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January 21, 2014

Reg.12-10/A.13-09-014
SDG&E Salt Creek PTC

SENT VIA ELECTRONIC MAIL AND FED EX

CPUC-Energy Division
Attn: Mr. Jason Coontz
505 Van Ness Avenue
San Francisco, CA 94102

Panorama Environmental, Inc.
Attn: Laurie Hietter and Susanne Heim
One Embarcadero Center, Suite 740
San Francisco, CA 94111

Re: A.13-09-014/Salt Creek Substation – Response to Data Request dated December 20, 2013 (AD2-ED-004)

Dear Mr. Coontz, Ms. Hietter and Ms. Heim:

Attached please find SDG&E's partial response ("Response") to the additional data request #2 dated December 20, 2013 (ED-AD2-004). A CD is being sent to each of the parties listed above and the files will also be sent via the CPUC FTP website and/or the Sempra EDT website.

SDG&E received an extension on items 12 and 13 of the additional data request #2 to January 31, 2014. In addition, SDG&E received an extension on the deficiency report #2, item 1 to January 31, 2014.

If you have any questions or require additional information, please feel free to contact me.

Sincerely,

Signed

Jennifer Pierce
Regulatory Case Administrator

Enclosures

cc: Allen Trial – SDG&E
Estella De Llanos – SDG&E
Central Files - SDG&E

A.13-09-014 SDG&E 01/21/14 Response
Salt Creek Substation Project PTC
Energy Division Additional Data Request #2 Dated December 20, 2013
AD2-ED-004

Table 1: Salt Creek A.13-09-014 Data Request #2			
#	**PEA Section, Page #**	**Project Description**	**SDG&E Response**
1	Appendix 3-A	**Provide a cross-section for typical underground distribution ducts (12-kV).** Appendix 3-A only includes typical cross-sections for the 69-kV distribution ducts.	See Attachment AD2.1-1 for a typical underground 12kV duct work cross section.
2	3.3.1.5	**Clarify the infrastructure that will be located within the 12-kV underground duct packages.** Section 3.3.1.5 of the project description states that three distribution circuits will be installed as part of the project and up to 13 additional circuits could be installed as the residential and commercial load develops, for 16 circuits total. The project description also states that the distribution configuration includes four duct packages and each duct package consists of six conduits, for a total of 24 conduits. Based on this configuration, there are eight conduits more than required for the distribution alone (two per duct package).	The distribution duct package ultimate configuration will include four duct packages. Each duct package will consist of six conduits – four circuits and two spare conduits. Spare conduits are sometimes required for conditions such as, but not limited to: • To allow for heat dissipation to prevent electric cables from overheating and failure. • To install twin cable run circuit configurations (if required) • To minimize circuit outage time by installing new cable in the spare conduit in the event of a cable failure.
3		**Clarify whether cargo netting would be used across State Route 125 or roads where guard structures are used.** Caltrans provided a comment letter on SDG&E's Application. The letter stated that netting may be used across highways.	Should cargo netting be utilized it would only be used over areas where conductor crosses SR-125. At this point it is too early in the process to determine whether cargo netting will be used during the stringing of conductor over SR-125 or whether SDGE will solely use traffic breaks. Typically short traffic breaks at off-peak hours are utilized to protect the public during stringing operations (not cargo netting). Determination of which method will be used will be made closer to the start of construction.
4	AD.32	**Identify new water line locations and**	Approximately 230 lineal feet of new 2-inch reclaimed water line is proposed to

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		approximate length of new irrigation line (linear feet or miles) required to connect the water line to existing water infrastructure SDG&E's response to Data Response #1, item 32, fails to address the request for new water line locations and distances between the new line and the existing infrastructure. Because reclaimed water is proposed for irrigation at the Salt Creek Substation, additional information is needed to define the distance between existing reclaimed water lines and the proposed irrigation lines.	supply irrigation water to the project. The actual location of the water tap into existing reclaimed water main in the South/West-bound lanes of Hunte Parkway will not be determined until consultation with the City of Chula Vista. A reclaimed water meter is proposed to be installed in the parkway southerly of Hunte Parkway. The total lineal feet and locations of the irrigation system are not yet designed and are customarily submitted to the City of Chula Vista for review. See Attachment AD2.4-1.
5	AD.18	**Update the acreage of temporary and permanent project disturbance to reflect project changes submitted to CPUC on 11/25/2013 (e.g., new access roads, revised Hunte Parkway staging area).**	The temporary and permanent project disturbance information has been updated and is provided in Attachment AD2.5-1, which includes revised Tables 3-1 and 3-2 from the PEA. In addition, the Biological Resources PEA section has been updated to reflect these changes and is provided in Attachment AD2.5-2. Lastly, the letter summarizing biological resources for the Olympic Training Center staging yards has been revised to include a discussion of the proposed access to those staging yards (Attachment AD2.5-3**).**
6	DR.4	**Clarify the proposed use of a generator at Salt Creek Substation.** SDG&E Response to Deficiency Letter item #4 states that, "a small generator (approximately 5 hp) has been added to the sources in the Salt Creek Substation Construction…" The project description previously submitted by SDG&E stated that the substation construction would use power from a temporary overhead power line. Is the small generator an additional power source at the	It is anticipated that contractor(s) may periodically use small generators (approximately 5 hp) as a power source for equipment such as hand tools, compressors, etc. during construction of the substation and TL6965. This is typically for (but not limited to) carpentry associated with forming concrete for foundations, headwalls, retaining walls, and the like. The purpose of the temporary power line is for providing electricity to the construction trailers (to be used for lighting, electrical outlets, and so forth).

Table 1: Salt Creek A.13-09-014 Data Request #2			
#	**PEA Section, Page #**	**Project Description**	**SDG&E Response**
		substation, or is it a back-up source of power?	
7		**Define the proposed disposal method for removed vegetation and brush. Would vegetation be chipped on site or brought to a landfill?**	Removed vegetation and brush will be disposed of at a certified waste disposal facility.
8	AD.28	**Specify the location of the underground conduit for the AT&T line. Is this one of the underground distribution ducts, or an additional underground conduit?**	The nearest available AT&T facility is on the north side of Hunte Parkway, across the street from the substation site. The AT&T circuit will be coming into the substation via a separate underground conduit. SDG&E will install a total of two (2) 4" underground conduits for AT&T (one will be a spare conduit) from the nearest assigned AT&T facility across the street and into the substation.
9		**Specify the volume of concrete that would be used for:** **a. Directly embedded steel pole backfill** **b. Equipment foundations at the substation site** **c. Underground duct banks** **d. Manholes/vaults** **e. Driveway at Hunte Parkway** **f. Any other proposed concrete structures**	Approximate concrete volumes, expressed in cubic yards (CY), are provided below. Note that these are estimates at this time since final designs have yet to be completed. a. The estimated concrete volume for direct embedded poles is 64 to 256 CY. b. Approximately 650 CY. c. 69kV underground duct banks will require approximately 1,600 CY of slurry backfill, and approximately 400 cubic yards of concrete encasement. 12kV underground duct banks will require approximately 2,200 CY of slurry backfill (quantity up to the manhole on Hunte Parkway). d. Approximately 300 CY of slurry backfill for the precast vaults. The vaults themselves are approximately 350 CY (these are purchased as precast units from a manufacturer and not cast in place). e. The driveway and associated curb and gutter concrete will require

Table 1: Salt Creek A.13-09-014 Data Request #2			
#	**PEA Section, Page #**	**Project Description**	**SDG&E Response**
			approximately 10 CY of concrete. f.1. The approximate concrete volume for foundation poles (both Engineered and Cable Poles) is 299 to 780 CY. f.2. Soil Nail walls are projected to require approximately 150 CY of concrete. f.3. CMU walls are projected to require approximately 500 CY of concrete for foundations, and approximately 240 CY of grout.
10	AD.18	**Provide additional details on the temporary guard structures. Define the size of the holes required for the wood poles. Define the height of the poles above ground level. Confirm that the temporary impact per guard structure is 72 square feet and the total number of guard structures is 38 (33 in PEA plus 5 in 11/25/13 GIS revisions).**	See Attachment AD2.10-1 for a picture of a typical in-ground guard structure. Approximate dimensions for each vertical support pole are a 24 inch diameter hole 6 feet deep and 35 to 40 feet above ground. The estimated temporary impact per in-ground guard structure has been confirmed to be 72 square feet. There will be an estimated 38 guard structures of which 33 will likely be the in-ground type. The five additional guard structures (GS A, GS B, GS C, GS D, and GS E) are still potentially necessary and these will be vehicles (such as a boom or bucket truck) as stated in our prior response to question AD.18.
11		**Provide additional details for the aboveground substation construction. Specify the depth of the excavations for the concrete foundations. Describe the ground grid construction. Describe the construction methods, height, and composition (e.g., steel) of the all-weather structure. Provide a picture of a similar all-weather structure.**	The excavation depths for the concrete foundations will vary with the type of equipment. The deepest excavation depth would be for the power duct packages at approximately 10'-12' deep. The ground grid will be installed per the ground grid design drawing but it normally consists of 4/0 bare stranded copper wire and installed at a minimum 18" below final grade. The ground grid connections are done per SDGE standards, which is either by the Cadweld and Thermoweld process or the use of swage compression connectors. The construction of the all-weather structure will be a reinforced grouted masonry concrete structure. The all-weather structure will be approximately 11 feet tall and constructed per the latest version of the California Building Code

Table 1: Salt Creek A.13-09-014 Data Request #2			
#	**PEA Section, Page #**	**Project Description**	**SDG&E Response**
			(CBC). See Attachment AD2.11-1 for a picture of a similar all-weather structure.
12	DR.2-1	**Attachment DR.2-1 is missing some information. Provide the Excel file and update the file to include the following information:** **a. Provide the duration of use (hours) and the number of workers per equipment for the substation (Table A-1).** This information was included in the remaining tables and omitted from the substation equipment table. **b. In Table A-1 there appears to be words missing for two pieces of equipment under the activity "Substation Above Grade Construction." The last row says "with trailer" and two rows above says "Processing." Please provide the missing information. (** **c. In Table A-3 under the activity "Underground Trench/Conduit/Substructure," provide the number of Dump/Haul Trucks. Please also clarify the equipment title in the last row for the activity titled "Steel Structure Installation." (Bruce)** **d. In Table A-4 under the activity "Steel Structure Installation," please provide the data for all columns to the right of the column labeled "Use." (**	**EXTENSION APROVED UNTIL 1/31/14.**

Table 1: Salt Creek A.13-09-014 Data Request #2			
#	**PEA Section, Page #**	**Project Description**	**SDG&E Response**
		e. In Table A-1 under the activity "Site and Access Road Grading," the duration of 90 days is inconsistent. No equipment is used for more than 75 days and there would be no overlap making the total duration greater than 75 days. **f. In Table A-2 under the activity "Foundation Installations," the generator is listed as being used for 30 days.** The total duration for this activity is 5 days. Please correct the generator usage and ensure that the corrected value was used for the air quality calculations. **g. In Table A-2 under the activity "Underground Trench/Conduit/Substructure," there are two workers listed per backhoe, five per concrete truck, and four per delivery truck.** Please clarify that these personnel totals are correct. **h. In Table A-3 under the activity "Foundation Installations," the duration of 45 days seems too long.** No equipment is used for more than 8 days and there is limited overlap. Please clarify the duration on site total. **i. In Table A-3 under the activity, "Steel Structure Installations," please provide the full text under the last line item, which states, "(Typically Manitex on."** **k. In Table A-4 under the activity "Underground**	

Table 1: Salt Creek A.13-09-014 Data Request #2			
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		Trench/Conduit/Substructure," there are seven Dump/Haul Trucks and ten Concrete Trucks listed. Line items for these pieces of equipment are inconsistent with line items in previous equipment tables, which list the number of trips. Please clarify the number of trips for these trucks.	
13	DR.2-1	**Update the construction workforce estimate for the project; the number of workers required for construction of the project is underestimated.** The PEA states that a maximum of 35 workers would be on site during construction. This number is inconsistent with the number of workers required for each piece of equipment by activity. The single activity of "Underground Trench/Conduit/Substructure" for the 12-kV Distribution Lines could require up to 49 workers on site at one time. Because this activity will be happening simultaneously with construction of other project elements, it is reasonable to expect that the number of construction workers during peak construction would be greater than 50. Please review the construction workforce estimates and provide a peak and average number of workers required to construct the project.	**EXTENSION APPROVED UNTIL 1/31/14.**

Table 1: Salt Creek A.13-09-014 Data Request #2			
#	**PEA Section, Page #**	**Project Description**	**SDG&E Response**
Aesthetics			
14		**Clarify the type of insulators that are proposed and their potential to produce glare.** The photo below shows a recently hardened portion of TL 6913. It portrays conditions near sunset. The insulators are exhibiting significant glare, an aesthetics threshold of significance. The insulators that created this glare could be construed as specular. Is the same type of insulator proposed for TL 6965? 	The insulators for the new TL6965 are planned to be the same as those installed on the existing TL6913. These insulators are silicone rubber polymer, manufactured by NGK Locke, and have been used in the majority of SDG&E lower voltage transmission lines (below 500kV) since the early 1990's. The potential for glare from these silicone rubber insulators is generally less than glazed porcelain glass insulators, which were a previous standard for insulators.
Biological Resources			
15	Page 4.4-54	**Verify the acreage of suitable Quino checkerspot butterfly (QCB) habitat that is located within the survey area and the acreage that would be**	Please see Attachments AD2.15-1, AD2.15-2 & AD2.15-3 for a response to this request.

Table 1: Salt Creek A.13-09-014 Data Request #2			
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		impacted by the project. Page 4.4-54 of the PEA states: *Using the suitable QCB habitat criteria established under SDG&E's QCB Low-Effect HCP, approximately 50 acres of suitable QCB habitat occur within the proposed Salt Creek Substation, southern terminus of the Transmission Corridor, and buffer southeast of Hunte Parkway, including nonnative grassland, Diegan coastal sage scrub, and wildflower field habitats (Figure 4.4-1c). During focused QCB surveys, small patches of dot-seed plantain (P. erecta), which is a QCB larval host plant, was observed in the southern end of the BSA; however, no QCB were observed during these surveys. Although these impacted areas are considered suitable according the HCP criteria, since they are neither within the Mapped Area nor occupied, no habitat mitigation is required for these impacts, per SDG&E's HCP for QCB.* We reviewed SDG&E's QCB Low-Effect HCP and discussed the mitigation requirements with Patrick Gower at U.S. Fish & Wildlife Service (USFWS) on November 21, 2013. The HCP requires mitigation for impacts to unoccupied suitable QCB habitat at a 1:1 ratio. Mr. Gower stated that this	

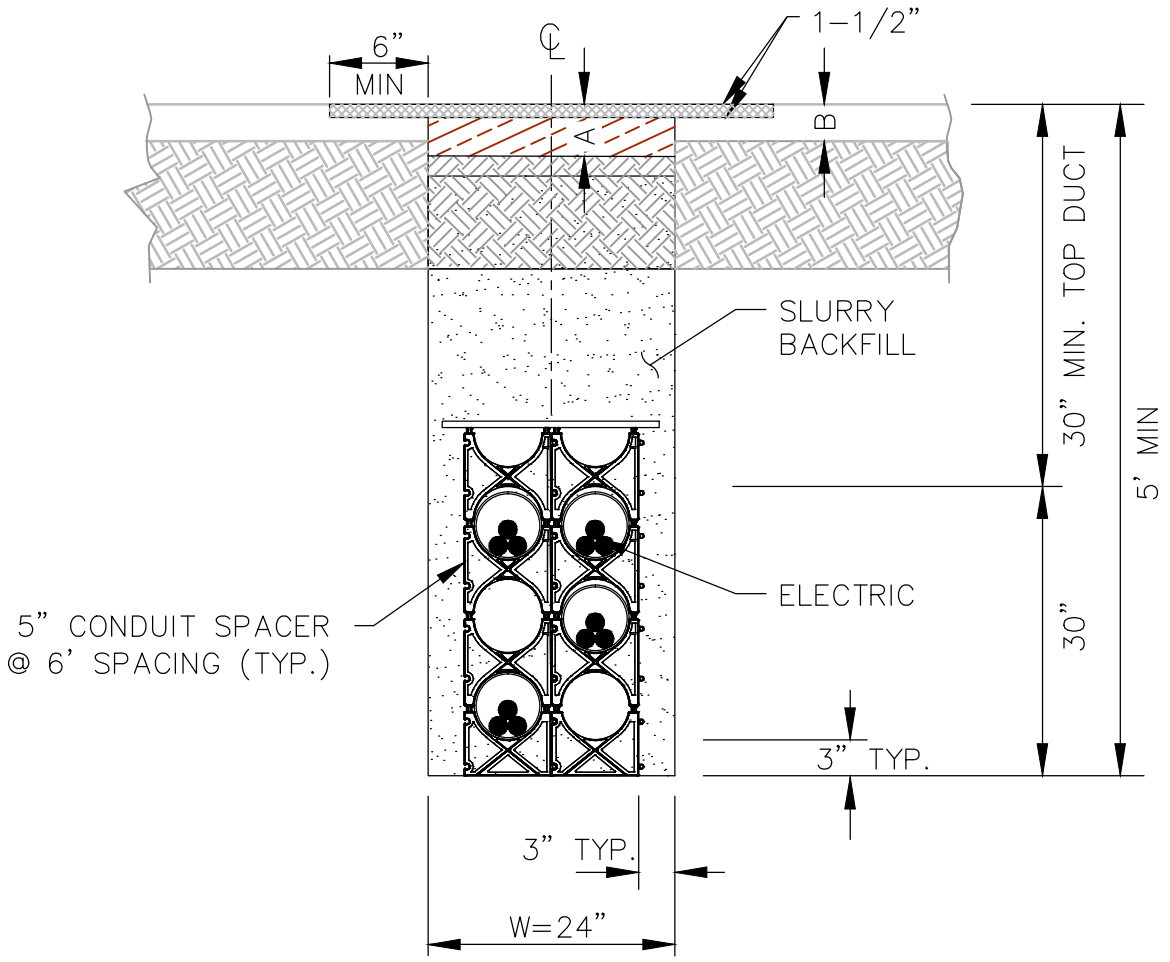
Table 1: Salt Creek A.13-09-014 Data Request #2			
#	**PEA Section, Page #**	**Project Description**	**SDG&E Response**
		mitigation would be required for any project impacts to suitable QCB habitat (defined in the HCP). This mitigation would be in addition to the mitigation required under the NCCP. SDG&E submitted a Project Survey Report (PSR) to USFWS that stated SDG&E would mitigate for impacts to 0.16 acre of QCB habitat. The GIS data submitted to CPUC on November 25, 2013, show approximately 17 acres of suitable habitat within the survey area. There is a discrepancy between the 50 acres of suitable habitat discussed in the PEA, the 17 acres of suitable habitat shown in the GIS, and the 0.16 acre identified in the PSR. The entire substation site (8.77 acres of permanent impact) is suitable habitat and will require mitigation at a 1:1 ratio.	
16	AD.62-1	**Verify the acreage of wetland and riparian areas within the project area.** We are unable to reproduce the updated calculations of riparian and wetland areas provided in Attachment AD.62-1, Table 4.4-1, using the GIS data provided on November 25, 2013. Please provide details for the calculation.	Subsequent to submittal of the wetland and riparian data on November 25, 2013, a formal delineation for jurisdictional waters of the U.S. and state of California was conducted for the proposed Salt Creek Substation, the 5-mile-long, 120-foot-wide existing TL corridor from the Existing Substation to the proposed Salt Creek Substation, and the TL 6910 Loop-In. The jurisdictional delineation report was submitted to the CPUC on December 5, 2013. As result of this delineation, minor changes were made to wetland and riparian mapping which consequently caused changes to the upland habitat within the BSA. We have attached a revised shapefile with the most recent vegetation mapping (Attachment AD2.16-1). In addition, we have provided a track-change update to the Biological Resources PEA Section (Attachment AD2.5-2), effectively replacing the former AD.62-1 that was previously submitted.

Table 1: Salt Creek A.13-09-014 Data Request #2			
#	**PEA Section, Page #**	**Project Description**	**SDG&E Response**
Section 4.15 Recreation			
17	N/A	**Verify the recreational uses and City planning status of the multi-purpose trail directly east of the proposed substation that links the Hunte Parkway Trail with the Greenbelt/Open Space & Network Trails, as identified on Figure 5 of the City of Chula Vista Draft Parks and Recreation Master Plan (2010). Provide the GIS data for this multi-purpose trail.**	The City of Chula Vista Landscape Planner Joe Gamble was contacted telephonically on January 3, 2014. It was confirmed that the trail east of the proposed substation is an informal multi-use trail. The City has long-term plans for formalizing the trail (e.g. acquiring easements, improvements, etc.), but nothing is actively being pursued in the vicinity of Hunte Parkway at this time. According to the City of Chula Vista Greenbelt Master Plan (City of Chula Vista 2003), trail use may include hiking, bicycling, pedestrians, joggers, and other non-motorized activities. As noted on page 55 of this Master Plan, any trails proposed along SDG&E easements would be coordinated with the utility company. GIS data for this multi-purpose trail was provided on October 11, 2013 in the GIS file folder entitled "Planning." The shapefile name is "CV_Trails." The Source for this GIS data was digitized based on the City of Chula Vista 2003 Greenbelt Master Plan.
18	AD.82	**Describe the duration of closures, and closure procedures (e.g., City coordination, public noticing, and signage and fencing), for the sewer access road and transmission corridor access roads south of Hunte Parkway.** Closure details were provided for trails north of the substation and along Hunte Parkway, but not south of Hunte Parkway. SDG&E	While the sewer access road and transmission corridor are used by the public for trail-related uses, and a future trail is planned in the vicinity, currently, there are no formal trails. No trail easements have been acquired for recreation in these locations, as described above in response #17. The sewer access road would be closed for the duration of construction of the substation. The City of Chula Vista has an existing metal swing gate on the sewer access road near Hunte Parkway. SDG&E will coordinate with the City of Chula Vista during the City's review of the substation grading plan on closure of the sewer access road and accommodating City access needs during construction.

Table 1: Salt Creek A.13-09-014 Data Request #2			
#	**PEA Section, Page #**	**Project Description**	**SDG&E Response**
		11/25/13 Data Response #82 states: *The public trail along Hunte Parkway may need to be closed during some of the distribution work in Hunte Parkway. However, there is an existing sidewalk on the north side of Hunte Parkway that provides alternative access should the trail on the south side of Hunte Parkway need to be closed for short periods of time. This trail closure would be included as part of the traffic control plan that would be required prior to commencing the distribution work in Hunte Parkway.* This statement is incomplete because it does not address the multi-use trail shown on Figure 5 of the City of Chula Vista Draft Parks and Recreation Master Plan (2010) and the sewer access road, which have trail-related uses (e.g. hiking and mountain biking).	There are two existing SDG&E access roads south of Hunte Parkway within the transmission corridor. These access roads would be closed to public use, as necessary, during construction to maintain safety of the public. Where feasible, temporary detours will be provided for trail users. Signs will be provided to direct trail users to the temporary trail detours. Access would be blocked as necessary with signage and construction fencing. Public use of the access roads within the transmission corridor would continue during the majority of construction to the extent feasible during construction activities for the substation, TL6965 and the TL6910 loop-in. It is anticipated that the access roads may be closed for short durations (4 hours to a few days), as needed for construction access/safety reasons.
Appendix 4.6-A			
19	4.6-A	**Provide Appendices A through E for the "Geotechnical Investigation for Salt Creek Substation Proponent's Environmental Assessment (PEA)" (Kleinfelder West 2008). The appendices to Appendix 4.6-A were not included in the file that SDG&E submitted to CPUC.**	Appendices provided within Attachment AD2.19-1 [Geotech Appendices].

A.13-09-014 SDG&E 01/21/14 Response
Salt Creek Substation Project PTC
Energy Division Additional Data Request #2 Dated December 20, 2013
AD2-ED-004

B = EXISTING AC PAVING THICKNESS
A = EXISTING AC PAVING THICKNESS + 1”



TYPICAL TRENCH SECTION
(ROAD)

UG ELEC

SAN DIEGO GAS & ELECTRIC SAN DIEGO, CALIFORNIA	ORIGINATOR:	OK TO INSTALL:	PROJECT NO.
	SURVEYED BY:	R/W OK:	
TRENCH REPAIR EXHIBIT SALT CREEK SUBSTATION 12kV GETAWAYS	DRAWN BY: NV5/RCP	DATE:	CONST. NO.
	DATE: 1/8/14	THOS. BROS.	DRAWING NO.
	SCALE: N/A		

SUPPLEMENTS	DATE:	BY	APP’D

EXISTING CONTOUR INTERVAL = 2 FEET
PROPOSED CONTOUR INTERVAL = 1 FOOT

GRAPHIC SCALE
100 0 50 100
(IN FEET)

HUNTE PARKWAY

MAP NO. 862
OTAY RANCH
POR. LOT 9

2" RECLAIMED WATER W/METER
SOIL NAIL WALL-7'
SOIL NAIL WALL-11'
SOIL NAIL WALL-3'
MSE WALL-2'
MSE WALL-6'
MSE WALL-8'
EXIST. 12' ACCESS ROAD
10' PERIMETER WALL
WATER QUALITY BASIN
EXIST. TYPE B BROW DITCH
DRAINAGE EASEMENT
PROPOSED STORM DRAIN OUTFALL
EXIST. 96" RCP STORM DRAIN
10' BENCH AND TERRACE DRAIN
S.D.G.&E. TRANSMISSION LINE CORRIDOR

NOLTE VERTICALFIVE
NOLTE ASSOCIATES, INC.

N:\SDB06690\CADD\EXHIBITS\ET_OVERALL PEA.DWG

REVISIONS

NO	WORK DONE	DATE:	BY:	APP'D

SAN DIEGO GAS & ELECTRIC COMPANY
SAN DIEGO, CALIFORNIA

SALT CREEK SUBSTATION
PEA EXHIBIT

DRAWN BY:	DATE: 1/15/14	SCALE:	W.O.: REV.:
CHECKED BY:	DATE:		
APPROVED BY:	DATE:		
CAD NO.: ET_Overall PEA.dwg	PLOT SCALE: 1 = 1		

SC-S-901

Attachment AD2.5-1

Table 3-1: Power Pole Summary*

Pole Structure #	Tie Line No.	Pole Type	Approximate Height of Structure Above Ground Level (AGL)	Proposed Action	Notes and Additional Work Areas
1	6965	Cable Pole	103	Install New Pole	Stringing Site #14 (4,500 square feet [SF])
2	6965	Foundation Pole	108	Install New Pole	Guard Structure #32 and #33, Hunte Parkway, pole brushing (314 SF)
3	6965	Directly Embedded	48	Install New Pole	Permanent work pad and access road
4	6965	Directly Embedded	61	Install New Pole	Permanent work pad and access road; Guard Structure #30 and #31, Crossroads Street
5	6965	Directly Embedded	70	Install New Pole	Overland travel required; Guard Structure #28 and #29, Windingwalk Street
6	6965	Directly Embedded	52	Install New Pole	Permanent work pad and access road
7	6965	Directly Embedded	61	Install New Pole	Permanent work pad and access road
8	6965	Directly Embedded	48	Install New Pole	Permanent work pad and access road
9	6965	Directly Embedded	61	Install New Pole	Permanent work pad and access road
10	6965	Directly Embedded	66	Install New Pole	Permanent work pad and access road; Guard Structure #27, Olympic Parkway

Pole Structure #	Tie Line No.	Pole Type	Approximate Height of Structure Above Ground Level (AGL)	Proposed Action	Notes and Additional Work Areas
11	6965	Directly Embedded	57	Install New Pole	Permanent work pad and access road; Stringing Site #13 (3,000 SF); Guard Structure #26, Olympic Parkway
12	6965	Directly Embedded	48	Install New Pole	Permanent work pad and access road
13	6965	Directly Embedded	52	Install New Pole	Permanent work pad and access road; Stringing Site #12 (4,500 SF)
14	6965	Directly Embedded	57	Install New Pole	Permanent work pad and access road
15	6965	Directly Embedded	61	Install New Pole	Permanent work pad and access road
16	6965	Directly Embedded	52	Install New Pole	Permanent work pad and access road
17	6965	Directly Embedded	57	Install New Pole	Permanent work pad and access road
18	6965	Directly Embedded	57	Install New Pole	Permanent work pad and access road
19	6965	Directly Embedded	52	Install New Pole	Guard Structure #25, Eastlake Parkway, pole brushing (314 SF)
20	6965	Directly Embedded	66	Install New Pole	Permanent work pad and access road; Guard Structure #24, Eastlake Parkway
21	6965	Directly Embedded	70	Install New Pole	Stringing Site #11 (4,500 SF), pole brushing (314 SF)

Pole Structure #	Tie Line No.	Pole Type	Approximate Height of Structure Above Ground Level (AGL)	Proposed Action	Notes and Additional Work Areas
22	6965	Foundation Pole	58	Install New Pole	Guard Structure #23, SR-125, pole brushing (314 SF)
23	6965	Foundation Pole	113	Install New Pole	Stringing Site #10 (3,000 SF); Guard Structure #22, SR-125, pole brushing (314 SF)
24	6965	Foundation Pole	108	Install New Pole	Stringing Site #9 (4,500 SF); Guard Structure #21, A, B, C, D, and E, Otay Lakes Road
25	6965	Foundation Pole	123	Install New Pole	Access turnaround area (11,423 SF) and overland travel (3,480 SF) required. Guard Structures #18 and #19, SR-125 ramps; Guard Structure #20, Otay Lakes Road
26	6965	Foundation Pole	118	Install New Pole	Permanent work pad
27	6965	Foundation Pole	93	Install New Pole	Permanent work pad; Stringing Sites #7 (4,500 SF) and #8 (4,500 SF); Guard Structure #15, SR-125; Guard Structures #16 and #17, Eastlake Drive
28	6965	Foundation Pole	93	Install New Pole	Permanent work pad; Access turnaround area required (4,038 SF); Stringing Site #6 (9,000 SF); Guard Structures #13 and #14, SR-125

Pole Structure #	Tie Line No.	Pole Type	Approximate Height of Structure Above Ground Level (AGL)	Proposed Action	Notes and Additional Work Areas
29	6965	Foundation Pole	88	Install New Pole	Access turnaround area required (8,186 SF), Guard Structure #9 and #10, Rolling Ridge Road and Guard Structures #11 and #12, Proctor Valley Road, pole brushing (314 SF)
30	6965	Directly Embedded	70	Install New Pole	Permanent work pad; Guard Structures #5 and #6, Proctor Valley Road; Guard Structures #7 and #8, Mountain Ridge Road
31	6965	Directly Embedded	70	Install New Pole	Permanent work pad; Guard Structures #3 and #4, Calle La Marina
32	6965	Directly Embedded	52	Install New Pole	Permanent work pad
33	6965	Directly Embedded	52	Install New Pole	Overland travel required, pole brushing (314 SF)
34	6965	Directly Embedded	57	Install New Pole	Permanent work pad; Guard Structures #1 and #2, Mount Miguel Road
35	6965	Directly Embedded	61	Install New Pole	Permanent work pad
36	6965	Directly Embedded	52	Install New Pole	Footpath required
37	6965	Directly Embedded	66	Install New Pole	Pole brushing (314 SF)
38	6965	Existing TL 6910	87	Pole Top Work Only	Stringing Site #5 (1,920 SF), pole brushing (314 SF)

Pole Structure #	Tie Line No.	Pole Type	Approximate Height of Structure Above Ground Level (AGL)	Proposed Action	Notes and Additional Work Areas
39.P1	6965	Directly Embedded H-Frame (South Pole)	34	Install New Pole	Pole brushing (314 SF)
39.P2	6965	Directly Embedded H-Frame (North Pole)	34	Install New Pole	Stringing Sites #3 (5,700 SF) and #4 (1,920 SF), pole brushing (314 SF).
40	6965	Directly Embedded	61	Install New Pole	New access road required (4,064 SF), pole brushing (157 SF)
41	6965	Existing TL 643	61**	Pole Top Work Only	Only requires access for pole-top work; footpath required
42	6965	Existing TL 643	63**	Pole Top Work Only	Only requires access for pole-top work; footpath required
43	6965	Existing TL 643	74**	Pole Top Work Only	Only requires access for pole-top work
44	6965	Existing TL 643	61**	Pole Top Work Only	Only requires access for pole-top work
45	6965	Existing TL 643	70**	Pole Top Work Only	Only requires access for pole-top work
46	6965	Existing TL 643	75**	Pole Top Work Only	Only requires access for pole-top work
47	6965	Existing TL 643	61**	Pole Top Work Only	Only requires access for pole-top work; Stringing Site #2 (2,000 SF)
48	6965	Foundation Pole	61	Install New Pole	Overland travel required; String Site #1 (3,750 SF), pole brushing (314 SF)

Pole Structure #	Tie Line No.	Pole Type	Approximate Height of Structure Above Ground Level (AGL)	Proposed Action	Notes and Additional Work Areas
49	6910	TL 6910 North Cable Pole	86	Install New Pole	TL 6910 Loop-In (north)
50	6910	TL 6910 South Cable Pole	86	Install New Pole	TL 6910 Loop-In (south)

Source: SDG&E

* Based on preliminary design

** Height is based on new TL 643 replacement poles to be installed by the end of 2013

Table 3-2: Land Disturbance*

Proposed Project Component	Permanently Disturbed Area	Additional Temporarily Disturbed Area	Total Disturbance Area
Salt Creek Substation			
• Substation and access road (includes 12-kV distribution and 69-kV underground duct packages for TL 6965 and TL 6910 within the substation property)	362,725 square feet (SF) (8.33 acres)	73,125 SF (1.68 acres)	435,850 (10 acres)
• Driveway and access road to Hunte Parkway (includes 12-kV distribution duct packages up to Hunte Parkway outside of the substation property)	18,650 SF (0.43 acre)	6,950 SF (0.16 acre)	25,600 SF (0.59 acre)
• Drainage to discharge at existing dissipator (outside of the substation property)	500 SF (0.01 acre)	2,200 SF (0.05 acre)	2,700 SF (0.06 acre)
69k-V TL 6965 & TL 6910 Loop-In			
• TL 6965 overhead work pad/modified access/pole work areas	52,390 SF (1.2 acres)	102,635 ~~75,508~~SF (2.36 ~~1.73~~acres)	(155,025 ~~127,898~~ SF)

Proposed Project Component	Permanently Disturbed Area	Additional Temporarily Disturbed Area	Total Disturbance Area
			(3.56 ~~2.94~~acres)
• TL 6965 underground grading and access (off-site in Transmission Corridor; includes cable poles 1, 43, and 44, and a portion of TL 6910 loop-in)	50,714 SF (1.16 acres)	32,528 SF (0.75 acre)	83,242 SF (1.91 acres)
• Stringing sites	0	57,290 SF (1.32 acres)	57,290 SF (1.32 acres)
• Guard structures	0	2,376 SF (0.55 acre)	2,376 SF (0.55 acre)
Existing Substation Modifications			
• 69-kV rack extension and 69-kV breaker foundations	203 SF (0.004 acre)	0	203 SF (0.004 acre)
Staging Yards			
• Hunte Parkway	0	283,140 ~~348,480~~ SF (6.50~~8.00~~ acres)	283,140 ~~348,480~~ SF (6.50~~8.00~~ acres)
• Existing Substation	0	87,120 SF (2.00 acres)	87,120 SF (2.00 acres)
• Eastlake Parkway	0	74,052 SF (1.70 acres)	74,052 SF (1.70 acres)
• Olympic Training Center	**	**	**
TOTAL	485,182 SF (11.14 acres)	721,416 ~~759,629~~ SF (~~17.44~~ 16.56 acres)	1,206,598 ~~1,244,811~~ SF (27.70 ~~28.58~~ acres)

Source: SDG&E

* Based on preliminary engineering. Estimates may change based on final design and construction.

