groves.	High Suitable habitat present	May occur
Ferruginous Hawk (*Buteo regalis*)	-/CP/-	Late Fall – Winter	Open country such as semiarid grasslands with few trees, rocky outcrops, and open valleys. Also, along streams or in agricultural areas during migration.	Low No suitable habitat present	Presumed absent
Swainson's Hawk (*Buteo swainsoni*)	-/T/-	February – October	Nests in riparian areas and in oak savannah near foraging areas. Forages in alfalfa and grain fields with rodent populations.	Low Suitable habitat preset	Not likely to occur
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	T/-/SSC	February – August	Sandy beaches, salt pond levees, shores of large alkali lakes. Requires sandy, gravelly, or friable soils for nesting.	Low No suitable habitat present	Presumed absent

Table 2

Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Northern Harrier (*Circus hudsonius*)	-/-/SSC	February – August	Nests in grasslands and marshlands, ground nesting bird. (Nesting) Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	Low No suitable habitat present	Presumed absent
Yellow Rail (*Coturnicops noveboracensis)*	-/-/SSC	February – August	Salt or brackish marshes or wet meadows. Prefers habitats with tall, dense vegetation such as sedges or cattails.	Low No suitable habitat present	Presumed absent
Snowy Egret (*Egretta thula*) ROOKERIES	-/-/-	February – August	Found along the coast but breed in inland wetlands. Nest on thick vegetation in barrier islands, saltmarsh islands, swamps or marshes.	Low No suitable habitat present	Presumed absent
White-Tailed Kite (*Elanus leucurus*)	SOC/CP/FP	February – August	Various grassland habitats, urban land, oak woodlands with grassland for foraging.	High Suitable habitat present	May occur
American Peregrine Falcon (*Falco peregrinus anatum)*	-/-/FP	February – August	Nests near wetlands, lakes, rivers, or other water. On cliffs, banks, dunes, mounds, and human-made structures.	Low No suitable habitat present	Presumed absent

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Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*)	SOC/-/SSC	February – August	Fresh and saltwater marshes of the San Francisco Bay area. Forages in thick, continuous vegetation down to water surface. Nests in tall grasses, tule patches, and willows.	Low No suitable habitat present	Presumed absent
Bald Eagle (*Haliaeetus leucocephalus)*	-/E/FP	January – July	Wetland habitats such as coasts, rivers, lakes or marshes. Uses large mature conifers or hardwood trees for nesting.	Low No suitable habitat present	Presumed absent
Caspian Tern *(Hydroprogne caspia)*	-/-/-	April – June	Wetland habitats such as coasts, rivers and lakes. Utilize flat open areas with little vegetation for nesting.	Low No suitable habitat present	Presumed absent
California Black Rail (*Laterallus jamaicensis coturniculus)*	-/T/FP	February – July	Inhabits shallow salt and freshwater marshes. Nests in upland areas of salt marshes, shallow freshwater marshes, wet meadows and flooded grassy vegetation.	Low No suitable habitat present	Presumed absent
Suisun Song Sparrow (*Melospiza melodia maxillaris)*	-/-/SC	February – August	Inhabits tidal salt marshes, needs vegetation for nesting sites.	Low No suitable habitat present	Presumed absent

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Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Alameda Song Sparrow (*Melospiza melodia pusillula*)	-/-/SSC	February – August	Resident of salt marshes bordering south arm of San Francisco Bay, inhabits *Salicornia* marshes, nests low in *Grindelia* bushes (high enough to escape high tides) and in *Salicornia*.	Low No suitable habitat present	Presumed absent
San Pablo Song Sparrow (*Melospiza melodia samuelis*)	-/-/SSC	February – August	Tidal and muted tidal salt marshes fringing San Pablo Bay in the northern reaches of the San Francisco Bay estuary. Inhabits California cord grass, pickleweed, and gum plant.	Low No suitable habitat present	Presumed absent
Black-Crowned Night Heron (*Nycticorax nycticorax*) ROOKERIES	-/-/-	February – August	Inhabits wetlands including saltmarshes, freshwater marshes, swamps, streams, rivers, lakes, canals and tidal mudflats.	Low No suitable habitat present	Presumed absent
Osprey (*Pandion halietus*)	-/-/WL	February – August	Inhabit areas near bodies of water such as saltmarshes, rivers, ponds, reservoirs and estuaries. Large nests are places on open poles, channel markers, or dead trees and are often over water.	Low No suitable habitat present	Presumed absent
Double-Crested Cormorant (*Phalacrocorax auratus)*	-/-/WL	February – August	Seek large bodies of water. Inhabit coasts, inland lakes, freshwater marshes and saltmarshes.	Low Suitable habitat present	Presumed absent

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California Ridgeway's Rail (*Rallus obsoletus obsoletus*)	E/E/-	February – August	Salt to brackish-water marshes with tidal sloughs in San Francisco Bay area. Found in dense pickleweed.	Low No suitable habitat present	Presumed absent
Bank Swallow *(Riparia riparia)*	FP/T/SC	April – August	Low areas along rivers, streams, ocean coasts, and reservoirs. They utilize vertical cliffs or banks and sand or gravel quarries or road cuts to nest.	Low No suitable habitat present	Presumed absent
Yellow-Headed Blackbird (*Xanthocephalus xanthocephalus*)	-/-/SSC	February – August	Breed in wetlands in prairies, mountain meadows, and shallow areas of marshes, ponds and rivers. Nest in cattails, bulrush, or reeds often alongside red-winged blackbirds. Forage in grasslands, croplands, or savannah.	Low No suitable habitat present	Presumed absent
MAMMALS					
Pallid Bat (*Antrozous pallidus*)	-/SC/-	N/A	Forages in grasslands, shrublands, deserts, forests, and woodlands. Most common in open, dry habitats. Roosts in rock crevices, caves, tree hollows, and buildings. Roosts must protect bats from high temperatures; very sensitive to disturbance of roosting sites.	High Suitable habitat present	May occur

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Special-Status Species for the Mare Island, Sears Point, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, and Petaluma Point 7.5 Minute Quadrangle Maps[1]

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Townsend's Big-Eared Bat (*Corynorhinus townsendii*)	-/-/SC	Resident	Throughout California in a wide variety of habitats; roosts in the open, hanging from walls and ceilings. Needs sites free from human disturbance. Most common in mesic sites.	High Suitable habitat present	May occur
Berkeley Kangaroo Rat (*Dipodomys heermanni berkeleyensis*)	-/-/-	Resident	Open grassy hilltops and open spaces in chaparral and blue oak/digger pine woodlands; needs fine, deep, well-drained soil for burrowing.	Low No suitable habitat present	Presumed absent
Silver-Haired Bat (*Lasionycteris noctivagans*)	-/-/SSC	Resident	Primarily a coastal and montane forest dweller feeding over streams, ponds, and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	Moderate Suitable habitat present	May occur
Hoary Bat (*Lasiurus cinereus*)	-/-/-	Resident	Prefers open habitats or habitat mosaics with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees near water. Feeds mainly on moths.	High Suitable habitat present	May occur
San Pablo Vole (*Microtus californicus sanpabloensis*)	-/-/SSC	Resident	Salt marshes of San Pablo Creek and on the south shore of San Pablo Bay.	Low No suitable habitat present	Presumed absent
Yuma Myotis (*Myotis yumanensis*)	-/-/SC	Resident	Optimal habitats are open forests and woodlands with sources of water over which to feed. Maternal colonies occur in caves, mines, buildings or crevices.	High No suitable habitat present	May occur

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San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens*)	-/SC/-	Resident	Forest habitats of moderate canopy and moderate to dense understory, may prefer chaparral and redwood habitats. Nests constructed of grass, leaves, sticks, feathers, etc. Population may be limited by availability of nest materials.	Low Suitable habitat present	Not likely to occur
Big Free-Tailed Bat (*Nyctinomops macrotis*)	-/-/SSC	Resident	Low-lying arid areas in southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	Low No suitable habitat present	Presumed absent
Salt Marsh Harvest Mouse (*Reithrodontomys raviventris)*	E/E/FP	Resident	Salt marshes with dense stands of pickleweed and other dense wetland vegetation such as cattails or bullrush.	Low No suitable habitat present	Presumed absent
Suisun Shrew (*Sorex ornatus sinuosus*)	-/-/SSC	Resident	Tidal marshes of the northern shores of San Pablo and Suisun Bays. Require dense low-lying cover and drift weed and other litter above the mean high tide line for nesting and foraging.	Low No suitable habitat present	Presumed absent
Salt Marsh Wandering Shrew (*Sorex vagrans halicoetes*)	-/-/SSC	Resident	Tidal salt marsh habitat with dense cover from *Salicornia* and other tidal plant species.	Low No suitable habitat present	Presumed absent
American Badger (*Taxidea taxus*)	-/-/SSC	Resident	Shrub, forest, and herbaceous habitats with friable soils to dig burrows. Need open, uncultivated ground. Prey on fossorial mammals.	Low No suitable habitat present	Presumed absent

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AMPHIBIAN					
California Red-Legged Frog (*Rana draytonii*)	T/-/SC	May 1 – November 1	Lowlands and foothills in or near permanent deep water with dense, shrubby or emergent riparian habitat. Requires 11-20 weeks of permanent water for breeding and larval development. Must have access to aestivation habitat.	Low Suitable habitat present	Not likely to occur
California Tiger Salamander (*Ambystoma californiense*)	T/T/-	Aquatic Surveys - Once each in March, April, and May with at least 10 days between surveys. Upland Surveys - 20 nights of surveying under proper conditions beginning October 15 and ending March 15.	Vernal pools, swales and depressions for breeding, needs underground refugia.	Low No suitable habitat present	Presumed absent
Foothill Yellow-Legged Frog (*Rana boylii*)	SOC/-/SC	Year-round resident	Partially-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need cobble for egg-laying.	Low No suitable habitat present	Presumed absent

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REPTILE					
Western Pond Turtle (*Emys marmorata*)	-/SSC/-	March – October	Aquatic turtle needs permanent water in ponds, streams, irrigation ditches. Nests on sandy banks or grassy fields.	Low Suitable habitat present	Not likely to occur
Alameda Whipsnake (*Masticophis lateralis euryxanthus*)	T/T/-	Year-round resident	Valley-foothill hardwood habitat of the coast ranges between Monterey and north San Francisco Bay areas. Inhabits south-facing slopes and ravines where shrubs form a vegetative mosaic with oak trees and grasses.	Low No suitable habitat present	Presumed absent
INVERTEBRATES					
Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	T/-/-	December – May (dependent on the timing of winter and spring rains)	Endemic to the grasslands of the central valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabits small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Low No suitable habitat present	Presumed absent

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California Linderiella (*Linderiella occidentalis*)	SOC/-/-	December – May (dependent on the timing of winter and spring rains)	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity and conductivity.	Low No suitable habitat present	Presumed absent
California Freshwater Shrimp *(Syncaris pacifica)*	E/T/-	Resident	Perennially flowing streams and slow-moving water and flat gradients.	Low No suitable habitat present	Not likely to occur
Western Bumble Bee (*Bombus occidentalis*)	-/SC/-	Resident	Utilize meadows rich with flowers. Open-canopy habitats that allow for flower growth. Nest underground in rodent burrows.	Low No suitable habitat present	Presumed absent
Monarch Butterfly (*Danaus plexippus*) WINTER ROOSTS	-/-/-	October – March	Winter roosts along coast from northern Mendocino to Baja California, Mexico. Roosts in wind-protected groves of eucalyptus, Monterey pine, and cypress with nectar and water sources nearby.	Moderate Suitable habitat present	May occur
Bridge's Coast Range Shoulderband (snail) (*Helminthoglypta nickliniana bridgesi*)	SOC/-/-	Year-round Resident	Inhabits open hillsides of Alameda and Contra Costa Counties, tends to colonize under tall grasses and weeds.	Low No suitable habitat present	Presumed absent