Proposed Project Component	Permanently Disturbed Area	Additional Temporarily Disturbed Area	Total Disturbance Area

** Alternate staging yard sites are not proposed for use at this time and would involve a commensurate reduction in square footage at the three proposed staging yards, depending on circumstances at the time of construction.

ATTACHMENT AD2.5-2, REVISED BIOLOGICAL RESOURCES SECTION 4.4

(REVISED on January 8, 2014)

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(REVISED Figures 4.4-1(a, b, and c), 4.4-2(a, b, and c), and 4.4-6(a and b))

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4.4 Biological Resources

Would the project:	Potentially Significant Impact	Potentially Significant Unless APMs Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	❒	☑	❒	❒
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	❒	❒	☑	❒
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	❒	❒	❒	☑

Would the project:	Potentially Significant Impact	Potentially Significant Unless APMs Incorporated	Less Than Significant Impact	No Impact
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?	❒	❒	❒	☑

4.4.1 Introduction

The purpose of this section is to document existing biological resources within the Proposed Project area and to assess impacts to biological resources, including wetlands, that may potentially occur as a result of Proposed Project implementation, including short-term construction activities and long-term operation and maintenance. In addition, this section reviews the Proposed Project for potential biological impacts with regard to consistency with plans or policies pertaining to biological resource protection. The Proposed Project consists of the following main components: construction and operation of the proposed Salt Creek Substation, modifications to the Existing Substation, construction and operation of a 5-mile-long power line along an existing Transmission Corridor (referred to herein as the "Transmission Corridor") between the Existing Substation south to the proposed Salt Creek Substation, and three staging yards in the City of Chula Vista (Figure 3.3). Five potential alternative staging yards identified within the OTC have been considered to provide backup and flexibility during construction, should staging yard availability change prior to construction of the Proposed Project. The five potential staging yards have been previously disturbed and, therefore, no grading is anticipated.

The Proposed Project will incorporate the standard set of operational protocols, avoidance and minimization measures, and mitigation set forth in SDG&E's Subregional NCCP to avoid and minimize potential impacts that may occur to biological resources during construction and upon operation of the Proposed Project (see Appendix 4.4-A, Biological Resources Technical Report). The SDG&E Subregional NCCP is a Habitat Conservation Plan (HCP) permitted under Section 10A of the federal ESA for incidental take and an NCCP permit under a management authorization pursuant to Section 2835 of the California Fish and Game Code (CFGC). SDG&E entered into an Implementation Agreement with USFWS and CDFW for the management and conservation of multiple species and their associated habitats as established according to the federal and state ESAs and the state's NCCP Act. Through the avoidance of resources, application of protective measures and mitigation outlined in the SDG&E Subregional NCCP, and the SDG&E Enhancement and Monitoring Program, the Proposed Project's impacts to biological resources would remain less than significant.

4.4.2 Methodology

Surveys and assessments to inventory and evaluate biological resources were conducted within the Biological Study Area (BSA) during 2011, 2012, and 2013. The BSA is composed of an existing Transmission Corridor (that contains an existing wood and steel pole alignment); the Existing Substation, Hunte Parkway, and Eastlake Parkway staging yards; the proposed Salt Creek Substation; and a 500-foot survey buffer around these areas (Figures 4.4-1a through 4.4-1c). The BSA encompasses approximately 775 acres. A habitat assessment was conducted in October 2012 at the five alternative staging areas within OTC to determine their potential to support biological resources. These alternative staging yards occur within previously graded areas and do not support biological resources. In addition, it is not known whether they would be used for the Proposed Project. For these reasons, the alternative staging areas are not included in the BSA or impact analysis.

Prior to conducting field surveys, a search of the California Natural Diversity Database (CNDDB) (CDFW 2012a) and the California Native Plant Society (CNPS) Electronic Inventory (CNPS 2012) was conducted for the Jamul Mountains, Otay Mesa, and surrounding seven quadrangles (Imperial Beach, National City, Otay Mountain, Dulzura, La Mesa, El Cajon, and Alpine) to determine if there are any special-status species known from the region within and surrounding the Proposed Project. The results of the data query were then refined through site visits involving habitat assessments for these species. For the purposes of this report, species are considered to have special status if they meet at least one of the following criteria:

- Covered under the federal or state ESA (CDFW 2011a).
- CDFW Species of Special Concern (SSC) (CDFW 2011b; Jennings and Hayes 1994).
- CDFW fully protected species (CDFW 2011b).
- Covered as a state protected furbearing mammal (14 CCR Section 460).
- Listed as having a California Rare Plant Rank (CRPR) (formerly CNPS List) as List 1A (presumed extinct in California), 1B (rare, threatened, and endangered in California and elsewhere), or 2 (rare, threatened, or endangered in California, but more common

elsewhere). CRPR List 1A, 1B, and 2 species are considered special-status plant species if they fall within any of these categories as defined in the Native Plant Protection Act (NPPA), CFGC Section 1901 or the California ESA, or CFGC Sections 2050 through 2098 (California ESA).

- CRPR List 3: plants for which more information is needed (a review list), or List 4: plants of limited distribution (watch list) (CNPS 2012).
- Covered under the SDG&E Subregional NCCP (SDG&E 1995).

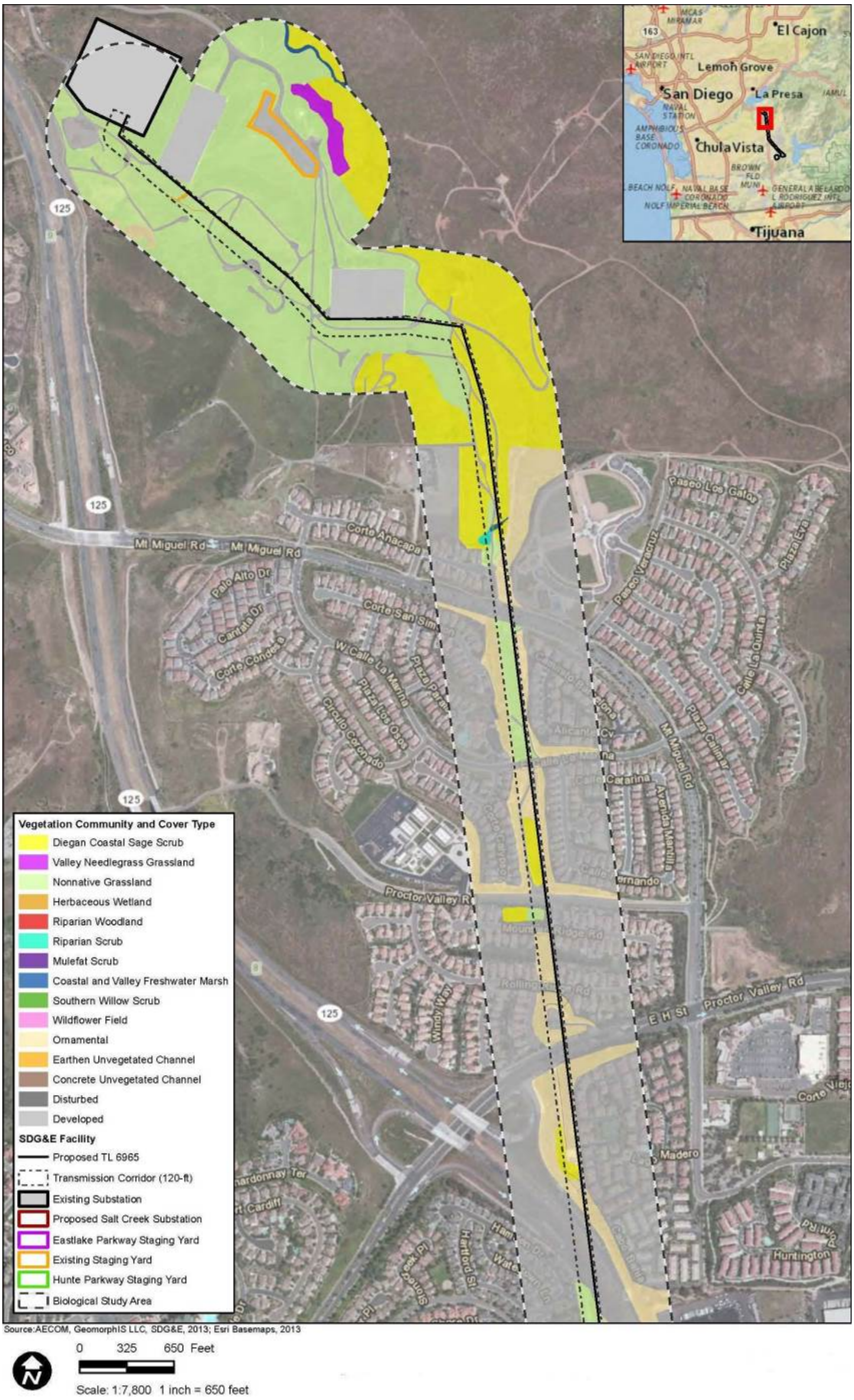
Data regarding biological resources within the existing Transmission Corridor, staging yards, and proposed Salt Creek Substation BSAs were obtained through general habitat reconnaissance surveys, followed by focused surveys for sensitive species. Based on the database analysis and reconnaissance surveys, it was determined that focused surveys would be required for sensitive plant species; three federally listed wildlife species: the endangered Quino checkerspot butterfly (*Euphydryas editha quino*) (QCB), the threatened coastal California gnatcatcher (*Polioptila californica californica*) (CAGN), and the endangered least Bell's vireo (*Vireo bellii pusillus*) (LBV); and for western burrowing owl (*Athene cunicularia hypugaea*) (WBO), a California Species of Concern. A jurisdictional delineation and assessment for regulated "waters of the U.S." and state was also completed.

Between March and July 2011, AECOM conducted vegetation mapping and focused surveys for QCB, CAGN, LBV, and WBO for the proposed Salt Creek Substation. Between January and September 2012, AECOM conducted vegetation mapping; rare plant surveys; general wildlife surveys; and focused surveys for QCB, CAGN, and WBO for the proposed Transmission Corridor and staging yards. In March and September 2012, a jurisdictional delineation and assessment was completed for the proposed Salt Creek Substation, Transmission Corridor, and staging yards. Between April and July 2013 AECOM conducted focused surveys for WBO for the proposed Salt Creek Substation, proposed Transmission Corridor and staging yards. In March 2013, ~~follow-up~~ visits were conducted by David Faulkner within the previous QCB survey areas to assess the suitability of habitat for QCB. Between March and April 2013 AECOM conducted focused surveys for QCB in portions of the proposed Salt Creek Substation that were not surveyed in 2012. General wildlife surveys occurred concurrently with focused protocol surveys during 2011 and 2012. In July 2013, general biological surveys were conducted to capture changes in the Proposed Project description, including the addition of the Eastlake Parkway staging yard. AECOM biologists incidentally recorded wildlife sign, track, and direct observations during focused protocol surveys. In November 2013, a formal jurisdictional delineation was completed within the proposed Salt Creek Substation, the 5-mile-long, 120-foot-wide existing TL corridor from the Existing Substation to the proposed Salt Creek Substation, and the TL 6910 Loop-In. No biological surveys were conducted within the Existing Substation and 500-foot buffer of this facility, since all modification activities to this substation would occur within the current substation footprint, which consists of paved and gravel-covered areas surrounded by a chain-link fence.

Subsequent to the completion of surveys, the Proposed Project footprint changed in size due to design modifications for several of the Proposed Project components, thus changing the area covered by the 500-foot buffer. Vegetation mapping results presented in the following sections have been truncated to the BSA; however, sensitive species results are presented for the BSA

and areas surveyed outside of the current BSA, which yields a more comprehensive and thereby conservative analysis. The survey methods for all general and focused surveys, including a list of the survey personnel and dates for each survey, survey results, and potential impacts, are provided in a Biological Technical Report prepared for the Proposed Project and included as Attachment 4.4-A.

Figure 4.4-1a: Vegetation Communities and Cover Types within the Biological Study Area



Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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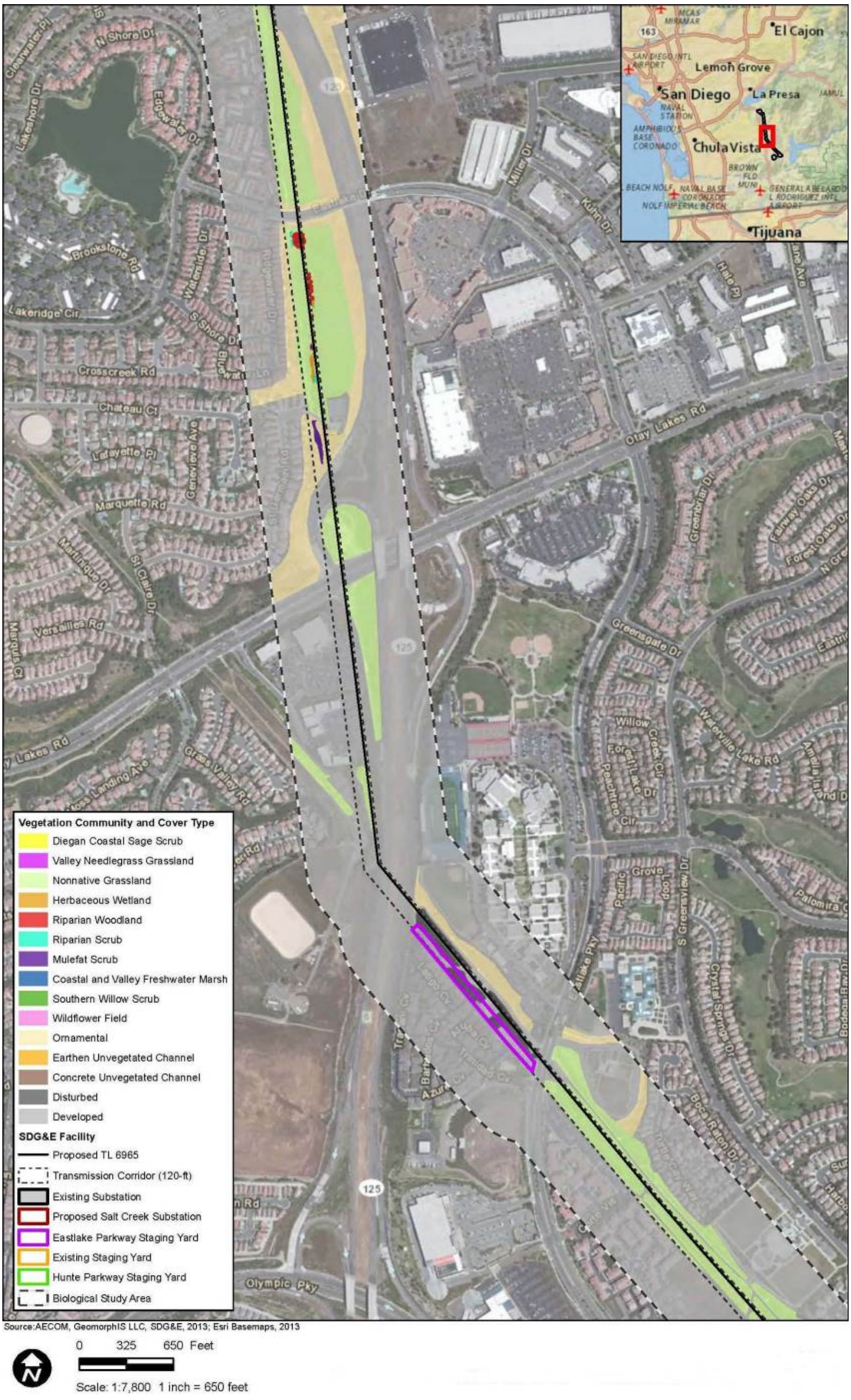
Figure 4.4-1b: Vegetation Communities and Cover Types within the Biological Study Area



Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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Figure 4.4-1c: Vegetation Communities and Cover Types within the Biological Study Area

Source:AECOM, GeomorphIS LLC, SDG&E, 2013; Esri Basemaps, 2013

0 325 650 Feet

Scale: 1:7,800 1 inch = 650 feet

Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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4.4.2.1 Vegetation Mapping and Habitat Suitability Surveys

Vegetation mapping was conducted within the proposed Salt Creek Substation site and a 500-foot buffer around the site in March, April, and June 2011. Vegetation mapping was conducted within the Transmission Corridor; Existing Substation, Hunte Parkway, and Eastlake Parkway staging yards; and a 500-foot survey buffer around each of these areas on March 9, 2012, and July 8, 2013 (Eastlake Parkway staging yard). Vegetation mapping of the Eastlake Parkway staging yard was modified from the original survey of the BSA in that area because the vegetation conditions at the Eastlake Parkway staging yard in July 2013 changed from those mapped in March 2012. Vegetation communities were classified and mapped in the field to provide a baseline of biological resources that occur or have the potential to occur in the Proposed Project area. Habitats were classified based on the dominant and characteristic plant species in accordance with vegetation community classifications following Holland (1986), as modified by Oberbauer et al. (2008). Vegetation mapping was completed using a field computer and a handheld submeter-accuracy global positioning system (GPS) unit at a 1:2400 scale (1 inch = 200 feet). Acreages of each habitat type (delineated as a habitat polygon on the compiled vegetation maps) were calculated using ArcGIS software.

4.4.2.2 Jurisdictional Delineation

Prior to field surveys, a pre-survey investigation was conducted to obtain contextual information relevant to the site to be surveyed; this may not be evident from the ground during field surveys. The following sources were consulted to gain a better understanding of the physical and hydrologic setting of the site:

- Historical maps of wetlands, riparian habitat, and other linear watercourses in the Proposed Project vicinity were assessed in the National Wetlands Inventory (NWI) map and reviewed in ArcGIS Version 10 software.
- Blue line data and watershed details were obtained through the National Hydrography Dataset (NHD) and viewed in ArcGIS Version 10 software.
- Topographical features that may promote the development of jurisdictional waters or contain potential jurisdictional waters were identified by reviewing the Jamul Mountains and Otay Mesa U.S. Geological Survey (USGS) 7.5-Minute Quadrangle Maps.

A reconnaissance-level jurisdictional waters assessment was completed within the a 60-foot buffer on each side of the proposed TL 6965 north of Hunte Parkway, a 75-foot buffer on each side of the proposed TL 6965 south of Hunte Parkway, and for the proposed Salt Creek Substation site. The assessment followed the guidelines set forth by the 1987 U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual and the 2008 Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region, Version 2.0 (Environmental Library 1987, 2008). The assessment was performed by AECOM and RECON on March 21, 2012, and April 27, 2012, respectively. A follow-up assessment was conducted by AECOM on September 13, 2012, to further investigate the potential jurisdictional status of drainages that occur within the proposed Salt Creek Substation site. A jurisdictional waters assessment was completed for the Eastlake Parkway staging yard on July 29, 2013. A jurisdictional waters assessment was

completed for the portion of the Transmission Corridor bounded by Eastlake Drive to the north and Otay Lakes Road to the south by RECON on April 27, 2012. During the field assessment, spatial and tabular data were collected using a handheld submeter-accuracy GPS unit. Field-collected spatial and tabular data were exported to ArcGIS software to map the type, location, and extent of potential jurisdictional waters. On November 7 and 8, 2013, reconnaissance field surveys were completed within the proposed Salt Creek Substation, the 5-mile-long, 120-foot-wide existing TL corridor from the Existing Substation to the proposed Salt Creek Substation, and the TL 6910 Loop-In. On November 13, 2013, a formal jurisdictional delineation was completed within the proposed Salt Creek Substation, the 5-mile-long, 120-foot-wide existing TL corridor from the Existing Substation to the proposed Salt Creek Substation, and the TL 6910 Loop-In.

Areas meeting the criteria for jurisdiction under CDFW and the San Diego RWQCB were also evaluated and mapped. CDFW asserts jurisdiction over streambeds as they are described in CFGC Section 1600 et seq. and Title 14 CCR 720, which described state jurisdictional waters as follows:

> "all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams, and streambeds which may have intermittent flows of water."

In practice, CDFW usually extends its jurisdictional limit to the top of a stream/river bank, the bank of a lake, or the outer edge of the riparian vegetation, whichever is wider.

RWQCB jurisdiction is considered congruent with that of USACE jurisdiction. RWQCB also considers whether or not a feature possesses a "beneficial use" as outlined in the Water Quality Control Plan for the San Diego Basin (Basin Plan) (RWQCB 1994) when deciding if RWQCB jurisdiction should be asserted over a feature. Detailed survey methods and results of this assessment are presented in the jurisdictional delineation report included as an appendix in the Biological Technical Report (Appendix 4.4-A).

4.4.2.3 Rare Plant Surveys

Focused rare plant surveys were performed in accordance with survey protocols set forth by Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000); Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2009)[1]; and CNPS Botanical Survey Guidelines (CNPS 2001). Surveys in the Transmission Corridor and staging yards, and a 500-foot buffer around each of these areas, were conducted in March, May, and July 2012, and within the footprint of the proposed Salt Creek Substation and a 500-foot buffer in March, April, and May 2011.

The rare plant surveys were conducted by walking meandering transects through the BSA, recording all plant species observed, and mapping rare plants with a hand-held, submeter-

[1] This document replaced the CDFW document *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*.

accuracy GPS unit. Subsequent to the field survey, data were downloaded from the GPS unit, post-processed, and brought into ArcGIS for analysis. For very large occurrences of small annuals, a quadrat sampling method using a 1-square-foot quadrat was used to estimate the number of individuals. For large occurrences of shrubs, visual density estimates were made and then multiplied by the area occupied to estimate number of individuals. Detailed methods and results of the rare plant survey conducted in the Transmission Corridor and proposed Salt Creek Substation BSA are presented in two reports: Rare Plant Survey Report for the Proposed Salt Creek 69kV Transmission Line Installation Project, Chula Vista, California (AECOM 2012a), and the Vegetation and Rare Plant Summary Report for the Proposed Salt Creek Substation for SDG&E (AECOM 2011a), respectively. These reports are included as appendices in the Biological Technical Report (Attachment 4.4-A).

4.4.2.4 Focused Protocol Surveys for Quino Checkerspot Butterfly

Habitat assessments to identify suitable habitat were conducted prior to initiating protocol-level surveys following the current protocols for the species (USFWS 2002). Approximately 220 acres of nonnative grassland and coastal sage scrub were surveyed within the BSA in 2011 and 2012.

Focused presence/absence surveys for QCB were conducted within the proposed Salt Creek Substation and 500-foot survey buffer between March 14 and April 20, 2011, and within the Transmission Corridor, staging yards, and a 500-foot survey buffer between February 17 and March 30, 2012. Detailed methods and results of the focused QCB surveys, including the names and permit numbers of the permitted biologists who conducted the surveys, are presented in two 45-day summary reports. Results of the Transmission Corridor survey are presented in 45-Day Summary Report of 2012 Focused Surveys for the Quino Checkerspot Butterfly for the Proposed 69kV Transmission Line Installation Project for SDG&E (AECOM 2012b). Results of the proposed Salt Creek Substation survey are in 45-Day Summary Report of Focused Surveys for the Quino Checkerspot Butterfly for the Proposed Salt Creek Substation for SDG&E (AECOM 2011b). These reports are included as appendices in the Biological Technical Report (Attachment 4.4-A).

On March 13 and 16, 2013, follow-up visits were conducted by David Faulkner within the previous QCB survey areas throughout the entire BSA to assess the suitability of habitat for QCB using the suitable habitat criteria established under SDG&E's QCB Low-Effect HCP (Faulkner 2013). Focused presence/absence surveys for QCB were conducted between March 5 and April 9, 2013 in portions the proposed Salt Creek Substation and 500-foot survey buffer that were not surveyed in 2012. Detailed methods and results of the focused QCB surveys, including the names and permit numbers of the permitted biologists who conducted the surveys, are presented in 45-Day Summary Report of 2013 Focused Surveys for the Quino Checkerspot Butterfly for the Proposed Salt Creek Substation Project for SDG&E (AECOM 2013a).

4.4.2.5 Focused Protocol Surveys for Coastal California Gnatcatcher

Due to the presence of suitable habitat for CAGN, including coastal sage scrub habitat, focused presence/absence surveys were determined necessary for approximately 54 acres within the

BSA. Since the Proposed Project is covered by SDG&E's NCCP (SDG&E 1995), a minimum of three surveys were conducted at least 1 week apart between February 15 and August 30 to determine the presence/absence of CAGN. Protocol-level surveys were conducted between April 20 and June 24, 2011, in all suitable CAGN habitat within the proposed Salt Creek Substation site and 500-foot buffer zone. Protocol-level surveys were conducted between May 11 and August 16, 2012, in all suitable CAGN habitat within the Transmission Corridor, staging yards, and a 500-foot buffer around these Proposed Project components.

Protocol surveys followed the current USFWS survey protocol for the species (USFWS 1997). Biologists conducted passive surveillance (i.e., listening and looking for the species) in all habitats with potential to support CAGN. If an observation was not made after approximately 5 to 10 minutes of passive survey activity, a taped vocalization of CAGN was played for approximately 5 to 10 seconds (i.e., active survey activity), followed by another period of passive observation. The taped vocalization was discontinued with any positive CAGN response. Surveys were not conducted during periods of inclement weather such as extreme wind or during a rain event.

Detailed methods and results of the focused CAGN surveys, including the names and permit numbers of the permitted biologists who conducted the surveys, are presented in two 45-day summary reports. Results of the 2011 survey within the Transmission Corridor are presented in 45-Day Summary Report of 2012 Focused Surveys for the Coastal California Gnatcatcher for the Proposed 69kV Transmission Line Installation Project for SDG&E (AECOM 2012c). Results for the proposed Salt Creek Substation are in 45-Day Summary Report of 2011 Protocol Surveys for Coastal California Gnatcatcher for the Proposed Salt Creek Substation for SDG&E, Otay Mesa, San Diego County, California (AECOM 2011c). These reports are included as appendices in the Biological Technical Report (Attachment 4.4-A).

4.4.2.6 Focused Protocol Surveys for Least Bell's Vireo

Due to the presence of suitable habitat for LBV, including riparian scrub habitat in the vicinity of the proposed Salt Creek Substation, focused surveys for LBV were determined necessary in riparian scrub habitat totaling approximately 1 acre within the 500-foot buffer of the proposed Salt Creek Substation. Protocol-level surveys were conducted between May 5 and July 27, 2011, following current USFWS survey protocol for the species (USFWS 2001). Biologists walked all potential LBV habitat and conducted passive surveillance (i.e., listening and looking for the species). Per the current USFWS protocol, suitable habitats within the BSA were surveyed eight times, at least 10 days apart, during the LBV breeding period (April 10 through July 31). No surveys were conducted for this species within the Transmission Corridor, staging yards, or other Proposed Project areas, as suitable habitat is not present.

Detailed methods and results of the focused LBV surveys, including the names and permit numbers of the permitted biologists who conducted the surveys, are presented in 45-Day Summary Report of 2011 Protocol Surveys for Least Bell's Vireo for the Proposed Salt Creek Substation for SDG&E, Otay Mesa, San Diego County, California (AECOM 2011d). This report is included as an appendix in the Biological Technical Report (Appendix 4.4-A).

4.4.2.7 Focused Protocol Surveys for Western Burrowing Owl

Due to the presence of suitable habitat for WBO, including grassland and scrub habitat with low-growing vegetation, focused presence/absence surveys were determined necessary. A total of ~~269~~ 236 acres of suitable WBO habitat occur within the BSA. Surveys in 2011 were performed in May, June, July, and December for the proposed Salt Creek Substation according to the protocol established by the California Burrowing Owl Consortium (CBOC 1993) and accepted by CDFW.

Surveys in 2012 were performed for the Transmission Corridor, staging yards, and a 500-foot survey buffer around these Proposed Project components. The first survey was conducted on April 21 and 28, 2012. The second and third surveys were conducted on May 8 and June 7, 2012, and the fourth WBO survey was conducted on July 4 and 5, 2012. Protocols for conducting focused WBO surveys released by the California Burrowing Owl Consortium (CBOC) (1993) were recently updated by CDFW (2012b). The updated survey protocols were generally followed in 2012; however, the first survey was conducted 6 days after the suggested latest start date (April 21 vs. April 15) because the work was originally scheduled to comply with the CBOC (1993) guidelines, which said "the nesting season survey should be conducted between April 15 and July 15 (the peak of the breeding season)." Additionally, the CDFW survey guidelines suggest that surveys between morning civil twilight and 10 a.m., and 2 hours before sunset until evening civil twilight provide the highest detection probabilities; however, due to mild daily temperatures, surveys extended beyond 10 a.m.

Surveys in 2013 were condcucted within the proposed Salt Creek Substation, Transmission Corridor, staging yards, and a 500-foot survey buffer around these Proposed Project components. The first survey was conducted on April 11 and 12, 2013. The second survey was conducted on May 7, 8, and 9, 2013. The third survey was conducted on June 12, 13, and 14, 2013. The fourth WBO survey was conducted on July 9, 10, and 11, 2013. All surveys were conducted according to current CDFW (2012) guidelines and all surveys were at least 3 weeks apart.

Detailed methods and results of the 2011 survey within the proposed Salt Creek Substation are presented in the Western Burrowing Owl Presence/Absence Surveys for the Proposed Salt Creek Substation for SDG&E (AECOM 2011e). Detailed methods and results of the 2012 survey within the Transmission Corridor are presented in the Western Burrowing Owl Presence/Absence Surveys for the Transmission Line Installation Project, Chula Vista, California (AECOM 2012d). These reports are included as appendices in the Biological Technical Report (Attachment 4.4-A). Detailed methods and results of the 2013 survey within the proposed Salt Creek Substation, Transmission Corridor, and staging yards are presented in the Western Burrowing Owl Summary Report for Salt Creek Substation and Power Line Project for SDG&E (AECOM 2013b).

4.4.3 Existing Conditions

4.4.3.1 Regulatory Background

Federal

Federal Endangered Species Act

The federal ESA of 1973 (50 CFR 17) is aimed at the protection of plants and animals that have been identified as being at risk of extinction, and classified as either threatened or endangered. The federal ESA also regulates the "taking" of any endangered fish or wildlife species, per Section 9 of the federal ESA. As development is proposed, the responsible agency or individual landowner is required to submit to a formal consultation with USWFS to assess potential impacts to listed species (including plants) or its critical habitat as the result of a development project, pursuant to Sections 7 and 10 of the federal ESA. USFWS is required to make a determination as to the extent of impact to a particular species a project would have. If it is determined that potential impacts to a species would likely occur, measures to avoid or reduce such impacts must be identified. USFWS may issue an incidental take statement, following consultation and the issuance of a Biological Opinion. This allows for take of the species that is incidental to another authorized activity, provided that the action will not adversely affect the existence of the species. Section 10 of the federal ESA provides for issuance of incidental take permits to private parties with the development of an HCP, such as SDG&E's Subregional NCCP.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Code [USC] 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive and is listed at 50 CFR 10.13. The regulatory definition of "migratory bird" is broad and includes any mutation or hybrid of a listed species, and includes any part, egg, or nest of such bird (50 CFR 10.12). Migratory birds are not necessarily federally listed as endangered or threatened birds under the federal ESA. The MBTA, which is enforced by USFWS, makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11).

Clean Water Act of 1972

Pursuant to Section 404 of the CWA, USACE is authorized to regulate any activity that would result in the discharge of dredged or fill material into "waters of the U.S." (including wetlands), which include those waters listed in 33 CFR 328.3 (Definitions). USACE, with oversight from USEPA, has the principal authority to issue CWA Section 404 permits.

Pursuant to Section 401 of the CWA, RWQCB certifies that the discharge will comply with state water-quality standards. RWQCB, as delegated by USEPA, has the principal authority to issue a CWA Section 401 water quality certification or waiver.

The NPDES is the permitting program for discharge of pollutants into surface "waters of the U.S." under Section 402 of the CWA. Substantial impacts to wetlands may require an Individual Permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A water quality certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions.

Executive Order 11988, Floodplain Management

Executive Order 11988 requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. This Executive Order provides an eight-step process that agencies carry out as part of their decision-making process for projects that have potential impacts to or within a floodplain.

Executive Order 11990, Protection of Wetlands

Pursuant to Executive Order 11990, each federal agency is responsible for preparing implementing procedures for carrying out the provisions of the Executive Order. The purpose of this Executive Order is to "minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands." Each agency, to the extent permitted by law, must avoid undertaking or providing assistance for any activity located in wetlands, unless the head of the agency finds that there is no practical alternative to such activity, and the proposed action includes all practical measures to minimize harm to wetlands that may result from such actions. In making this finding, the head of the agency may take into account economic, environmental, and other pertinent factors. Each agency must also provide opportunity for early public review of any plans or proposals for new construction in wetlands.

Executive Order 13112, Invasive Species

Executive Order 13112 requires federal agencies to "prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health effects that invasive species cause." An invasive species is defined by the Executive Order as "an alien species [a species not native to the region or area] whose introduction does or is likely to cause economic or environmental harm or harm to human health."

State

California Endangered Species Act and Natural Community Conservation Planning Act

The California ESA of 1984, in combination with the California Native Plant Protection Act of 1977, regulates the listing and take of plant and animal species designated as endangered, threatened, or rare within the state. California also lists SSC based on limited distribution; declining populations; diminishing habitat; or unusual scientific, recreational, or educational value. CDFW is given the responsibility by the state to assess development projects for their potential to impact listed species and their habitats. State-listed special-status species are addressed through the issuance of a 2081 permit (Memorandum of Understanding). In 1991, the California NCCP Act was approved and the NCCP Coastal Sage Scrub program was initiated

in Southern California. California law (Section 2800 et seq. of the CFGC) established the NCCP program "to provide for regional protection and perpetuation of natural wildlife diversity while allowing compatible land use and appropriate development and growth." The NCCP Act encourages preparation of subarea plans, such as SDG&E's Subregional NCCP, which address habitat conservation and management on an ecosystem basis rather than one species or habitat at a time.

Fully Protected Species

Prior to the development of the federal and state ESAs, species were listed as "fully protected" by California. Fully protected species, including fish, amphibians, reptiles, birds, and mammals, were identified to allow for the protection of those animals that were rare or that were threatened by potential extinction. The majority of fully protected species have since been listed as threatened or endangered under the California ESA and/or the federal ESA. Per Section 4700 of the CFGC, the possession or taking of fully protected species is only allowed as provided in Section 2081.7 and 2835 of the CFGC.

Sections 1600–1602 of the California Fish and Game Code – Lake or Streambed Alteration

Pursuant to Division 2, Chapter 6, Section 1602 of the CFGC, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream, or lake that supports fish or wildlife. A Lake or Streambed Alteration Agreement Application must be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW has jurisdiction over riparian habitats associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation or at the top of the bank of streams or lakes, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources. CDFW reviews the proposed actions and, if necessary, submits (to the applicant) a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement.

California Fish and Game Code Sections 3503, 3511, 3513, 3801, 4700, 5050, and 5515

Within California, fish, wildlife, and native plant resources are protected and managed by CDFW. The California Fish and Wildlife Commission and/or CDFW are responsible for issuing permits for the take or possession of protected species. The following sections of the CFGC address protected species: Section 3511 (birds), Section 4700 (mammals), Section 5050 (reptiles and amphibians), and Section 5515 (fish). In addition, protection of birds of prey is provided for in Sections 3503, 3513, and 3800 of the CFGC.

Native Plant Protection Act

The NPPA was adopted in 1977 (CFGC Sections 1900–1913) to preserve, protect, and enhance rare and endangered plants. CDFW is responsible for administering the NPPA, and the Fish and Wildlife Commission has the authority to designate native plants as "endangered" or "rare" and to provide measures to avoid take.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act provides for statewide coordination of water quality regulations. The SWRCB was established as the statewide authority, and nine separate RWQCBs were developed to oversee water quality on a day-to-day basis.

Regional Water Quality Control Board

The RWQCB is the primary agency responsible for protecting water quality in California. The RWQCB regulates discharges to surface waters under the federal CWA and the California Porter-Cologne Water Quality Control Act. The RWQCB's jurisdiction extends to all waters of the state and to all waters of the U.S., including wetlands (isolated and non-isolated conditions).

Through 401 Certification, Section 401 of the CWA allows the RWQCB to regulate any proposed federally permitted activity that may affect water quality. Such activities include the discharge of dredged or fill material, as permitted by USACE, pursuant to Section 404 of the CWA. The RWQCB is required to provide "certification that there is reasonable assurance that an activity [that] may result in the discharge to 'waters of the U.S.' will not violate water quality standards," pursuant to Section 401. Water Quality Certification must be based on the finding that the proposed discharge will comply with applicable water quality standards.

In addition, pursuant to the Porter-Cologne Water Quality Control Act, the state is given authority to regulate waters of the state, which are defined as any surface water or groundwater, including saline waters. As such, any person proposing to discharge waste into a water body that could affect its water quality must first file a Report of Waste Discharge if Section 404 does not apply. "Waste" is partially defined as any waste substance associated with human habitation, including fill material discharged into water bodies.

Regional and Local Plans

SDG&E Subregional Natural Community Conservation Plan

In December 1995, USFWS and CDFW approved the SDG&E Subregional NCCP, developed in coordination with such agencies that addresses potential impacts to species and habitat associated with SDG&E's ongoing installation, use, maintenance, and repair of its gas and electric systems, and typical expansion to those systems throughout much of SDG&E's existing service territory. As a part of the SDG&E Subregional NCCP, SDG&E was issued incidental take permits (Permit PRT-809637) by USFWS and CDFW for 110 Covered Species. Covered Species and their habitats are subject to the provisions of the SDG&E Subregional NCCP. The SDG&E Subregional NCCP was developed by following the multiple species and habitat conservation planning approach. Even with the SDG&E Subregional NCCP, SDG&E's goal is to avoid "take" of Covered Species whenever possible, and to implement measures to minimize and mitigate any take to the maximum extent possible. The SDG&E Subregional NCCP includes 61 operational protocols that apply to construction, operations, and maintenance activities. In approving the NCCP, USFWS and CDFW determined that the operational protocols avoid potential impacts and provide appropriate mitigation where such impacts are unavoidable, and ensure the

protection and conservation of federal- and state-listed species and Covered Species. The Proposed Project falls within the area in which SDG&E's utility operations are governed by the SDG&E Subregional NCCP, which would be applied to the Proposed Project. The NCCP is limited to new electric substations that will result in up to 20 acres of habitat disturbance, and does not apply to major expansions of SDG&E's electric system. Because it is not a major expansion and would result in less than 9 acres of habitat disturbance to SDG&E NCCP covered habitats (see Section 4.4.4, Potential Impacts), the Proposed Project is covered by the NCCP. As such, the NCCP fully addresses all of the potential construction, operations, and maintenance impacts of the Proposed Project on federal- and state-listed species and Covered Species. The NCCP avoidance and minimization measures and operational protocols have been incorporated as part of the Proposed Project description.

SDG&E is a public utility regulated by the CPUC. As described in the SDG&E Subregional NCCP Implementing Agreement, local governments are precluded from regulating public utilities through their zoning laws, land use laws, ordinances, and other police powers (including other NCCPs or HCPs) by the exclusive jurisdiction of the CPUC. Therefore, as stated in the SDG&E Subregional NCCP Implementing Agreement, the SDG&E Subregional NCCP "is independent of other NCCP/HCPs, and the Covered Species for which Incidental Take is authorized under the Take Authorizations is not dependent upon the implementation of such plans."

City of Chula Vista Multiple Species Conservation Program Subarea Plan

The MSCP is a comprehensive, long-term habitat conservation plan developed to address the needs of multiple species and the preservation of natural vegetation communities in southwestern San Diego County. The MSCP Subregional Plan, a "framework" plan for the 12 participating jurisdictions, was adopted by the City of San Diego and County of San Diego in 1997. The MSCP Subregional Plan addresses the potential impacts of urban growth, natural habitat loss, and species endangerment, and creates a plan to mitigate for the potential loss of Covered Species and their habitat due to the direct, indirect, and cumulative impacts of future development on public and private lands within the MSCP's approximately 900-square-mile study area. The City of Chula Vista MSCP Subarea Plan is a policy document through which the MSCP Subregional Plan is implemented within the City of Chula Vista's jurisdiction (City of Chula Vista 1993, 1997). The City of Chula Vista's MSCP Subarea Plan provides a blueprint for habitat preservation and forms the basis for federal and state incidental take permits for 86 plant and animal species within the City of Chula Vista. The BSA is within the City of Chula Vista's Subarea and MSCP Planning Area.

City of Chula Vista Wetlands Protection Program

Wetlands are protected throughout the City of Chula Vista's MSCP Subarea Plan through individual project entitlement reviews and the associated CEQA process. The process provides an evaluation of wetlands avoidance and minimization, and ensures compensatory mitigation within the Chula Vista Subarea or Chula Vista Planning Area for unavoidable impacts to wetlands, thereby achieving no overall net loss of wetlands.

Otay Ranch Resource Management Plan

The proposed Salt Creek Substation is located within Otay Ranch, an approximately 22,899-acre planned community in the eastern portion of the City of Chula Vista (City of Chula Vista 1993, 1996). The Otay Ranch Resource Management Plan (RMP) was developed prior to the City of Chula Vista's MSCP to provide mitigation for development projects occurring in Otay Ranch by requiring conveyance/purchase of 1.188 acres of land for every 1 acre of developable land to assemble the Otay Ranch Preserve (City of Chula Vista 1993, 1996). The RMP is intended to be the functional equivalent of the County of San Diego Resource Protection Ordinance (RPO) for Otay Ranch.

4.4.3.2 Physical Setting of Proposed Project

The BSA is located on flat to minor slopes along previously disturbed areas near the Existing Substation and within an existing SDG&E ROW. The Transmission Corridor is located within urban developed, landscape/ornamental, disturbed, nonnative grassland, and coastal sage scrub habitats and cover types. The elevation for the Transmission Corridor and staging yards ranges from approximately 300 feet above mean sea level (amsl) at the northern end of the Transmission Corridor at the Existing Substation to 540 feet amsl at the southern end of the Transmission Corridor along Hunte Parkway. The proposed Salt Creek Substation site is primarily flat with a gentle slope across the site from north (510 amsl) to south (430 amsl). Manufactured slopes rise up to Hunte Parkway at 535 amsl, which lies along the northern perimeter of the proposed Salt Creek Substation site. The proposed Salt Creek Substation site is composed primarily of nonnative grassland, Diegan sage scrub, and ornamental/landscaped cover types. Commercial and residential developments are located within and adjacent to the BSA. Other development features present include major transportation corridors (SR-125), asphalt and compacted earthen roads, trails, fencing, ephemeral and intermittent stream features, culverts, and swales.

4.4.3.3 Existing Biological Resources within the Biological Study Area

Vegetation Communities and Cover Types

Three generalized categories are being used to characterize and discuss the land cover types observed during vegetation community mapping: riparian and wetlands, uplands, and other cover types. Vegetation classification systems used in the Biological Technical Report prepared for this Proposed Project follow those of Holland (1986), as modified by Oberbauer et al. (2008). Descriptions of these vegetation communities and other cover types are provided in the following discussion.

Fourteen vegetation communities and other cover types were identified within the Transmission Corridor, staging yards, proposed Salt Creek Substation site, and 500-foot survey buffer, nine of which are native vegetation communities: coastal and valley freshwater marsh, herbaceous wetland, mulefat scrub, riparian scrub, riparian woodland, southern willow scrub, Diegan coastal sage scrub, valley needlegrass grassland, and wildflower field. Figures 4.4-1a through 4.4-1c depict the locations of vegetation communities, and Table 4.4-1 provides a summary of the acreages of vegetation communities and other cover types within the BSA.

Riparian and Wetlands

Coastal and Valley Freshwater Marsh

A thin band of coastal and valley freshwater marsh is located within a small tributary in the far northern portion of the BSA, just northeast of the Existing Substation staging yard. Another small area of coastal and valley freshwater marsh is located in the extreme southern portion of the BSA, south of the proposed Salt Creek Substation site. These areas are approximately 0.465 acre and are permanently inundated by fresh water, which flows from small ponds located outside of the BSA. These communities consist of monotypic stands of southern cattail (*Typha domingensis*).

Mulefat Scrub

A small area of mulefat scrub of approximately 0.221 acre occurs within a flood control channel in the central portion of the BSA, east of SR-125 and west of St. Germain Road. This early seral community is strongly dominated by mulefat (*Baccharis salicifolia*), along with the occasional arroyo willow (*Salix lasiolepis*) and invasive tree tobacco (*Nicotiana glauca*).

Herbaceous Wetland

Herbaceous wetland occurs within mesic depressional areas. Often, these wetlands may only occur during wetter-than-average years, and are usually found in swale areas or adjacent to drainages. These seasonal wetlands support mainly annual species, including rabbitfoot grass (*Polypogon monspeliensis*), rye grass (*Festuca perennis*), loosestrife (*Lythrum hyssopifolia*), scarlet pimpernel, (*Anagallis arvensis*), and curly dock (*Rumex crispus*). These areas do not support species typically associated with coastal and valley freshwater marsh (*Typha*, *Scirpus*, and *Juncus*).

Table 4.4-1: Vegetation Communities and Other Cover Types within the BSA[1]

Vegetation Communities and Other Cover Types	Proposed Salt Creek Substation (Acres)	Transmission Corridor (Acres)	Staging Yards (Acres)	500-foot Buffer (Acres)	Total (Acres)
Riparian and Wetland					
Coastal and Valley Freshwater MarshCoastal and Valley Freshwater Marsh	--	0.050.04	--	0.410.41	0.460.45
Concrete Brow DitchHerbaceous Wetland	0.13-	0.130.16	--	0.080.03	0.340.19
Herbaceous WetlandMulefat Scrub	--	0.160.21	--	0.03-	0.190.21
Mulefat ScrubRiparian Scrub	--	0.220.17	--	-0.98	0.221.15
Riparian ScrubRiparian Woodland	--	0.140.23	--	0.980.16	1.120.39
Riparian WoodlandSouthern Willow Scrub	--	0.230.87	--	0.163.50	0.384.37
Southern Willow ScrubUnvegetated Channel	-0.13	0.010.41	--	-0.10	0.010.64
Unvegetated Channel	-	0.13	-	<0.01	0.14
Total Riparian and Wetland	*0.13*	*2.091.09*	*0.00-*	*5.181.67*	*7.402.88*

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Vegetation Communities and Other Cover Types	Proposed Salt Creek Substation (Acres)	Transmission Corridor (Acres)	Staging Yards (Acres)	500-foot Buffer (Acres)	Total (Acres)
Upland					
Diegan Coastal Sage Scrub	1.14	4.14	-	49.23	54.51
Nonnative Grassland	5.26	~~39.45~~38.89	23.40	127.03~~2~~	194.57~~5.13~~
Valley Needlegrass Grassland	-	-	-	1.70	1.70
Wildflower Field	1.59	-	-	-	1.59
Total Upland	*7.99*	*43.02~~59~~*	*23.40*	*177.9~~65~~*	*252.37~~93~~*
Other Cover Types					
Disturbed Habitat	2.42	1.23	0.55	1.90	6.10
Landscape/Ornamental	-	~~5.67~~6.51	0.05	~~51.91~~55.40	~~57.63~~61.96
Urban/Developed	1.10	19.86~~20.88~~	2.90	426.26~~30~~	450.15~~1.18~~
Total Other Cover Types	*3.52*	*~~27.78~~27.59*	*3.5~~10~~*	*~~480.11~~483.59*	*~~514.91~~518.21*
Total	**11.64**	**71.7~~3.046~~**	**26.90**	**663.224**	**773.46~~5.24~~**

[1]Values may not sum due to rounding after summation.

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Within the BSA, approximately 0.19 acre of herbaceous wetland occurs along a channel/drainage feature in a larger area of nonnative grassland, south of Eastlake Parkway and west of SR-125.

Riparian Scrub

Riparian scrub occurs in the far northern and southern portions of the BSA, and consists of approximately 1.125~~5~~ acres. In the north, this community is part of a flood control channel and consists mostly of nonnative species, including myoporum (*Myoporum* sp.), Mexican fan palm (*Washingtonia robusta*), and invasive tree tobacco.

In the south, a tributary drainage connecting downstream to Salt Creek flows along the southern boundary of the BSA. This drainage is occupied by arroyo willow with pockets of freshwater marsh occurring within the willow scrub habitat. Other characteristic species found within this community include the invasive salt cedar (*Tamarix ramosissima*), mulefat, red willow (*Salix laevigata*), and southern cattail.

Riparian Woodland

Riparian woodland is a moderately dense woodland dominated by small trees or shrubs. This community predominantly occurs along major river systems, but also occasionally occurs along smaller tributaries and drainage features. Within the BSA, approximately 0.389 acre of riparian woodland occurs along a small channel/drainage feature south of Eastlake Parkway and west of

SR-125. Characteristic species include arroyo willow, black elderberry (*Sambucus nigra*), tree tobacco, and broom baccharis (*Baccharis sarothroides*).

Southern Willow Scrub

Southern willow scrub occurs ~~in two separate stands~~ in the ~~central and southern~~northern portion~~s~~ of the BSA. A small stand occurs in the transmission corridor north of Mountain Miguel Road. ~~In the central portion of the BSA, east of SR-125 and south of Eastlake Drive, this community occurs within a flood control channel.~~ Dominant plants include arroyo willow, mulefat, and broom baccharis.

~~In the southern portion of the BSA, a tributary drainage connecting downstream to Salt Creek flows along the southern edge, just outside of the proposed Salt Creek Substation footprint. This drainage is occupied by southern willow scrub dominated by arroyo willow with pockets of freshwater marsh occurring within the willow scrub habitat. Other characteristic species found within this community on-site include salt cedar, mulefat, red willow, and southern cattail.~~ Approximately ~~4.37~~ 0.01 acre~~s~~ consisting of southern willow scrub occurs within the BSA.

Unvegetated Channel/Concrete Brow Ditch

Approximately 0.3~~6~~4 acre consisting of ~~earthen or~~ concrete ~~channels~~ brow ditches occurs throughout the BSA. Approximately 0.14 acre consisting of unvegetated channels occurs throughout the BSA. These features consist of a bed and bank and are considered unvegetated (less than 2% cover of herbaceous species and less than 10% cover by tree or shrub species).

Uplands

Diegan Coastal Sage Scrub

Diegan coastal sage scrub is found mostly in the far northern and southern portions of the BSA, with three small, isolated areas in the central portion of the BSA. This community consists of approximately 54.51 acres and is dominated by California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), and San Diego sunflower (*Bahiopsis laciniata*). Other characteristic species of coastal sage scrub found within the BSA include lemonade berry (*Rhus integrifolia*), deerweed (*Acmispon glaber*), and wild cucumber (*Marah macrocarpa*).

Nonnative Grassland

Approximately ~~195.13~~194.57 acres of nonnative grassland is found on disturbed soils throughout the BSA. Dominant species include wild oats (*Avena* spp.) and ripgut brome (*Bromus diandrus*). Numerous native and nonnative species occur in association with this vegetation community, including invasive yellowstar thistle (*Centaurea solstitialis*) and Russian thistle (*Salsola tragus*). Large areas of nonnative grassland are mowed and maintained within the central portion of the BSA.

Valley Needlegrass Grassland

Valley needlegrass grassland, designated as rare on the CNDDB, occurs on fine-textured clay soil just east of the Existing Substation. This grassland consists of approximately 1.70 acres and is

dominated by perennial tussock-forming purple needlegrass (*Stipa pulchra*). Many native perennial and annual herbs are present such as checker-mallow (*Sidalcea malviflora*), onion (*Allium haematochiton*), blue-eyed grass (*Sisyrinchium bellum*), blue dicks (*Dichelostemma capitata*), California poppy (*Eschscholzia californica*), and goldfields (*Lasthenia californica*).

Wildflower Field

Wildflower field occurs on heavy clay soils within the central mesa-top in the far southern portion of the BSA, south of Hunte Parkway. Clay soils in this region often support clay endemic plant species, including special-status species. The wildflower field on-site consists of approximately 1.59 acres and is dominated by a special-status clay endemic plant species Palmer's grapplinghook (*Harpagonella palmeri*). Other associated plant species include storksbill (*Erodium botrys*), blue-eyed grass, blue dicks, purple needlegrass, and foothill needlegrass (*Stipa lepida*).

Other Cover Types

Disturbed Habitat

Disturbed habitat is common throughout the BSA and consists of approximately 6.10 acres. These areas occur primarily along roadsides in the Transmission Corridor, and within and adjacent to the Eastlake Parkway staging yard. This cover type is generally dominated by nonnative grassland and invasive species, interspersed with varying amounts of bare ground.

The cut banks or manufactured slopes associated with Hunte Parkway are maintained with an ornamental ground cover of African daisy (*Gazania linearis*), with the nonnative weed species sweet clover (*Melilotus indicus*) and Russian thistle. This land cover type contains about 20% bare ground.

Ornamental/Landscape

Areas of ornamental/landscape plantings occur throughout the BSA and consist of approximately ~~57.63~~61.96 acres. These areas include lawns, parks, and freeway and residential roadsides and medians. Common species in these areas include African daisy, eucalyptus (*Eucalyptus* spp.), myoporum, African fountain grass (*Pennisetum setaceum*), California bay (*Umbellularia californica*), and invasive Peruvian pepper tree (*Schinus molle*). Ornamental plantings of native sage scrub species such as California sage brush and lemonade berry were also observed.

Urban/Developed

This category consists of approximately ~~451.18~~450.15 acres and includes areas of paved roads, parking lots, and buildings such as the residential housing and commercial development found in the BSA. It is not considered a vegetation community, and typically supports no or very few biological resources.

Jurisdictional Waters and Wetlands

As presented in Table 4.4-2, a total of ~~0.81~~0.96 acre of potential jurisdictional waters were identified during a formal delineation for jurisdictional waters of the U.S. and state of California ~~jurisdictional reconnaissance-level field assessments~~ conducted within the proposed Salt Creek Substation, the 5-mile-long, 120-foot-wide existing TL corridor from the Existing Substation to the proposed Salt Creek Substation, and the TL 6910 Loop-In~~proposed Salt Creek Substation, a 60-foot buffer on each side of the proposed TL 6965 north of Hunte Parkway, a 75-foot buffer on each side of the proposed TL 6965 south of Hunte Parkway, and the staging yards~~. A total of 0.82~~0.77~~ acre of waters of the U.S. and state and 0.~~03~~14 acre of potentially jurisdictional waters exclusively of the state were mapped. A total of 0.26 acre of waters were determined to be non-jurisdictional. The location of jurisdictional features identified during the field assessment are provided in Figures 4.4-2a through 4.4-2c.

Based on the results of the reconnaissance-level field assessment and evaluation of watershed and hydrological spatial data, it was determined that all aquatic features identified as potential jurisdictional waters of the U.S. have the following features:

- possess physical characteristics that may meet the definition of both wetland and non-wetland waters of the U.S. (33 CFR 328.3), and
- may possess a hydrologic or significant nexus connection with a traditional navigable water (TNW).[2]

The feature identified as coastal and freshwater marsh, north of the Existing Substation staging yard (Figure 4.4-2a), exists as a portion of Wild Man's Canyon, which connects to Sweetwater River approximately 2.5 miles to the west of the staging yard. Other features in the northern portion of the Transmission Corridor generally occur in or adjacent to areas previously disturbed during substation or residential development.

[2] The survey area traverses the Lower Sweetwater River (10-digit Hydrologic Unit Code [HUC] 1807030409), Otay River (10-digit HUC 1807030410), and San Diego Bay (10-digit HUC 1807030412) coastal watersheds. The major riverine features within these watersheds form a direct hydrological connection with San Diego Bay and the Pacific Ocean (a TNW).

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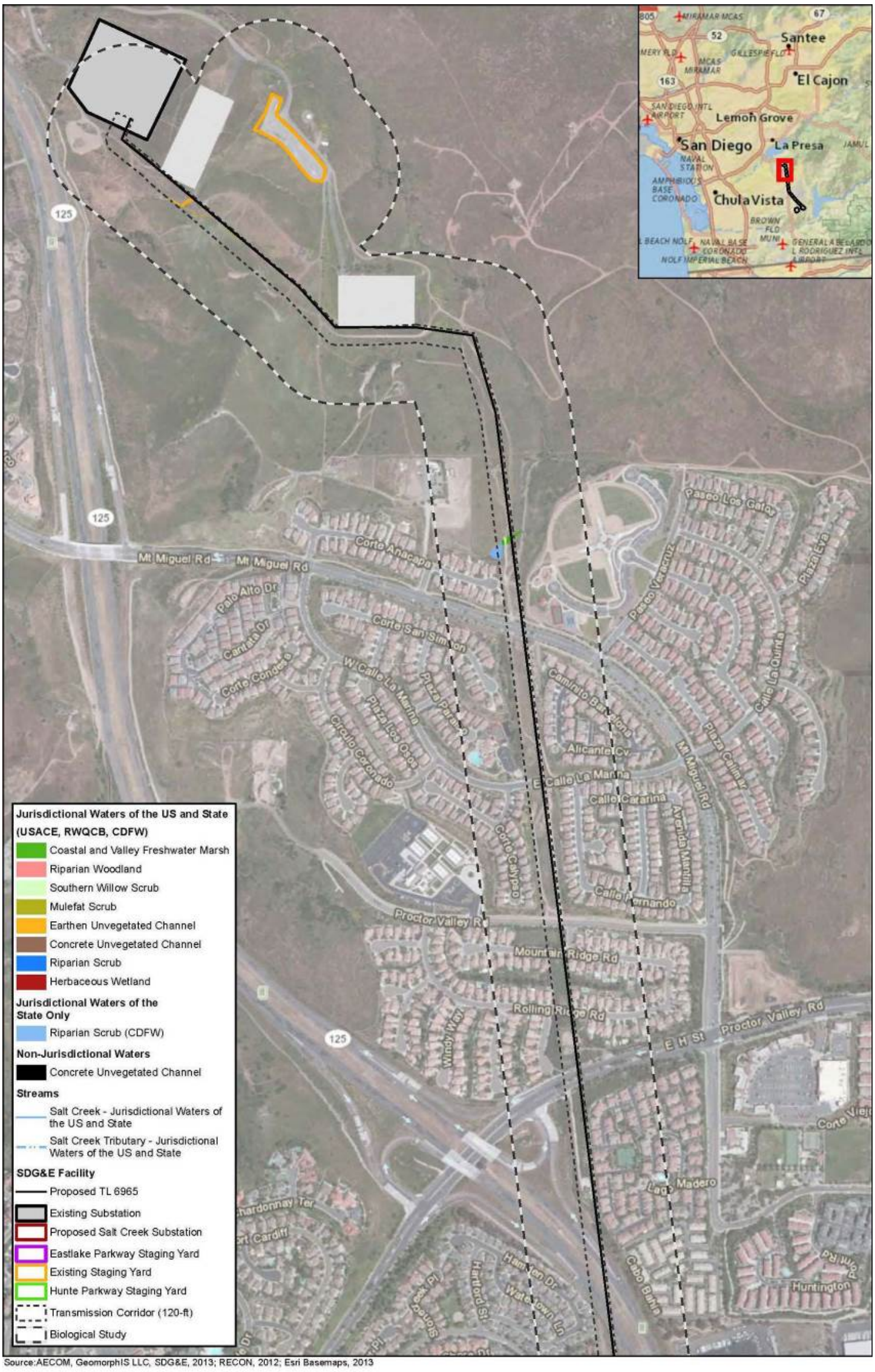
Figure 4.4-2a: Wetlands and Jurisdictional Waters within the Biological Study Area



Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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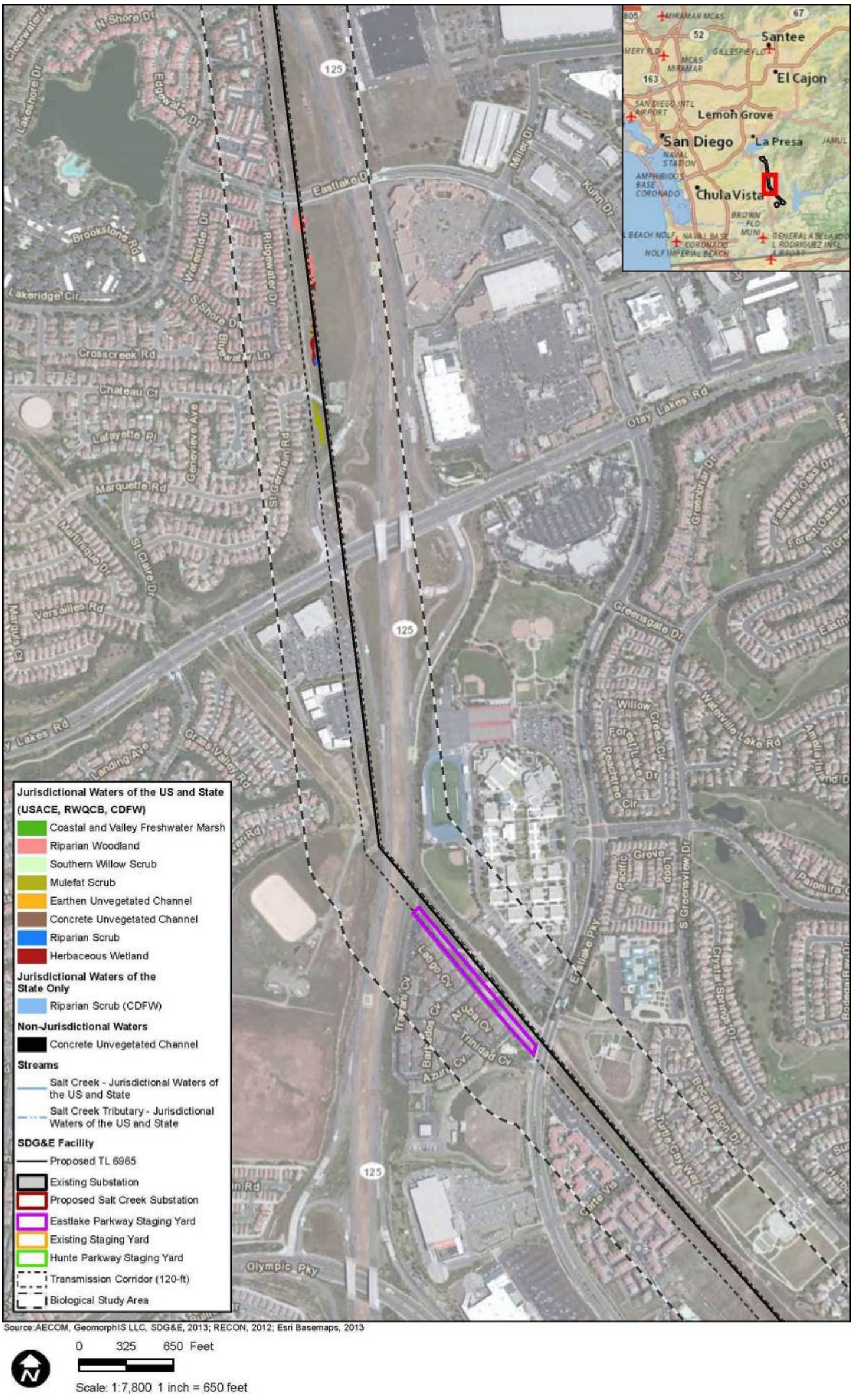
Figure 4.4-2b: Wetlands and Jurisdictional Waters within the Biological Study Area



Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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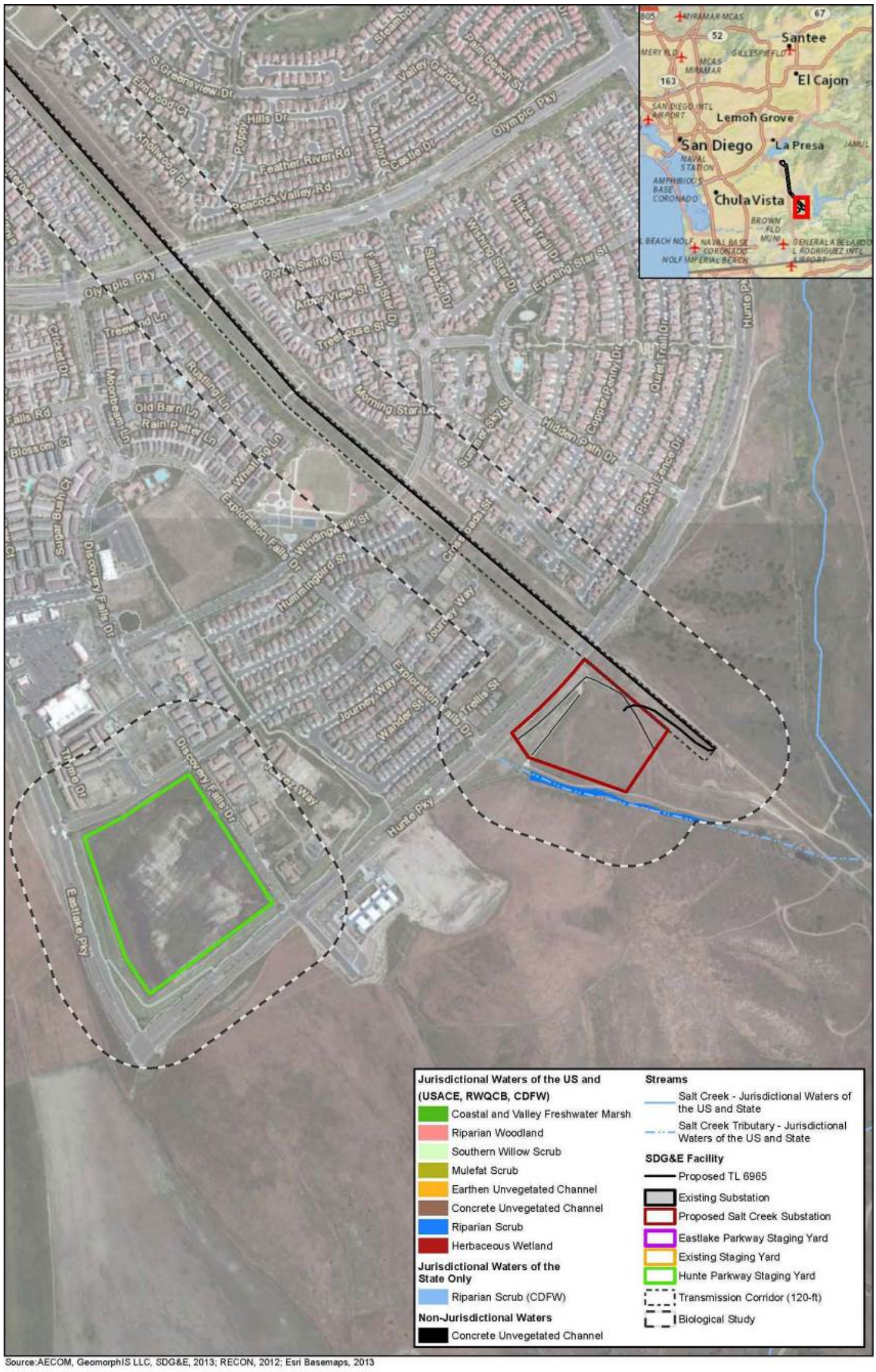
Figure 4.4-2c: Wetlands and Jurisdictional Waters within the Biological Study Area



Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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Table 4.4-2: ~~Potential~~ Jurisdictional Status of Aquatic Features Occurring within the Proposed Project Area

Type of Jurisdictional Waters[1]	Vegetation Community/ Other Cover Type	Regulatory Authority	Proposed Salt Creek Substation (Acres ~~/ Linear Feet~~) [3]	Transmission Corridor (Acres ~~/ Linear Feet~~) [3]	Staging Yards (Acres~~/ Linear Feet~~) [2]	Total (Acres~~/ Linear Feet~~) [3]
Jurisdictional "Waters of the U.S." and State						
Wetland	Coastal and Valley Freshwater Marsh	USACE, RWQCB, CDFW	-	0.0541	-	0.041
Wetland	Herbaceous Wetland	USACE, RWQCB, CDFW	-	0.162	-	0.162
Wetland	Riparian Woodland	USACE, RWQCB, CDFW	-	0.229	-	0.229
Wetland	Mulefat Scrub	USACE, RWQCB, CDFW		0.224		0.224
Wetland	Southern Willow Scrub	USACE, RWQCB, CDFW	-	0.0194	-	0.0194
Wetland	Riparian Scrub	USACE, RWQCB, CDFW	-	~~0.0 60~~	-	~~0.060~~
Other Waters	Concrete ~~Unvegetated Channel~~Brow Ditch	USACE, RWQCB, CDFW	-	0.~~090~~003 ~~/ 971~~	-	0.003~~0.090 / 971~~
Other Waters	~~Earthen~~ Unvegetated Channel	USACE, RWQCB, CDFW	-	0.~~173~~134 ~~/ 1,118~~	-	0.134~~0.173 / 1,118~~
Subtotal Jurisdictional "Waters of the U.S." and State			***0.000***	***~~0.773~~0.817 ~~/ 2,089~~***	***0.000***	***0.817~~0.773 / 2,089~~***
Jurisdictional Waters of the State						
Wetland	Riparian Scrub	CDFW	-	0.~~032~~142	-	0.142~~0.032~~
Subtotal Jurisdictional Waters of the State			***0.000***	***0.~~032~~142***	***0.000***	***0.142~~0.032~~***
Total Jurisdictional Waters			***0.000***	**~~0.959~~0.805 ~~/ 2,089~~**	**0.000**	**~~0.959~~0.805 ~~/ 2,089~~**
Non-Jurisdictional Waters						
Other Waters	Concrete Brow Ditch	-	0.127	0.131	-	0.257
Total Non-Jurisdictional Waters			***0.127***	***0.131***	***0.000***	***0.257***

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[1] All aquatic features identified as "other waters" were observed to possess an ordinary high water mark (defined at 33 CFR Section 328.3[e]) during the field assessment.