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Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)	T/-/-	Resident	Found in association with blue elderberry (*Sambucus exicana*) only in the riparian forests of the Central Valley of California from Shasta County to Kern County.	Low No suitable habitat present	Presumed absent
Callippe Silverspot Butterfly (*Speyeria callippe callippe*)	E/-/-	May – July	Johnny jump-up (Viola pedunculata) is the host plant for this species. Occurs in grassland habitat near south San Francisco, the hills above Pleasanton, Sear Point in the North Bay, and in spots between Vallejo and Cordelia.	Low No suitable habitat present	Presumed absent
FISH					
Sacramento Perch *(Archopilates interruptus)*	E/E/SOC	Year-round Resident	Sloughs, slow moving rivers and large lakes, including floodplains lakes of the Central Valley. High alkalinity and salinity waters.	Low No suitable habitat present	Not likely to occur
Delta Smelt (*Hypomesus transpacificus*)	T/E/-	Year-round Resident	Sacramento/San Joaquin Delta and seasonally in Suisun Bay, Carquinez Straight and San Pablo Bay. Seldom at salinities greater than 10 ppt.	Low No suitable habitat present	Presumed absent
Steelhead (Central California Coast DSP) *(Oncorhynchus mykiss irideus*	T/E/-	Year-round Resident	Russian River south to Aptos Creek. Within the San Francisco Bay Estuary, they are found in the Guadalupe and Napa Rivers and San Leandro, San Lorenzo, Coyote, San Francisquito, San Mateo and Alameda creeks.	Low No suitable habitat present	Presumed absent

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Sacramento Splittail (*Pogonichthys macrolepidotus*)	-/-/SC	Resident	Found in the Delta, Suisun Bay, and associated marshes. Microhabitat is slow-moving rivers, dead end sloughs. Spawning habitat and foraging habitat for young is flooded vegetation.	Low No suitable habitat present	Presumed absent
Longfin Smelt (Spirinchus thaleichthys)	-/T/-	Resident	Found in the Sacramento-San Joaquin estuary systems. Spawning occurs in fresh water, over sandy-gravel substrates, rocks, and aquatic plants. Anadromous populations spawn in freshwater close to the ocean. After hatching, larvae move up into the surface waters and are transported downstream into brackish-water nursery areas.	Low No suitable habitat present	Presumed absent
Eulachon *(Thaleichthys pacificus)*	T/T/-	Resident	Spend most of their life in the ocean, return to coastal natal freshwater streams and rivers to spawn.	Low No suitable habitat present	Presumed absent

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Common Name/Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**

1. Special-status plants and animals as reported by the California Natural Diversity Data Base, California Native Plant Society, and other background research November 2020

2. Order of Codes for Plants - Fed/State/CNPS

Order of Codes for Animals - Fed/State/CDFW

Codes:

SOC - Federal Species of Concern

SC - California Species of Special Concern

E - Federally/State Listed as an Endangered Species

T - Federally/State Listed as a Threatened Species

C - Species listed as a Candidate for Federal Threatened or Endangered Status

R - Rare

D - Delisted

CP- California protected

FP - State Fully Protected

DFG: SC California Special Concern species

1B - California Native Plant Society considers the plant Rare, Threatened, or Endangered in California and elsewhere.

1A - CNPS Plants presumed extinct in California.

2 - CNPS Plants Rare, Threatened or Endangered in California, but more common elsewhere.

3 - CNPS Plants on a review list to find more information about a particular species.

4 - CNPS Plants of limited distribution - a watch list.

ATTACHMENT 3

SITE PHOTOGRAPHS

1. Facing southwest, the photo depicts an overview of the southeastern portion of the Property, and a portion of the ruderal grassland habitat. This section of the Property appears to have been disked recently.

2. Facing south, the photo shows the cell tower and associated utilities located in the southeastern corner of the Property.

3. Facing northwest, the photo shows one of several vacant horse stables located throughout the Property.

4. Facing west, the photo depicts the riparian woodland habitat and part of the eucalyptus woodland habitat, along with several vacant structures remaining on the Property.

5. Facing west, the photo shows the eastern portion of the perennial drainage feature. Several large blue gum eucalyptus trees form a lush canopy along the southern section of the Property with an understory of dense Himalayan blackberry.

6. Facing east, the photo depicts the southeastern portion of the Property and one of several sheds present on the site.

7. The perennial drainage flows along the southern boundary of the Property, and is surrounded by a dense cover of Himalayan blackberry. Photo facing northeast.

8. Facing southeast, the photo shows the perennial drainage on the Property, surrounded by an understory of English ivy. Water was present in this feature during the time of the survey.

9. Facing west, the photo shows the western portion of the perennial drainage. Vegetation such as narrow-leaved cattail, and umbrella sedge can be seen growing within the drainage.

10. Facing east, the photo depicts part of the ruderal grassland habitat, and the water storage tank present on the Property. The large trees present within the riparian woodland habitat on the right-hand side of the photo are ideal for nesting birds and raptors.

11. Facing northeast, the photo shows and overview of the ruderal grassland habitat. This section of the Property was previously a paddock.

12. Facing south, the photo shows a section of the riparian woodland habitat, and dense understory surrounding the perennial drainage feature.

13. Facing southwest, the photo shows the southwestern corner of the Property, and the adjacent public walking trail.

14. Facing northeast, the photo shows a portion of the concrete v-ditch located just outside the western boundary of the Property. This feature did not contain water during the time of the survey, and was just outside the Property boundary.

15. Facing southeast, the photo shows a portion of the western boundary of the Property. The concrete v-ditch lies just outside of the Property boundary and is pictured here covered in ruderal vegetation and Himalayan blackberry.

16. Facing east, the photo shows an overview of the potential seasonal wetland habitat adjacent to the vacant horse stall and paddock.

17. Facing west, the photo shows an overview of the northeastern portion of the Property. Much of this area is developed, and consisted of a gravel and asphalt driveway and parking area, along with a vacant hay storage barn.

18. Facing southeast, the photo depicts the northeastern corner of the Property.

19. Facing southeast, the photo shows the asphalt driveway onto the Property from Skelly. Large eucalyptus trees line the driveway and comprise the eucalyptus woodland habitat.

20. Facing south, the photo shows one of many vacant horse paddocks and stalls, along with several small storage sheds and outbuildings.

21. Facing southwest, the photo shows several vacant livestock barns, stalls, and paddocks. The vacant residence on the Property can be seen in the background.

22. Facing southwest, the photo shows a close up of one of several vacant horse stalls on the Property.

23. Facing northwest, the photo depicts one of the large vacant barns on the Property.

24. Facing southeast, the photo depicts several of the large eucalyptus trees that line the driveway to the Property. These large trees could provide potential nesting habitat for raptors and other avian species.

25. Facing northwest, the photo shows several additional outbuildings and vacant barns that are present throughout the Property.

26. Facing north, the photo shows a vacant horse stall, surrounded by ornamental trees from the adjacent residence.

27. Facing northwest, the photo shows an overview of the vacant residence surrounded by ornamental trees and shrubs.

28. Facing southwest, the photo shows a large ornamental date palm and a small storage shed located south of the vacant residence.

29. Facing southwest, the photo shows several additional vacant livestock stalls, adjacent to the perennial drainage.

30. Facing northeast, the photo depicts a horse stall, and small shed on the Property. The vacant residence can be seen in the background.

B.3 - Arborist Report

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TREES, BUGS, DIRT

LANDSCAPE CONSULTING & TRAINING

ARBORIST REPORT

215 Skelly - Hercules CA

March 31, 2022

Prepared For: D.R. Horton
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San Ramon CA

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TABLE OF CONTENTS

SUMMARY

Ninety five trees are inventoried on site or near property borders, with trunk diameters greater than or equal to twelve inches, qualifying them as "mature" in the City of Hercules. **Trunk diameters** of trees range from 12.1 to 118.5, averaging ***30.9*** Tree health and structure ranges from very poor to good, ***averaging fair-poor***. Tree **form** ranges from very poor to excellent, ***averaging fair=poor***. Seventy two trees are located **on site,** the other twenty three are **offsite**. **Tree attributes** include providing habitat for bird cavity nesting and bird perching, soil erosion control, biological diversity, wind screening, pollinator habitat, and visual interest. **Fire hazards** include dead trees, bark debris, species, low branches, dead branches, dead trunks, entire trees, with many trees posing minimal fire hazards. Branch, trunk and root **failures** are likely to occur in the coming year unless mitigation measures are implemented. ***Proposed grading will impact trees based on location of the grading and tree condition, consequences include loss (sixty five trees), increased likelihood of failure (twenty three trees), decline (two trees), reduced health (three trees), & no impact (five trees). I recommend preserving eighteen trees, clearing soil from root crown, ensuring drainage away from tree trunks, raising crowns to reduce fire hazard, protecting trunks, air spading and pruning roots. Only one of the trees to be preserved (#66) has a trunk that is located on site, another tree to be preserved (#40) has crown (canopy) and roots on site in an area proposed for an emergency access road.***

INTRODUCTION

PURPOSE AND USE

This report is intended to provide information for the Client and the City of Hercules as part of a development permit, for use in guiding tree removal and preservation..

ASSIGNMENT

I was hired by D.R. Horton (Client), to measure, map, digitally image, inventory & evaluate trees at the 215 Skelly, Hercules, and to provide an Arborist Report that includes a summary of my observations, recommendations & tree locations.

LIMITS OF ASSIGNMENT

- Did not evaluate trees below ground or aerially, nor use invasive or destructive methods to assess health
- Did not evaluate trees less than twelve inches diameter
- Only three trees were surveyed for their precise locations, the others were located approximately
- No tree replacement plan provided

BACKGROUND

The City of Hercules Municipal Code allows the removal of mature trees in conjunction with development (Chapter 15, Section 4-15.05), as long as their is compliance with a Grading Permit, Erosion and Sediment Control Plan, tree replacement plan, and pre-development activities are consistent with the City's General Plan.

METHODS

On January 4-5 I met with Mr. Adam Foster (Client Representative) identified tree species, measured **trunk circumferences** at 4.6 feet above grade, tagged trunks with numbered tags, located trees visually on a site map, digitally imaged trees and assessed their **health, structural quality** and **form**. Mr. Foster provided documents related to the project trees, including the latest updated grading plan. According to Mr. Foster, grading of lots will be significant, and improvement of existing access road will be limited. Three trees were surveyed to verify their precise locations & survivability given proposed construction.

Documents used:

- US Soil Survey, Standard Soil Series Descriptions, Oregon State University
- A.L.T.A./N.S.P.S. Land Title Survey, CBG 7/30/2020
- Vesting Tentative Map, Existing Conditions, CBG March 2022
- Preliminary Application Lotting Plan, CBG 11/2021
- Preliminary Development Plan, CBG 1/2022
- Preliminary Grading Utility Plan, CBG 1/2022
- City of Hercules Municipal Code, Chapter 15, Removal of Mature Trees

Measurements & Calculations:

- Trunk circumferences measured at 4.6 feet above grade, using a steel tape measure or a Biltmore stick
- Multiple trunks are combined, and reported as (cumulative) diameter
- Trunk circumferences divided by 3.14 to calculate diameter, and rounded off to one significant digit

Health Structure & Form Evaluation Standards

+numerical rating system; zero (dead), one (very poor), two (poor), three (fair), four (good) and five (excellent)

+ form assessed by rating specimens on their deviance from the norm for the species in this region, visual qualities such as attractiveness, and engineering functions such as screening, shading and creating views

+qualitative descriptions and items assessed for health & structure include

- rooting zone - bare, mulched, limited space, weeds, competing vegetation, moisture, debris
- root crown region (trunk & root junction) - buried, clear, pests, diseases, wet, wounds, cavities
- trunk - taper, lack of taper, wounds, lean, growth cracks, stress cracks, pests, diseases, wounds
- scaffold (large, major) branches - taper, distribution of branches, strength of branch connections, wounds, pests
- smaller branches - distribution, size, amount, strength of connections, pests, diseases
- twigs - annual growth, color, size, distribution, dead/live
- foliage - color, size, distribution, pests, diseases, leaf fall

OBSERVATIONS

LOCATION
The site is located at the end of Skelly, Hercules CA.

SETTING
The site slopes gradually from a hilltop with fenced off cell tower on the southeast corner, to lower relatively level areas in the northwest corner. A paved driveway marks the east side of the property, with houses located past a v-ditch and up a steep slope on both east and north, along with two houses above the west side on similar slopes with v-ditches below. The south side of the property also has a drainage ditch past the property line, and a steep slope up to a railroad bed. Abandoned stalls, sheds, barns, and a house spread are present on the property interior. Soils in the area of the site are mapped as Clear Lake & Lodo series. On site borings noted silty sand textured soils on top of clay. Clear Lake series are poorly drained soils with most roots concentrated in the top 19 inches. Lodo series are shaly clay loam textured and generally only 0-7 inches deep above hard shale bedrock.