[2] ~~Linear feet distances are only provided for linear aquatic features.~~

The drainage feature that was mapped between Eastlake Drive and Otay Lakes Road (Figure 4.4-2b) flows south into Telegraph Creek. It then continues west and exits into the Pacific Ocean near the South Bay Power plant in Chula Vista via a series of underground and open concrete channels. A distinct water channel was observed throughout the majority of this drainage feature. The remainder of the water flow appears to be carried sub-surface or by sheet flow. These sheet flow areas can be considered a discontinuous ephemeral stream. The riparian scrub habitat south of Eastlake Drive described as "CDFW jurisdictional only" is located outside the ordinary high water mark (OHWM) and did not meet the hydrophytic vegetation criteria needed to be considered wetland (Figure 4.4-2b).

Features identified as unvegetated concrete channels within the proposed Salt Creek Substation site were constructed wholly in uplands and collect storm water (Figure 4.4-2c). These constructed drainage features, along previously disturbed and contoured areas on-site, appear to have been installed for erosion control and storm water conveyance purposes, and are non-jurisdictional features (both state and federal).

Special-Status Plant Species

This section discusses plant species detected within the BSA or with potential to occur within the BSA. Through comparing known occurrences with habitats present in the BSA, it was determined that 30 special-status plant species known to occur within the region were expected to occur within the BSA or have low, moderate, or high potential to occur within the BSA (see Appendices B and E of the Biological Technical Report, Attachment 4.4-A). Thirteen special-status plant species were observed within the BSA (Table 4.4-3 and Figures 4.4-3a through 4.4-3d). An additional 17 special-status plant species have low, moderate, or high potential to occur within the BSA based on habitats present and the locations of known recent occurrences (Table 4.4-3). A discussion of the 13 special-status plant species detected within the BSA is presented below. A comprehensive list of all plant species, special-status and non-special-status, that were detected during the rare plant and vegetation mapping surveys within the BSA are included in the Biological Technical Report (Attachment 4.4-A).

Federally Listed Plant Species

Otay tarplant

Otay tarplant (*Deinandra [=Hemizonia] conjugens*) is a federally listed threatened and state-listed endangered species. It is also a Covered Species under SDG&E's NCCP. This species is an annual herb in the Asteraceae (sunflower) family that grows up to approximately 20 inches in height and has aromatic deep green or gray-green leaves covered with soft shaggy hairs and seven to 10 yellow ray flowers and 13 to 21 disk flowers (Baldwin 2012). The species typically

blooms from April through June and is known only from southern San Diego County, primarily in the Chula Vista region, to Baja California, Mexico. This species prefers heavy clay soils in valley and foothill grasslands or sparsely vegetated Diegan coastal sage scrub occurring up to 1,000 feet amsl.

The BSA occurs within the northern portion of the known range of this species. Several large populations occur near the BSA. Within the BSA, approximately 934 individuals of Otay tarplant were observed within grasslands and in large grassy openings in Diegan coastal sage scrub. The majority of individuals were concentrated in the northern portion of the Transmission Corridor and buffer, from the Existing Substation area south until the Mountain Ridge Road crossing (just south of Proctor Valley Road) (Figure 4.4-3a). Several additional individuals were mapped in a small area in the buffer of the southern portion of the Transmission Corridor, just south of Hunte Parkway (Figure 4.4-3d).

State-Listed Plant Species

Otay tarplant is the only state-listed endangered species documented within the BSA. Its background and occurrence within the BSA is described above.

Other Special-Status Plant Species

California adolphia

California adolphia (*Adolphia californica*) is a CRPR 2.1 species. This perennial, often thorny, deciduous shrub in the Rhamnaceae (Buckthorn) family is often associated with clay soils on dry slopes in chaparral, valley needlegrass grassland, and coastal sage scrub within the foothill and coastal regions from Santa Barbara to Baja California, Mexico.

Eleven individuals of California adolphia were observed in the buffer on the northern end of the BSA near the Existing Substation. Ten plants were mapped as a polygon just south of the Existing Substation, and a single plant was mapped just to the east of the Existing Substation, in coastal sage scrub (Figure 4.4-3a).

San Diego sunflower

San Diego sunflower (*Bahiopsis* [=*Viguiera*] *laciniata*) is a CRPR 4.2 species. This small- to medium-sized shrub in the Asteraceae (Sunflower Family) occurs in clay soils within chaparral and coastal sage scrub on south-facing slopes from Orange County south to Baja California and Sonora, Mexico.

San Diego sunflower was mapped in large quantities throughout the BSA. Approximately 19,450 individuals were mapped as points and polygons, largely concentrated in the northern and southern regions of the BSA (Figures 4.4-3a and 4.4-3d). Plants occur within coastal sage scrub and grassland on-site, and are especially numerous in areas of recent disturbance. A comparison of 2012 results (AECOM 2012a) with the survey results for the 2011 special-status plant survey (AECOM 2011a) of the proposed Salt Creek Substation shows a larger area of occupation by this species in 2012 than previously mapped. Many of the plants mapped in 2012 were very small and may have been difficult to observe in 2011.

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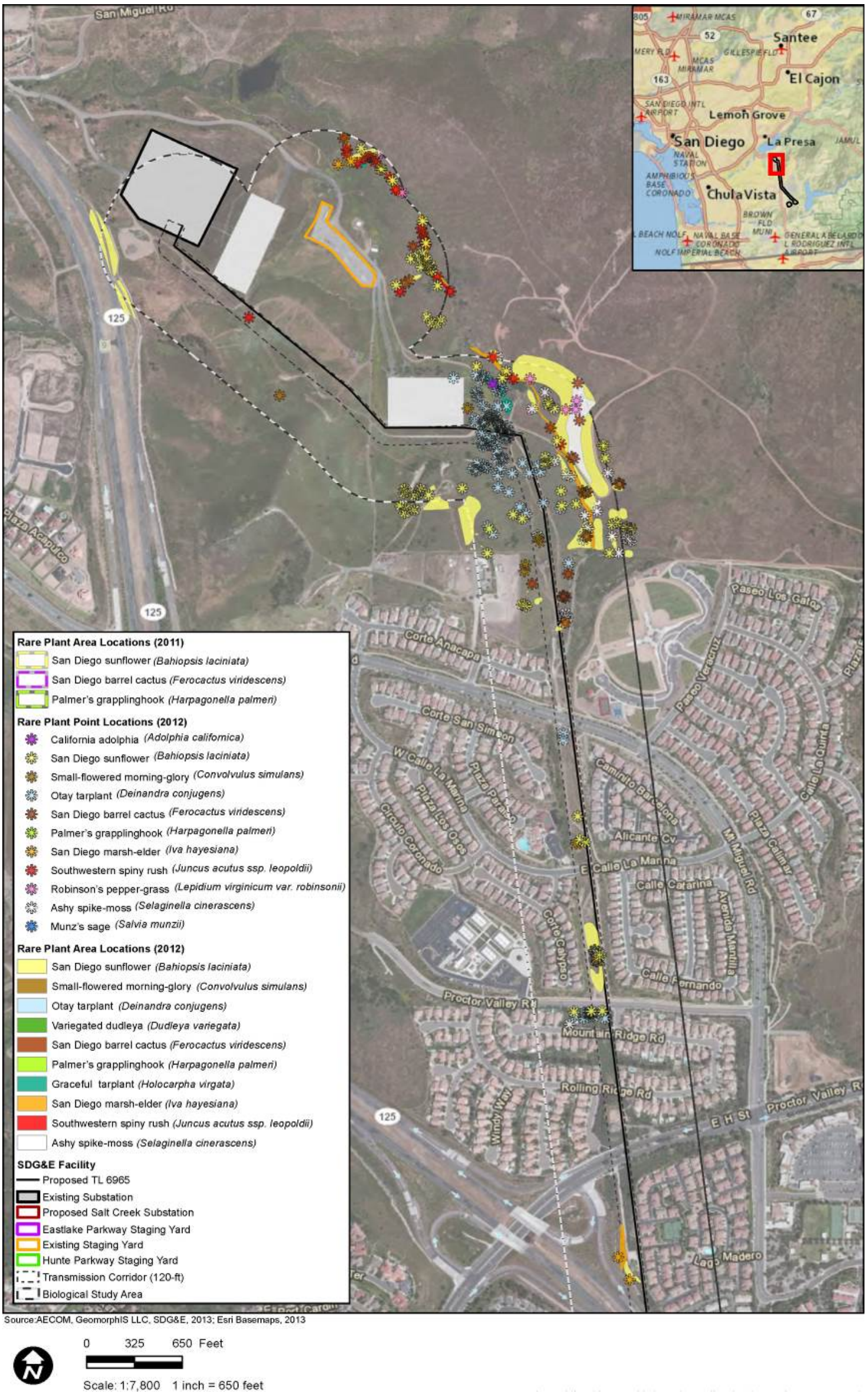
Figure 4.4-3a: Special-Status Plant Species within the Biological Study Area



Source:AECOM, GeomorphIS LLC, SDG&E, 2013; Esri Basemaps, 2013

0 325 650 Feet

Scale: 1:7,800 1 inch = 650 feet

Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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Figure 4.4-3b: Special-Status Plant Species within the Biological Study Area

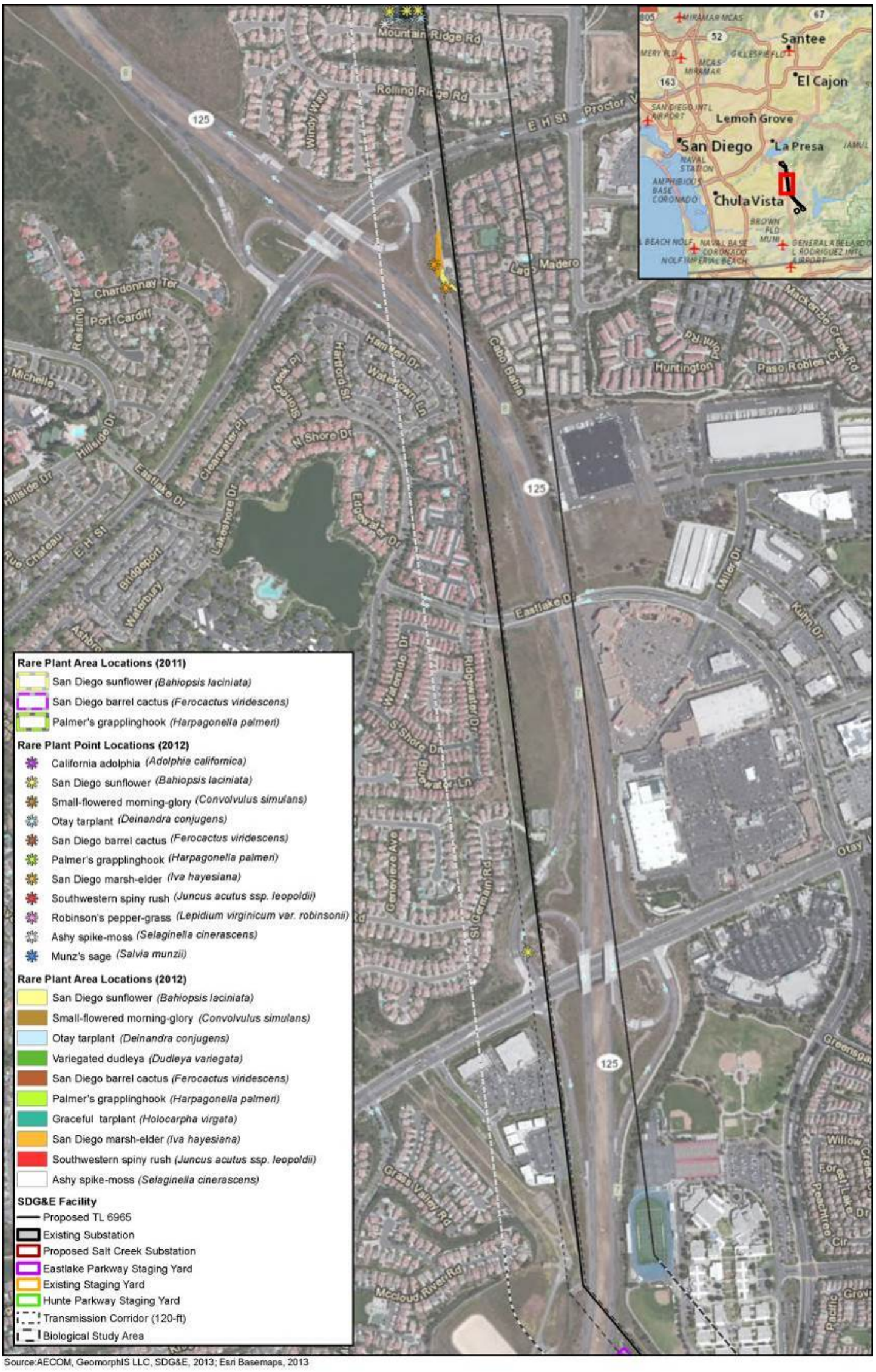

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Figure 4.4-3c: Special-Status Plant Species within the Biological Study Area

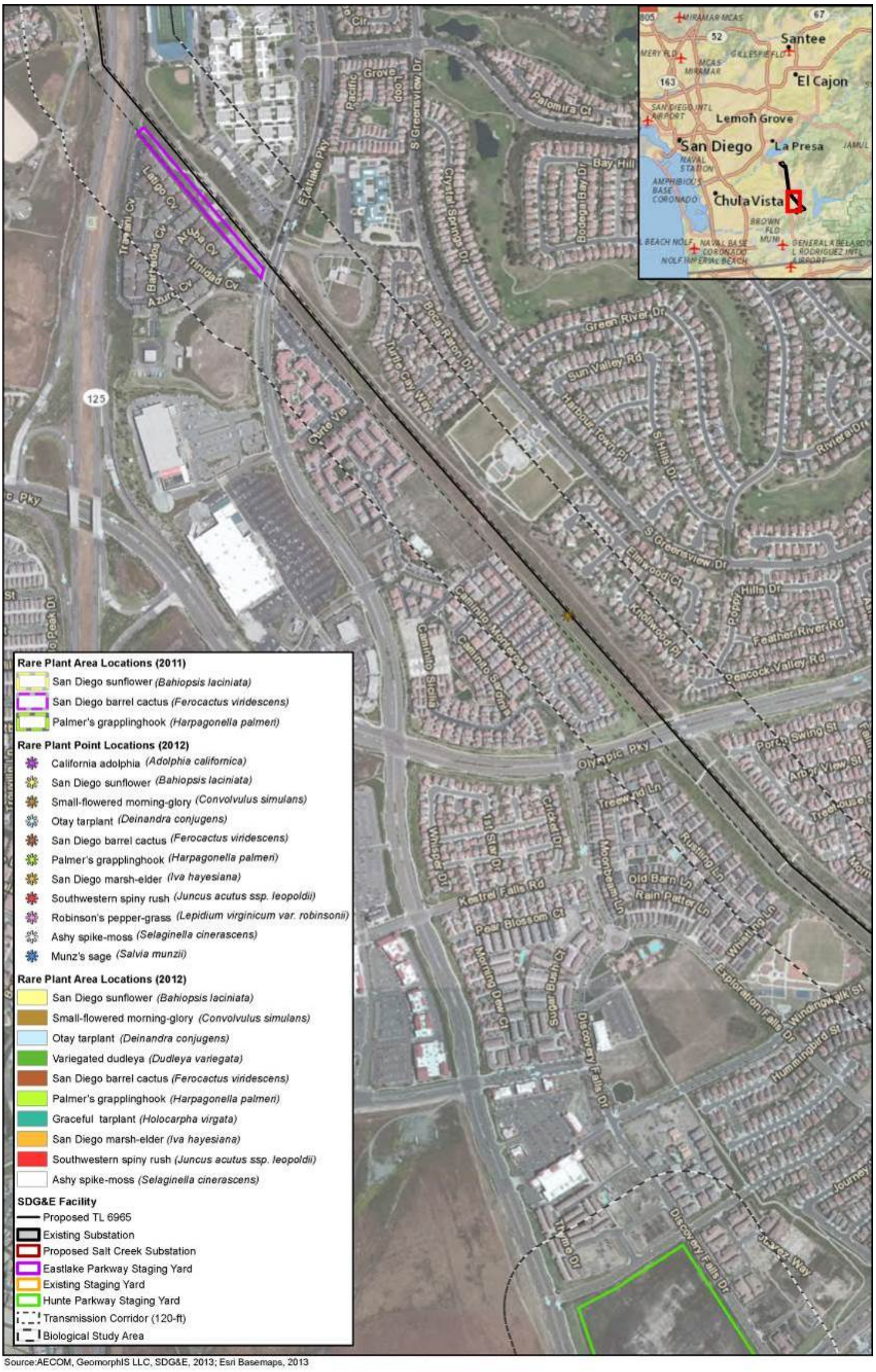

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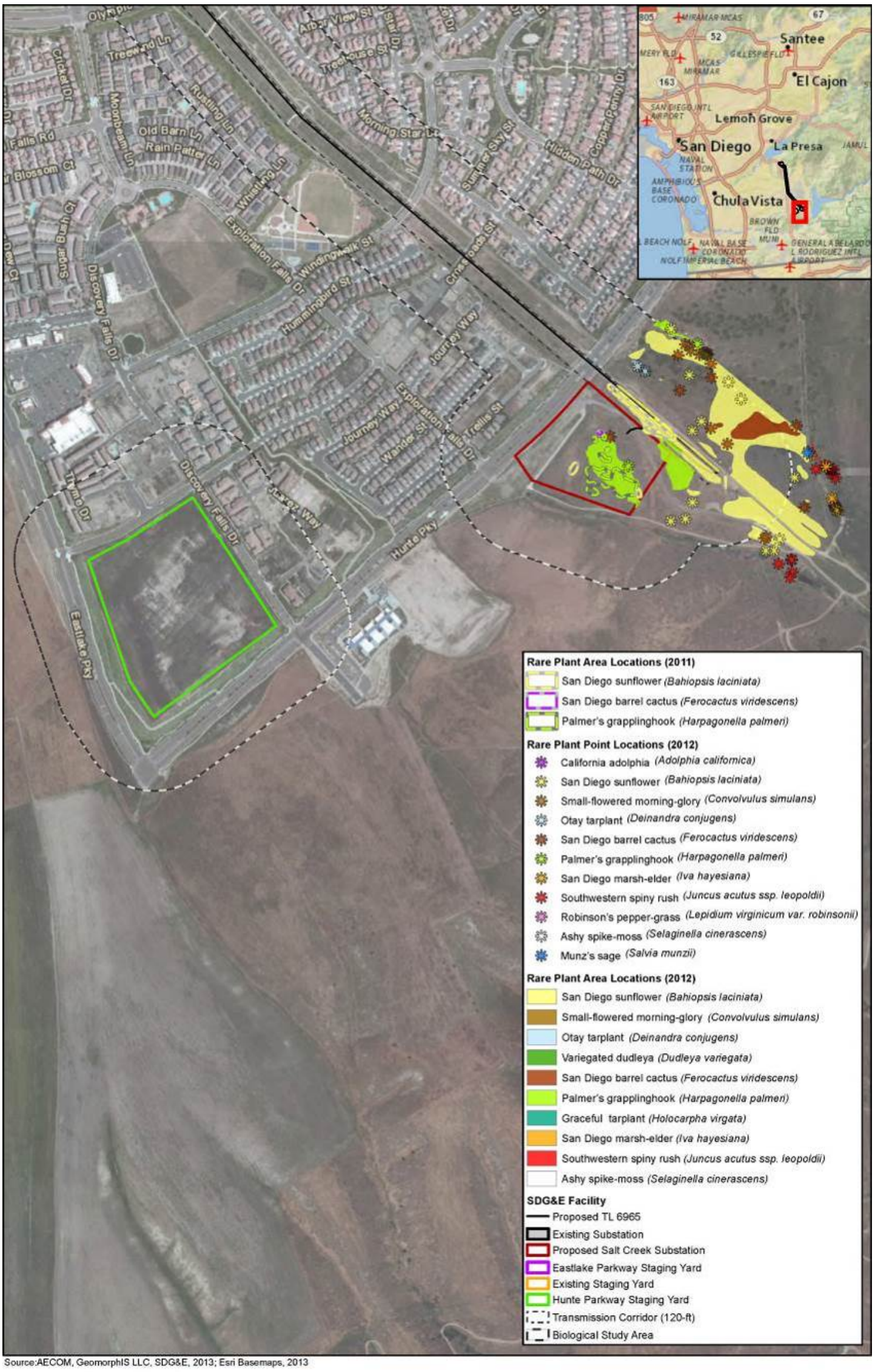
Figure 4.4-3d: Special-Status Plant Species within the Biological Study Area



Source:AECOM, GeomorphIS LLC, SDG&E, 2013; Esri Basemaps, 2013

0 325 650 Feet

Scale: 1:7,800 1 inch = 650 feet

Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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Table 4.4-3: Special-Status Plant Species Observed or With the Potential to Occur Within the BSA

Species	Status[1]	Primary Habitat Associations/Life Form/Blooming Period	Potential to Occur/Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
San Diego thorn-mint *Acanthomintha ilicifolia*	FT/SE – 1B.1 – NCCP NE	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/annual herb/April–June	Not observed on-site. Moderate potential to occur. If present on-site, this species would have been observed.	ND – M	ND – L	ND – M
California adolphia *Adolphia californica*	2.1	Chaparral, coastal scrub, valley and foothill grassland; clay/shrub/ December–May	Eleven individuals were observed within the BSA in coastal sage scrub in the northern portion of the BSA.	ND – L	ND – L	P
San Diego bursage *Ambrosia chenopodiifolia*	2.1	Coastal scrub/shrub/April–June	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L
Singlewhorl burrobrush *Ambrosia monogyra*	2.2	Chaparral/shrub/sandy/August–November	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L
San Diego ambrosia *Ambrosia pumila*	FE – 1B.1 – NCCP NE	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; often in disturbed areas/perennial herb/May–October	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L
San Diego sagewort *Artemisia palmeri*	4.2	Chaparral, coastal scrub, riparian forest and scrub; sandy/shrub/ May–September	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L

Species	Status[1]	Primary Habitat Associations/Life Form/Blooming Period	Potential to Occur/Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
Coulter's saltbush *Atriplex coulteri*	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/ perennial herb/March–October	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L
South Coast saltscale *Atriplex pacifica*	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, playas/annual herb/ March–October	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L
San Diego County sunflower *Bahiopsis* [=*Viguiera*] *laciniata*	4.2	Chaparral, coastal scrub/shrub/ February–June	Approximately 19,450 individuals were observed throughout the BSA in coastal sage scrub and grasslands.	P	P	P
San Diego goldenstar *Bloomeria clevelandii*	1B.1 – NCCP	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/bulbiferous herb/May	Not observed on-site. Moderate potential to occur. If present on-site, this species would have been observed.	ND – M	ND – M	ND – M
Orcutt's brodiaea *Brodiaea orcuttii*	1B.1 – NCCP	Closed-cone conifer forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay, sometimes serpentine/ bulbiferous herb/May–July	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L

Species	Status[1]	Primary Habitat Associations/Life Form/Blooming Period	Potential to Occur/Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
Brewer's calindrinia *Calandrinia breweri*	4.2	Chaparral, coastal scrub, disturbed sites and burns/annual herb/ March–June	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L
Round-leaved filaree *California macrophylla*	1B.1	Cismontane woodland, valley and foothill grassland; clay/annual herb/ March–May	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L
Lewis's evening primrose *Camissoniopsis lewisii*	3	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy or clay/annual herb/ March–June	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L
Small-flowered morning-glory *Convolvulus simulans*	4.2	Chaparral (openings), coastal scrub, valley and foothill grassland; clay, serpentine seeps/annual herb/ March–July	There were 178 individuals mapped within the BSA in grasslands on clay soils.	ND – L	P	P
Otay tarplant *Deinandra* [=*Hemizonia*] *conjugens*	FT/ SE – 1B.1 – NCCP	Coastal scrub, valley and foothill grassland; clay/annual herb/ May–June	There were 934 individuals mapped within the BSA in grasslands and in grassy openings in coastal sage scrub on clay soils.	ND – M	P	P
Western dichondra *Dichondra occidentalis*	4.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/rhizomatous herb/ March–May	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L

Species	Status[1]	Primary Habitat Associations/Life Form/Blooming Period	Potential to Occur/Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
Variegated dudleya *Dudleya variegata*	1B.2 – NCCP	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools/perennial herb/May–June	Sixty individuals were mapped in a grassy opening in coastal sage scrub, on the southern end of the BSA.	ND – M	ND – M	P
San Diego barrel cactus *Ferocactus viridescens*	2.1 – NCCP	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/ shrub/May–June	Approximately 140 plants were observed in coastal sage scrub in the northern and southern regions of the BSA.	P	P	P
Palmer's grapplinghook *Harpagonella palmeri*	4.2 – NCCP	Chaparral, coastal scrub, valley and foothill grassland; clay/annual herb/ March–May	Approximately 1,065,000 individuals were observed in wildflower field, coastal sage scrub, and nonnative grassland on heavy clay soils in the southern portion of the BSA.	P	ND – H	P
Graceful tarplant *Holocarpha virgata* ssp. *elongate*	4.2	Coastal scrub, cismontane woodland, chaparral, valley and foothill grassland/annual herb/ August–November	Approximately 13,060 individuals were mapped in grasslands in the northern portion of the BSA on clay soils.	ND – L	NP – L	P
San Diego marsh-elder *Iva hayesiana*	2.2	Marshes and swamps, playas/ perennial herb/April–September	Approximately 1,860 plants were mapped on-site along the perennial stream channels traversing the northern and southern regions of the BSA.	ND – L	P	P

Species	Status[1]	Primary Habitat Associations/Life Form/Blooming Period	Potential to Occur/Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
Southwestern spiny rush *Juncus acutus* spp. *leopoldii*	4.2	Coastal dunes, meadows and seeps (alkaline), saltwater marsh and swamp/rhizomatous herb/ May–June	There were 130 individuals mapped on-site along stream channels in the northern and southern regions of the BSA.	ND – L	P	P
Robinson's pepper grass *Lepidium virginicum* var. *robinsonii*	1B.2	Chaparral, coastal scrub/annual herb/January–July	There were 37 individuals mapped in coastal sage scrub in the northern and southern regions of the BSA.	ND – L	ND – L	P
Munz's sage *Salvia munzii*	2.2	Chaparral, coastal scrub/perennial evergreen shrub/February–April	Two individuals were mapped in coastal sage scrub in the southern region of the BSA.	ND – L	ND – L	P
Ashy spike-moss *Selaginella cinerascens*	4.1	Chaparral, coastal scrub (in openings)/perennial herb/March	Approximately 1.75 occupied acres were mapped within coastal sage scrub in the northern region of the BSA.	ND – L	ND – L	P
Rayless ragwort *Senecio aphanactis*	2.2	Chaparral, cismontane woodland, coastal scrub; alkaline/annual herb/ January–April	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L
Purple stemodia *Stemodia durantifolia*	2.1	Sonoran desert scrub (often mesic, sandy)/perennial herb/ January–December	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L

Species	Status[1]	Primary Habitat Associations/Life Form/Blooming Period	Potential to Occur/Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
San Diego County needlegrass *Stipa diegoensis*	4.2	Chaparral, coastal scrub/rocky, often mesic/perennial herb/ February–June	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L
Rush-like bristleweed *Xanthisma* [=*Macharantha juncea*] *juncea*	4.3	Chaparral, coastal scrub/perennial herb/June–January	Not observed on-site. Low potential to occur. If present on-site, this species would have been observed.	ND – L	ND – L	ND – L

[1] Status:

FE: Federally listed as endangered
FT: Federally listed as threatened
SCE: State candidate for listing as endangered
SE: State listed as endangered
ST: State listed as threatened
SR: State rare

California Rare Plant Ranks:
1B: Plants rare, threatened, or endangered in California and elsewhere
2: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which we need more information – A Review List
4: Plants of limited distribution – A Watch List
0.1–Seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
0.2–Fairly threatened in California (20–80% occurrences threatened/moderate degree and immediacy of threat)
0.3–Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

SDG&E Natural Community Conservation Plan Covered Species (NCCP)
NE = SDG&E Narrow Endemic

[2] Findings:

P (present) – Species detected during Proposed Project surveys
ND (not detected) – Species not detected during Proposed Project surveys
L (low potential) – Suitable habitat present, highly disturbed
M (moderate potential) – Suitable habitat present, moderately disturbed
H (high potential) – Suitable habitat present, and species known to occur within the vicinity

Small-flowered morning-glory

Small-flowered morning-glory (*Convolvulus simulans*) is a CRPR 4.2 species found within grassland and openings within coastal sage scrub, often on clay soils and serpentine seeps. This diminutive annual in the Convolvulaceae (Morning-Glory) family blooms between February and July with tiny lavender flowers; it occurs in central and Southern California and in Baja California, Mexico. Several small occurrences of small-flowered morning glory were mapped in the Transmission Corridor and buffer, generally in the northern portion of the BSA (Figure 4.4-3a). A total of 178 individuals were mapped, generally in points of one to a few individuals, on clay soils in grasslands.

Variegated dudleya

Variegated dudleya (*Dudleya variegata*) is a CRPR 1B.2 species found on clay soils within grassland, chaparral, and coastal scrub. This species is known only from San Diego County and Baja California, Mexico, where it is threatened by development, grazing, and nonnative plants. It belongs to the Crassulaceae (Stonecrop) family, and blooms in the late spring with small, yellow, star-shaped flowers.

A small occurrence of 60 individuals of variegated dudleya was observed within a grassy, clay opening in coastal sage scrub in the buffer area of the Transmission Corridor, just south of Hunte Parkway (Figure 4.4-3d).

San Diego barrel cactus

San Diego barrel cactus (*Ferocactus viridescens*) is a CRPR 2.1 species that occurs within grassland, coastal sage scrub, and chaparral. San Diego barrel cactus, a perennial in the Cactaceae (Cactus) family, occurs only in coastal and foothill areas of San Diego County and Baja California, Mexico. This species is seriously threatened by urbanization, off-road vehicles, illegal collecting, and nonnative plants.

San Diego barrel cactus was mapped in the northern and southern areas of the BSA, generally in coastal sage scrub (Figures 4.4-3a and 4.4-3d). On-site, the species is most concentrated in scrub with a south-facing aspect. Approximately 140 plants were observed. Of these, 17 plants were in black plastic pots left by the prior property owner. These 17 plants, also mapped previously during surveys of the proposed Salt Creek Substation (AECOM 2011a), have rooted into the ground through the decaying pots.

Palmer's grapplinghook

Palmer's grapplinghook (*Harpagonella palmeri*) is a CRPR 4.2 species that occurs on heavy clay soils within grassland and coastal sage scrub openings. This tiny annual plant in the Boraginaceae (Borage) family blooms in early spring and is present in scattered locations throughout Southern California and Baja California, Mexico, although it is most concentrated in western Riverside County and coastal and foothill regions of San Diego County. This species is very inconspicuous and easily overlooked, and is threatened by development, nonnative plants, and agriculture.

Palmer's grapplinghook occurs within the BSA on heavy clay soils in areas mapped as wildflower field, nonnative grassland, and coastal sage scrub. Two large and three small polygons, plus two points of a single individual each, of Palmer's grapplinghook were mapped in the southern region of the BSA, south of Hunte Parkway in the proposed Salt Creek Substation footprint and buffer area (Figure 4.4-3d). A total of 1,065,044 individuals were estimated to be present via a quadrat sampling method. This number is slightly less than the approximately 1.2 million plants observed during 2011 surveys (AECOM 2011a), despite the approximately 2.17 additional occupied acres mapped in 2012. Population sizes of annual plants such as Palmer's grapplinghook are known to fluctuate widely from year to year with fluctuations in rainfall and temperature, among other factors.

Graceful tarplant

Graceful tarplant (*Holocarpha virgata* ssp. *elongata*) is a CRPR 4.2 species. The species occurs generally in grasslands with clay soils, but also may be found in openings in coastal sage scrub, chaparral, woodlands, and coastal scrubs. This annual plant in the Asteraceae family generally blooms in the summer. This species occurs from Riverside County south to Baja California, Mexico. It is threatened by development throughout its range.

A total of 13,061 graceful tarplant individuals were mapped in the buffer of the Transmission Corridor. Plants generally occur as single individuals or as small groups of two to 75 individuals within a small area, but two larger polygons of 250 and 12,408 individuals were also mapped. Plants are most abundant in the northern region of the BSA, just east of the materials storage yard near the Existing Substation (Figure 4.4-3a).

San Diego marsh elder

San Diego marsh elder (*Iva hayesiana*) is a CRPR 2.2 species. This species is a spring- to summer-blooming perennial herb in the Asteraceae family. It occurs in marshes and swamps, on playas, and along stream channels in San Diego County and Baja California, Mexico. San Diego marsh elder is threatened throughout its range by waterway channelization, coastal development, off-road vehicles, and nonnative plants.

Within the BSA, it grows in nearly uninterrupted thickets along the perennial stream traversing the eastern edge of the Proposed Project area in the north, and along Salt Creek in the south (Figure 4.4-3a and 4.4-3d). Since it often grows in clumps, counts of individuals are difficult. For this study, a density estimate was made and multiplied by the area occupied to arrive at an approximate number of 1,860 plants.

Southwestern spiny rush

Southwestern spiny rush (*Juncus acutus* ssp. *Leopoldii*) is a CRPR 4.2 species. This large, perennial, rhizomatous, herb in the Juncaceae (Rush) family is also found on coastal dunes and in meadows and seeps. In the United States, it is most common in San Diego County, but it also may be found as far north as San Luis Obispo County, west into Nevada and Arizona, and south into Baja California, Mexico, and South America. It is threatened by urbanization and flood control facilities throughout its range.

A total of 130 individuals of southwestern spiny rush were mapped within the BSA. With one exception, all individuals were associated with the perennial stream channels and marshes traversing the north and south portions of the BSA. Two individuals were observed in an ephemeral channel on the north end of the Proposed Project area, just south of the Existing Substation (Figures 4.4-3a and 4.4-3d).

Robinson's pepper-grass

Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*) is a CRPR 1B.2 species. This small, annual plant in the Brassicaceae (Mustard) family is restricted to openings in coastal sage scrub, generally on south- or west-facing slopes. It occurs in Southern California and Baja California, Mexico. Although Robinson's pepper-grass is now thought by leading authorities to be a synonym of the non-sensitive *Lepidium virginicum* ssp. *menziesii* (Baldwin et al. 2012), occurrences of this taxon were nevertheless recorded, since CNPS continues to recognize the plant as a distinct entity.

A total of 37 individuals were mapped in the buffer of the northern and southern ends of the BSA (Figures 4.4-3a and 4.4-3d).

Munz's sage

Munz's sage (*Salvia munzii*) is a CRPR 2.2 species. This perennial evergreen shrub in the Lamiaceae (Mint) family occurs in chaparral and coastal scrub in southern San Diego County and Baja California, Mexico. Within San Diego County, this species is mostly confined to the Otay Mesa and Otay Mountain areas. Munz's sage is threatened by development throughout its range.

Two individuals of Munz's sage were mapped in the buffer of the southeastern region of the BSA, in coastal sage scrub (Figure 4.4-3d).

Ashy spike-moss

Ashy spike-moss (*Selaginella cinerascens*) is a CRPR 4.1 species that occurs within openings of coastal sage scrub and chaparral. It is found in Orange and San Diego Counties and Baja California, Mexico. This perennial, rhizomatous herb in the Selaginellaceae (Spike-Moss) family grows as a flat groundcover on the soil surface.

Ashy spike-moss was mapped in the buffer of the easternmost portions of the northern end of the BSA, in coastal sage scrub (Figure 4.4-3a). It is difficult to estimate the number of plants at a particular location, since it grows as flat groundcover, so estimates of area occupied were made for the purposes of this study. A total of 1.75 acres (76,275 square feet) of ashy spike-moss was mapped within the BSA.

Special-Status Wildlife Species

Twenty-five special-status wildlife species were observed or have low, moderate, or high potential to occur in the BSA. A total of 12 special-status wildlife species were observed within the BSA, and one (LBV) was observed just outside the southern portion of the BSA. Of these 13 species, two are federally listed, one of which is also state listed; one is a California Fully

Protected Species; eight are California SSC; and two are on the CDFW watch list. Of the 13 species, eight were also NCCP Covered Species. An additional 12 special-status wildlife species have some potential to occur within the BSA. The 25 special-status wildlife species observed or with a potential to occur are listed in Table 4.4-4, and the location of those observed are depicted in Figures 4.4-4a through 4.4-7b. A comprehensive list of all wildlife species, special-status and non-special-status, that were detected during Proposed Project surveys within the BSA are included in Biological Technical Report (Attachment 4.4-A).

Federally Listed Wildlife Species

Quino Checkerspot Butterfly (QCB)

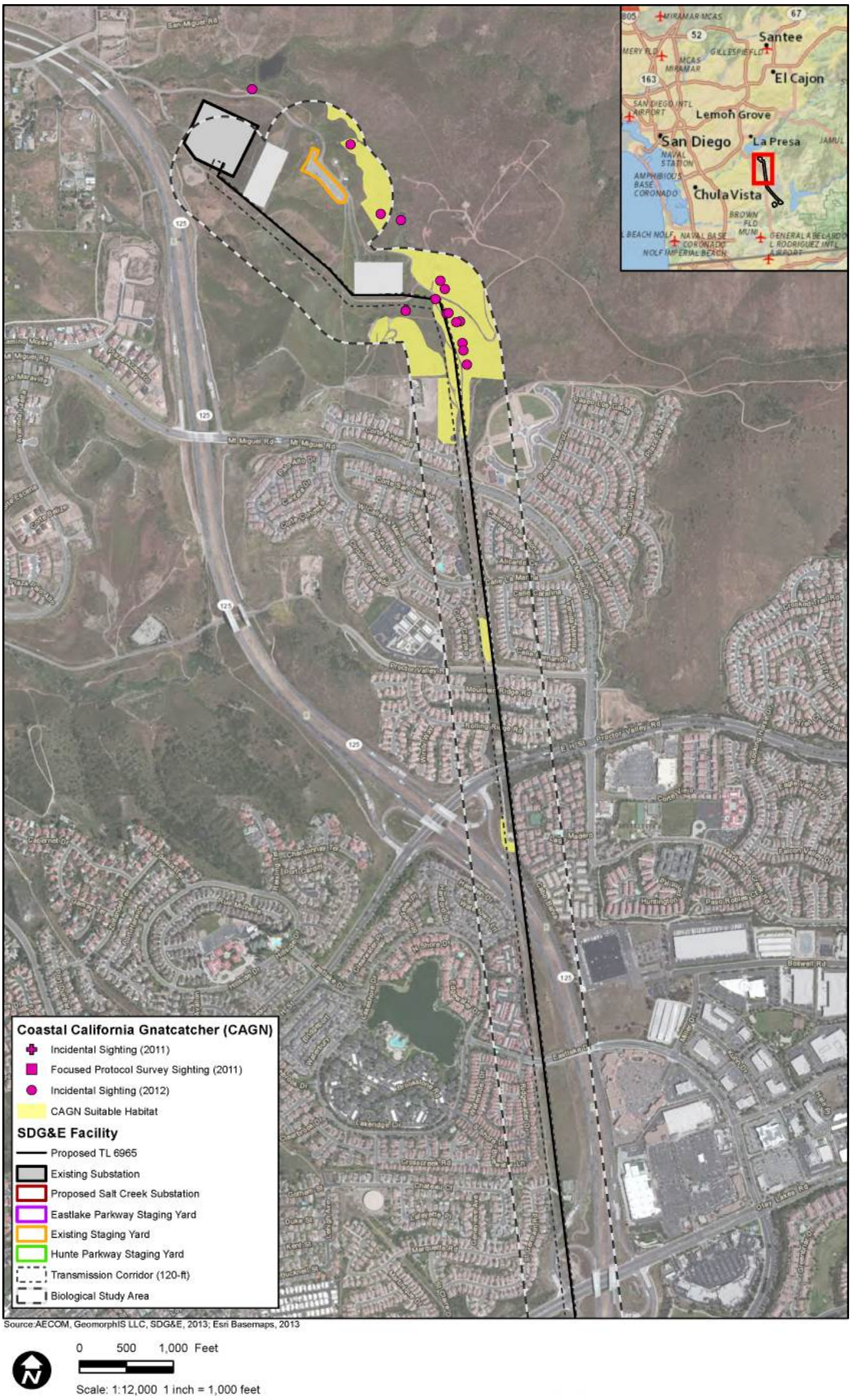
QCB, a subspecies of Edith's checkerspot butterfly (*Euphydryas editha*), is a federally listed endangered species and a Covered Species under SDG&E's NCCP. QCB is generally found in native and nonnative grasslands, coastal sage scrub, open chaparral, and other open plant community types where high densities of host plant species occur (USFWS 1997). The primary larval host plant species for QCB is dwarf plantain (*Plantago erecta*) (Mattoni et al. 1997). Field observations and laboratory studies indicate several other host plants may be used for egg deposit and larval feeding, including owl's clover (*Castilleja exserta*), southern Chinese houses (*Collinsia concolor*), and bird's beak (*Cordylanthus rigidus*). Adults have one flight period per year, which generally occurs between late January and mid-May, with peak activity between March and April. Females lay egg masses on host plants, typically between mid-February and April. Eggs hatch in about 10 days, and the larvae begin to feed immediately.

SDG&E's HCP for QCB delineates potential QCB habitat (referred to as "Mapped Areas") based on the 2003 USFWS QCB recovery plan. Mapped Areas occur within SDG&E's NCCP preserve at the north end of the Transmission Corridor. However, based on project surveys, no suitable QCB habitat occurs within these Mapped Areas. Using the suitable QCB habitat criteria established under SDG&E's QCB Low-Effect HCP, approximately 50 acres of suitable QCB habitat occur within the proposed Salt Creek Substation, southern terminus of the Transmission Corridor, and buffer southeast of Hunte Parkway, including nonnative grassland, Diegan coastal sage scrub, and wildflower field habitats (Figure 4.4-1c). During focused QCB surveys, small patches of dot-seed plantain (*P. erecta*), which is a QCB larval host plant, was observed in the southern end of the BSA; however, no QCB were observed during ~~these~~ 2011, 2012, or 2013 surveys. Although these impacted areas are considered suitable according the HCP criteria, since they are neither within the Mapped Area nor occupied, no habitat mitigation is required for these impacts, per SDG&E's HCP for QCB.

Coastal California Gnatcatcher

CAGN is federally listed as threatened and is considered a California SSC. CAGN is a local and uncommon year-round resident of Southern California. CAGN generally inhabits Diegan coastal sage scrub and Riversidian coastal sage scrub dominated by California sagebrush and flat-topped buckwheat (*Eriogonum fasciculatum*), generally below 457 meters (1,500 feet) in elevation along the coastal slope. When nesting, this species typically avoids slopes greater than 25% with dense, tall vegetation.

Figure 4.4-4a: Coastal California Gnatcatcher Observations within the Biological Study Area



Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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Figure 4.4-4b: Coastal California Gnatcatcher Observations within the Biological Study Area

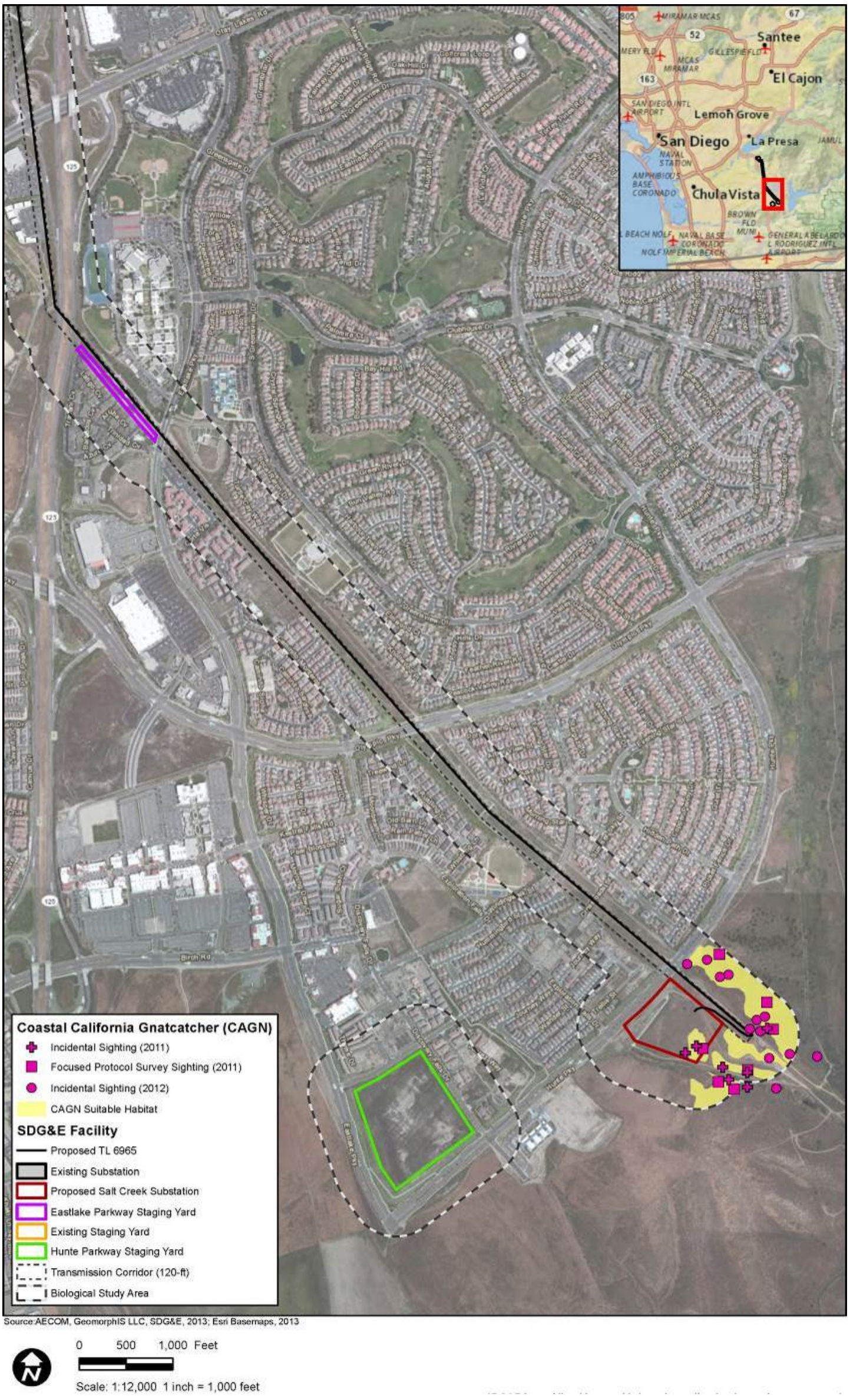

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Figure 4.4-5: Least Bell's Vireo Observations within the Biological Study Area

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Figure 4.4-6a: Western Burrowing Owl Observations within the Biological Study Area

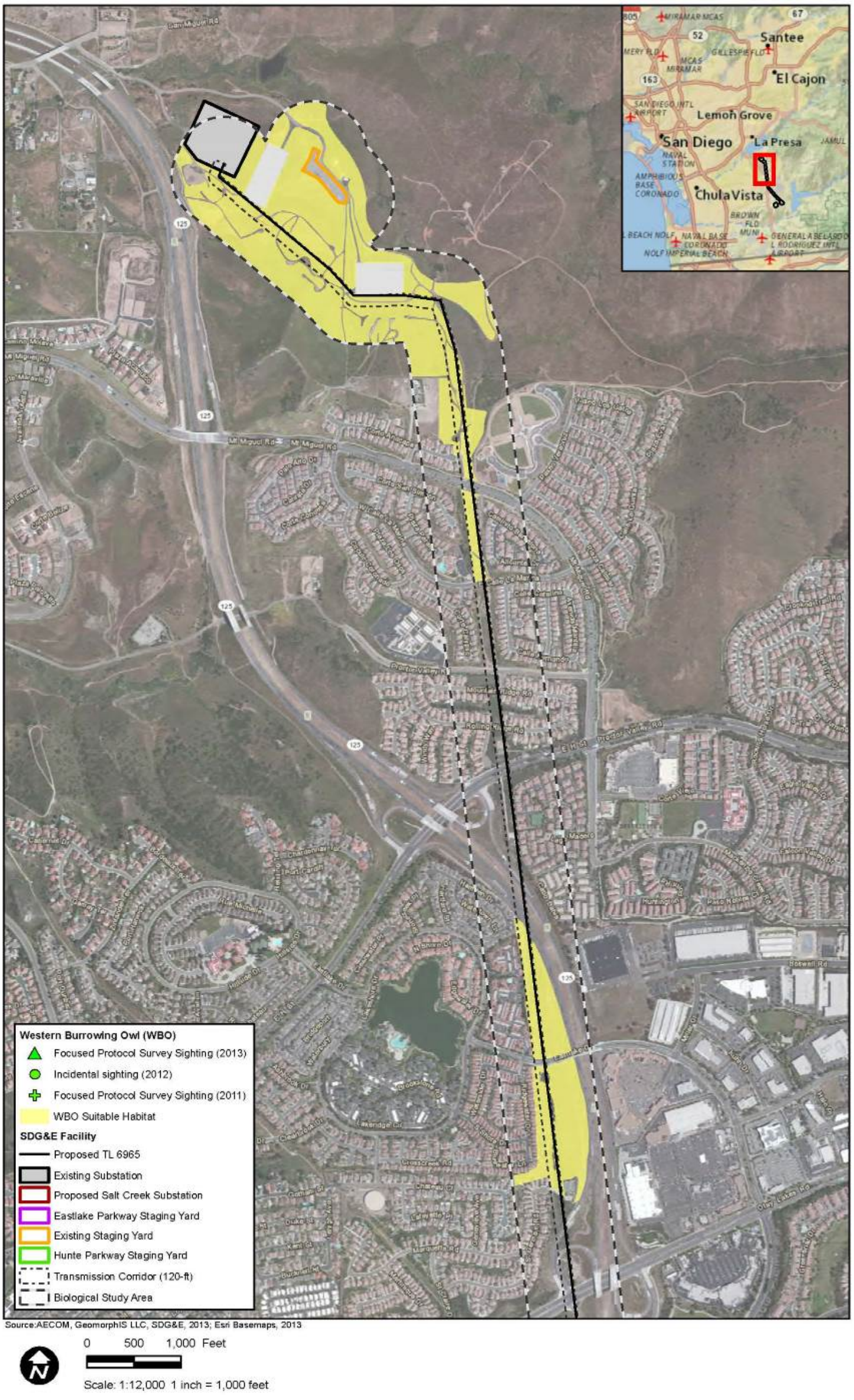

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Figure 4.4-6b: Western Burrowing Owl Observations within the Biological Study Area

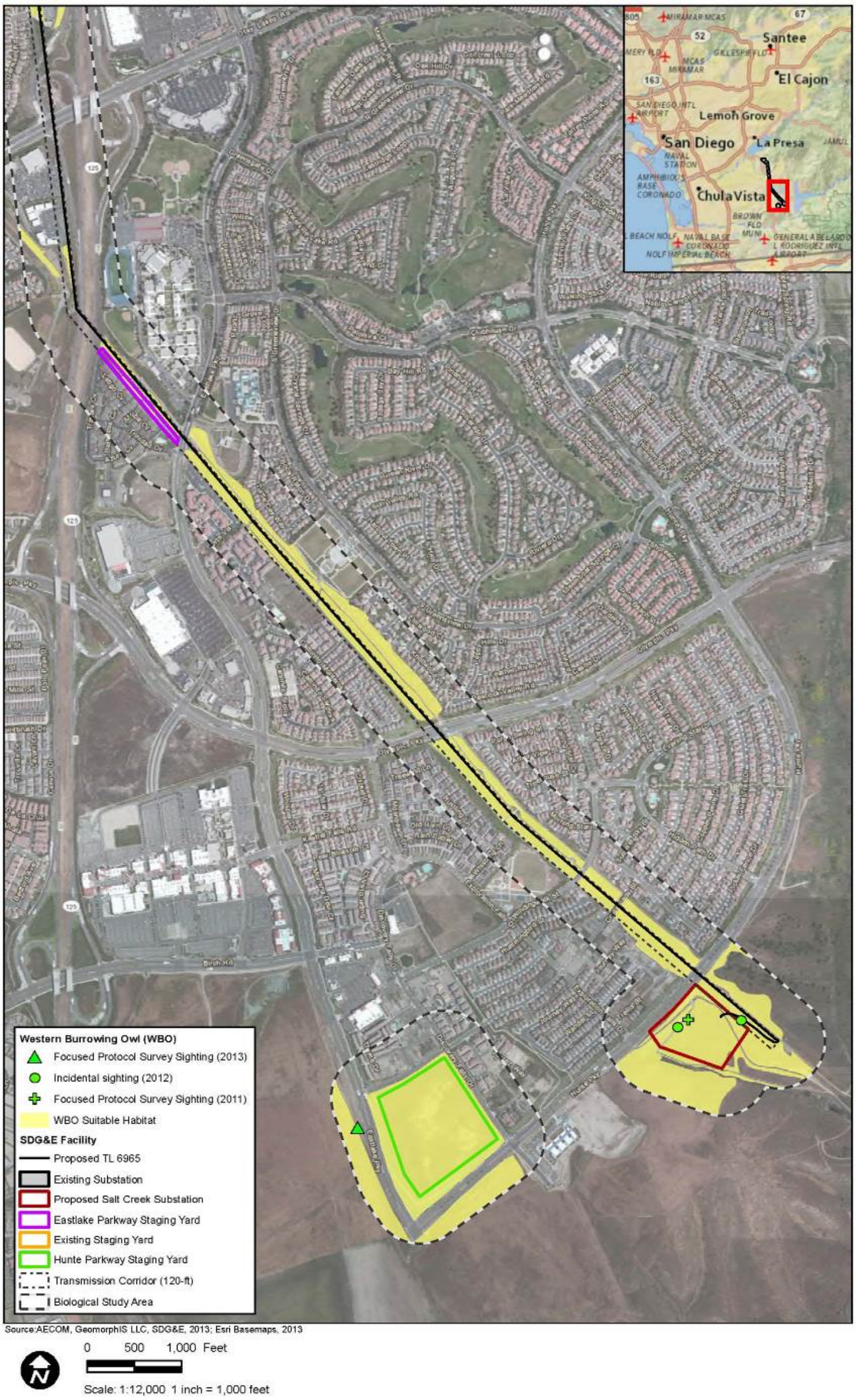

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Figure 4.4-7a: Other Special-Status Wildlife Species within the Biological Study Area

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Figure 4.4-7b: Other Special-Status Wildlife Species within the Biological Study Area

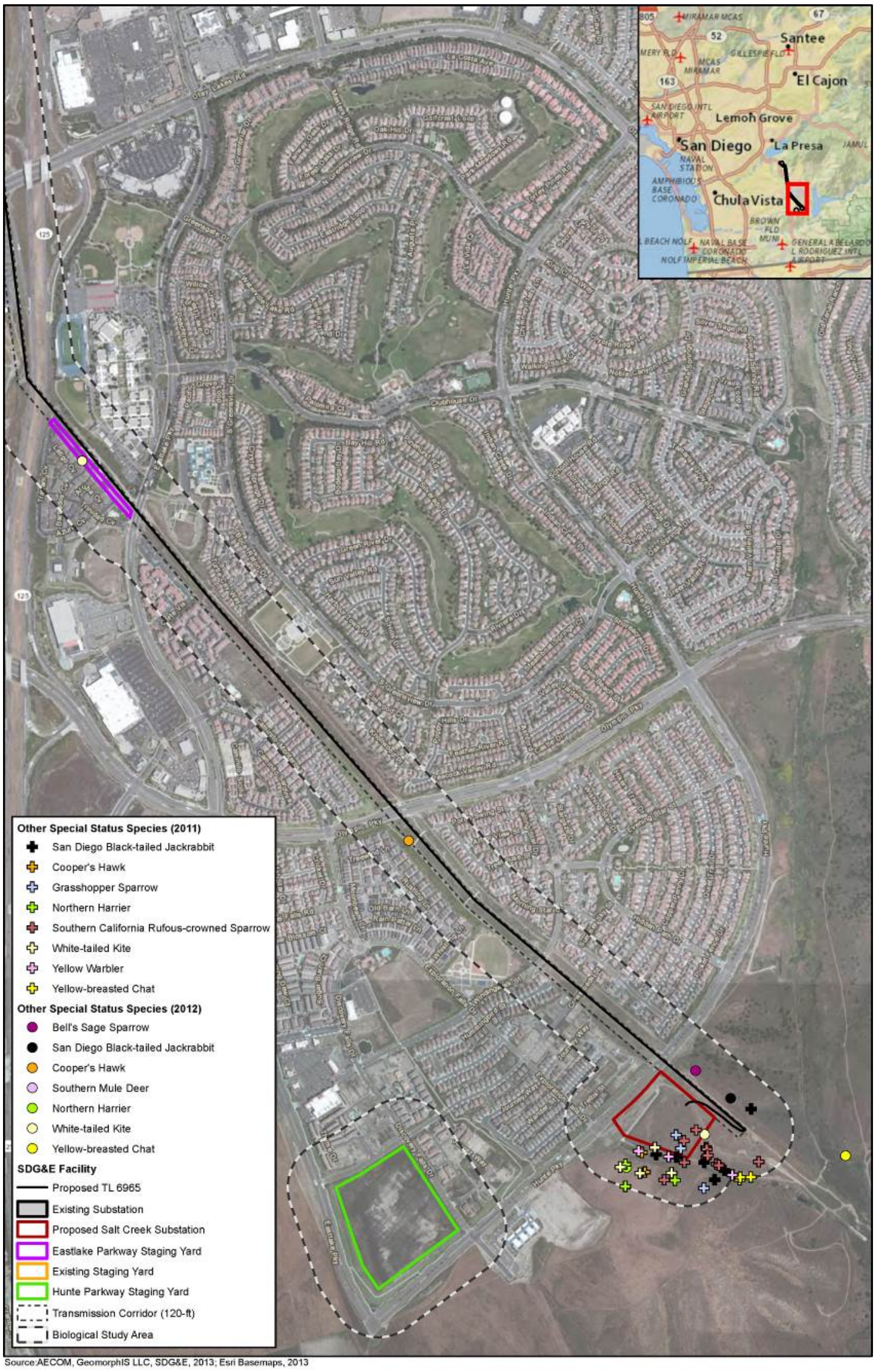

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Table 4.4-4: Special-Status Wildlife Species Observed or with the Potential to Occur Within the BSA

Species	Status[1]	Primary Habitat Associations	Potential to Occur / Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
INVERTEBRATES						
Quino checkerspot butterfly *Euphydryas editha quino*	FE	Sunny openings within coastal sage scrub and chaparral scrublands. Requires plantain (*Plantago* spp.) or owl's clover (*Castilleja exserta*) as a host plant.	This species has a high potential to occur within the southern terminus of the Transmission Corridor and proposed Salt Creek Substation site due to the presence of marginally suitable sage scrub habitat and populations of dot-seed plantain (*P. erecta*) and owl's clover.	ND – H	ND – H	ND – H
AMPHIBIANS						
Western spadefoot toad *Spea hammondii*	CSC, NCCP	Grasslands and occasionally in valley-foothill hardwood woodlands. Requires vernal pools for breeding and egg-laying.	This species has a low potential to occur within the Transmission Corridor or the proposed Salt Creek Substation site due to the presence of grasslands; however, vernal pools are not present.	ND – L	ND – L	ND – L
REPTILES						
Belding's orange-throated whiptail *Aspidoscelis [=Cnemidophorus] hyperythra beldingi*	CSC, NCCP	Chaparral, coastal sage scrub with coarse sandy soils and scattered brush.	This species has a moderate potential to occur within Transmission Corridor and proposed Salt Creek Substation site due to the presence of marginally suitable coastal sage scrub habitat and soils.	ND – M	ND – M	ND – M

Species	Status[1]	Primary Habitat Associations	Potential to Occur / Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
Northern red-diamond rattlesnake *Crotalus ruber ruber*	CSC, NCCP	Coastal sage scrub, chaparral in inland and desert locales with rocky soils.	This species has a moderate potential to occur within the Transmission Corridor and proposed Salt Creek Substation site due to the presence of marginally suitable, isolated scrub habitat.	ND – M	ND – M	ND – M
Coastal rosy boa *Lichanura trivigata roseofusca*	NCCP	Coastal sage scrub, desert scrub, and chaparral with rocky soils.	This species has a moderate potential to occur within the Transmission Corridor and proposed Salt Creek Substation site due to the presence of marginally suitable, isolated scrub habitat.	ND – M	ND – M	ND – M
San Diego horned lizard *Phrynosoma coronatum* (San Diego/blainvillii population)	CSC, NCCP	Chaparral, coastal sage scrub with fine, loose soil. Partially dependent on harvester ants (*Pogonomyrmex* sp.) for forage.	This species has a low potential to occur within the Transmission Corridor or proposed Salt Creek Substation site due to the presence of marginally suitable scrub habitat and soils. No harvester ants, a main component of this species' diet, were observed within the BSA.	ND – L	ND – L	ND – L
Two-striped garter snake *Thamnophis hammondii*	CSC, NCCP	Along permanent streams, creeks, vernal pools, and intermittent streams. Can occur a distance away from permanent water sources.	This species has a moderate potential to occur within the Transmission Corridor and proposed Salt Creek Substation site due to the presence of suitable aquatic habitat observed in the survey buffer.	ND – M	ND – M	ND – M

Species	Status[1]	Primary Habitat Associations	Potential to Occur / Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
BIRDS						
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	WL, NCCP	Coastal sage scrub, chaparral, grassland; favors steep and rocky areas. Localized resident.	This species was observed within the footprint of the proposed Salt Creek Substation and in the buffer of the southern terminus of the Transmission Corridor.	P	ND – H	P
Cooper's hawk *Accipiter cooperi*	WL (nesting), NCCP	Mature forest, open woodlands, wood edges, and river groves. Parks and residential areas. Year-round resident.	This species was observed within the Transmission Corridor south of Olympic Parkway and within the strip of riparian vegetation located southwest of the proposed Salt Creek Substation site.	ND – H	P	P
Grasshopper sparrow *Ammodramus savannarum*	CSC (nesting) NCCP	Grassland on rolling hills, lowland plains, and in valleys, and on hillsides on lower mountain slopes.	This species was observed within the footprint of the proposed Salt Creek Substation and in the buffer near the southern terminus of the Transmission Corridor.	P	ND – H	P
Bell's sage sparrow *Amphispiza belli belli*	WL	Nests in chaparral dominated by chamise, but also found in coastal sage scrub in the south of this species' range.	This species was observed in the buffer at the northern terminus of the Transmission Corridor, just south of the Existing Substation staging yard.	ND – M	ND – M	P

Species	Status[1]	Primary Habitat Associations	Potential to Occur / Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
Western burrowing owl *Athene cunicularia hypugaea*	CSC, NCCP	Annual and perennial grasslands, deserts, agricultural areas, disturbed habitat, and scrublands, characterized by low-growing vegetation.	This species was observed within the proposed Salt Creek Substation site during the 2011 Phase III Winter WBO survey~~.~~; ~~This species was also observed~~ within the footprint of the proposed Salt Creek Substation during the 2012 QCB and CAGN surveys of the Transmission Corridor; and within the buffer ~~.~~ west of the Hunte Parkway Staging Yard.	P	P	~~ND – H~~P
Ferruginous hawk *Buteo regalis*	WL (Winte ring), NCCP	Open grasslands, sagebrush flats, desert scrub, and low foothills. Forages mostly on rabbits, ground squirrels, and mice.	There is moderate potential for this species to forage in the Transmission Corridor and proposed Salt Creek Substation site due to the presence of suitable grassland habitat, rabbits, and ground squirrels that were observed during surveys of the BSA.	ND – M	ND – M	ND – M
Swainson's hawk *Buteo swainsoni*	ST (nestin g), NCCP	Breeds in grasslands with scattered trees and requires grasslands or grain fields that support rodent populations for foraging.	There is moderate potential for this species to forage in the Transmission Corridor and proposed Salt Creek Substation site due to the presence of suitable grassland habitat and rodents that were observed during surveys of the BSA.	ND – M	ND – M	ND – M
Northern harrier *Circus cyaneus hudsonius*	CSC (nestin g), NCCP	Coastal lowland, marshes, grassland, agricultural fields. Migrant and winter resident, rare summer resident.	This species was observed foraging throughout the grassland and open sage scrub within the Transmission Corridor and proposed Salt Creek Substation site.	P	P	P

Species	Status[1]	Primary Habitat Associations	Potential to Occur / Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
White-tailed kite *Elanus leucurus*	CFP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	This species was observed near the southern terminus and in the central portion of the Transmission Corridor, as well as the proposed Salt Creek Substation site.	P	P	P
Yellow-breasted chat *Icteria virens*	CSC	Riparian thickets consisting of willow and other brushy thickets near watercourses.	This species was observed just south of the southern terminus of the Transmission Corridor.	ND – M	ND – M	P
Coastal California gnatcatcher *Polioptila californica californica*	FT, CSC, NCCP	Coastal sage scrub, maritime succulent scrub. Resident.	This species was observed in the northern terminus and southern terminus of the Transmission Corridor and within the proposed Salt Creek Substation site.	P	P	P
Yellow warbler *Setophaga petechia*	CSC (nesting)	Riparian plants associations. Prefers willow, cottonwood, aspen, sycamore, and alder species for nesting and foraging.	This species was observed within the strip of riparian vegetation southwest of the proposed Salt Creek Substation site.	ND – M	ND – M	P
Western bluebird *Sialia mexicana occidentalis*	NCCP	Open woodlands, farmlands, orchards.	This species has a low potential to nest within the Transmission Corridor due to the presence of small patches of mature trees associated with ornamental vegetation.	ND – L	ND – L	ND – L
Least Bell's vireo *Vireo bellii pusillus*	FE, SE, NCCP	Willow riparian woodlands. Migrant and summer resident.	This species was observed in riparian habitat southwest and southeast (outside) of the BSA at the southern terminus of the Transmission Corridor.	ND – M	ND – M	ND – M
MAMMALS						

Species	Status[1]	Primary Habitat Associations	Potential to Occur / Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		
Northwestern San Diego pocket mouse *Chaetodipus fallax fallax*	CSC, NCCP	San Diego County west of mountains in sparse, disturbed coastal sage scrub, or grasslands with sandy soils.	This species has a low potential to occur within the Transmission Corridor or proposed Salt Creek Substation site due to the presence of sparse scrub habitat; however, suitable sandy soils are limited in the BSA.	ND – L	ND – L	ND – L
San Diego black-tailed jackrabbit *Lepus californicus bennetti*	CSC, NCCP	Coastal sage scrub, chaparral, grasslands, croplands, and open, disturbed areas that include at least some scrub cover.	This species was observed near the Existing Substation staging yard at the northern terminus of the Transmission Corridor, and at the southern terminus of the Transmission Corridor, near the proposed Salt Creek Substation site.	P	ND – H	P
Southern mule deer *Odocoileus hemionus fuliginata*	NCCP	Many habitats.	This species was observed near the Existing Substation staging yard at the northern terminus of the Transmission Corridor.	ND – H	ND – H	P
American badger *Taxidea taxus*	CSC, NCCP	Dry, open habitat stages of most shrub, forest, and grassland habitats with friable soils.	This species has a moderate potential to occur within the Transmission Corridor and proposed Salt Creek Substation site due to the presence of potentially suitable grassland and scrub habitat, and friable soils.	ND – M	ND – M	ND – M

Species	Status[1]	Primary Habitat Associations	Potential to Occur / Comments	Substation	Transmission Corridor	Buffer
				Findings[2]		

1 Status:

SDG&E Natural Community Conservation Plan (NCCP) = Covered Species

NE = SDG&E Narrow Endemic Species

Federal/State Listed
FE = Federally listed endangered
FT = Federally listed threatened
SE = State-listed endangered
ST = State -listed threatened

OTHER
CFP = California Department of Fish and Wildlife Fully Protected Species
CSC = California Department of Fish and Wildlife Species of Special Concern
WL = California Department of Fish and Wildlife Watch List

[2] Findings:

P (present) – Species detected during Proposed Project surveys

ND (not detected) – Species not detected during Proposed Project surveys

L (low potential) – Suitable habitat present, highly disturbed

M (moderate potential) – Suitable habitat present, moderately disturbed

H (high potential) – Suitable habitat present, and species known to occur within the vicinity

Due to the presence of suitable habitat in the BSA for CAGN, focused surveys were conducted on approximately 54 acres of suitable coastal sage scrub habitat within the BSA. During the 2011 surveys, seven CAGNs (five adults and two juveniles) were detected. Seven, 11, and six CAGNs were detected during the three protocol surveys in 2012, respectively, including family groups, adult pairs, individual adults, and nestlings. Observations were clustered at the northern and southern terminus of the Transmission Corridor, where larger patches of suitable sage scrub habitats exist. Incidental sightings of CAGN were observed during other biological resource surveys throughout the BSA in 2011 and 2012 (Figures 4.4-4a and 4.4-4b).