DATA - See Appendix A for Tree Data, Appendix B for Tree Species Distribution
- 95 trees measured, evaluated, tagged, digitally imaged & located within site or near property lines
- 20 genera, 19 species identified
- trunk diameters of trees range from 12.1 to 118.5, *averaging 30.9*
- tree health and structure ranges from very poor to good, *averaging fair-poor*
- tree form ranges from very poor to excellent, *averaging fair-poor*

ANALYSIS

ATTRIBUTES - See Appendix C
- **Habitat for bird cavity nesting** is an attribute of older trees that have cavities, wounds, or dead areas that are attractive to birds that build nests in dead areas of tree branches and trunks, CA black walnut and blue gum eucalyptus trees were two species with noticeable cavities providing this attribute
- **Bird perching** is particularly important for large predatory and scavenger birds, and is most pronounced in large live, dead or dying trees, though trees of all sizes and conditions are used for perching
- **Soil erosion** is most pronounced on disturbed slopes, primarily the slopes below existing backyard walls above the site, and is controlled by root and crown growth of trees on and next to those slopes, and is provided primarily by blackwood acacia and coast live oak on and around this site
- **Biological diversity** is highest in our region when indigenous trees like yellow willow, coast live oak, and CA buckeye are present, though all species contribute to some of this attribute.
- **Wind screening** on this site is mainly provided by large blue gum eucalyptus trees, and is important in Hercules due to high winds experienced throughout the year
- **Pollinator habitat** is provided by all species evaluated on site
- **Visual interest** is in the eye of the beholder, and the CA pepper trees seem to have the most interesting and unique forms on this site, and have been historically pruned and maintained for this attribute

FIRE HAZARDS - See Appendix C

- Dead trees are more flammable than live trees, and also can be a source of fire spreading to other trees
- Bark debris, primarily from blue gum eucalyptus, is present in large amounts on site, and is a likely ignition source
- Species generally noted as undesirable due to potential flammability include blue gum eucalyptus, leyland cypress, and Monterey cypress, though many variables affect flammability of tree species especially irrigation, pruning, and mulch cleanup
- Low branches from the ground to six feet in height is considered a potential fire ladder
- Dead branches and trunks will burn more rapidly than live

LIKELIHOOD OF FAILURE - See Appendix C

In the coming one year time frame I identified **possible** (abnormal or extreme weather), **probable** (normal weather), and **improbable** likelihood of failure of branches, trunks, roots, and entire trees. Most probable & possible failures are branch failures, which can be mitigated by professional pruning. Trunk failure likelihood increases when trunks are decayed or otherwise damaged. Root failures occur on slopes that are eroding or show evidence of rotten roots.

IMPACTS ON TREES FROM PROPOSED GRADING

Proposed grading will be within tree fall zones, driplines, and trunks, as well as outside of those areas, causing the loss of sixty five trees, and reducing balance, roots and tree crowns, as well as impacting trunks and health of all but five of the mature trees inventoried.

RECOMMENDATIONS

I recommend preserving eighteen trees and removing seventy six trees based on the current grading plan.

PRESERVATION MEASURES

- Clear soil from root crown regions and ensure positive drainage away from trunks
- Raise crowns to reduce fire hazard
- Air spade and root prune along edges of designated setbacks from trees to be preserved
- Install tree protection chain-link fencing anchored in the ground & maintain fencing till landscape phase
- Any and all activity needed within fenced zones require professional supervision by consulting arborist to minimize negative impacts on trees

TREE PROTECTION ZONES - ***areas surrounding trees that shall not be accessed until project complete***
Areas to be fenced prior to demolition through finished landscaping are represented in radial feet from trunks. These zones shall be fenced off after other preservation measures are completed. No storage, access, or activity is allowed with tree protection zones during all construction phases.

FENCING
- Six feet tall, chain link fencing anchored in the soil
- Precise location to be determined by consulting arborist on site for each individual tree on site, prior to demolition

AIR SPADING AND ROOT PRUNING
Trees located in close proximity to proposed construction
- Prior to demolition the rooting zones trees with construction within five feet of driplines shall be delineated with orange or white spray paint on the ground
- Air spade excavation shall be implemented along the outside pained line, down to the bottom of root depth
- Root pruning, using sharp tools, shall occur for all roots exposed, roots covered and kept wet till backfilled, *followed by installation of protective fencing along the line of root pruning.*

Root cutting or tearing may become a serious cause of tree decline. It can lead to loss of structural support, disruption of water and element uptake, and infection by disease causing organisms.
- Avoid cutting large (one-inch or greater in diameter) roots.
- Sharp tools should be used where cutting of large roots is deemed necessary.
- Backfill immediately with soil over recently cut roots.
- Torn roots should be properly re-cut, and backfilled.

WASHING OFF FOLIAGE & IRRIGATING
- coast redwood tree shall be washed off daily during grading, and weekly up until the landscaping phase
- supplemental irrigation shall be provided for coast redwood tree as needed due to drought, as determined after the rainy season
- avoid irrigating coast live oak trees as they will not tolerate saturated soil

ROOT CROWN CLEARANCE
Ivy and soil shall be removed from trees to ensure that they are not decayed, and to create positive drainage away from trunks as is needed to prevent root crown rot disease.

PRUNING

Crown Cleaning for Safety

Trees shall be pruned to reduce likelihood of failure(safety) by removing dead, dying, weak and other likely to fail branches two inches in diameter and larger. Branches should be removed using thinning cuts or professional reduction cuts back to branches at least 33% of the size of the branch removed. Prior to implementing crown cleaning for safety, consulting arborist shall inspect & verify branches to be pruned.

Clearance - Directional Pruning

Trees that have branches extending into the site may interfere with construction. Thinning or heading cuts are recommended, with heading cuts made back to lateral branches that are not growing in the direction of the clearance zone. If more than 15% of foliage will be removed by directional pruning then pruning to provide structural balance to the tree may be required. Prior to implementing clearance pruning consulting arborist shall inspect & verify branches to be pruned.

Limitations

- No trees shall be climbed using climbing spurs
- All cuts shall be made in accordance with the ANSI A300 pruning standard section 7.
- No heading or shearing cuts shall be made without authorization or as recommended above.
- No more than one-third of the foliage shall be removed from an individual tree without authorization.
- Work practices shall be consistent with the current ANSI A300 Part 1 pruning standard section 8 and the ANSI Z133 Standard

MULCHING

All bare soil surfaces within tree protection zones shall have 3 inches of wood chip mulch installed prior to fencing.

Sudden Oak Death (SOD) Treatments

All coast live oak trees are vulnerable to SOD, and shall be treated in November-December with three to six pounds of granulated gypsum on the soil surface (raked in) surrounding each trunk, and Agri-Phos (or Reliant) + PentraBark sprayed onto trunks, consistent with legal use of these products.

APPENDIX A - TREE DATA

#	Circum-ference @4'6" (inches)	*Calculated Trunk Diameter (inches)*	Name	*Genus species*	Heal th	Structure	Form	*Observations*	*On or Offsite?*
1	**191**	*60.8*	blue gum eucalyptus	*Eucalyptus globulus*	fair	fair	fair	*Multi trunked low, lower shaded windward dieback*	*ON*
2	**142**	*45.2*	blue gum eucalyptus	*Eucalyptus globulus*	fair	poor	poor	*Suppressed, low multiple trunks*	*ON*
3	**85,23**	*34.4*	blue gum eucalyptus	*Eucalyptus globulus*	fair	fair	fair	*Suppressed*	*ON*
4	**72,22,25 , 96**	*68.5*	blue gum eucalyptus	*Eucalyptus globulus*	fair	poor	poor	*Stump sprout*	*ON*
5	**72**	*22.9*	blue gum eucalyptus	*Eucalyptus globulus*	fair	fair	fair	*Edge of slope*	*ON*
6	**159**	*50.6*	blue gum eucalyptus	*Eucalyptus globulus*	fair	poor	poor	*Root crown buried, trunk & scaffolds leaning, Codominant trunks with included bark, flowering*	*ON*
7	**183**	*58.3*	blue gum eucalyptus	*Eucalyptus globulus*	fair	fair	fair	*Within fall zone of backyard, raised & thinned, scaffold cavity , root crown at retaining wall, edge of slope & vditch*	*OFF*
8	**144**	*45.9*	blue gum eucalyptus	*Eucalyptus globulus*	poor	fair	poor	*Mushrooms & root crown decay, edge of slope over road, unbalanced, elevated risk*	*ON*
9	**31,24,34**	*28.3*	blackwood acacia	*Acacia melanoxylon*	good	poor	fair	*Multi trunk included bark, trunk failure-prone, steep slope*	*OFF*
10	**288**	*91.7*	blue gum eucalyptus	*Eucalyptus globulus*	good	fair	fair	*Multi trunk at 12', Codominant, balanced, towering*	*ON*
11	**166**	*52.9*	blue gum eucalyptus	*Eucalyptus globulus*	fair	fair	fair	*Root crown at edge of retaining wall & vditch, Codominant, minimal trunk taper*	*OFF*
12	**20,24,32 ,30**	*33.8*	blue gum eucalyptus	*Eucalyptus globulus*	fair	poor	poor	*Edge of slope below backyard*	*OFF*

#	Circum-ference @4'6" (inches)	*Calculated Trunk Diameter (inches)*	Name	*Genus species*	Heal th	Structure	Form	*Observations*	*On or Offsite?*
13	**177**	*52.9*	blue gum eucalyptus	*Eucalyptus globulus*	fair	fair	fair	*Root crown at edge of retaining wall & vditch, edge of row, exposed, towering*	*ON*
14	**43,5**	*15.3*	coast live oak	*Quercus agrifolia*	good	fair	good	*Near backyard fence. Root crown buried.*	*OFF*
15	**54**	*17.2*	blackwood acacia	*Acacia melanoxylon*	fair	good	good	*On slope below backyard*	*OFF*
16	**72**	*22.9*	blackwood acacia	*Acacia melanoxylon*	good	poor	fair	*On slope below backyard, trunk leaning, Codominant trunks, top heavy*	*OFF*
17	**53**	*16.9*	blackwood acacia	*Acacia melanoxylon*	fair	poor	fair	*Slope below backyard, eroding root crown, minimal trunk taper, top heavy, thin*	*OFF*
18	**70**	*22.3*	blackwood acacia	*Acacia melanoxylon*	good	fair	fair	*Slope below backyard, minimal trunk taper, top heavy*	*OFF*
19	**37,35**	*22.9*	Lombardy poplar	*Populus nigra `Italica'*	poor	fair	fair	*Codominant trunks with included bark, stunted*	*ON*
20	**48**	*15.3*	silver dollar eucalyptus	*Eucalyptus cinerea*	fair	fair	fair	*Next to backyard fence above steep slope, minimal trunk taper*	*OFF*
21	**18,30,24**	*22.9*	yellow willow	*Salix lasiandra*	fair	poor	fair	*Next to backyard fence, on steep slope, root crown buried*	*OFF*
22	**15,38,18 ,24,41**	*43.3*	silver dollar eucalyptus	*Eucalyptus cinerea*	fair	poor	fair	*Next to backyard fence above steep slope, multiple trunks at 2.5 feet, minimal trunk taper , one incipient cavity , included bark between trunks, stump sprout maybe*	*OFF*
23	**42,42**	*26.8*	yellow willow	*Salix lasiandra*	poor	poor	poor	*Root crown buried*	*OFF*
24	**48,60**	*34.4*	yellow willow	*Salix lasiandra*	fair	poor	fair	*Root crown buried, Codominant trunks covered with ivy*	*OFF*
25	**81**	*25.8*	Monterey cypress	*Cupressus macrocarpa*	poor	fair	fair	*Top of steep slope near backyard wall. Top dieback*	*OFF*