Least Bell's Vireo

LBV is federally and state-listed as endangered, and is a Covered Species under SDG&E's NCCP. Historically, this species was a common summer visitor to riparian habitat throughout much of California. Currently, LBV is found only in riparian woodlands in Southern California, with the majority of breeding pairs in San Diego, Santa Barbara, and Riverside Counties. LBV is restricted to riparian woodland, and is most frequent in areas that combine an understory of dense young willows or mulefat with a canopy of tall willows. Since LBV builds its nests in dense shrubbery 3 to 4 feet above the ground (Salata 1984), it requires young successional riparian habitat or older habitat with a dense understory. Nests are also often placed along internal or external edges of riparian thickets (Unitt 2004).

Due to the presence of approximately 1 acre of suitable riparian scrub habitat in the buffer of the proposed Salt Creek Substation, focused surveys for LBV were conducted at the proposed Salt Creek Substation site during the 2011 breeding season. One LBV was detected as an incidental sighting approximately 130 feet east (outside) of the BSA during the 2011 focused LBV survey (Figure 4.4-5). Additionally, one LBV was detected outside of the BSA during the 2012 CAGN survey (Figure 4.4-5). This individual was located within the riparian scrub habitat south of the proposed Salt Creek Substation site; therefore, the suitable riparian scrub habitat south and adjacent to the proposed Salt Creek Substation is considered occupied.

State-Listed Species

LBV is the only state-listed species documented during surveys conducted for the Proposed Project. Its background and occurrence are described above.

Other Special-Status Species

Western Burrowing Owl

WBO is a CDFW SSC and is a Covered Species under SDG&E's NCCP. It is primarily restricted to the western United States and Mexico. Habitat for WBO includes dry, open, short-grass areas often associated with burrowing mammals (Haug et al. 1993). A year-round resident in San Diego County, WBO ranges throughout the coastal lowlands in grasslands, agricultural areas, and coastal dunes (Unitt 1984). WBO is diurnal and perches during daylight at the entrance to its burrow or on low posts. Nesting occurs from March through August. WBOs form a pair-bond for more than 1 year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow during most of the egg-laying and

incubation period, and is fed by the male throughout brooding. WBO is an opportunistic feeder, consuming a diet that includes arthropods, small mammals, and birds, and occasionally amphibians and reptiles (Haug et al. 1993).

Results of the 2011 WBO winter surveys document the presence of 38 potential burrows and one WBO individual (Figures 4.4-6a and 4.4-6b). Because no sign of WBO activity was found at any burrow from May through July 2011, it can be assumed that no breeding took place on-site in 2011. A total of 86 potentially suitable burrows, or burrow clusters, were documented, primarily in the central and southern portions of the Transmission Corridor during the 2012 WBO surveys. No WBO and no recent sign of WBO were observed during these surveys. An incidental sighting of an individual adult WBO was recorded in March 2012 during the QCB survey at the southern terminus of the Transmission Corridor, which overlaps with the footprint of the proposed Salt Creek Substation (Figure 4.4-6b). Additionally, a WBO family group was detected in July 2012 during the CAGN survey within the Transmission Corridor (Figure 4.4-6b).

The 2013 breeding season WBO surveys within the entire Project Area documented 229 suitable burrows, or burrow clusters. One adult WBO individual was documented in April 2013 at one burrow west of the Hunte Parkway Staging Yard, within the 500-foot buffer (Figure 4.4-6b). No WBO or recent sign of WBO were observed at the remaining 228 burrows. This sighting was on the opposite side of Eastlake Parkway from the proposed staging yard. There was no sign of juvenile WBO, and no WBO were observed at this burrow during subsequent surveys completed May through July 2013.

Southern California Rufous-Crowned Sparrow

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) is a CDFW SSC and an SDG&E NCCP Covered Species. This species' habitat consists of rocky hillsides and steep slopes in open grass and coastal sage scrub, ranging from roughly 200 to 4,500 feet amsl.

Suitable foraging and nesting habitat for southern California rufous-crowned sparrow occurs throughout the Transmission Corridor and in the surrounding area. This species was observed in coastal sage scrub and grassland habitats at the southern terminus of the Transmission Corridor and Salt Creek Substation site during general surveys and focused CAGN surveys conducted in 2012 (Figure 4.4-7b).

Cooper's Hawk

Cooper's hawk (*Accipiter cooperii*) is a CDFW SSC and an SDG&E NCCP Covered Species. The species usually nests and forages near open water or riparian vegetation, but can be found in urban and suburban areas where there are tall trees for nesting.

Suitable foraging habitat for Cooper's hawk occurs within coastal sage scrub, grassland, and riparian habitats throughout the Transmission Corridor and proposed Salt Creek Substation site. Cooper's hawk nests within patches of ornamental habitat containing tall trees and within southern willow scrub and riparian scrub habitats. Cooper's hawk was observed throughout the Transmission Corridor and proposed Salt Creek Substation site perching within trees and on

poles, and flying over coastal sage scrub, grassland, and riparian habitats during general surveys conducted in 2011 and focused CAGN surveys in 2012 (Figure 4.4-7b).

Grasshopper Sparrow

Grasshopper sparrow (*Ammodramus savannarum*) is an SDG&E NCCP Covered Species. This species is found in grassland habitat and prefers areas with significant grass cover with a few scattered shrubs for protection. Habitat can also include open coastal sage scrub with scattered shrubs such as California buckwheat or coastal sagebrush dispersed among native or nonnative grasses.

Suitable foraging and nesting habitat for grasshopper sparrow occurs within grassland and open coastal sage scrub habitats within the Transmission Corridor and proposed Salt Creek Substation site. Individual grasshopper sparrows and a family group that included juveniles were observed in grassland and coastal sage scrub habitats during general surveys conducted at the proposed Salt Creek Substation site in 2011 (Figure 4.4-7b).

Bell's Sage Sparrow

Bell's sage sparrow (*Amphispiza belli belli*) is a CDFW SSC. This species prefers semi-open habitats with shrubs 1 to 2 meters high and is closely associated with sagebrush. It often occurs in chaparral dominated by chamise and coastal sage scrub dominated by California sagebrush.

Suitable foraging and nesting habitat for Bell's sage sparrow occurs within open coastal sage scrub and transitional grassland/sage scrub habitats at the northern terminus of the Transmission Corridor, and at the southern terminus of the Transmission Corridor and the proposed Salt Creek Substation site. This species was observed in the northern terminus of the Transmission Corridor and at the southern terminus of the Transmission Corridor and Salt Creek Substation during focused WBO surveys in 2012 (Figure 4.4-7a).

Northern Harrier

Northern harrier (*Circus cyaneus hudsonius*) is a CDFW SSC and is an SDG&E NCCP Covered Species. Northern harriers are open-country birds, often seen soaring low over grassland habitat and farmlands.

Suitable foraging and nesting habitat for northern harrier occurs within open coastal sage scrub and grassland habitats at the northern terminus of the Transmission Corridor, and at the southern terminus of the Transmission Corridor and proposed Salt Creek Substation site. Northern harrier was observed foraging in open coastal sage scrub and grassland habitats at the southern terminus of the Transmission Corridor and proposed Salt Creek Substation site during vegetation mapping and focused WBO surveys in 2012 (Figure 4.4-7b).

White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is a California Fully Protected Species and is a fairly common resident in San Diego County. This species nests in riparian or oak woodland

adjacent to grassland or open fields where it hunts rodents. White-tailed kite forages in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands.

Suitable foraging habitat for white-tailed kite occurs within coastal sage scrub, grassland, and riparian habitats throughout the Transmission Corridor and proposed Salt Creek Substation site. Nesting habitat for white-tailed kite occurs within southern willow scrub and riparian scrub habitats. White-tailed kite was observed foraging in grassland, open coastal sage scrub, and riparian habitats throughout the Transmission Corridor and proposed Salt Creek Substation site during focused CAGN and WBO surveys in 2012 (Figure 4.4-7b).

Yellow-Breasted Chat

Yellow-breasted chat (*Icteria virens*) is a CDFW SSC. Nesting yellow-breasted chat occupies early successional riparian habitats with a well-developed shrub layer and an open canopy.

Suitable foraging and nesting habitat for yellow-breasted chat occurs within riparian, mulefat, and southern willow scrub habitats throughout the Transmission Corridor and proposed Salt Creek Substation site. Yellow-breasted chat was observed in riparian habitat at the southern terminus of the Transmission Corridor during focused CAGN and WBO surveys conducted in 2012 (Figure 4.4-7b).

Yellow Warbler

Yellow warbler (*Setophaga petechia*) is a California species of concern. This species nests in mature riparian woodland from coastal and desert lowlands up to 2,500 meters (8,000 feet) amsl. Yellow warbler prefers to nest in mature cottonwood, willow, alder, and ash trees.

Suitable foraging and nesting habitat for yellow warbler occurs within riparian, mulefat, and southern willow scrub habitats throughout the Transmission Corridor and proposed Salt Creek Substation site. This species was observed in the buffer of the proposed Salt Creek Substation site during focused LBV and WBO surveys in 2011 (Figure 4.4-7b).

San Diego Black-Tailed Jackrabbit

San Diego black-tailed jackrabbit (*Lepus californicus bennetti*) is a CDFW SSC and an SDG&E NCCP Covered Species. It inhabits open land, but requires some shrubs for cover. Typical habitats include early stages of chaparral, open coastal sage scrub, and grasslands near the edges of brush.

Suitable habitat for San Diego black-tailed jackrabbit occurs within open coastal sage scrub and grassland habitats throughout the Transmission Corridor and proposed Salt Creek Substation site. This species was observed near the southern terminus of the Transmission Corridor and in the surrounding area during vegetation mapping surveys conducted in 2012 (Figure 4.4-7b).

Southern Mule Deer

Southern mule deer (*Odocoileus hemionus fuliginata*) is an SDG&E NCCP Covered Species. Southern mule deer is widespread throughout undeveloped portions of San Diego County, ranging from Marine Corps Base Camp Pendleton to the Laguna Mountains, Sweetwater River, and Otay Lakes at elevations of 400 to 3,600 feet amsl (Bleich and Holl 1982). This species requires relatively large, undisturbed tracts of chaparral, coastal sage scrub, and mixed grassland/shrub habitats.

Suitable habitat for southern mule deer occurs within open coastal sage scrub and grassland habitats throughout the Transmission Corridor and proposed Salt Creek Substation site. Southern mule deer was observed within the BSA near the Existing Substation staging yard at the northern terminus of the Transmission Corridor during focused WBO surveys in 2012 (Figure 4.4-7a).

Critical Habitat

No critical habitat for QCB occurs within the BSA. The nearest designated critical habitat for QCB occurs along the eastern perimeter of Otay Lake, approximately 1.1 miles southeast of the southern terminus of the Transmission Corridor (USFWS 2002).

Critical habitat for the endangered Otay tarplant coincides with the BSA at the southern terminus of the Transmission Corridor, near the proposed Salt Creek Substation site (USFWS 2012) (Figure 4.4-8). A total of 13.46 acres of critical habitat occurs within the 500-foot buffer of the Transmission Corridor at its southern terminus. Critical habitat also occurs just outside of the 500-foot buffer at the northern terminus of the Transmission Corridor and the Existing Substation staging yard.

Critical habitat for CAGN occurs just east and north of the northern terminus of the Transmission Corridor, but does not coincide with BSA (Figure 4.4-8).

No critical habitat for LBV occurs within the BSA. The nearest designated critical habitat for LBV occurs northeast of Sweetwater Reservoir, approximately 1.7 miles northeast of the northern terminus of the Transmission Corridor. Designated critical habitat for LBV also occurs east of Otay Lake, approximately 2.5 miles east of the southern terminus of the Transmission Corridor.

NCCP Preserve Areas

Under the NCCP, designated preserves are considered sensitive. Within San Diego County, preserves are defined and delineated using existing preserve areas from local and regional planning documents such as the City of Chula Vista MSCP Subarea Plan (City of Chula Vista 1997), County of San Diego MSCP Subarea Plan (County of San Diego 1997), and the North County Final Multiple Habitat Conservation Plan (SANDAG 2003). Preserve areas in these planning documents include the Multi-Habitat Planning Area (City of San Diego 1997), Pre-approved Mitigation Areas (County of San Diego 1997), Biological Resource Core Areas (County of San Diego 1997), and Focused Planning Areas (SANDAG 2003).

A portion of the northern section of the Transmission Corridor, the Existing Substation, and the Existing Substation staging yard are located within an SDG&E-defined "Preserve" area; the remainder of the proposed power line route is located outside of defined Preserve boundaries. The proposed Salt Creek Substation site is located on land identified for development under the Otay Ranch General Development Plan and is outside of the City of Chula Vista's MSCP Preserve and SDG&E's NCCP Preserve area (Figure 4.4-9).

Wildlife Corridors

In an urban context, a wildlife migration corridor is generally a linear landscape feature of sufficient width and buffer to allow wildlife movement between two patches of comparatively undisturbed habitat or between a patch of habitat and some vital resources. Regional corridors are defined as those linking two or more large patches of habitat, and local corridors are defined as those allowing resident animals to access critical resources (food, cover, and water) in a smaller area that might otherwise be isolated by urban development. A viable wildlife migration corridor consists of more than an unobstructed path between habitat areas.

Appropriate vegetation communities must be present to provide food and cover for transient species and resident populations of less mobile animals. There must also be a sufficient lack of stressors and threats within and adjacent to the corridor for species to use it successfully.

Although the Transmission Corridor is a linear feature that consists of vegetation communities that support wildlife species, the Transmission Corridor is intersected by numerous roadways, with some carrying high volumes of traffic, and it is bordered by dense development on either side. These factors likely deter most wildlife species from using the narrow strip of fragmented vegetation present within the Transmission Corridor. As such, the Transmission Corridor does not represent an important regional or local migration corridor for wildlife movement, and Proposed Project activities within the Transmission Corridor would not interfere with wildlife migration patterns.

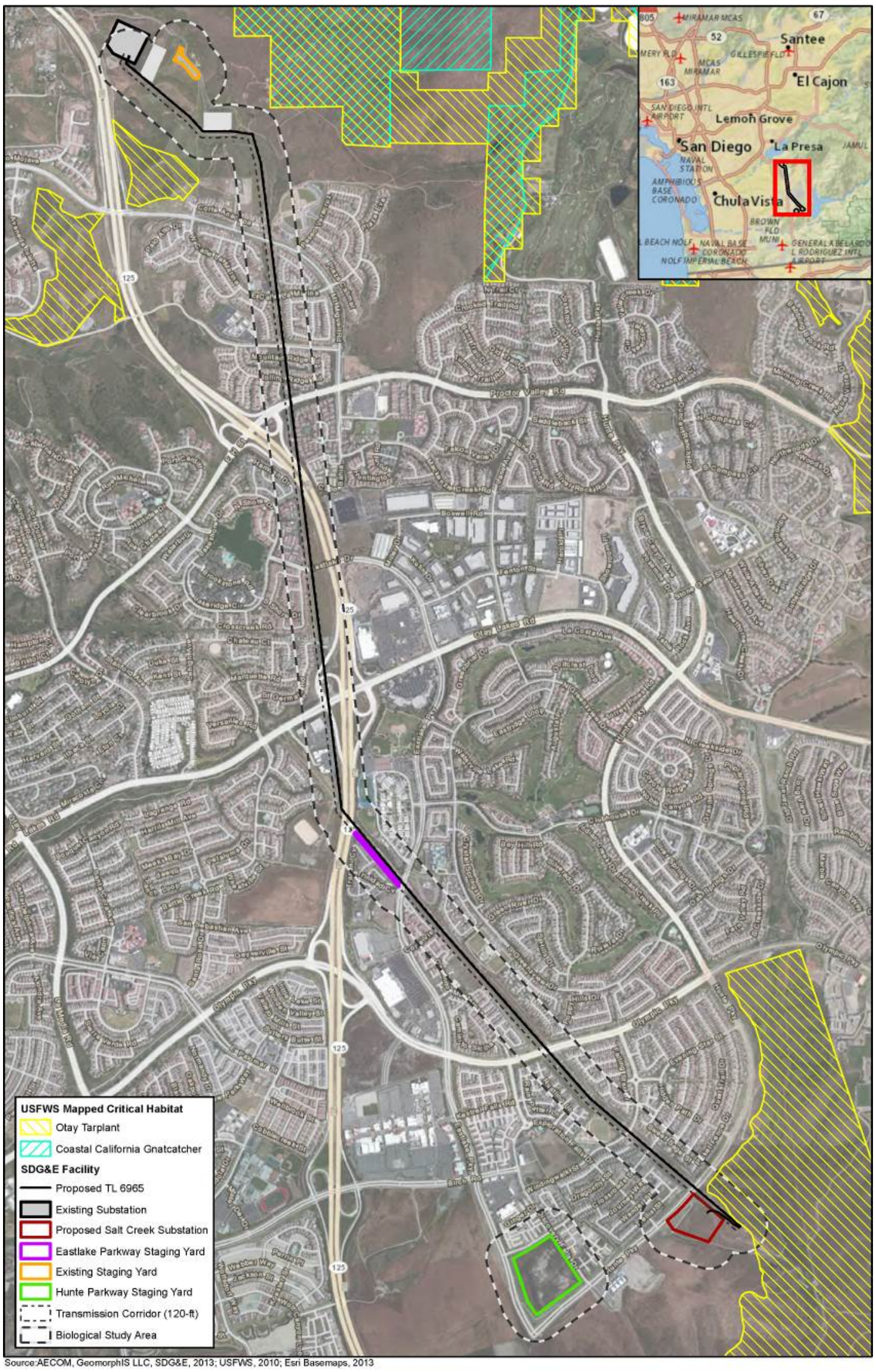
The proposed Salt Creek Substation site is not a linear feature that could potentially serve as a wildlife migration corridor, and the site does not coincide with a known migration corridor. The proposed Salt Creek Substation site lies adjacent to a roadway (Hunte Parkway) and is flanked to the north by urban development, both of which can introduce stressors. As such, the proposed Salt Creek Substation site does not represent an important regional or local migration corridor for wildlife movement, or coincide with such a corridor. Proposed Project activities within the proposed Salt Creek Substation site would not interfere with wildlife migration patterns.

4.4.4 Potential Impacts

The following discussion describes the Proposed Project's potential to impact sensitive biological resources during construction and operation of the proposed Salt Creek Substation, construction and operation of a 5-mile-long power line along the existing Transmission Corridor; construction of modifications to the Existing Substation, and use of the three staging yards. No impacts are included for the alternative staging yards at the OTC, since it has not been determined if these areas will be needed during construction and these were previously graded areas. Any additional impacts that may occur due to the use of the alternative staging yards would be evaluated prior to use of those areas and captured in the post-construction report.

SDG&E would operate in compliance with all state and federal laws, regulations, and permit conditions. This includes compliance with the CWA, Porter-Cologne Water Quality Control Act, federal and state ESAs, MBTA, CEQA, and requirements and protective measures from CDFW and USFWS. In addition, SDG&E would implement the SDG&E Subregional NCCP, which was established according to the federal and state ESAs and the NCCP Act. Compliance also includes following the guidelines outlined in Section 7.1, Operational Protocols, and Section 7.2, Habitat Enhancement Measures, of the SDG&E Subregional NCCP (see Appendix M in the Biological Technical Report [Appendix 4.4-A of this PEA]). Operational protocols are designed to provide avoidance and minimize impacts to all sensitive resources, regardless of whether the species is an NCCP Covered Species. Additionally, SDG&E has designed and incorporated an APM into the Proposed Project to avoid or minimize potential impacts to WBO. No other APMs are recommended at this time.

Figure 4.4-8: USFWS Mapped Critical Habitat within the Biological Study Area



Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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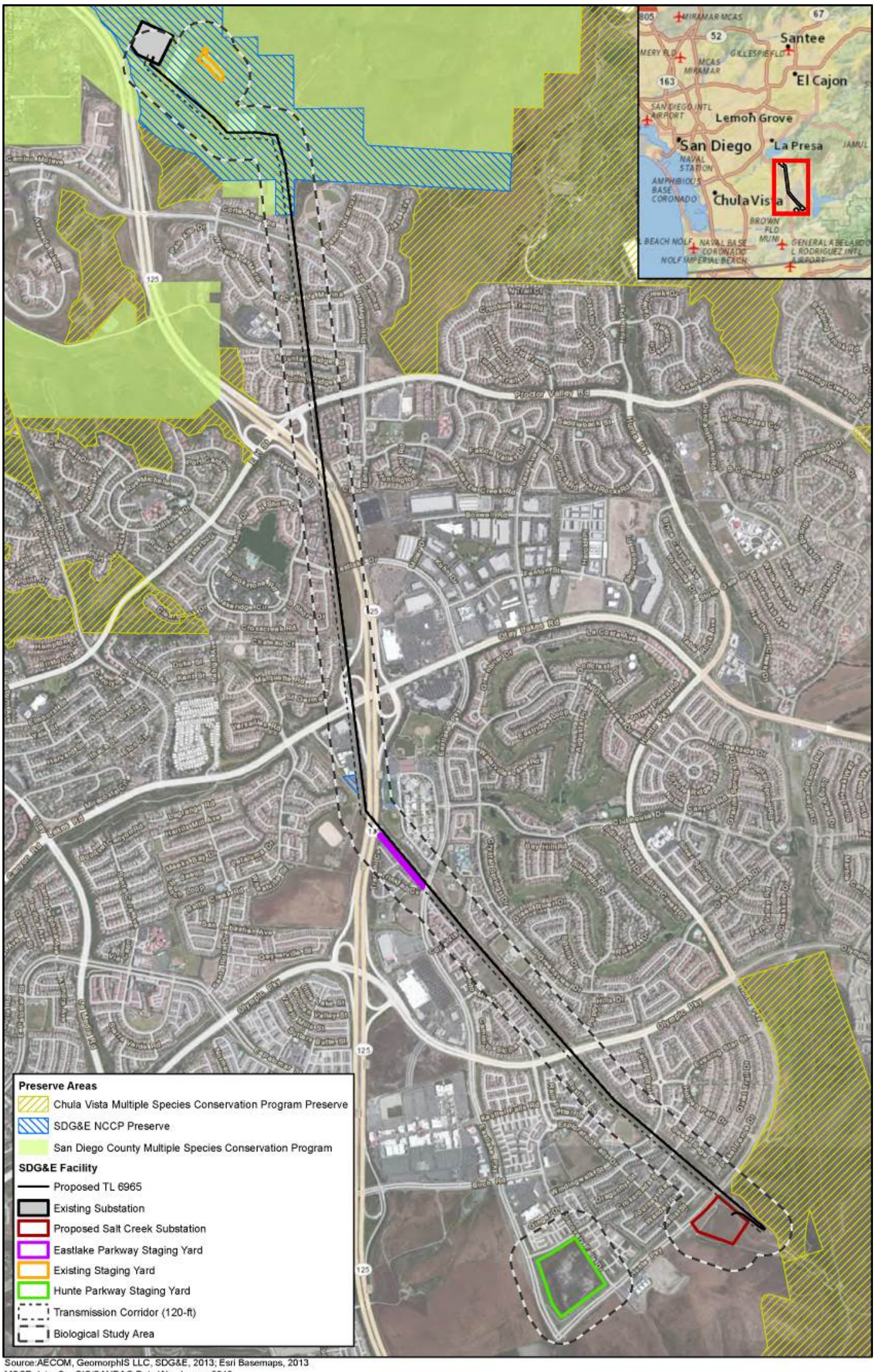
Figure 4.4-9: Biological Study Area in Relation to MSCP Preserve Areas



Note: SDG&E is providing this map with the understanding that the map is not survey grade.

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Significance Criteria

For the purpose of this analysis, the following applicable thresholds of significance were used to determine whether implementing the Proposed Project would result in a significant impact. These thresholds of significance are based on Appendix G of the CEQA Guidelines (CCR, Title 14, Division 6, Chapter 3, Sections 15000–15387). A biological resources impact is considered significant if implementation of the Proposed Project would do any of the following:

- 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 CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including marsh, vernal pool, coastal, or other wetland areas) through direct removal, filling, hydrological interruption, or other means;
- 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;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or
- conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.

Question 4.4a – Sensitive Species

Construction – *Potentially Significant Unless APMs Implemented*

Individual special-status plant species could be damaged or destroyed during construction activities of the Proposed Project. Plants could be graded over, crushed, or trampled, or be impacted by construction-related habitat loss or modification of habitats that support special-status plant species. Special-status wildlife species could also be impacted by construction activities, including construction-related noise disturbance, mortality resulting from vehicle strikes, and loss or modification of suitable habitat for these species. The potential impacts on special-status species, designated critical habitat, Preserve areas, and common wildlife associated with construction of the Proposed Project are presented and evaluated below.

Special-Status Plant Species

Direct Impacts

Salt Creek Substation

The federal- and state-listed Otay tarplant occurs within the 500-foot buffer of the proposed Salt Creek Substation site, but not within the site itself; therefore, no direct impacts to this species are anticipated during construction. However, five other special-status species occur within the grading limits and in the 500-foot buffer of the proposed Salt Creek Substation site.

Approximately 1.2 million individuals (2 acres) of Palmer's grappling hook (CRPR 4.2) and one individual of San Diego barrel cactus (CRPR 2.1), both SDG&E NCCP Covered Species, occur within the proposed Salt Creek Substation grading limits and would be permanently impacted by construction activities. Additionally, approximately 100 individuals of San Diego sunflower (CRPR 4.2), a non-SDG&E NCCP Covered Species, occur within the proposed Salt Creek Substation grading limits and would be permanently impacted by construction activities.

Four special-status plant species occur in the 500-foot buffer of the proposed Salt Creek Substation: variegated dudleya (CRPR 1B.2, NCCP Covered), Palmer's grappling hook, San Diego barrel cactus, and San Diego sunflower. These plant populations that occur only in the 500-foot buffer would not be directly impacted by construction activities.

Transmission Corridor

The federal- and state-listed Otay tarplant was observed within the 500-foot buffer of the Transmission Corridor, but does not coincide with areas that would be directly, permanently, or temporarily impacted by construction activities in the Transmission Corridor. A polygon of Otay tarplant is adjacent to an area where an access road would be created for vehicle access to Structure 40, but the location of the road would be designed to avoid impacts to individual plants. Twelve other special-status plant species were documented within the Transmission Corridor and 500-foot survey buffer. No special-status plant species covered by SDG&E's NCCP coincide with areas that would be directly, permanently, or temporarily impacted by Proposed Project activities in the Transmission Corridor. However, the permanent work pad associated with one light-duty steel pole (Structure 30) coincides with a polygon of San Diego County sunflower, a CRPR 4.2 species.

Existing Substation Modifications

No federal- or state-listed plant species or other special-status plant species have potential to occur within the Existing Substation. All modification activities would occur within the current substation's footprint, which consists of paved and gravel-covered areas. Therefore, no impacts to special-status plant species are anticipated during modification activities at the Existing Substation.

Staging Yards

No federal- or state-listed plant species or other special-status plant species were observed or have potential to occur within the Existing Substation staging yard, Hunte Parkway staging yard,

or Eastlake Parkway staging yard. The Existing Substation staging yard is entirely within bare ground and the Hunte Parkway staging yard (previously graded) was mitigated for previously under a separate project. Therefore, no impacts on special-status plant species are anticipated during use of the staging yards.

Indirect Impacts

Potential temporary, indirect impacts to Otay tarplant and the other special-status plant species could arise from runoff and sedimentation, erosion, fugitive dust, and unauthorized access outside of the disturbance area by construction workers. In addition, the introduction and establishment of exotic species within or adjacent to special-status plant populations could adversely affect these species by reducing growth, dispersal, and recruitment. Exotic species are opportunistic and often occupy disturbed and bare soils such as those created in transmission line corridors during construction. Wildfires caused by construction are rare, but may occur. Exotic species often frequent areas adjacent to and within burn areas following a wildfire.

Significance Determination

SDG&E would implement protocols as described in the SDG&E NCCP and Operational Protocols (see Appendix L in Biological Technical Report [Attachment 4.4-A]). These protocols include restricting vehicles to existing roads when feasible, minimizing impacts by defining disturbance areas, providing biological monitoring to assist crews in avoiding and minimizing impacts at sites with the potential for direct impacts, compensating for permanent impacts to Covered Species and their habitats through drawdown of mitigation credits as described further below, restoring temporary impact areas (including topsoil salvage for preservation of seed bank for sensitive species), and designing construction activities to avoid or minimize new disturbance and erosion. Implementation of SDG&E's NCCP would ensure that any potential direct and indirect impacts to special-status plant species would remain at a less-than-significant level.

Special-Status Invertebrate Species

Direct Impacts

Salt Creek Substation

No QCB were detected during protocol surveys conducted within the proposed Salt Creek Substation site in 2011 and 2013. Proposed Project-related activities are anticipated to have both temporary and permanent impacts in suitable habitat for QCB. These impacts, however, would not occur within SDG&E's QCB Low-Effect HCP Mapped Area for QCB. Therefore, because the impacted area is neither mapped nor occupied, SDG&E's NCCP for QCB does not require mitigation. No other special-status invertebrate species were identified in the proposed Salt Creek Substation footprint or survey buffer.

Transmission Corridor

No special-status invertebrate species were identified within the Transmission Corridor. Focused QCB surveys were conducted in the Transmission Corridor in 2012, but no QCB were

detected. Proposed-Project-related activities are anticipated to have temporary and permanent impacts in suitable habitat for QCB near the southern terminus of the Transmission Corridor. These impacts, however, would not occur within SDG&E's Low-Effect HCP Mapped Area for QCB. Therefore, because the impacted area is neither mapped nor occupied, SDG&E's NCCP for QCB does not require mitigation.

Existing Substation Modifications

No special-status invertebrate species have potential to occur within the Existing Substation. All modification activities would occur on paved and gravel-covered areas of the Existing Substation. As a result, direct impacts to special-status invertebrates and QCB-suitable habitat would not occur during modifications to the Existing Substation.