#	Circum-ference @4'6" (inches)	*Calculated Trunk Diameter (inches)*	Name	*Genus species*	Heal th	Structure	Form	*Observations*	*On or Offsite?*
26	**108**	*34.4*	Monterey cypress	*Cupressus macrocarpa*	fair	fair	fair	*Midslope below backyard fence, root crown buried, ivy up trunk . Trunk leaning*	*OFF*
27	**54**	*17.2*	yellow willow	*Salix lasiandra*	fair	fair	fair	*Next to vditch. Ivy up trunk*	*OFF*
28	**27,32**	*18.8*	blackwood acacia	*Acacia melanoxylon*	fair	poor	fair	*Edge of slope near backyard fence. Codominant trunks with included bark*	*OFF*
29	**41**	*13.1*	coast live oak	*Quercus agrifolia*	good	fair	fair	*On slope above vditch, root crown buried, trunk leaning & twisted*	*ON*
30	**41**	*13.1*	blackwood acacia	*Acacia melanoxylon*	fair	poor	poor	*Mid slope below backyard fence, root crown buried, few branches on fence side, unbalanced, stunted*	*OFF*
31	**107,15,9**	*41.7*	yellow willow	*Salix lasiandra*	fair	poor	fair	*Near vditch. Multi trunk.*	*ON*
32	**71**	*22.6*	blackwood acacia	*Acacia melanoxylon*	fair	poor	poor	*Near backyard fence. Unbalanced.*	*OFF*
33	**38**	*12.1*	coast live oak	*Quercus agrifolia*	fair	poor	poor	*Below backyard fence. Suppressed by palm.?minimal trunk taper, trunk leaning*	*OFF*
34	**44**	*14.0*	coast live oak	*Quercus agrifolia*	poor	fair	poor	*Next to backyard fence.suppressed, unbalanced, ivy up trunk*	*OFF*
35	**40**	*12.7*	coast live oak	*Quercus agrifolia*	fair	fair	fair	*On slope below fence. Root crown buried, ivy*	*OFF*
36	**43**	*13.7*	Ca black walnut	*Juglans hindsii*	poor	poor	poor	*Dying back, trunk wound*	*ON*
37	**79,46,42**	*53.2*	Ca buckeye	*Aesculus californica*	poor	poor	poor	*Hacked & poisoned, intertwining with plum*	*ON*
38	**39**	*12.4*	plum	*Prunus spp.*	fair	poor	poor	*Intertwining with buckeye*	*ON*

#	Circum-ference @4'6" (inches)	*Calculated Trunk Diameter (inches)*	Name	*Genus species*	Heal th	Structure	Form	*Observations*	*On or Offsite?*
39	**35,28,18 , 29,13,18 , 23,15,23 , 25,17,24**	*85.4*	Ca buckeye	*Aesculus californica*	good	fair	good	*Ivy at root crown*	*ON*
40	**72**	*22.9*	coast live oak	*Quercus agrifolia*	good	fair	fair	*Ivy up trunk, rooting zone limited by vditch slope & fence. Crown unbalanced by one sided pruning, large cuts on one side.*	*OFF*
41	**32,22,32 ,28,20**	*42.7*	Ca buckeye	*Aesculus californica*	fair	fair	fair	*Ivy up trunk , growing through fence*	*ON*
42	**24,144,1 8,18,18, 9,24**	*81.2*	Ca buckeye	*Aesculus californica*	poor	poor	fair	*Ivy engulfed, suppressed*	*ON*
43	**44**	*14.0*	Ca black walnut	*Juglans hindsii*	poor	poor	poor	*Ivy engulfed, suppressed, growing into fence*	*ON*
44	**11,9,30, 16**	*21.0*	Ca buckeye	*Aesculus californica*	fair	poor	poor	*engulfed with ivy, near vditch, growing through fence*	*ON*
45	**44**	*14.0*	Ca black walnut	*Juglans hindsii*	poor	fair	fair	*Stunted*	*ON*
46	**21,27**	*15.3*	blackwood acacia	*Acacia melanoxylon*	poor	poor	poor	*Engulfed by ivy. Stunted . Stump sprout*	*ON*
47	**34,30,30**	*29.9*	yellow willow	*Salix lasiandra*	fair	poor	fair	*Next to vditch. One fallen dead trunk. Engulfed in ivy & blackberry*	*ON*
48	**42,30,24**	*30.6*	yellow willow	*Salix lasiandra*	fair	poor	fair	*Next to vditch. Codominant trunks with included bark. Engulfed in ivy , trunk leaning towards backyard fence*	*ON*
49	**99**	*31.5*	yellow willow	*Salix lasiandra*	fair	fair	fair	*On bank next to vditch. Branches to ground. Leaning and one sided*	*ON*
50	**57,44**	*32.2*	Ca black walnut	*Juglans hindsii*	poor	fair	fair	*Codominant trunks with included bark. Stunted*	*ON*

#	Circum-ference @4'6" (inches)	*Calculated Trunk Diameter (inches)*	Name	*Genus species*	Heal th	Structure	Form	*Observations*	*On or Offsite?*
51	**78**	*24.8*	coast live oak	*Quercus agrifolia*	fair	fair	fair	*Leaning trunk. Codominant trunks with included bark.*	*ON*
52	**31,31,31**	*29.6*	Ca black walnut	*Juglans hindsii*	poor	poor	poor	*Suppressed. Ivy up trunks*	*ON*
53	**32,27,22**	*25.8*	Ca black walnut	*Juglans hindsii*	poor	poor	poor	*Engulfed in ivy*	*ON*
54	**21,37**	*18.5*	coast live oak	*Quercus agrifolia*	fair	poor	fair	*Engulfed in ivy. Trunks leaning. Branches to ground*	*ON*
55	**17,26,33**	*24.2*	Ca black walnut	*Juglans hindsii*	poor	poor	poor	*Engulfed in ivy,*	*ON*
56	**39**	*12.4*	coast live oak	*Quercus agrifolia*	fair	fair	fair	*Next to trail.Root crown buried.Ivy up root crown. Trunk leaning. Codominant trunks with included bark.*	*ON*
57	**28,25,25**	*23.9*	Ca black walnut	*Juglans hindsii*	poor	poor	poor	*Stunted.*	*ON*
58	**27,12,12 ,9**	*18.2*	yellow willow	*Salix lasiandra*	poor	very poor	poor	*Multi trunk, many fallen. Next to water*	*ON*
59	**119**	*37.9*	yellow willow	*Salix lasiandra*	very poor	fair	poor	*Engulfed in ivy. Codominant trunks. Stunted. Defoliated, may be dead*	*ON*
60	**48**	*15.3*	Ca black walnut	*Juglans hindsii*	very poor	poor	very poor	*Ivy. Stunted*	*ON*
61	**28,27**	*17.5*	Ca black walnut	*Juglans hindsii*	poor	fair	poor	*Codominant trunks with included bark. Trunk wound. Stunted*	*ON*
62	**180,112, 80**	*118.5*	blue gum eucalyptus	*Eucalyptus globulus*	fair	poor	fair	*Stump sprout. One dead buttress.*	*ON*
63	**72**	*22.9*	blue gum eucalyptus	*Eucalyptus globulus*	poor	poor	poor	*Suppressed*	*ON*
64	**43**	*13.7*	Ca buckeye	*Aesculus californica*	poor	fair	fair	*Large trunk wound. Suppressed*	*ON*
65	**43**	*13.7*	blue gum eucalyptus	*Eucalyptus globulus*	fair	fair	fair	*In grove*	*ON*

#	Circum-ference @4'6" (inches)	*Calculated Trunk Diameter (inches)*	Name	*Genus species*	Heal th	Structure	Form	*Observations*	*On or Offsite?*
66	**188.4**	*60.0*	coast redwood	*Sequoia sempervirens*	fair	fair	fair	*On bank above flowing water.*	*ON*
67	**32,28**	*19.1*	honey locust	*Gleditsia triacanthos*	fair	poor	fair	*Next to dead and smaller locust*	*ON*
68	**98**	*31.2*	blue gum eucalyptus	*Eucalyptus globulus*	fair	poor	fair	*Minimal taper, large elbow, thin*	*ON*
69	**90**	*28.7*	blue gum eucalyptus	*Eucalyptus globulus*	fair	fair	fair	*Codominant tree. Codominant scaffolds.*	*ON*
70	*100*	*31.8*	*blue gum eucalyptus*	*Eucalyptus globulus*	*fair*	*fair*	*fair*	*Codominant tree*	*ON*
71	173	*55.1*	blue gum eucalyptus	*Eucalyptus globulus*	fair	fair	fair	*Solo tree, dominant. In between structure.*	*ON*
72	100	*31.8*	blue gum eucalyptus	*Eucalyptus globulus*	fair	fair	fair	*Codominant tree*	*ON*
73	45	*14.3*	Ca black walnut	*Juglans hindsii*	poor	poor	poor	*Suppressed. Minimal trunk taper*	*ON*
75	**57,50**	*34.1*	ironwood eucalyptus	*Eucalyptus sideroxylon*	fair	poor	poor	*Suppressed. Grove tree. Codominant trunks with included bark.Large trunk wound. Low branches.*	*ON*
76	**55**	*17.5*	river she oak	*Casuarina cunninghami ana*	poor	poor	poor	*Stunted. Minimal trunk taper. Trunk curve. Surrounded & suppressed by jubata grass*	*ON*
77	**39**	*12.4*	Ca black walnut	*Juglans hindsii*	poor	poor	poor	*Stunted, minimal trunk taper*	*ON*
78	**45**	*14.3*	leyland cypress	*Cupressus leylandii*	poor	poor	poor	*Dieback. Stunted. No trunk taper. Cypress canker disease.*	*ON*
79	**87**	*27.7*	coast redwood	*Sequoia sempervirens*	very poor	fair	poor	*Dying back from drought*	*ON*
80	**58**	*18.5*	honey locust	*Gleditsia triacanthos*	very poor	very poor	very poor	*Dying, Codominant trunks with included bark , mostly dead one trunk*	*ON*
81	**66.5**	*21.2*	honey locust	*Gleditsia triacanthos*	very poor	very poor	very poor	*Dying, minimal taper*	*ON*

#	Circum-ference @4'6" (inches)	*Calculated Trunk Diameter (inches)*	Name	*Genus species*	Heal th	Structure	Form	*Observations*	*On or Offsite?*
82	**42**	*13.4*	honey locust	*Gleditsia triacanthos*	poor	poor	poor	*Stunted. No trunk taper. Minimal tree; row of three*	*ON*
83	**20,52**	*22.9*	honey locust	*Gleditsia triacanthos*	poor	poor	poor	*Stunted. Codominant scaffold with included bark. Minimal tree. Trunk wound.*	*ON*
84	**70,26**	*30.6*	Ca pepper tree	*Schinus molle*	poor	poor	fair	*Large trunk cavities. Heavy psyllid infestation. Near structure*	*ON*
85	**61**	*19.4*	olive	*Olea europaea*	good	fair	fair	*Root sprouts. Trunk cavities.*	*ON*
86	**48**	*15.3*	olive	*Olea europaea*	poor	poor	poor	*Stunted. Large trunk cavities.*	*ON*
87	**54**	*17.2*	olive	*Olea europaea*	poor	fair	poor	*Root sprouts. Stunted. Trunk leaning*	*ON*
88	**70**	*22.3*	olive	*Olea europaea*	poor	fair	fair	*Stunted*	*ON*
89	**73,90**	*51.9*	Babylonian willow	*Salix babylonica*	fair	poor	fair	*Codominant trunks with included bark Branches to ground.*	*ON*
90	**114**	*36.3*	Ca pepper tree	*Schinus molle*	fair	fair	good	*Growing into structure. Asphalt & seat wall around. Trunk galling. Psyllid infestation.*	*ON*
91	**67**	*21.3*	Ca black walnut	*Juglans hindsii*	very poor	very poor	fair	*Dying. Mostly dead and decaying. Stunted.*	*ON*
92	**120**	*38.2*	Ca black walnut	*Juglans hindsii*	very poor	poor	fair	*Dying. One trunk missing. Cavities throughout. Trunk leaning. Mistletoe.*	*ON*
93	**17,18,16, 9,12,18, 18,9,9,6, 6,7,8**	*48.7*	ash	*Fraxinus spp.*	good	very poor	poor	*Stump sprout*	*ON*
94	**62**	*19.7*	Italian stone pine	*Pinus pinea*	fair	fair	fair	*Trunk leaning & corrected. Branches on ground.*	*ON*
95	**60, 75**	*43.0*	Babylonian willow	*Salix babylonica*	fair	poor	fair	*Engulfed in ivy. Codominant trunks.*	*ON*

#	Circum-ference @4'6" (inches)	*Calculated Trunk Diameter (inches)*	Name	*Genus species*	Heal th	Structure	Form	*Observations*	*On or Offsite?*
96	**62,73,67**	*64.3*	Ca pepper tree	*Schinus molle*	fair	poor	excel -lent	*Psyllid infestation. Fallen trunk. Cavities. Ganoderma decay fruiting body (heart rot)*	*ON*

APPENDIX B

Name	*Genus species*	# of specimens
ash	*Fraxinus spp.*	1
Babylonian willow	*Salix babylonica*	2
blackwood acacia	*Acacia melanoxylon*	9
blue gum eucalyptus	*Eucalyptus globulus*	20
Ca black walnut	*Juglans hindsii*	14
Ca buckeye	*Aesculus californica*	6
Ca pepper tree	*Schinus molle*	3
coast live oak	*Quercus agrifolia*	9
coast redwood	*Sequoia sempervirens*	2
honey locust	*Gleditsia triacanthos*	5
ironwood eucalyptus	*Eucalyptus sideroxylon*	1
Italian stone pine	*Pinus pinea*	1
leyland cypress	*Cupressus leylandii*	1
Lombardy poplar	*Populus nigra `Italica'*	1
Monterey cypress	*Cupressus macrocarpa*	2
olive	*Olea europaea*	4
plum	*Prunus spp.*	1
river she oak	*Casuarina cunninghamiana*	1
silver dollar eucalyptus	*Eucalyptus cinerea*	2
yellow willow	*Salix lasiandra*	10

APPENDIX C - ***ATTRIBUTES, HAZARDS***

#	*Trunk Diameter (inches)*	Name	*Health*	On Site?	Attributes	*site locale*	Fire Hazard	Failure
1	*60.8*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*toe of slope*	bark debris, low branches, species	probable branch
2	*45.2*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*toe of slope*	bark debris, low branches, species	probable branch, possible trunk
3	*34.4*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*toe of slope*	bark debris, low branches, species	probable branch
4	*68.5*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*toe of slope*	bark debris, low branches, species	probable branch, possible trunk
5	*22.9*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*toe of slope*	bark debris, low branches, species	probable branch
6	*50.6*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*toe of slope*	bark debris, low branches, species	probable branch
7	*58.3*	blue gum eucalyptus	*fair*	NO	wind screen, perch, pollinators, cavity nesting	*limited rooting zone*	bark debris, species	probable branch
8	*45.9*	blue gum eucalyptus	*poor*	YES	Wind screen, perch	*on slope*	bark debris, low branches, species	entire tree probable
9	*28.3*	blackwood acacia	*good*	NO	Erosion control	*on slope*	minimal	trunk possible

#	*Trunk Diameter (inches)*	Name	*Health*	On Site?	Attributes	*site locale*	Fire Hazard	Failure
10	*91.7*	blue gum eucalyptus	*good*	YES	wind screen, perch, pollinators	*toe of slope*	bark debris, species	branch probable, trunk possible
11	*52.9*	blue gum eucalyptus	*fair*	NO	wind screen, perch, pollinators	*toe of slope*	bark debris, species	branch probable, trunk possible
12	*33.8*	blue gum eucalyptus	*fair*	NO	Erosion control	*on slope*	bark debris, species	branch probable
13	*52.9*	blue gum eucalyptus	*fair*	NO	wind screen, perch, pollinators	*toe of slope*	bark debris, species	branch probable
14	*15.3*	coast live oak	*good*	NO	Erosion control, biological diversity	*top of slope*	low	roots possible
15	*17.2*	blackwood acacia	*fair*	NO	Erosion control	*on steep slope*	minimal	improbable
16	*22.9*	blackwood acacia	*good*	NO	Erosion control	*on steep slope*	minimal	trunk possible
17	*16.9*	blackwood acacia	*fair*	NO	Erosion control	*on steep slope*	minimal	trunk possible
18	*22.3*	blackwood acacia	*good*	NO	Erosion control	*on steep slope*	minimal	trunk possible
19	*22.9*	Lombardy poplar	*poor*	YES	Wind break	*on flat ground*	minimal	dead branch
20	*15.3*	silver dollar eucalyptus	*fair*	NO	Wind break, erosion control, visual screen	*top of slope backyard fence*	branches near structure	branch possible

#	*Trunk Diameter (inches)*	Name	*Health*	On Site?	Attributes	*site locale*	Fire Hazard	Failure
21	*22.9*	yellow willow	*fair*	NO	Erosion control, wildlife habitat	*steep slope*	fire ladder from low branches	branch probable, trunk possible
22	*43.3*	silver dollar eucalyptus	*fair*	NO	Wind break, erosion control, visual screen	*top of slope*	fire ladder from low branches	trunk possible
23	*26.8*	yellow willow	*poor*	NO	Erosion control, wildlife habitat	*on slope*	fire ladder from low branches	branch probable, trunk possible
24	*34.4*	yellow willow	*fair*	NO	Erosion control, wildlife habitat	*top of slope*	fire ladder from low branches	branch probable, trunk possible
25	*25.8*	Monterey cypress	*poor*	NO	Erosion control, biological diversity, perch	*top of slope, flat*	dead branches, species	dead branch probable
26	*34.4*	Monterey cypress	*fair*	NO	Erosion control, biological diversity, perch	*slope*	dead branches, species	dead branch probable
27	*17.2*	yellow willow	*fair*	NO	Erosion control, wildlife habitat	*toe of slope*	fire ladder from low branches & deadwood	branch probable, trunk possible
28	*18.8*	blackwood acacia	*fair*	NO	Erosion control	*top of slope backyard fence*	minimal	trunk possible

#	*Trunk Diameter (inches)*	Name	*Health*	On Site?	Attributes	*site locale*	Fire Hazard	Failure
29	*13.1*	coast live oak	*good*	NO	Erosion control, wildlife habitat	*toe of slope*	fire ladder from low branches	roots possible
30	*13.1*	blackwood acacia	*fair*	NO	Erosion control	*slope*	minimal	branch & roots possible
31	*41.7*	yellow willow	*fair*	NO	Erosion control, wildlife habitat	*toe of slope*	fire ladder from low branches & trunks	trunk possible
32	*22.6*	blackwood acacia	*fair*	NO	Erosion control	*top of slope*	minimal	branch possible
33	*12.1*	coast live oak	*fair*	NO	Erosion control, biological diversity	*top of slope*	from intertwined palm	improbable
34	*14.0*	coast live oak	*poor*	NO	Erosion control, biological diversity	*top of slope*	minimal	branch possible
35	*12.7*	coast live oak	*fair*	NO	Erosion control, biological diversity	*slope*	minimal	branch possible
36	*13.7*	Ca black walnut	*poor*	YES	cavity nesting, perching	*flat*	minimal	improbable
37	*53.2*	Ca buckeye	*poor*	YES	Perching, visual interest	*flat*	minimal	improbable
38	*12.4*	plum	*fair*	YES	pollen, nectar, fruit	*flat*	minimal	improbable
39	*85.4*	Ca buckeye	*good*	YES	Perching, visual interest	*flat*	minimal	improbable

#	*Trunk Diameter (inches)*	Name	*Health*	On Site?	Attributes	*site locale*	Fire Hazard	Failure
40	*22.9*	coast live oak	*good*	YES	Erosion control, biological diversity	*toe of slope*	minimal	possible branch
41	*42.7*	Ca buckeye	*fair*	YES	Perching, screening	*flat*	minimal	improbable
42	*81.2*	Ca buckeye	*poor*	YES	Perching, visual interest	*flat*	minimal	improbable
43	*14.0*	Ca black walnut	*poor*	YES	cavity nesting, perching	*flat*	minimal	improbable
44	*21.0*	Ca buckeye	*fair*	YES	Perching	*flat*	minimal	improbable
45	*14.0*	Ca black walnut	*poor*	YES	cavity nesting, perching	*flat*	minimal	improbable
46	*15.3*	blackwood acacia	*poor*	YES		*flat*	minimal	trunk possible
47	*29.9*	yellow willow	*fair*	YES	Erosion control, wildlife habitat	*flat*	dead trunk & low branches	trunk possible
48	*30.6*	yellow willow	*fair*	YES	Erosion control, wildlife habitat	*flat*	low branches	trunk possible
49	*31.5*	yellow willow	*fair*	YES	Erosion control, wildlife habitat	*toe of slope*	low branches	branches & trunk possible
50	*32.2*	Ca black walnut	*poor*	YES	cavity nesting, perching	*flat*	minimal	trunks possible
51	*24.8*	coast live oak	*fair*	YES	Erosion control, biological diversity	*hummocky*	minimal	trunks possible

#	*Trunk Diameter (inches)*	Name	*Health*	On Site?	Attributes	*site locale*	Fire Hazard	Failure
52	*29.6*	Ca black walnut	*poor*	YES	Screening trail, cavity nesting, perching	*hummocky*	minimal	improbable
53	*25.8*	Ca black walnut	*poor*	YES	Screening trail, cavity nesting, perching	*hummocky*	minimal	improbable
54	*18.5*	coast live oak	*fair*	YES	Screening trail	*hummocky*	minimal	improbable
55	*24.2*	Ca black walnut	*poor*	YES	Screening trail, cavity nesting, perching	*hummocky*	minimal	improbable
56	*12.4*	coast live oak	*fair*	YES	Screening trail	*hummocky*	minimal	possible trunk
57	*23.9*	Ca black walnut	*poor*	YES	perching	*flat*	minimal	improbable
58	*18.2*	yellow willow	*poor*	YES	Erosion control, wildlife habitat	*low spot, water*	dead trunks	trunk probable
59	*37.9*	yellow willow	*very poor*	YES	Erosion control, wildlife habitat	*above water*	deadwood	trunk possible
60	*15.3*	Ca black walnut	*very poor*	YES	perching	*flat*	minimal	improbable
61	*17.5*	Ca black walnut	*poor*	YES	perching	*flat*	minimal	improbable
62	*118.5*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*flat*	bark debris, species	branch probable, trunk possible

#	*Trunk Diameter (inches)*	Name	*Health*	On Site?	Attributes	*site locale*	Fire Hazard	Failure
63	*22.9*	blue gum eucalyptus	*poor*	YES	wind screen, perch, pollinators	*flat*	bark debris, species	branch possible
64	*13.7*	Ca buckeye	*poor*	YES	Perching	*gradual slope*	minimal	improbable
65	*13.7*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*gradual slope*	bark debris, species	improbable
66	*60.0*	coast redwood	*fair*	YES	Erosion control, biological diversity, beautiful form	*slope, water*	low branches	branch probable
67	*19.1*	honey locust	*fair*	NO	perch	*flat*	adjoining dead trees	improbable
68	*31.2*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*gradual slope, below road*	bark debris, species	branch probable
69	*28.7*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*gradual slope, below road*	bark debris, species	branch probable
70	*31.8*	*blue gum eucalyptus*	*fair*	YES	wind screen, perch, pollinators	*gradual slope, below road*	bark debris, species	branch probable
71	*55.1*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*gradual slope, below road*	bark debris, species	branch probable

#	*Trunk Diameter (inches)*	Name	*Health*	On Site?	Attributes	*site locale*	Fire Hazard	Failure
72	*31.8*	blue gum eucalyptus	*fair*	YES	wind screen, perch, pollinators	*flat, structures*	bark debris, species	branch probable
73	*14.3*	Ca black walnut	*poor*	YES	wind screen, perch, pollinators	*gradual slope, below road*	minimal	improbable
75	*34.1*	ironwood eucalyptus	*fair*	YES	perch	*gradual slope, below road*	low branches	branch possible
76	*17.5*	river she oak	*poor*	YES	windbreak	*gradual slope, below road*	minimal	branch probable
77	*12.4*	Ca black walnut	*poor*	YES	perching	*gradual, above house*	minimal	improbable
78	*14.3*	leyland cypress	*poor*	YES	perch	*gradual slope, below road*	entire tree	branch probable
79	*27.7*	coast redwood	*very poor*	YES	perch	*gradual slope, near barn*	entire tree	branch & trunk probable
80	*18.5*	honey locust	*very poor*	YES	perch	*gradual slope, below road*	entire tree	branch probable