Staging Yards

No special-status invertebrate species were identified within the Existing Substation staging yard, Hunte Parkway staging yard, or Eastlake Parkway staging yard. The Existing Substation staging yard is entirely within bare ground, the Hunte Parkway staging yard (previously graded) was mitigated for previously under a separate project, and the Eastlake Parkway staging yard consists of disturbed habitat and urban/developed land. As a result, direct impacts to special-status invertebrate species and QCB-suitable habitat would not occur during use of these staging yards.

Indirect Impacts

Potential indirect impacts to special-status invertebrate species include permanent impacts to habitat suitable for special-status invertebrate species by the introduction and proliferation of invasive nonnative plant species and temporary impacts associated with dust, sedimentation, and erosion during construction.

Significance Determination

SDG&E would implement the NCCP Operational Protocols (see Appendix L in Biological Technical Report [Attachment 4.4-A]) to avoid and minimize impacts to invertebrate species, including suitable QCB habitat. These protocols include restricting vehicles to existing roads when feasible and avoiding wildlife to the extent practicable. These protocols also include a biological monitor on-site to avoid and minimize impacts to biological resources. SDG&E proposes to mitigate for permanent and temporary impacts to grassland and coastal sage scrub habitat at a ratio ranging from 1:1 to 2:1, depending on the location of the habitat within the SDG&E Preserve (see Section 4.4.5). As a result, potential impacts on invertebrate species, including suitable QCB habitat, would be less than significant.

Special-Status Amphibian Species

Direct Impacts

Salt Creek Substation

No special-status amphibian species were identified in the proposed Salt Creek Substation BSA; however, one NCCP Covered Species, western spadefoot toad, has low potential to occur.

Transmission Corridor

No special-status amphibian species were detected in the Transmission Corridor BSA; however, one NCCP Covered Species, western spadefoot toad, has low potential to occur in the Transmission Corridor.

Existing Substation Modifications

No special-status amphibian species have potential to occur within the Existing Substation. All modification activities would occur on paved and gravel-covered areas of the substation. As a result, direct impacts to special-status amphibian species would not occur during modifications to the Existing Substation.

Staging Yards

No special-status amphibian species were identified and none has potential to occur within the Existing Substation staging yard, Hunte Parkway staging yard, or Eastlake Parkway staging yard. The Existing Substation staging yard is entirely within bare ground, the Hunte Parkway staging yard (previously graded) was mitigated for previously under a separate project, and the Eastlake Parkway staging yard consists of disturbed habitat and urban/developed land. As a result, direct impacts to special-status amphibian species would not occur during use of these staging yards.

Indirect Impacts

Potential indirect impacts to special-status amphibian species include permanent impacts to habitat suitable for special-status amphibian species by the introduction and proliferation of invasive nonnative plant species, and temporary impacts associated with dust, sedimentation, and erosion during construction.

Significance Determination

SDG&E would implement NCCP Operational Protocols (see Appendix L in Biological Technical Report [Attachment 4.4-A]) to avoid and minimize impacts to amphibian species. These protocols include restricting vehicles to existing roads when feasible, avoiding wildlife to the extent practicable, and conducting pre-construction surveys. These protocols also include having a biological monitor on-site to avoid and minimize impacts to biological resources. Wetland habitats would not be impacted. SDG&E proposes to mitigate for permanent and temporary impacts to grassland and coastal sage scrub habitat at a ratio ranging from 1:1 to 2:1, depending on the location of the habitat within the SDG&E Preserve (see Section 4.4.5). As a result, potential impacts on amphibian species would be less than significant.

Special-Status Reptile Species

Direct Impacts

Salt Creek Substation

No special-status reptile species were identified in the proposed Salt Creek Substation BSA; however, five NCCP Covered Species have potential to occur: Belding's orange-throated whiptail (moderate), northern red-diamond rattlesnake (moderate), coastal rosy boa (moderate), San Diego horned lizard (low), and two-striped garter snake (moderate).

Transmission Corridor

No special-status reptile species were observed in the Transmission Corridor BSA; however, five NCCP Covered Species have potential to occur in the Transmission Corridor: Belding's orange-throated whiptail (moderate), northern red-diamond rattlesnake (moderate), coastal rosy boa (moderate), San Diego horned lizard (low), and two-striped garter snake (moderate).

Existing Substation Modifications

No special-status reptile species have potential to occur within the Existing Substation. All modification activities would occur on paved and gravel-covered areas of the Existing Substation. As a result, direct impacts to special-status amphibian species would not occur during modifications to the Existing Substation.

Staging Yards

No special-status reptile species were identified and none have potential to occur within the Existing Substation staging yard, Hunte Parkway staging yard, or Eastlake Parkway staging yard. The Existing Substation staging yard is entirely within bare ground, the Hunte Parkway staging yard (previously graded) was mitigated for previously under a separate project, and the Eastlake Parkway staging yard consists of disturbed habitat and urban/developed land. As a result, direct impacts to special-status reptile species would not occur during use of these staging yards.

Indirect Impacts

Potential indirect impacts to special-status reptile species include permanent impacts to habitat suitable for special-status reptile species by the introduction and proliferation of invasive nonnative plant species, and temporary impacts associated with dust, sedimentation, and erosion during construction.

Significance Determination

SDG&E would implement NCCP Operational Protocols (see Appendix L in the Biological Technical Report [Attachment 4.4-A]) to avoid and minimize impacts to reptile species. These protocols include restricting vehicles to existing roads when feasible, avoiding wildlife to the extent practicable, and conducting pre-construction surveys. These protocols also include having a biological monitor on-site to avoid and minimize impacts to biological resources. Consistent with SDG&E's NCCP, SDG&E would mitigate for permanent and temporary impacts

to grassland and coastal sage scrub habitat at a ratio ranging from 1:1 to 2:1, depending on the location of the habitat within the SDG&E Preserve (see Section 4.4.5). As a result, potential impacts on reptile species would be less than significant.

Special-Status Avian and Other Nesting Avian Species

Direct Impacts

Salt Creek Substation

Five NCCP-covered avian species were observed in the proposed Salt Creek Substation BSA: southern California rufous-crowned sparrow, grasshopper sparrow, WBO (including at least one occupied burrow), northern harrier, and CAGN. Three special-status species, not covered by the NCCP, were observed in the proposed Salt Creek Substation BSA: white-tailed kite, yellow-breasted chat, and yellow warbler. Additionally, three special-status species have potential to occur, including two NCCP Covered Species—western bluebird (low) and LBV (moderate) —and one special-status species not covered by the NCCP—Bell's sage sparrow (moderate).

Transmission Corridor

Six NCCP-covered avian species were observed in the Transmission Corridor BSA: southern California rufous-crowned sparrow, Cooper's hawk, grasshopper sparrow, WBO, northern harrier, and CAGN. Three special-status species not covered by the NCCP were observed in the Transmission Corridor BSA: Bell's sage sparrow, white-tailed kite, and yellow-breasted chat. Additionally, two NCCP Covered Species have potential to occur: western bluebird (low) and LBV (moderate).

Existing Substation Modifications

No special-status avian species have potential to occur within the Existing Substation. All modification activities would occur on paved and gravel-covered areas of the Existing Substation. As a result, direct impacts to special-status avian species would not occur during modifications to the Existing Substation.

Staging Yards

No special-status avian species were identified and none have potential to occur within the Existing Substation staging yard, Hunte Parkway staging yard, or Eastlake Parkway staging yard. The Existing Substation staging yard is entirely within bare ground, the Hunte Parkway staging yard (previously graded) was mitigated for previously under a separate project, and the Eastlake Parkway staging yard consists of disturbed habitat and urban/developed land. As a result, direct impacts to special-status avian species would not occur during use of these staging yards.

Indirect Impacts

Potential indirect impacts to special-status avian species include permanent impacts to habitat suitable for special-status avian species by the introduction and proliferation of invasive

nonnative plant species, and temporary impacts associated with noise, nighttime lighting, dust, sedimentation, and erosion during construction.

Significance Determination

SDG&E would implement NCCP Operational Protocols (see Appendix L in the Biological Technical Report [Attachment 4.4-A]) to avoid and minimize impacts to special-status and migratory bird species. These protocols include restricting vehicles to existing roads when feasible, avoiding wildlife to the extent practicable, conducting pre-construction surveys, and providing biological monitoring where active nests are found. SDG&E would also remain in compliance with the MBTA. Consistent with SDG&E's NCCP, SDG&E would mitigate for permanent and temporary impacts to coastal sage scrub habitat at a ratio ranging from 1:1 to 2:1, depending on the location of the habitat within the SDG&E Preserve (see Section 4.4.5). Implementation of SDG&E's NCCP and Operational Protocols, and compliance with the MBTA as described above, would ensure that impacts on special-status and migratory bird species remain less than significant.

In addition, WBO is a narrow endemic species under the NCCP. Implementation of APM-BIO-1 would provide avoidance, minimization, and mitigation to prevent significant impacts to WBO (see Section 4.4.6). As a result, potential impacts on WBO would be less than significant.

Special-Status Mammal Species

Direct Impacts

Salt Creek Substation

One special-status NCCP-covered mammal species, San Diego black-tailed jackrabbit, was detected within the proposed Salt Creek Substation BSA. Three additional NCCP-covered mammal species have some potential to occur: Northwestern San Diego pocket mouse (low), southern mule deer (high), and American badger (moderate).

Transmission Corridor

Two NCCP-covered mammal species were detected within the Transmission Corridor BSA: San Diego black-tailed jackrabbit and southern mule deer. Two additional NCCP-covered mammal species have some potential to occur: Northwestern San Diego pocket mouse (low) and American badger (moderate).

Existing Substation Modifications

No special-status mammal species have potential to occur within the Existing Substation. All modification activities would occur on paved and gravel-covered areas of the Existing Substation. As a result, direct impacts to special-status avian species would not occur during modifications to the Existing Substation.

Staging Yards

No special-status mammal species were identified and none have potential to occur within the Existing Substation staging yard, Hunte Parkway staging yard, or Eastlake Parkway staging yard.

The Existing Substation staging yard is entirely within bare ground, the Hunte Parkway staging yard (previously graded) was mitigated for previously under a separate project, and the Eastlake Parkway staging yard consists of disturbed habitat and urban/developed land. As a result, direct impacts to special-status avian species would not occur during use of these staging yards.

Indirect Impacts

Potential indirect impacts to special-status mammal species include permanent impacts to habitat suitable for special-status mammal species by the introduction and proliferation of invasive nonnative plant species, and temporary impacts associated with noise, nighttime lighting, dust, sedimentation, and erosion during construction.

Significance Determination

SDG&E would implement NCCP Operational Protocols (see Appendix L in the Biological Technical Report [Attachment 4.4-A]) to avoid and minimize impacts to mammal species. These protocols include restricting vehicles to existing roads when feasible, avoiding wildlife to the extent practicable, conducting pre-construction surveys, and handling of wildlife only by biologists or experts in handling wildlife. These protocols also include having a biological monitor on-site to avoid and minimize impacts to biological resources. Consistent with SDG&E's NCCP, SDG&E would mitigate for permanent and temporary impacts to grassland and coastal sage scrub habitat at a ratio ranging from 1:1 to 2:1, depending on the location of the habitat within the SDG&E Preserve (see Section 4.4.5). As a result, potential impacts on mammal species would be less than significant.

Critical Habitat

Direct Impacts

Salt Creek Substation

No critical habitat designated by USFWS for endangered or threatened species coincides with the proposed Salt Creek Substation BSA. As a result, no impacts to critical habitat for special-status species would occur during construction of the proposed Salt Creek Substation.

Transmission Corridor

A review of final boundaries (USFWS 2012) indicates that designated critical habitat for the endangered Otay tarplant coincides with the Transmission Corridor buffer (Figure 4.4-8). A total of 13.46 acres occurs within the 500-foot buffer of the Transmission Corridor at the southern terminus. However, no designated critical habitat coincides with the Transmission Corridor footprint. As a result, no impacts to critical habitat for special-status species would occur during construction activities in the Transmission Corridor.

Existing Substation Modification

No critical habitat designated by USFWS for endangered or threatened species coincides with the Existing Substation. As a result, no impacts to critical habitat for special-status species would occur during modification activities in the Existing Substation.

Staging Yards

No critical habitat designated by USFWS for endangered or threatened species coincides with the Existing Substation staging yard, Hunte Parkway staging yard, or Eastlake Parkway staging yard. As a result, no impacts to critical habitat for special-status species would occur during use of these staging yards during construction.

Indirect Impacts

Potential indirect impacts to critical habitat include permanent impacts to habitat suitable for those federally listed species that the habitat supports by the introduction and proliferation of invasive nonnative plant species, and temporary impacts associated with noise, nighttime lighting, dust, sedimentation, and erosion during construction.

Significance Determination

Since no designated critical habitat coincides with Proposed Project construction-related activities, potential direct impacts to critical habitat would not occur. Indirect impacts to critical habitat from noise, nighttime lighting, dust, sedimentation, and erosion would be considered temporary and, upon implementation of NCCP Operational Protocols (see Section 4.4.5), would be reduced to a less-than-significant level.

Preserve Areas

Direct Impacts

Salt Creek Substation

The proposed Salt Creek Substation site is located on land identified for development under the Otay Ranch General Development Plan and is outside of the City of Chula Vista's MSCP Preserve and SDG&E's NCCP Preserve.

Transmission Corridor

The northern section of the Transmission Corridor (north of Mount Miguel Road, excluding Structures 35 and 34, and Guard Structure 1) is located within an SDG&E-defined Preserve area; the remainder of the Transmission Corridor is located outside of defined Preserve boundaries.

Existing Substation Modifications

The Existing Substation falls within the boundaries of the City of Chula Vista's MSCP Subarea Plan. All modification activities would occur within the current substation footprint, which consists of paved and gravel-covered areas. Thus, no impacts to Preserves would occur.

Staging Yards

The Hunte Parkway staging yard and Eastlake Parkway staging yard are outside of any Preserve boundaries. The Existing Substation staging yard falls within the boundaries of the City of Chula Vista's MSCP Subarea Plan; however, the staging yard is entirely within bare ground. Thus, no impacts to Preserves would occur.

Indirect Impacts

Potential indirect impacts to Preserve areas include permanent impacts to habitat suitable for special-status species by the introduction and proliferation of invasive nonnative plant species, and temporary impacts associated with noise, nighttime lighting, dust, sedimentation, and erosion during construction.

Significance Determination

SDG&E proposes to mitigate impacts to habitat within Preserves under SDG&E's NCCP. Section 6.3.3.3 of the City of Chula Vista's MSCP states that SDG&E substation projects and associated facilities are not covered by the City of Chula Vista's MSCP but, instead, are covered by the SDG&E NCCP. Per Table 7.4 of SDG&E's Subregional NCCP, SDG&E proposes to mitigate permanent impacts to covered vegetation communities (i.e., coastal sage scrub and nonnative grassland habitats) located within the Preserve at a 2:1 ratio (see Section 4.4.5). Furthermore, implementation of the NCCP Operational Protocols (see Section 4.4.5) during construction is expected to reduce any potential impacts to less than significant.

Operation and Maintenance – *Less-than-Significant Impact*

Direct Impacts

Salt Creek Substation

All future operation and maintenance activities at the proposed Salt Creek Substation would occur within the fenced-in area of the substation on areas that would be paved or covered by gravel, and in areas currently landscaped. As a result, impacts to special-status plant species during operation and maintenance of the proposed Salt Creek Substation would not occur. Direct impacts to wildlife species could occur from mortality of individuals by crushing or vehicle collisions during operation and maintenance activities.

Transmission Corridor

All future operation and maintenance activities of the proposed power line would occur within the Transmission Corridor ROW in areas currently landscaped or disturbed by construction. Potential impacts to special-status plant species could occur during maintenance of vegetation around power line structures, and driving or walking across special-status plant species. Direct impacts to wildlife species could occur from mortality of individuals by crushing or vehicle collisions during operation and maintenance activities.

Existing Substation Modifications

All future operation and maintenance activities at the Existing Substation would occur within the fenced-in area of the substation on areas paved or covered by gravel. As a result, impacts to special-status plant species during operation and maintenance of the Existing Substation would not occur. Direct impacts to wildlife species could occur from mortality of individuals by crushing or vehicle collisions during operation and maintenance activities.

Staging Yards

Upon completion of the Proposed Project, the Existing Substation staging yard, Hunte Parkway staging yard, and Eastlake Parkway staging yard would no longer be used, and operations and maintenance activities would not occur at them.

Indirect Impacts

Operation and maintenance activities could result in permanent indirect impacts to special-status species. Erosion and storm water contaminant runoff may degrade adjacent habitat for special-status species. Exotic plant species are opportunistic and often occupy disturbed soils such as those within transmission line corridors and areas of exposed bare ground that may occur within areas of disturbance. Exotic plant species compete with natives for resources, resulting in a reduction in growth, future dispersal, and recruitment of native species. Nighttime lighting could disrupt species movement and/or cause increased predation rates. Wildfires caused by downed transmission lines are rare but may occur and damage adjacent habitat. Maintenance activities could result in temporary indirect impacts that may include disruption of nesting and foraging behavior. As SDG&E currently operates existing facilities in the Transmission Corridor, a significant increase from current rates in vehicle trips and activities generated by SDG&E maintenance is not anticipated. There is a greater likelihood of impacts where special-status plant species occur adjacent to the areas of disturbance.

Significance Determination

SDG&E would implement the NCCP Operational Protocols (see Appendix L in the Biological Technical Report [Attachment 4.4-A]) to avoid and minimize impacts to special-status wildlife species during future operations and maintenance of the Transmission Corridor. These protocols include restricting vehicles to existing roads when feasible and avoiding wildlife to the extent practicable. These protocols also include having a biological monitor on-site to avoid and minimize impacts to biological resources. As such, implementation of NCCP Operational Protocols is expected to reduce potential impacts to special-status plant and wildlife species to less than significant.

Question 4.4b – Sensitive Natural Communities

Construction – *Less-than-Significant Impact*

Direct Impacts

Salt Creek Substation

Vegetation communities that would be directly, permanently impacted from construction of the proposed Salt Creek Substation, improvement of the access road to Hunte Parkway, and installation of a drainage to an existing off-site dissipater are Diegan coastal sage scrub, nonnative grassland, disturbed habitat, and landscaped/ornamental vegetation (Table 4.4-5). Direct, temporary impacts would occur to these same vegetation communities and other cover types (Table 4.4-5). Diegan coastal sage scrub and nonnative grassland vegetation communities provide habitat for NCCP Covered Species.

Table 4.4-5: Potential Impacts to Vegetation Communities for the Proposed Project[1]

Type of Impact	Proposed Salt Creek Substation		Transmission Corridor		Total	
	Square Feet	Acres	Square Feet	Acres	Square Feet	Acres
Permanent Impacts						
Diegan coastal sage scrub and nonnative grassland (inside the SDG&E Preserve)	-	-	4,443	0.10	4,443	0.10
Diegan coastal sage scrub and nonnative grassland (outside of the SDG&E Preserve)	304,759	7.00	65,991	1.52	370,750	8.52
Disturbed habitat and landscape/ornamental	77,109	1.77	32,677	0.75	109,786	2.52
Total Permanent Impacts	**381,868**	**8.77**	**103,111**	**2.37**	**484,979**	**11.13**
Temporary Impacts						
Diegan coastal sage scrub and nonnative grassland	23,430	0.54	~~64,578~~79,608	1.4~~88~~3	~~88,008~~103,038	~~2.02~~ 2.37
Disturbed habitat and landscape/ornamental	58,837	1.34	189,273~~177,176~~	4.34~~4.07~~	~~236,013~~248,110	~~5.42~~ 5.68
Total Temporary Impacts	**82,267**	**1.89**	268,881~~**241,754**~~	6.17~~**5.55**~~	~~**324,021**~~351,148	~~**7.44**~~ **8.06**

[1] Values may not sum due to rounding after summation.

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Transmission Corridor

Vegetation communities that would be directly, permanently impacted during power line construction activities in the Transmission Corridor are Diegan coastal sage scrub, nonnative

grassland, disturbed habitat, landscaped/ornamental vegetation, and urban/developed land (Table 4.4-5). Direct, temporary impacts would occur to the same habitat and other cover types (Table 4.4-5). Diegan coastal sage scrub and nonnative grassland vegetation communities provide habitat for NCCP Covered Species.

Existing Substation Modifications

The Existing Substation is developed, consisting of paved and gravel-covered land. As a result, no direct, permanent or temporary, impacts to vegetation communities would occur.

Staging Yards

No direct, permanent or temporary, impacts to vegetation communities would result from the use of the staging yards. The Hunte Parkway staging yard consists of a previously graded area that has been recolonized by nonnative grassland species. Impacts to vegetation communities within the Hunte Parkway staging yard were mitigated for previously under a separate project. The Existing Substation staging yard consists entirely of gravel-covered land, and no direct impacts to vegetation communities would occur. The Eastlake Parkway staging yard consists entirely of disturbed habitat and urban/developed land.

Indirect Impacts

Potential indirect impacts, temporary and permanent, to vegetation communities may occur as a result of construction-related activities. Grading activities that have potential to create airborne dust, sedimentation, and erosion, can lead to the degradation of adjacent vegetation communities. The potential spread of exotic species into the surrounding vegetation communities would be considered a permanent, indirect impact. Exotic species are opportunistic and could occupy disturbed soils within disturbed areas and spread into adjacent vegetation communities. Additionally, wildfires (caused by construction) are rare but do occur, and exotic species often frequent burned areas following a wildfire. Once introduced, these exotic species often compete with natives for resources, resulting in a reduction in growth, future dispersal, and recruitment of native species, and the eventual degradation of the vegetation community.

Significance Determination

The Proposed Project was designed to avoid, when possible, sensitive vegetation communities that may support special-status species and sensitive biological resources, including not placing poles in drainage areas; using existing access roads to the greatest extent possible; and placing staging areas, laydown areas, guard structures, and helicopter landing areas outside of sensitive habitats, when feasible. Where avoidance of sensitive vegetation communities that provide habitat to NCCP Covered Species, such as Diegan coastal sage scrub and nonnative grassland, is not possible, or where sensitive vegetation communities exist adjacent to Proposed Project work areas, implementation of the measures in Sections 7.1 and 7.2 of the SDG&E Subregional NCCP (see Appendix L in the Biological Technical Report [Attachment 4.4-A]) and compensatory mitigation as required by SDG&E's NCCP for these vegetation communities (discussed in Section 4.4.5) would ensure that these impacts remain less than significant.

Operation and Maintenance – *Less-than-Significant Impact*

Direct Impacts

Salt Creek Substation

All future operation and maintenance activities at the proposed Salt Creek Substation would occur within the fenced-in area of the substation on areas that would be paved or covered by gravel, and in areas currently landscaped. As a result, impacts to sensitive vegetation communities during operation and maintenance of the proposed Salt Creek Substation would not occur.

Transmission Corridor

All future operation and maintenance activities of the proposed power line would occur within the Transmission Corridor ROW in areas currently landscaped or disturbed by construction. However, potential impacts to sensitive vegetation communities could occur during the maintenance of vegetation around power line structures, and during driving or walking across sensitive communities.

Existing Substation Modifications

All future operation and maintenance activities at the Existing Substation would occur within the fenced-in area of the substation on areas paved or covered by gravel. As a result, impacts to sensitive vegetation communities during operation and maintenance of the Existing Substation would not occur.

Staging Yards

Upon completion of the Proposed Project, the Existing Substation staging yard, Hunte Parkway staging yard, and Eastlake Parkway staging yard would no longer be used, and operations and maintenance activities would not occur at them.

Indirect Effects

Operation and maintenance activities may result in permanent indirect impacts to vegetation communities surrounding the areas of disturbance. Permanent, indirect impacts to vegetation communities may include edge effects and increased exposure to exotic plants. Erosion and storm water contaminant runoff may degrade adjacent vegetation communities. Exotic plant species are opportunistic and often occupy disturbed soils such as those within transmission line corridors and areas of exposed bare ground that may occur within the disturbance area. Wildfires caused by downed transmission lines are rare but may occur. Exotics often frequent areas adjacent to and within burn areas following a wildfire. Once introduced, these exotic plant species often out-compete natives for resources, resulting in a reduction in growth, future dispersal, and recruitment of native species, and the eventual degradation of the vegetation community.

Significance Determination

SDG&E would implement the NCCP Operational Protocols (see Appendix L in the Biological Technical Report [Attachment 4.4-A]) to avoid and minimize impacts to sensitive vegetation communities during future operations and maintenance of the Transmission Corridor. Such Operational Protocols include driving and remaining on existing access roads to conduct operations and maintenance activities. As such, implementation of NCCP Operational Protocols is expected to reduce potential impacts to sensitive communities to less than significant.

Question 4.4c – Effects on Wetlands

Construction – *No impact*

Salt Creek Substation

The natural hydrology of the proposed Salt Creek Substation site has been previously disturbed. The slopes of the site have been re-contoured and access roads with associated brow ditches have been constructed. A tributary to Salt Creek is located immediately west of the site. The tributary enters from the north through a 96-inch-diameter culvert, flows south, and connects to Salt Creek. Both the tributary and Salt Creek contain riparian scrub habitat and are considered jurisdictional wetlands and streambed. There are no jurisdictional wetlands present within the proposed substation site, and all proposed ground-disturbing activities and structures would be located outside of jurisdictional waters and wetlands (i.e., Salt Creek and its tributary).

Avoidance of indirect impacts to Salt Creek and its tributary during construction would be covered under the SWRCB's Construction General Permit and outlined in more detail in the Proposed Project's Storm Water Pollution Prevention Plan (SWPPP). Avoidance of post-construction drainage and water quality impacts would be addressed in site design and the Proposed Project's Storm Water Management Plan (SWMP) in accordance with the City of Chula Vista's Standard Urban Storm Water Mitigation Plan (SUSMP).

Transmission Corridor

The Transmission Corridor and potential ground-disturbing activities are located away from potential jurisdictional waters and wetlands, and no structures or string sites would be placed within jurisdictional waters or wetlands. Construction activities associated with the proposed power line in the Transmission Corridor are designed to avoid direct impacts to jurisdictional resources. In addition, the Proposed Project is anticipated to provide a sufficient wetland buffer to adequately protect the functions and values of existing waters and wetlands within the BSA.

Existing Substation Modifications

No potential jurisdictional waters are present in the Existing Substation. As a result, impacts to jurisdictional waters during modification to the Existing Substation would not occur.

Staging Yards

No potential jurisdictional waters are present in the Existing Substation staging yard, Hunte Parkway staging yard, or Eastlake Parkway staging yard. As a result, impacts to jurisdictional waters during use of these staging yards would not occur.

Significance Determination

In accordance with SDG&E NCCP Operational Protocols (see Section 4.4.5) and the "no net loss" wetland policy implemented by USACE, CDFW, and RWQCB, direct and indirect impacts on waters and wetlands resulting from construction of the power line would not occur.

Should it be determined that direct or indirect impacts to wetlands and jurisdictional waters are necessary, SDG&E may be required to obtain certain permits or authorizations such as a Section 404 Nationwide Permit from USACE, 401 Certification or Waste Discharge Requirements (WDRs) from RWQCB, and/or 1600 Agreement from CDFW, which would ensure that potential impacts are avoided and minimized to the greatest extent possible.

Operations and Maintenance – *No Impact*

Since permanent structures in the Transmission Corridor and the proposed Salt Creek Substation site are located away from potential jurisdictional waters and wetlands, future operations and maintenance activities are not expected to impact jurisdictional areas either. Additionally, a sufficient wetland buffer to adequately protect the functions and values of existing waters and wetlands would exist, offering further protection from potential impacts during operation and maintenance of the power line and proposed Salt Creek Substation. As such, no impacts to jurisdictional areas would occur during operations and maintenance activities upon Proposed Project completion.

Question 4.4d – Interfere with Native Wildlife Movement

Construction – *No Impacts*

Significant impacts would occur if a wildlife movement corridor is interrupted by a feature that physically blocks wildlife movement (i.e., roadway) or if habitat suitable to support wildlife in the movement corridor is directly removed during construction or indirectly affected by construction noise or dust.

Salt Creek Substation

The proposed Salt Creek Substation site lies adjacent to urban development and a roadway (Hunte Parkway). As such, the proposed Salt Creek Substation site does not function as a wildlife movement corridor and is not part of a movement corridor. No impacts to a native wildlife movement corridor would occur during construction of the proposed Salt Creek Substation.

Construction vehicles have the potential to result in accidental injury to or mortality of on-site species during construction; however, species would be mobile and would likely temporarily leave an on-site area where construction activity is occurring. Therefore, impacts are considered less than significant. In addition, the likelihood of on-site species leaving the

proposed Salt Creek Substation site and colliding with vehicles is low, as heavy vehicle traffic is currently present on roadways within the surrounding area. As such, impacts would be less than significant.

Transmission Corridor

The Transmission Corridor is surrounded by urbanized development and is transected and adjacent to several roadways that carry significant traffic volumes. As such, it does not function as a wildlife movement corridor, and no impacts to a native wildlife movement corridor would occur during construction of the power line in the Transmission Corridor.

Existing Substation Modifications

The Existing Substation is surrounded by chain-link fence. As such, it does not function as a wildlife movement corridor, and no impacts to a native wildlife movement corridor would occur during modification activities within the Existing Substation.

Staging Yards

Urbanized development and roadways surround the Hunte Parkway staging yard and Eastlake Parkway staging yard, and the Existing Substation staging yard is surrounded by chain-link fence. As such, the staging yards do not function as wildlife movement corridors, and no impacts to a native wildlife movement corridor would occur during use of the staging yards during construction of the Proposed Project.

Operation and Maintenance – *No Impact*

Since the Transmission Corridor, staging yards, Existing Substation, and proposed Salt Creek Substation site do not function as native wildlife movement corridors, no impacts to a native wildlife corridor would occur during operation and maintenance of the Proposed Project.

Question 4.4e – Conflict with Local Policies – No Impact

Construction, operation, and maintenance associated with the proposed Transmission Corridor, staging yards, Existing Substation, and proposed Salt Creek Substation would not conflict with any local environmental policies or ordinances promulgated to protect biological resources.

Section 6.3.3.3 of the City of Chula Vista's MSCP (see Section 4.4.5 of this PEA) states that SDG&E substation projects and associated facilities are not covered by the City of Chula Vista's MSCP, but instead are covered by the SDG&E NCCP. Pursuant to the provisions of Section 6.3.3.3 of the MSCP, no impacts to a local policy would occur during construction and operation of the Proposed Project.

Question 4.4f – Conflict with Conservation Plan – No Impact

The Proposed Project is within the SDG&E Subregional NCCP area. The SDG&E NCCP addresses potential impacts to sensitive resources associated with SDG&E's ongoing installation, use, maintenance, and repair of its gas and electric systems and typical expansion to those systems throughout SDG&E's existing service area. The SDG&E NCCP includes mitigation measures and Operational Protocols designed to avoid and/or minimize impacts on biological resources and

to provide appropriate mitigation where impacts are unavoidable to ensure the protection and conservation of Covered Species. The NCCP Operational Protocols would be applied to the Proposed Project to avoid and/or minimize potential impacts resulting from Proposed Project implementation. SDG&E would follow the habitat enhancement and reclamation measures described within the NCCP to ensure that Proposed Project impacts on biological resources remain less than significant.

4.4.5 Project Design Features and Ordinary Construction/Operations Restrictions

The Proposed Project was designed to avoid sensitive habitat areas that may support special-status species and sensitive biological resources when possible, including not placing poles in drainage areas; using existing access roads to the greatest extent possible; and placing staging areas, laydown areas, guard structures, and stringing sites outside of sensitive habitats when feasible. Due to the small permanent footprint of the Proposed Project, common and sensitive wildlife habitat is not expected to be adversely affected. Where avoidance of sensitive habitat areas supporting special-status wildlife is not possible, or where sensitive habitat areas exist adjacent to Proposed Project work areas, implementation of ordinary construction restrictions, as outlined within Section 3.9, Project Design Features and Ordinary Construction/Operations Restrictions, including compliance with the SDG&E Subregional NCCP (see Appendix 4.4-A), would reduce these impacts to less than significant.

Compliance with the SDG&E Subregional NCCP, which includes enhancement and/or mitigation for loss of habitat within Preserve areas, would reduce impacts to NCCP Covered Species to a less-than-significant level. Compensation specific to the Proposed Project, in accordance with the SDG&E Subregional NCCP, is outlined in 4.4.5.1, below.

4.4.5.1 Compensation in Accordance with SDG&E Subregional NCCP

Salt Creek Substation

The Otay Ranch RMP was developed prior to the City of Chula Vista's MSCP to provide mitigation for development projects occurring in Otay Ranch by requiring conveyance/purchase of 1.188 acres of land for every 1 acre of developable land, to assemble the Otay Ranch Preserve. The proposed Salt Creek Substation is located within Otay Ranch, and since SDG&E purchased the land for development of the proposed Salt Creek Substation, SDG&E was required to fulfill the 1.188-acre conveyance requirement under the Otay Ranch RMP. SDG&E purchased 11.0959 acres of conveyance land Preserve Credits from JPB (James P. Baldwin) Development in June 2011 (Cameron 2011), in conjunction with purchasing the 11.64-acre substation property. Based on calculations by the City of Chula Vista, 2.3 acres of slopes, created with construction of Hunte Parkway, were previously conveyed as part of the Hunte Parkway construction project and, therefore, did not require conveyance again by SDG&E.

Section 6.3.3.3 of the City of Chula Vista's MSCP states that SDG&E substation projects and associated facilities are not covered by the City of Chula Vista's MSCP, but instead are covered by the SDG&E NCCP.

Section 6.3.3.3, Facilities Covered by Other Habitat Planning Efforts, of the City of Chula Vista's MSCP, states: There are other major facilities planned within the Chula Vista MSCP Planning

Area that are not covered by this Subarea Plan but are permitted or proposed to be permitted through other habitat conservation programs. These include the following:

> SDG&E utility lines, facilities, and related access roads are covered by a separate SDG&E NCCP Subregional Plan. Two substations and their associated facilities will be built in the Otay Ranch and are covered by the SDG&E NCCP Subregional Plan. Extensions of electric and/or gas utility services to individual users are covered by this Subarea Plan when not covered by the SDG&E NCCP Subregional Plan.