#	*Trunk Diameter (inches)*	Name	*Health*	On Site?	Attributes	*site locale*	Fire Hazard	Failure
81	*21.2*	honey locust	*very poor*	YES	perch	*gradual slope, below road*	entire tree	branch probable
82	*13.4*	honey locust	*poor*	YES	perch	*gradual slope, below road*	entire tree	branch probable
83	*22.9*	honey locust	*poor*	YES	perch	*gradual slope, below road*	entire tree	branch probable
84	*30.6*	Ca pepper tree	*poor*	YES	Perching, cavity nesting, visual interest	*gradual slope, below house*	low branches	branch possible
85	*19.4*	olive	*good*	YES	perch	*gradual slope,above barn*	minimal	improbable
86	*15.3*	olive	*poor*	YES	perch	*gradual slope,above barn*	minimal	improbable
87	*17.2*	olive	*poor*	YES	perch	*gradual slope,above barn*	minimal	improbable
88	*22.3*	olive	*poor*	YES	perch	*gradual slope,above barn*	minimal	improbable

#	*Trunk Diameter (inches)*	Name	*Health*	On Site?	Attributes	*site locale*	Fire Hazard	Failure
89	*51.9*	Babylonian willow	*fair*	YES	Windscreen, shade	*gradual slope,in arbor*	low branches	branch probable
90	*36.3*	Ca pepper tree	*fair*	YES	Perching, cavity nesting, visual interest	*slope next to structure*	low branches	branch possible
91	*21.3*	Ca black walnut	*very poor*	YES	cavity nesting, perching	*gradual slope*	deadwood	entire tree probable
92	*38.2*	Ca black walnut	*very poor*	YES	cavity nesting, perching	*gradual slope*	deadwood	entire tree probable
93	*48.7*	ash	*good*	YES	Shade, windscreen, view	*flat*	minimal	improbable
94	*19.7*	Italian stone pine	*fair*	YES	perch, biological diversity	*gradual slope*	low branches	branch possible
95	*43.0*	Babylonian willow	*fair*	YES	Windscreen, shade	*walls*	low branches	branch probable
96	*64.3*	Ca pepper tree	*fair*	YES	Perching, cavity nesting, visual interest	*gradual slope*	low branches	branch probable

APPENDIX D - IMPACTS ON TREES FROM PROPOSED GRADING

#	*Trunk Diameter (inches)*	Name	Health	*Near Proposed*	*Grading Proximity*	*Likely Impacts*	*Likely Consequences*
1	*60.8*	blue gum eucalyptus	fair	*road repairs*	*within dripline*	*root loss, trunk & branch damage*	*increased likelihood of branch & root failure*
2	*45.2*	blue gum eucalyptus	fair	*road repairs*	*entire tree*	*loss*	*loss*
3	*34.4*	blue gum eucalyptus	fair	*lot 1, road*	*entire tree*	*loss*	*loss*
4	*68.5*	blue gum eucalyptus	fair	*lot 1*	*pad within dripline*	*root loss*	*reduced health*
5	*22.9*	blue gum eucalyptus	fair	*lot 1*	*pad within dripline*	*root loss*	*reduced health*
6	*50.6*	blue gum eucalyptus	fair	*lot 2*	*pad within dripline*	*root loss*	*reduced health*
7	*58.3*	blue gum eucalyptus	fair	*lot 2*	*outside of rooting zone*	*no direct impacts*	*increased likelihood of branch failure*
8	*45.9*	blue gum eucalyptus	poor	*lot 3*	*outside of dripline*	*no direct impacts*	*increased likelihood of whole tree failure*
9	*28.3*	blackwood acacia	good	*lots 3-4*	*outside of dripline & 1.5x fall zone*	*no direct impacts*	*no measurable consequences*
10	*91.7*	blue gum eucalyptus	good	*lots 3-4*	*outside of dripline*	*no direct impacts*	*no measurable consequences*
11	*52.9*	blue gum eucalyptus	fair	*lot 4*	*outside of rooting zone, within fall zone*	*no direct impacts*	*increased likelihood of branch failure*
12	*33.8*	blue gum eucalyptus	fair	*lot 4*	*outside of dripline*	*no direct impacts*	*no measurable consequences*
13	*52.9*	blue gum eucalyptus	fair	*lot 4*	*edge of dripline in pad*	*minimal root loss*	*no measurable consequences*
14	*15.3*	coast live oak	good	*lot 4*	*beyond fall zone X 1.5*	*no impacts*	*no consequences*
15	*17.2*	blackwood acacia	fair	*road repairs*	*within fall zone of access road*	*reduced balance (wind patterns)*	*increased likelihood of uprooting*
16	*22.9*	blackwood acacia	good	*road repairs*	*within fall zone of access road*	*reduced balance (wind patterns)*	*increased likelihood of uprooting*
17	*16.9*	blackwood acacia	fair	*road repairs*	*within fall zone of access road*	*reduced balance (wind patterns)*	*increased likelihood of uprooting*

#	*Trunk Diameter (inches)*	Name	Health	*Near Proposed*	*Grading Proximity*	*Likely Impacts*	*Likely Consequences*
18	*22.3*	blackwood acacia	good	*road repairs*	*within fall zone of access road*	*reduced balance (wind patterns)*	*increased likelihood of uprooting*
19	*22.9*	Lombardy poplar	poor	*pad 6, road repairs*	*within graded pad*	*loss*	*loss*
20	*15.3*	silver dollar eucalyptus	fair	*pad 7*	*pad within fall zone*	*reduced balance (wind patterns)*	*increased likelihood of branch & trunk failure*
21	*22.9*	yellow willow	fair	*pad 7*	*pad within fall zone*	*reduced balance (wind patterns)*	*increased likelihood of branch, trunk & root failure*
22	*43.3*	silver dollar eucalyptus	fair	*pad 7*	*pad within fall zone*	*reduced balance (wind patterns)*	*increased likelihood of branch, trunk & root failure*
23	*26.8*	yellow willow	poor	*pad 8*	*pad within fall zone*	*root loss, reduced balance*	*increased likelihood of branch, trunk & root failure*
24	*34.4*	yellow willow	fair	*pad 8*	*pad within fall zone*	*root loss, reduced balance*	*increased likelihood of branch, trunk & root failure*
25	*25.8*	Monterey cypress	poor	*pad & unit 9*	*pad & unit within fall zone*	*root loss, reduced balance*	*increased likelihood of branch, trunk & root failure*
26	*34.4*	Monterey cypress	fair	*pad & unit 9*	*pad within graded zone, unit within fall zone*	*loss*	*loss*
27	*17.2*	yellow willow	fair	*pad & unit 9*	*within graded zone*	*loss*	*loss*
28	*18.8*	blackwood acacia	fair	*pad & unit 10*	*dripline within graded zone*	*root loss, reduced balance*	*increased likelihood of root, trunk & branch failure*
29	*13.1*	coast live oak	good	*pad & unit 10*	*graded zone*	*loss*	*loss*
30	*13.1*	blackwood acacia	fair	*pads & units 10-11*	*within fall zone of pad*	*reduced balance (wind patterns)*	*increased likelihood of root, trunk & branch failure*
31	*41.7*	yellow willow	fair	*pads & units 10-11*	*within graded zone*	*loss*	*loss*

#	*Trunk Diameter (inches)*	Name	Health	*Near Proposed*	*Grading Proximity*	*Likely Impacts*	*Likely Consequences*
32	*22.6*	blackwood acacia	fair	*parcel B bio-retention*	*above bio-retention*	*reduced balance (pattern changes)*	*increased likelihood of branch & root failure*
33	*12.1*	coast live oak	fair	*parcel B bio-retention*	*above bio-retention*	*reduced balance (pattern changes)*	*increased likelihood of branch & root failure*
34	*14.0*	coast live oak	poor	*parcel B bio-retention*	*above bio-retention*	*reduced balance (pattern changes)*	*decline*
35	*12.7*	coast live oak	fair	*parcel B bio-retention*	*above bio-retention*	*reduced balance (pattern changes)*	*decline*
36	*13.7*	Ca black walnut	poor	*emergency access road*	*within*	*loss*	*loss*
37	*53.2*	Ca buckeye	poor	*emergency access road*	*within*	*loss*	*loss*
38	*12.4*	plum	fair	*emergency access road*	*within*	*loss*	*loss*
39	*85.4*	Ca buckeye	good	*emergency access road*	*within*	*loss*	*loss*
40	*22.9*	coast live oak	good	*emergency access road*	*next to*	*root loss*	*increased likelihood of failure*
41	*42.7*	Ca buckeye	fair	*emergency access road*	*next to*	*root loss, trunk & branch damage*	*loss*
42	*81.2*	Ca buckeye	poor	*emergency access road*	*next to*	*root loss, trunk & branch damage*	*loss*
43	*14.0*	Ca black walnut	poor	*emergency access road*	*within*	*loss*	*loss*
44	*21.0*	Ca buckeye	fair	*pad 12*	*within*	*loss*	*loss*
45	*14.0*	Ca black walnut	poor	*pad 12*	*within*	*loss*	*loss*
46	*15.3*	blackwood acacia	poor	*pad 12*	*within*	*loss*	*loss*
47	*29.9*	yellow willow	fair	*pad 13*	*within*	*loss*	*loss*

#	*Trunk Diameter (inches)*	Name	Health	*Near Proposed*	*Grading Proximity*	*Likely Impacts*	*Likely Consequences*
48	*30.6*	yellow willow	fair	*pad 14*	*within*	*loss*	*loss*
49	*31.5*	yellow willow	fair	*pad 15*	*within*	*loss*	*loss*
50	*32.2*	Ca black walnut	poor	*pad 15 or road*	*within*	*loss*	*loss*
51	*24.8*	coast live oak	fair	*road*	*within*	*loss*	*loss*
52	*29.6*	Ca black walnut	poor	*road*	*within*	*loss*	*loss*
53	*25.8*	Ca black walnut	poor	*road*	*within*	*loss*	*loss*
54	*18.5*	coast live oak	fair	*pad 17*	*within*	*loss*	*loss*
55	*24.2*	Ca black walnut	poor	*pad 16*	*within*	*loss*	*loss*
56	*12.4*	coast live oak	fair	*pad 16*	*within*	*loss*	*loss*
57	*23.9*	Ca black walnut	poor	*pad 20-21*	*within*	*loss*	*loss*
58	*18.2*	yellow willow	poor	*pad 20*	*within*	*loss*	*loss*
59	*37.9*	yellow willow	very poor	*pad 21*	*within*	*loss*	*loss*
60	*15.3*	Ca black walnut	very poor	*pad 21*	*within*	*loss*	*loss*
61	*17.5*	Ca black walnut	poor	*pad 21*	*within*	*loss*	*loss*
62	*118.5*	blue gum eucalyptus	fair	*pad 22*	*within*	*loss*	*loss*
63	*22.9*	blue gum eucalyptus	poor	*pad 22-23*	*within*	*loss*	*loss*
64	*13.7*	Ca buckeye	poor	*pad 23*	*within*	*loss*	*loss*
65	*13.7*	blue gum eucalyptus	fair	*pad 24*	*within*	*loss*	*loss*
66	*60.0*	coast redwood	fair	*pad 28-29*	*trunk near grading, dripline within pad,*	*root loss, heat stress, branch removal*	*increased likelihood of failure*

#	*Trunk Diameter (inches)*	Name	Health	*Near Proposed*	*Grading Proximity*	*Likely Impacts*	*Likely Consequences*
67	*19.1*	honey locust	fair	*parcel D*	*next to*	*loss*	*loss*
68	*31.2*	blue gum eucalyptus	fair	*pad & unit 29*	*within*	*loss*	*loss*
69	*28.7*	blue gum eucalyptus	fair	*pad & unit 29*	*within*	*loss*	*loss*
70	*31.8*	*blue gum eucalyptus*	*fair*	*pad & unit 29*	*within*	*loss*	*loss*
71	*55.1*	blue gum eucalyptus	fair	*pad & unit 29 or road*	*within*	*loss*	*loss*
72	*31.8*	blue gum eucalyptus	fair	*pad & unit 28 or road*	*within*	*loss*	*loss*
73	*14.3*	Ca black walnut	poor	*pad & unit 29 or road*	*within*	*loss*	*loss*
75	*34.1*	ironwood eucalyptus	fair	*pad & unit 29 or road*	*within*	*loss*	*loss*
76	*17.5*	river she oak	poor	*pad & unit 29 or road*	*within*	*loss*	*loss*
77	*12.4*	Ca black walnut	poor	*pad & unit 30*	*within*	*loss*	*loss*
78	*14.3*	leyland cypress	poor	*pad & unit 30*	*within*	*loss*	*loss*
79	*27.7*	coast redwood	very poor	*pad & unit 6*	*within*	*loss*	*loss*
80	*18.5*	honey locust	very poor	*pad & unit 6 or road*	*within*	*loss*	*loss*
81	*21.2*	honey locust	very poor	*pad & unit 6 or road*	*within*	*loss*	*loss*
82	*13.4*	honey locust	poor	*pad & unit 6 or road*	*within*	*loss*	*loss*

#	*Trunk Diameter (inches)*	Name	Health	*Near Proposed*	*Grading Proximity*	*Likely Impacts*	*Likely Consequences*
83	*22.9*	honey locust	poor	*pad & unit 6 or road*	*within*	*loss*	*loss*
84	*30.6*	Ca pepper tree	poor	*pad & unit 40*	*within*	*loss*	*loss*
85	*19.4*	olive	good	*pad & unit 40*	*within*	*loss*	*loss*
86	*15.3*	olive	poor	*pad & unit 40*	*within*	*loss*	*loss*
87	*17.2*	olive	poor	*pad & unit 40*	*within*	*loss*	*loss*
88	*22.3*	olive	poor	*pad & unit 40*	*within*	*loss*	*loss*
89	*51.9*	Babylonian willow	fair	*pad & unit 38*	*within*	*loss*	*loss*
90	*36.3*	Ca pepper tree	fair	*pad & unit 33*	*within*	*loss*	*loss*
91	*21.3*	Ca black walnut	very poor	*pad & unit 33*	*within*	*loss*	*loss*
92	*38.2*	Ca black walnut	very poor	*pad & unit 33*	*within*	*loss*	*loss*
93	*48.7*	ash	good	*pad & unit 37*	*within*	*loss*	*loss*
94	*19.7*	Italian stone pine	fair	*pad & unit 35*	*within*	*loss*	*loss*
95	*43.0*	Babylonian willow	fair	*pad & unit 33*	*within*	*loss*	*loss*
96	*64.3*	Ca pepper tree	fair	*pad & unit 33*	*within*	*loss*	*loss*

APPENDIX E - RECOMMENDATIONS

#	*Trunk Diameter (inches)*	Name	overall Condition	*REMOVE OR PRESERVE*	*RATIONALE*
1	*60.8*	blue gum eucalyptus	FAIR	***REMOVE***	*risk, fire hazard, high maintenance*
2	*45.2*	blue gum eucalyptus	POOR	***REMOVE***	*risk, fire hazard, high maintenance*
3	*34.4*	blue gum eucalyptus	FAIR	***REMOVE***	*risk, fire hazard, high maintenance*
4	*68.5*	blue gum eucalyptus	POOR-FAIR	***REMOVE***	*risk, fire hazard, high maintenance*
5	*22.9*	blue gum eucalyptus	FAIR	***REMOVE***	*risk, fire hazard, high maintenance*
6	*50.6*	blue gum eucalyptus	POOR	***REMOVE***	*risk, fire hazard, high maintenance*
7	*58.3*	blue gum eucalyptus	FAIR	***REMOVE***	*risk, fire hazard, high maintenance*
8	*45.9*	blue gum eucalyptus	POOR	***REMOVE***	*risk, fire hazard, high maintenance*
9	*28.3*	blackwood acacia	FAIR	***PRESERVE***	*indirect not large impacts*
10	*91.7*	blue gum eucalyptus	FAIR	***REMOVE***	*elevated risk*

#	*Trunk Diameter (inches)*	Name	overall Condition	*REMOVE OR PRESERVE*	*RATIONALE*
11	*52.9*	blue gum eucalyptus	FAIR	***REMOVE***	*fall zone of access road, interlocking grove*
12	*33.8*	blue gum eucalyptus	POOR	***REMOVE***	*elevated risk*
13	*52.9*	blue gum eucalyptus	FAIR	***REMOVE***	*elevated risk*
14	*15.3*	coast live oak	FAIR-GOOD	***PRESERVE***	*far from construction*
15	*17.2*	blackwood acacia	FAIR-GOOD	***PRESERVE***	*contributing to erosion control on steep slope*
16	*22.9*	blackwood acacia	FAIR	***PRESERVE***	*contributing to erosion control on steep slope*
17	*16.9*	blackwood acacia	POOR-FAIR	***PRESERVE***	*contributing to erosion control on steep slope*
18	*22.3*	blackwood acacia	FAIR	***PRESERVE***	*contributing to erosion control on steep slope*
19	*22.9*	Lombardy poplar	POOR-FAIR	***REMOVE***	*within graded area, poor health*

#	*Trunk Diameter (inches)*	Name	overall Condition	*REMOVE OR PRESERVE*	*RATIONALE*
20	*15.3*	silver dollar eucalyptus	FAIR	***PRESERVE***	*rooting zone outside of area to be graded*
21	*22.9*	yellow willow	POOR-FAIR	***PRESERVE***	*malleable species, can be pruned to reduce likelihood of failure*
22	*43.3*	silver dollar eucalyptus	POOR-FAIR	***PRESERVE***	*rooting zone outside of area to be graded*
23	*26.8*	yellow willow	POOR	***PRESERVE***	*malleable species, can be pruned to reduce likelihood of failure*
24	*34.4*	yellow willow	POOR-FAIR	***PRESERVE***	*malleable species, can be pruned to reduce likelihood of failure*
25	*25.8*	Monterey cypress	POOR-FAIR	***REMOVE***	*elevated risk*
26	*34.4*	Monterey cypress	FAIR	***REMOVE***	*grading*

#	*Trunk Diameter (inches)*	Name	overall Condition	*REMOVE OR PRESERVE*	*RATIONALE*
27	*17.2*	yellow willow	FAIR	***REMOVE***	*grading*
28	*18.8*	blackwood acacia	POOR-FAIR	***PRESERVE***	*visual screening, soil erosion control*
29	*13.1*	coast live oak	FAIR	***REMOVE***	*grading*
30	*13.1*	blackwood acacia	POOR	***PRESERVE***	*screening, soil erosion control*
31	*41.7*	yellow willow	POOR-FAIR	***REMOVE***	*within graded area, health*
32	*22.6*	blackwood acacia	POOR	***PRESERVE***	*screening, soil erosion control*
33	*12.1*	coast live oak	POOR	***REMOVE***	*intertwined with palm that will be removed*
34	*14.0*	coast live oak	POOR	***PRESERVE***	*erosion control, biological diversity*
35	*12.7*	coast live oak	FAIR	***PRESERVE***	*erosion control, biological diversity*
36	*13.7*	Ca black walnut	POOR	***REMOVE***	*emergency access road*
37	*53.2*	Ca buckeye	POOR	***REMOVE***	*emergency access road*

#	*Trunk Diameter (inches)*	Name	overall Condition	*REMOVE OR PRESERVE*	*RATIONALE*
38	*12.4*	plum	POOR	***REMOVE***	*emergency access road*
39	*85.4*	Ca buckeye	GOOD	***REMOVE***	*emergency access road*
40	*22.9*	coast live oak	FAIR	***PRESERVE***	*screening, biological diversity*
41	*42.7*	Ca buckeye	FAIR	***REMOVE***	*screening, soil erosion control, biological diversity*
42	*81.2*	Ca buckeye	POOR	***REMOVE***	*screening, soil erosion control, biological diversity*
43	*14.0*	Ca black walnut	POOR	***REMOVE***	*grading*
44	*21.0*	Ca buckeye	POOR	***REMOVE***	*grading*
45	*14.0*	Ca black walnut	POOR-FAIR	***REMOVE***	*grading*
46	*15.3*	blackwood acacia	POOR	***REMOVE***	*grading*
47	*29.9*	yellow willow	POOR-FAIR	***REMOVE***	*grading*
48	*30.6*	yellow willow	POOR-FAIR	***REMOVE***	*grading*
49	*31.5*	yellow willow	FAIR	***REMOVE***	*grading*

#	*Trunk Diameter (inches)*	Name	overall Condition	*REMOVE OR PRESERVE*	*RATIONALE*
50	*32.2*	Ca black walnut	POOR-FAIR	***REMOVE***	*grading*
51	*24.8*	coast live oak	FAIR	***REMOVE***	*grading*
52	*29.6*	Ca black walnut	POOR	***REMOVE***	*grading*
53	*25.8*	Ca black walnut	POOR	***REMOVE***	*grading*
54	*18.5*	coast live oak	POOR-FAIR	***REMOVE***	*grading*
55	*24.2*	Ca black walnut	POOR	***REMOVE***	*grading*
56	*12.4*	coast live oak	FAIR	***REMOVE***	*grading*
57	*23.9*	Ca black walnut	POOR	***REMOVE***	*grading*
58	*18.2*	yellow willow	POOR-VERY POOR	***REMOVE***	*grading, condition*
59	*37.9*	yellow willow	POOR	***REMOVE***	*grading, condition*
60	*15.3*	Ca black walnut	VERY POOR-POOR	***REMOVE***	*grading, condition*
61	*17.5*	Ca black walnut	POOR	***REMOVE***	*grading, condition*
62	*118.5*	blue gum eucalyptus	POOR-FAIR	***REMOVE***	*grading*

#	*Trunk Diameter (inches)*	Name	overall Condition	*REMOVE OR PRESERVE*	*RATIONALE*
63	*22.9*	blue gum eucalyptus	POOR	***REMOVE***	*grading*
64	*13.7*	Ca buckeye	POOR-FAIR	***REMOVE***	*grading*
65	*13.7*	blue gum eucalyptus	FAIR	***REMOVE***	*grading*
66	*60.0*	coast redwood	FAIR	***PRESERVE***	*soil erosion control, screening, biological diversity, specimen*
67	*19.1*	honey locust	POOR-FAIR	***REMOVE***	*grading, condition*
68	*31.2*	blue gum eucalyptus	POOR-FAIR	***REMOVE***	*grading*
69	*28.7*	blue gum eucalyptus	FAIR	***REMOVE***	*grading*
70	*31.8*	*blue gum eucalyptus*	FAIR	***REMOVE***	*grading*
71	*55.1*	blue gum eucalyptus	FAIR	***REMOVE***	*grading*
72	*31.8*	blue gum eucalyptus	FAIR-GOOD	***REMOVE***	*grading*

#	*Trunk Diameter (inches)*	Name	overall Condition	*REMOVE OR PRESERVE*	*RATIONALE*
73	*14.3*	Ca black walnut	FAIR	***REMOVE***	*grading*
75	*34.1*	ironwood eucalyptus	POOR	***REMOVE***	*grading*
76	*17.5*	river she oak	POOR	***REMOVE***	*grading*
77	*12.4*	Ca black walnut	POOR	***REMOVE***	*grading*
78	*14.3*	leyland cypress	POOR	***REMOVE***	*grading*
79	*27.7*	coast redwood	POOR	***REMOVE***	*grading*
80	*18.5*	honey locust	VERY POOR	***REMOVE***	*grading*
81	*21.2*	honey locust	VERY POOR	***REMOVE***	*grading*
82	*13.4*	honey locust	POOR	***REMOVE***	*grading*
83	*22.9*	honey locust	POOR	***REMOVE***	*grading*
84	*30.6*	Ca pepper tree	POOR	***REMOVE***	*grading*
85	*19.4*	olive	FAIR-GOOD	***REMOVE***	*grading*
86	*15.3*	olive	POOR	***REMOVE***	*grading*

#	*Trunk Diameter (inches)*	Name	overall Condition	*REMOVE OR PRESERVE*	*RATIONALE*
87	*17.2*	olive	POOR	***REMOVE***	*grading*
88	*22.3*	olive	POOR-FAIR	***REMOVE***	*grading*
89	*51.9*	Babylonian willow	POOR-FAIR	***REMOVE***	*grading*
90	*36.3*	Ca pepper tree	FAIR-GOOD	***REMOVE***	*grading*
91	*21.3*	Ca black walnut	VERY POOR-POOR	***REMOVE***	*grading*
92	*38.2*	Ca black walnut	POOR-VERY POOR	***REMOVE***	*grading*
93	*48.7*	ash	POOR	***REMOVE***	*grading*
94	*19.7*	Italian stone pine	FAIR	***REMOVE***	*grading*
95	*43.0*	Babylonian willow	POOR-FAIR	***REMOVE***	*grading*
96	*64.3*	Ca pepper tree	FAIR	***REMOVE***	*grading*

APPENDIX F - PRESERVATION MEASURES

#	*Trunk Diameter (inches)*	Name	*overall Condition*	*TREE PROTECTION ZONE RADIUS from trunk (feet)*	*ROOT CROWN EXCAVATION / INSPECTION*	*PRUNING*	*IRRIGATION*	*SUDDEN OAK DEATH PREVENTION*
9	*28.3*	blackwood acacia	*FAIR*	*20*				
14	*15.3*	coast live oak	*FAIR-GOOD*	*20*			*avoid excessive water*	*treat*
15	*22.9*	blackwood acacia	*FAIR-GOOD*	*15*				
16	*16.9*	blackwood acacia	*FAIR*	*15*				
17	*22.3*	blackwood acacia	*POOR-FAIR*	*20*				
18	*15.3*	blackwood acacia	*FAIR*	*15*				
20	*15.3*	silver dollar eucalyptus	*FAIR*	*20*				
21	*22.9*	yellow willow	*POOR-FAIR*	*25*	*clear root crown*			
22	*43.3*	silver dollar eucalyptus	*POOR-FAIR*	*25*				
23	*26.8*	yellow willow	*POOR*	*30*	*clear root crown*			
24	*34.4*	yellow willow	*POOR-FAIR*	*25*	*clear root crown*			
28	*18.8*	blackwood acacia	*POOR-FAIR*	*15*				
30	*22.6*	blackwood acacia	*POOR*	*20*				
32	*14.0*	blackwood acacia	*POOR*	*15*				
34	*12.7*	coast live oak	*POOR*	*20*				

#	*Trunk Diameter (inches)*	Name	*overall Condition*	*TREE PROTECTION ZONE RADIUS from trunk (feet)*	*ROOT CROWN EXCAVATION / INSPECTION*	*PRUNING*	*IRRIGATION*	*SUDDEN OAK DEATH PREVENTION*
35	*22.9*	coast live oak	*FAIR*	*15*	*clear root crown*		*avoid excessive water*	*treat*
40	*60.0*	coast live oak	*FAIR*	*20*	*clear root crown*		*avoid excessive water*	*treat*
66	*60.0*	coast redwood	FAIR	*30*	*clear root crown*	*Raise for fire safety*		

APPENDIX G - GLOSSARY

dripline - region underneath tree canopy

form - genetically determined appearance that includes spread, height & configuration

health - tree growth as expressed by foliage, twigs, branches & trunks including resistance to pests

root crown – region where trunk and root system meet, also called `buttress' or `butt'

rooting zone – area where roots are likely to survive, beginning at the trunk and extending up to three times the radius of a tree's dripline region

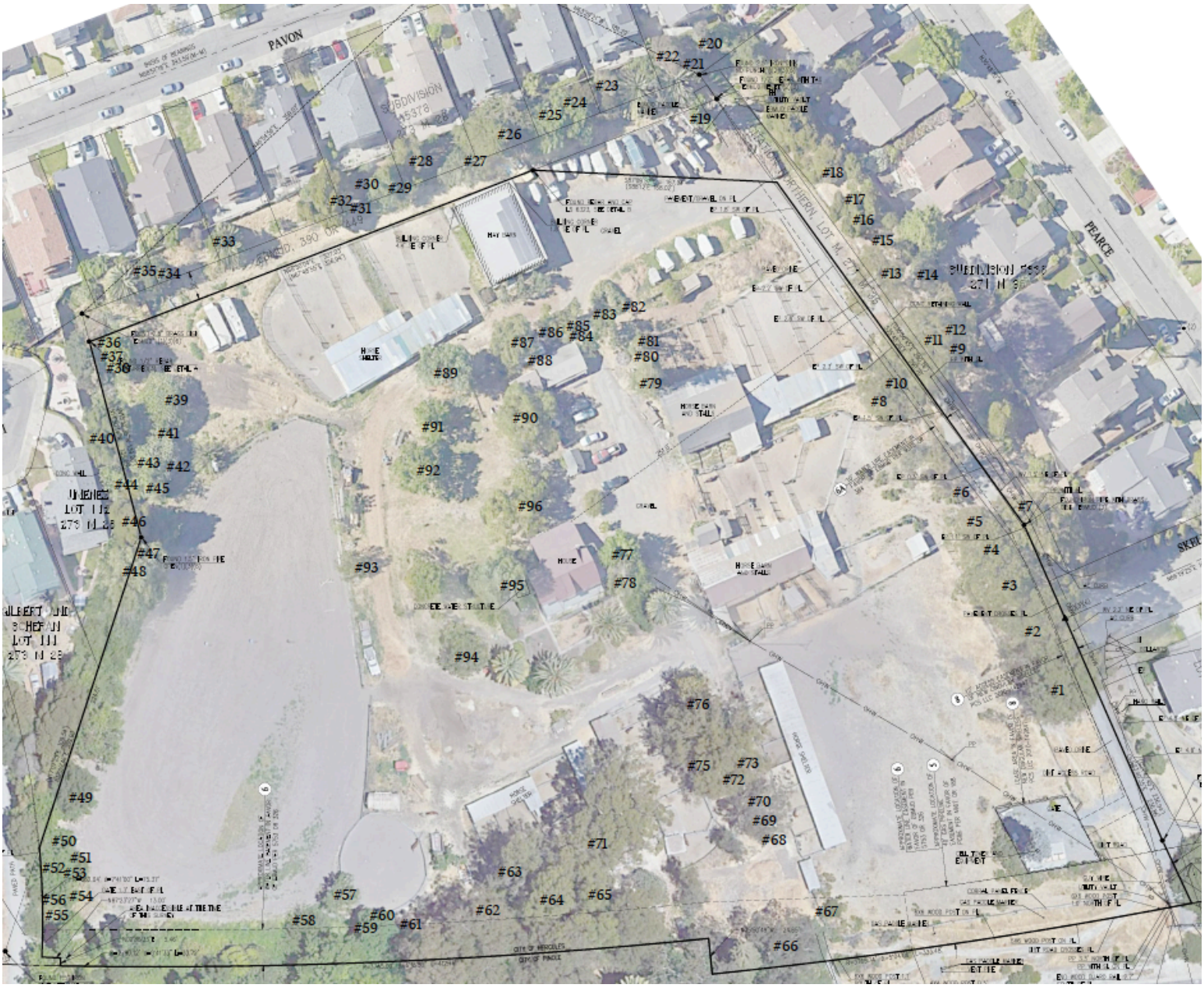
scaffold – large, structural branch

structure - physical and mechanical qualities of tree

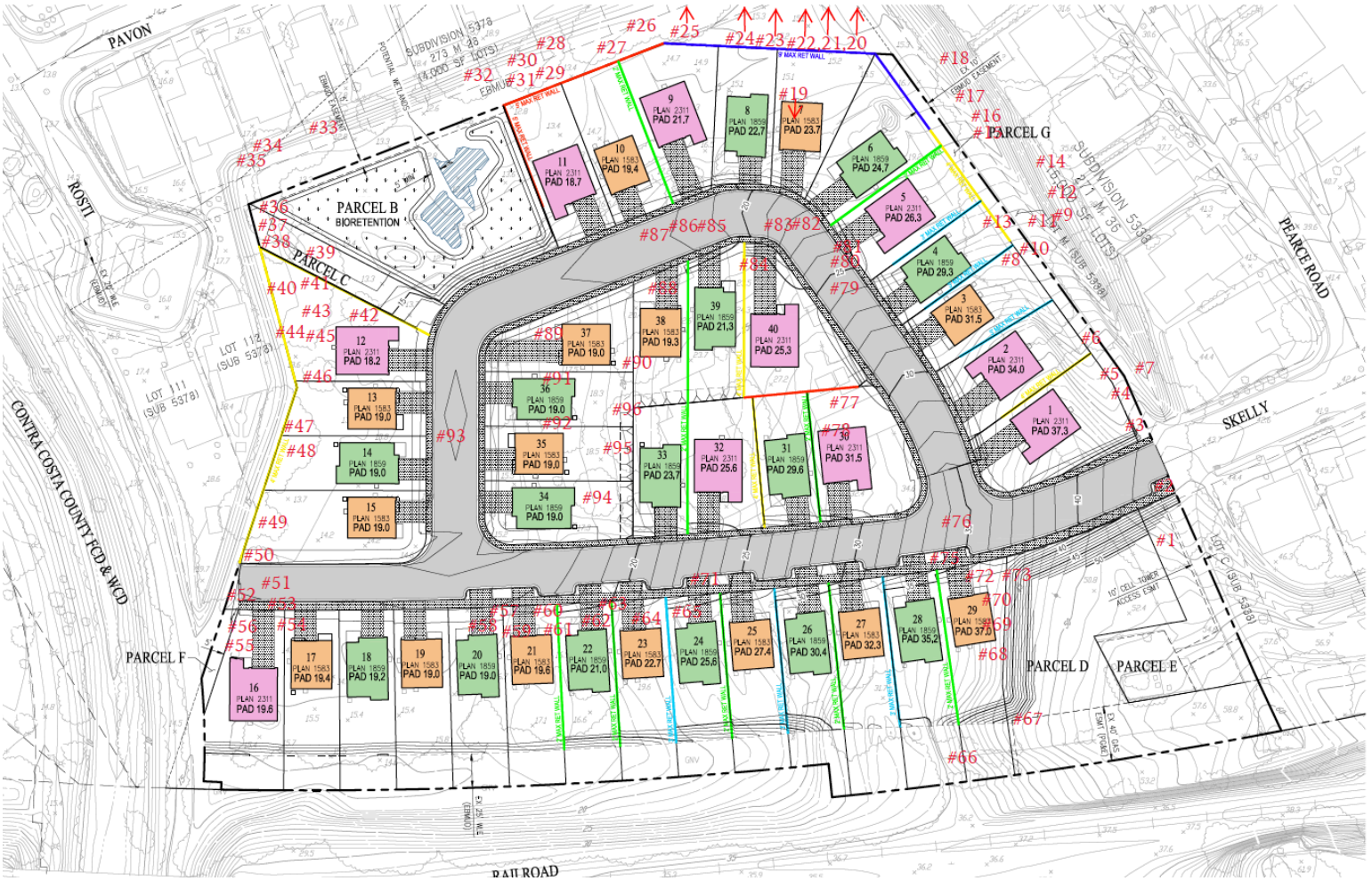
trunk circumference – measurement of trunk, distance around

trunk diameter - trunk circumference divided by 3.14

APPENDIX H - APPROXIMATE TREE LOCATIONS PRE-CONSTRUCTION



APPROXIMATE TREE LOCATIONS ON PRELIMINARY GRADING PLAN



APPENDIX I - CERTIFICATE OF PERFORMANCE

I, Michael Baefsky certify:

- That I have reviewed the The City of Hercules Municipal Code, Chapter 15 Mature Tree Removal
- That I have evaluated the subject trees, and stated my findings accurately. The extent of the evaluation is stated in the attached report;
- That I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;
- That the analysis, opinions, and conclusions stated herein are my own;
- That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted professional practices;
- That no one provided significant professional assistance to the consultant, except as indicated within the report;
- That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party.

I certify that I am Registered Consulting Arborist #456, a member of the American Society of Consulting Arborists, and am Certified Arborist & Qualified Risk Assessor #WE0222A, Agricultural Pest Control Advisor #074617, Qualified Applicator #99864, Licensed Landscape Contractor (inactive) #931410, and have been involved in the practice of Arboriculture, Integrated Pest Management, Plant Health Care and Ecological Soils Management, and the study of soils and horticulture for over thirty years.

Michael Baefsky