Pursuant to the provisions of Section 6.3.3.3 of the City of Chula Vista's MSCP, SDG&E intends to use the NCCP to provide take coverage for the Proposed Project, as described above. SDG&E is requesting that the resource agencies allow SDG&E to use 7.54 acres of the 11.0959 acres of purchased conveyance land credits in the Otay Ranch Preserve in lieu of drawing down credits from SDG&E's NCCP credits (Table 4.4-6). This request for in-lieu mitigation is based on the following:

- The purchase of conveyance land serves as the vehicle for mitigating all private development projects in Otay Ranch.
- The purchase of conveyance land provides mitigation credits close to the source of the impact.
- The purchase of conveyance land allows SDG&E's conveyance land credits to mitigate Proposed Project-related impacts, instead of requiring double mitigation through conveyance, pursuant to the Otay Ranch RMP and drawing down SDG&E NCCP credits.

Table 4.4-6: Proposed Salt Creek Substation Mitigation Summary

Type of Mitigation		Credit Drawdown	
		Square Feet	**Acres**
Temporary (Outside SDG&E Preserve)	Total temporary impacts to coastal sage scrub and nonnative grassland habitat	23,430	0.54
Permanent (Outside SDG&E Preserve)	Total permanent impacts to coastal sage scrub and nonnative grassland habitat	304,759	7.00
TOTAL	**Total mitigation for ALL impacts to coastal sage scrub and nonnative grassland habitats**	**328,189**	**7.54**

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Temporary Impacts

Per Table 7.4 of the NCCP, temporary impacts to coastal sage scrub and nonnative grassland habitats within and outside of a Preserve will be mitigated at a ratio of 1:1. No mitigation is required for temporary impacts to bare ground, disturbed habitat, or landscaped/ornamental vegetation. SDG&E proposes to mitigate for ~~63,594~~78,497 square feet (1.80~~46~~ acres) of temporary impacts to coastal sage scrub and nonnative grassland at a ratio of 1:1 (Table 4.4-7). SDG&E is requesting that the resource agencies allow SDG&E to use 1.~~46~~ 80 acres of the 11.0959 acres of purchased conveyance land credits in the Otay Ranch Preserve in lieu of drawing down credits from SDG&E's NCCP credits.

Permanent Impacts

Per Table 7.4 of SDG&E's Subregional NCCP, SDG&E proposes to mitigate for permanent impacts to coastal sage scrub and nonnative grassland habitats located within a defined Preserve at a 2:1 ratio, and a 1:1 ratio outside of a defined Preserve. No mitigation is required for permanent impacts to bare ground, disturbed habitat, or landscaped/ornamental.

SDG&E proposes to mitigate for 4,443 square feet (0.10 acre) of permanent impacts to coastal sage scrub and grassland habitats at a ratio of 2:1, and 65,991 square feet (1.52 acres) of permanent impacts to coastal sage scrub and grassland habitats at a ratio of 1:1 (Table 4.4-7). SDG&E is requesting that the resource agencies allow SDG&E to use 1.72 acres of the 11.0959 acres of purchased conveyance land credits in the Otay Ranch Preserve in lieu of drawing down credits from SDG&E's NCCP credit.

Table 4.4-7: TL 6965 Mitigation Summary

Type of Mitigation		Credit Drawdown	
		Square Feet	Acres
Temporary	Total temporary impacts to coastal sage scrub and nonnative grassland habitat at a 1:1 ratio	78,497~~63,594~~	1.80~~1.46~~
Permanent (Inside SDG&E Preserve)	Total permanent impacts to coastal sage scrub and nonnative grassland habitat within the defined Preserve at a 2:1 ratio	8,886	0.20
Permanent (Outside SDG&E Preserve)	Total permanent impacts to coastal sage scrub and nonnative grassland habitat within the defined Preserve at a 1:1 ratio	65,991	1.52
TOTAL	**Total mitigation (drawdown credits) for ALL impacts to coastal sage scrub and nonnative grassland habitats**	153,374 ~~138,471~~	3.52 ~~3.18~~

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4.4.6 Applicant-Proposed Measures

With implementation of the following APM, Proposed Project impacts to WBO would remain less than significant:

APM-BIO-1. SDG&E shall coordinate with the wildlife agencies to implement the avoidance and minimization measures presented in the "Mitigation Methods" section of the CDFW guidance (CDFW 2012b), as needed and as appropriate, to avoid impacts to WBO. No less than 14 days prior to initiating ground-disturbance activities, an initial "take" avoidance survey shall be completed on-site and within a 500-foot buffer (CDFW 2012b). Based on the guidelines put forth by CDFW, if WBO occupancy on-site is confirmed, SDG&E shall coordinate with CDFW to develop mitigation methods for occupied burrows and habitat that may be directly impacted, which may include preparing a CDFW-approved "Burrowing Owl Exclusion Plan" and "Mitigation Management Plan" (CDFG 2012b), and the option of using the 11.0959 acres of purchased conveyance land credits in the Otay Ranch Preserve in lieu of the purchase of additional lands.

4.4.7 Detailed Discussion of Significant Impacts

Based on the analyses presented above, impacts to most biological resources would be avoided, minimized, and compensated for through SDG&E Operational Protocols.

However, potential for significant impacts to WBO were identified for the Proposed Project. As such, AMP-BIO-1 is proposed to address these potential impacts. By implementing APM-BIO-1, outlined in Section 4.4.6, above, potential impacts to biological resources are considered less than significant.

4.4.8 References

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AECOM. 2011b. 45-Day Summary Report of Focused Surveys for the Quino Checkerspot Butterfly for the Proposed Salt Creek Substation for SDG&E. 46 pp.

AECOM. 2011c. 45-Day Summary Report of 2011 Protocol Surveys for Coastal California Gnatcatcher for the Proposed Salt Creek Substation for SDG&E, Otay Mesa, San Diego County, California. 25 pp.

AECOM. 2011d. 45-Day Summary Report of 2011 Protocol Surveys for Least Bell's Vireo for the Proposed Salt Creek Substation for SDG&E, Otay Mesa, San Diego County, California. 34 pp.

AECOM. 2011e. Western Burrowing Owl Presence/Absence Surveys for the Proposed Salt Creek Substation for SDG&E. 38 pp.

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January 14, 2014

Ms. Debbie Collins
San Diego Gas & Electric
8315 Century Park Court – CP21E
San Diego, CA 92123

Subject: Habitat Assessment of Alternate Staging Yards and Proposed Access Roads at the Olympic Training Center Facility for the Proposed Salt Creek Substation and Power Line Project

Dear Ms. Collins:

The purpose of this letter is to summarize for San Diego Gas & Electric (SDG&E) potential biological resources associated with the alternate staging yards and proposed access roads at the Olympic Training Center (OTC) facility, south of Olympic Parkway, for the Proposed Salt Creek Substation and Power Line Project. A habitat assessment was completed by AECOM biologists at six potential staging yards and the proposed access roads (Attachment 1and 2).

The habitat assessment at the staging yards was conducted by Lance Woolley from 8:25 AM to 9:15 AM on Monday, October 22, 2012. Weather conditions during the survey were as follows: 62 degrees Fahrenheit; no wind; and 90% cloud cover. All sites consisted of bare (graded) ground and were considered disturbed habitat. While six staging yards were assessed, Staging Yard No. 4 was subsequently removed from consideration, and five optional staging yards were included in the PEA analysis.

Representative photos of each staging yard are included in Attachment 2. The little vegetation present on the sites consisted of non-native plant species including, Bermuda grass (*Cynodon dactylon*), nit grass *(Gastridium ventricosum),* creeping spurge *(Chamaesyce serpens),* and Russian thistle *(Salsola tragus)*. Wildlife observed during the habitat assessment included: house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), common raven (*Corvus corax*), red-tail hawk (*Buteo jamaicensis*), and coyote (*Canis latrans*)(scat).

The habitat assessment at the access roads was conducted by Brynne Mulrooney from 9:30 AM to 11:00 AM on Tuesday, January 14, 2014. Weather conditions during the survey were as follows: 65 degrees Fahrenheit; 3 miles per hour average wind speed; and no cloud cover. All roads, with the exception of the access road to staging yard 6 (Attachment 2), are paved roads and considered developed habitat. The proposed access road to staging yard 6 consisted of bare ground. It appeared to be acting as an existing dirt access road as the soil was compact with tire tracks present. Landscape/ornamental and coastal sage scrub habitat was immediately to the west and east of the proposed access road, respectively.

Representative photos of the proposed access road to staging yard 6 are included in Attachment 2. No vegetation was present within the location of the proposed access

road. Plant species present within the coastal sage scrub habitat to the east of the proposed access road included: coyote brush (*Baccharis pilularis*), California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), and lemonade berry (*Rhus integrifolia*). Wildlife observed during the habitat assessment included: house finch (*Haemorhous mexicanus*), common raven (*Corvus corax*), Audubon's warbler (*Setophaga coronata audubonì*), Anna's hummingbird (*Calypte anna*), white-crowned sparrow (*Zonotrichia leucophrys*), and black phoebe (*Sayornis nigricans*). Additionally, one California gnatcatcher (*Polioptila californica*) was heard calling outside the proposed access road area to the south in coastal sage scrub habitat, but within 500 feet of the proposed access road.

The staging yards and proposed access road were not considered suitable for sensitive species and no historic California Natural Diversity Database sensitive species locations are known to occur in the impact footprints. California gnatcatcher (CAGN) was present in coastal sage scrub habitat in the vicinity of the proposed access road to staging yard 6. Additionally, due to the prevalence of Burrowing Owl (BUOW) in the area, and their tendency to reside in disturbed and even developed areas, it would be impossible to rule out the possibility of BUOW use of the OTC staging areas and proposed access road to staging yard 6. While none were observed during the habitat assessment, no protocol level BUOW surveys have been conducted for the OTC staging areas.

Due to the fact that these sites consist of disturbed habitat and bare ground, use of these sites would not require habitat based mitigation. A PSR would be completed, if use of these sites was determined to be necessary. The PSR and any associated avoidance and minimization measures would ensure compliance with the NCCP, including compliance with the Migratory Bird Treaty Act (MBTA), should nesting birds be present within or adjacent to the staging areas. In addition, APM BIO-1 would also apply to these locations, ensuring any potential impacts to BUOW were mitigated.

If you have any questions or comments regarding this letter report, please contact me at 619.233.1454.

Sincerely,

Michelle Fehrensen
Project Manager

Attachment 1: Alternate Staging Yards Figure
Attachment 2: Proposed Access Road Figure
Attachment 3: Representative Photographs

Source:AECOM, GeomorphIS LLC, SDG&E, 2013; Esri Basemaps, 2013

0 300 600 Feet

Scale: 1:3,600 1 inch = 300 feet

Attachment 1 - Alternate Staging Yards

SDG&E is providing this map with the understanding that the map is not survey grade.

Salt Creek Project

Path: C:\Projects\AECOM\SaltCreek_Substation\GIS\Map_MXD\OlympicTrainingCenter_StagingYards.mxd, 10/28/2013, E D Goff

Salt Creek Substation and Tieline 6965

Detailed OTC Map

Attachment 2

Version Date: 11/25/2013

1 inch = 500 feet @ 11" x 17"

0 100 200
Feet

Project Data

- Proposed TL 6965 Overhead
- Proposed TL 6965Underground
- Proposed 12 kV UG getaway route

Project Structure

- Cable Pole
- Foundation Pole
- Directly Embedded Pole
- Pole Top Work
- Guard Structure
- Stringing Site
- Staging Yard
- Work Pad

Disturbed Area at Substation Site

- Permanant
- Temporary

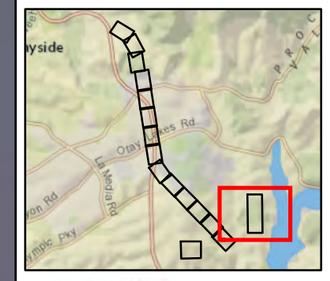
Access

- Existing Access Road
- Overland Travel
- Footpath

Land Ownership

- Non Governmental Organization
- USFWS
- Other State
- County
- City
- Special District
- SDG&E Fee Owned, Leased
- Parcel Boundary

- Existing Trail
- Chula Vista MSCP Preserve
- Municipal Boundary



SDG&E is providing this map with the understanding that the map is not survey grade.

Requested by: Andy Renger

Author: dwuertz

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Attachment 3

Representative Photos of the Alternate Staging Yards within the Olympic Training Center Facility

Northwest facing view of Site 1

West facing view of Site 2

Attachment 3

Representative Photos of the Alternate Staging Yards within the Olympic Training Center Facility

Southwest facing view of Site 3

Northwest facing view of Site 4

Attachment 3

Representative Photos of the Alternate Staging Yards within the Olympic Training Center Facility

South facing view of Site 5

East facing view of site 6

Attachment 3

Representative Photos of the Alternate Staging Yards within the Olympic Training Center Facility

North facing view of proposed access road from existing access road to staging yard 6

South facing view of proposed access road from staging yard 6

Table A-4. Schedule - Construction of underground 12kV distribution circuits from the Salt Creek Substation

Activity	Equipment	Use	Quantity	Approximate Start Date	Duration on Site (work days)	Approximate End Date	Duration of Use (hours/day)	Workers per Equipment			9/5/2014	9/5/2014	9/12/2014	9/19/2014	9/26/2014	10/3/2014	10/10/2014	10/17/2014	10/24/2014	10/31/2014	11/7/2014	11/14/2014	11/21/2014
	Task Schedule			**3/23/2015**	**166d**																		
	Boom Truck	Lift and place materials	1	3/23/2015	8.00	4/3/2015	6	1	1		0	0	0	0	0	0	0	0	0	0	0	0	0
	Crane	Lift and place materials	1	3/23/2015	7.00	4/2/2015	6	1	1		0	0	0	0	0	0	0	0	0	0	0	0	0
	Bobcat	Excavate trenches	2	3/23/2015	34.00	5/9/2015	6	1	2		0	0	0	0	0	0	0	0	0	0	0	0	0
	Backhoe	Excavate trenches	3	3/23/2015	35.00	5/11/2015	6	1	3		0	0	0	0	0	0	0	0	0	0	0	0	0
	Cat Track Hoe	Excavation	1	3/23/2015	10.00	4/6/2015	6	1	1		0	0	0	0	0	0	0	0	0	0	0	0	0
	Dump/Haul Truck	excavated materials and	1	3/23/2015	35.00	5/11/2015	6	1	1		0	0	0	0	0	0	0	0	0	0	0	0	0
	Construction Truck	uit installation Crew Truck	1	3/23/2015	94.00	8/1/2015	6	2	2		0	0	0	0	0	0	0	0	0	0	0	0	0
Underground Trench/Conduit/Substructure	Pickup Truck	Trenching/Conduit Crew	4	3/23/2015	34.00	5/9/2015	6	2	8		0	0	0	0	0	0	0	0	0	0	0	0	0
	Pickup w/Saw Cut Trailor	Saw cut pavement	1	3/23/2015	28.00	5/1/2015	6	1	1		0	0	0	0	0	0	0	0	0	0	0	0	0
	Dump Truck w/compressor & emulsion Sprayer	Street Repair	1	3/23/2015	15.00	4/13/2015	6	3	3		0	0	0	0	0	0	0	0	0	0	0	0	0
	Pickup Truck	Street Repair	2	3/23/2015	29.00	5/2/2015	6	2	4		0	0	0	0	0	0	0	0	0	0	0	0	0
	Roller	Street Repair	2	3/23/2015	48.00	5/29/2015	6	1	2		0	0	0	0	0	0	0	0	0	0	0	0	0
	Concrete Truck	Backfill Trench w/slurry	2	3/23/2015	37.00	5/14/2015	6	1	2		0	0	0	0	0	0	0	0	0	0	0	0	0
	Asphalt Grinder	Grind Asphalt	1	3/23/2015	10.00	4/6/2015	6	2	2		0	0	0	0	0	0	0	0	0	0	0	0	0
	Spreader	Spread Asphalt	1	3/23/2015	7.00	4/2/2015	6	2	2	35	0	0	0	0	0	0	0	0	0	0	0	0	0
	2-ton Flatbed Truck	Deliver pole to site	---		N/A		---	---															
Steel Structure Installations	Large Crane	Tower Erection	---		N/A		---	---															
	Bucket Truck/Manlift	and Conductor Installation	---		N/A		---	---															
	Delivery Trucks		---		N/A		---	---															
	Task Schedule			10/22/2015	45d		0																
	Cable Dolly	Cable pulling	1	10/22/2015	12.00	11/7/2015	6	1	1		0	0	0	0	0	0	0	0	0	0	0	0	0
	7000 LB UG Puller trailor	Cable pulling	1	10/22/2015	12.00	11/7/2015	6	1	1		0	0	0	0	0	0	0	0	0	0	0	0	0
Cable/Conductor Pulling and Tensioning	HD Flatbed W/Reel Carriers	Cable pulling	1	10/22/2015	12.00	11/7/2015	6	1	1		0	0	0	0	0	0	0	0	0	0	0	0	0
	Line Assist Truck	pulling/connections	3	10/22/2015	38.00	12/14/2015	6	2	6		0	0	0	0	0	0	0	0	0	0	0	0	0
	UG Combo Truck	pulling/connections	3	10/22/2015	38.00	12/14/2015	6	2	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0
				3/23/2015		12/14/2015				Total	0	0	0	0	0	0	0	0	0	0	0	0	0

11/28/2014	12/5/2014	12/12/2014	12/19/2014	12/26/2014	1/2/2015	1/9/2015	1/16/2015	1/23/2015	1/30/2015	2/6/2015	2/13/2015	2/20/2015	2/27/2015	3/6/2015	3/13/2015	3/20/2015	3/27/2015	4/3/2015	4/10/2015	4/17/2015	4/24/2015	5/1/2015	5/8/2015	5/15/2015	5/22/2015	5/29/2015	6/5/2015	6/12/2015	6/19/2015
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	35	31	28	25	25	20	10	4	4	2	2	2

6/26/2015	7/3/2015	7/10/2015	7/17/2015	7/24/2015	7/31/2015	8/7/2015	8/14/2015	8/21/2015	8/28/2015	9/4/2015	9/11/2015	9/18/2015	9/25/2015	10/2/2015	10/9/2015	10/16/2015	10/23/2015	10/30/2015	11/6/2015	11/13/2015	11/20/2015	11/27/2015	12/4/2015	12/11/2015	12/18/2015	12/25/2015	1/1/2016	1/8/2016	1/15/2016
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2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	15	15	15	12	12	12	12	12	12	0	0	0	0

1/22/2016	1/29/2016	2/5/2016	2/12/2016	2/19/2016	2/26/2016	3/4/2016	3/11/2016	3/18/2016	3/25/2016	4/1/2016
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0	0	0	0	0	0	0	0	0	0	0

Attachment AD2.15-1, Acreage Verification for QCB Habitat

The discrepancy between the 50 acres of suitable habitat discussed in the PEA, the 17 acres of suitable habitat shown in the GIS, and the 0.16 acre identified in the PSR is a result of revisions to suitable habitat by David Faulkner (Forensic Entomology Services) and misinterpretation of the GIS data.

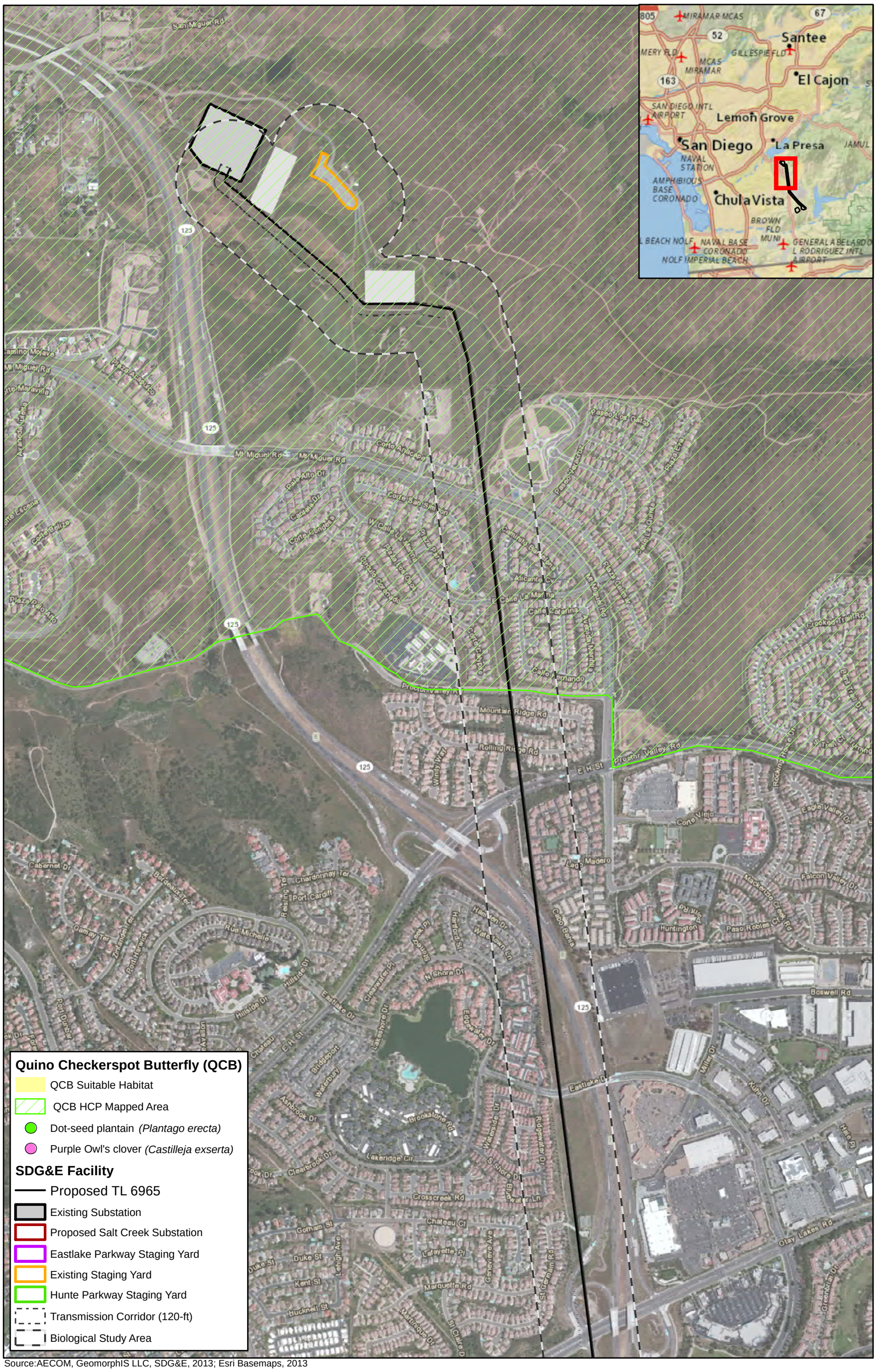
The GIS data submitted to CPUC on November 25, 2013 included both recent and historic suitable QCB habitat as well as 2011, 2012, and 2013 QCB survey areas. Focused presence/absence surveys for QCB were conducted within the proposed Salt Creek Substation and 500-foot survey buffer between March 14 and April 20, 2011, and within the Transmission Corridor, staging yards, and a 500-foot survey buffer between February 17 and March 30, 2012. Focused presence/absence surveys for QCB were conducted between March 5 and April 9, 2013 in portions of the proposed Salt Creek Substation and 500-foot survey buffer that were not surveyed in 2012.

On March 13 and 14, 2013, site visits were conducted by David Faulkner within 2011, 2012, and 2013 QCB survey areas throughout the entire BSA to assess the suitability of habitat for QCB using the suitable habitat criteria established under SDG&E's QCB Low-Effect HCP. Using the suitable QCB habitat criteria established under SDG&E's QCB Low-Effect HCP, David Faulkner concluded suitable QCB habitat only occurs within the proposed Salt Creek Substation, southern terminus of the transmission corridor, and buffer south of Hunte Parkway (approximately 50 acres) (Attachment AD2.15-2 and AD2.15-3). In addition, he concluded all areas within the BSA north of Hunte Parkway were not suitable for QCB. The 50 acres represents QCB suitable habitat within the proposed Salt Creek Substation, southern terminus of the transmission corridor, and 500-foot buffer (i.e., portion of biological study area south of Hunte Parkway).

In 2013, QCB surveys were conducted within 17 acres of the 50 acres identified by David Faulkner as being suitable QCB habitat. The remaining 33 acres were surveyed in 2012 as part of the transmission line survey. Therefore, the 17 acres represents the 2013 QCB survey area and does not represent all suitable habitat with the biological study area.

The 0.16 acre identified in the November 2012 PSR represents the acreage of suitable QCB habitat that was previously known to occur within the impact footprint and SDG&E's QCB Mapped Areas prior to David Faulkner's suitable habitat determinations. SDG&E's Low-Effect HCP for QCB delineates potential QCB habitat (referred to as "Mapped Areas") based on the 2003 USFWS QCB recovery plan. Mapped Areas occur within SDG&E's NCCP preserve at the north end of the Transmission Corridor where suitable habitat was previously mapped (Attachment AD2.15-2). The suitable habitat has been revised since completion of the November 2012 PSR and the numbers referenced in that preliminary PSR document are no longer accurate.

Although habitat is present within the proposed Salt Creek Substation and southern terminus of the transmission corridor south of Hunte Parkway, per SDG&E's Low-Effect HCP for QCB, habitat mitigation is only required for impacts to unoccupied QCB suitable habitat within Mapped Areas and impacts to occupied habitat. As previously noted, Mapped Areas occur within the north end of the proposed project in the Existing Substation and Transmission Corridor (Attachment AD2.15-2). The suitable QCB habitat located within the project area south of Hunte Parkway is unoccupied and not within a Mapped area (Attachment AD2.15-3). Thus, no habitat mitigation is required for impacts within the proposed Salt Creek Substation, since they are neither within the Mapped Areas nor are they occupied habitat, pursuant to SDG&E's Low-Effect HCP for QCB.



Source:AECOM, GeomorphIS LLC, SDG&E, 2013; Esri Basemaps, 2013

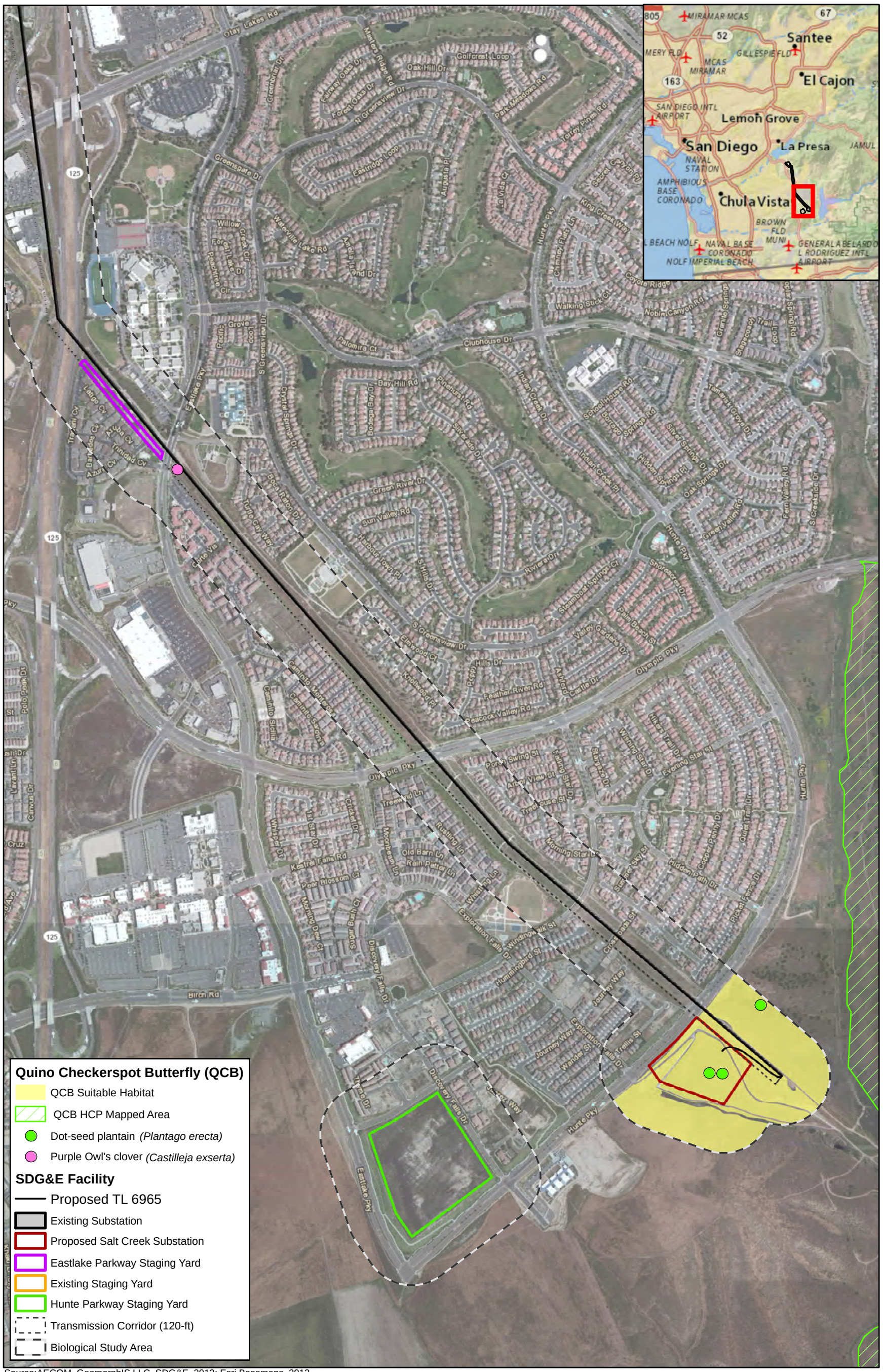
0 500 1,000 Feet

Scale: 1:12,000 1 inch = 1,000 feet

Attachment AD2.15-2
Quino Checkerspot Butterfly Suitable Habitat and Survey Results

SDG&E is providing this map with the understanding that the map is not survey grade.

Path: C:\Projects\AECOM\SaltCreek_Substation\GIS\BTR_PEA_Figures\MXD\AD2_QCB_Habitat_Survey.mxd, 1/14/2014, E D Goff



Source:AECOM, GeomorphIS LLC, SDG&E, 2013; Esri Basemaps, 2013

0 500 1,000 Feet

Scale: 1:12,000 1 inch = 1,000 feet

Attachment AD2.15-3
Quino Checkerspot Butterfly Suitable Habitat and Survey Results

SDG&E is providing this map with the understanding that the map is not survey grade.

Path: C:\Projects\AECOM\SaltCreek_Substation\GIS\BTR_PEA_Figures\MXD\AD2_QCB_Habitat_Survey.mxd, 1/14/2014, E D Goff

APPENDIX A

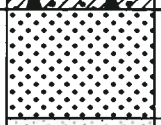
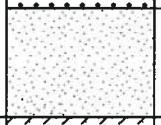
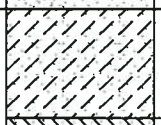
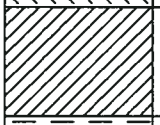
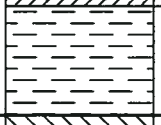
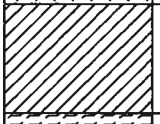
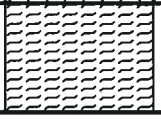
Boring Logs

APPENDIX A
BORING LOGS

The geotechnical test boring program for the proposed project consisted of the excavation and logging of four small diameter borings and eight test pits. The borings utilized a limited access hollow stem auger drill rig. The borings were advanced on January 18 and March 8, 2007 to depths ranging from 36 to 91 feet below existing grades. The test pits were advanced on December 20, 2006 to depths between 4 and 12 feet. Figure 2 presents the approximate locations of the borings and test pits.

The Logs of Borings are presented as Figures A3 through A12. A Unified Soil Classification System (USCS) chart and a Boring Log Legend are presented as Figures A1 and A2, respectively. The Logs of Borings describe the earth materials encountered, samples obtained, and show field and laboratory tests performed. The logs also show the general location, boring number, drilling date, and the names of the logger and drilling subcontractor. The borings were logged by an engineer/geologist using the USCS. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Bulk and intact samples of representative earth materials were obtained from the borings.

In-place soil samples were obtained at the test boring locations using a California penetration sampler driven a total of 18-inches (or until practical refusal), into the undisturbed soil at the bottom of the boring. The soil sampled by the California sampler (3-inch O.D., 2.4 inches I.D.) was retained in 6-inch long brass tubes for laboratory testing. An additional 2-inches of soil from each drive remained in the cutting shoe and was usually discarded after visually classifying the soil. The samplers were driven using a 140 pound automatic hammer falling 30-inches. The total number of hammer blows required to drive the sampler the final 12-inches is termed the blow count and is recorded on the Logs of Borings. For clarification, the blow counts presented on the Logs are raw and have not been adjusted for the effects of overburden pressure, input driving energy, rod length, sampler correction, or boring diameter correction. This is the typical way to present information on borings logs and the mentioned corrections are performed for analysis purposes.

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

CHECKED BY: KW	FN: 67735_Keys
PROJECT NO. 67735	DATE: 06/2007

SOIL CLASSIFICATION CHART

SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

FIGURE
A1

LOG SYMBOLS:


BULK/BAG SAMPLE


MODIFIED CALIFORNIA SAMPLER
(2–1/2 inch outside diameter)


CALIFORNIA SAMPLER
(3 inch outside diameter)


STANDARD PENETRATION
SPLIT SPOON SAMPLER
(2 inch outside diameter)


NO SAMPLE RECOVERY


SHELBY TUBE


WATER LEVEL
(level after completion)


WATER LEVEL
(level where first encountered)

ABBREVIATIONS:

SA – (38%) SIEVE ANALYSIS (PERCENT PASSING #200 SIEVE)
WA – (38%) – ONE POINT GRAIN SIZE ANALYSIS (PERCENT PASSING #200 SIEVE)
PI – PLASTICITY INDEX
AL – ATTERBERG LIMITS
DS – DIRECT SHEAR TEST
'R' – R–VALUE TEST
CORR – CORROSIVITY TEST
EI – UBC EXPANSION INDEX
LC – LABORATORY COMPACTION TEST
M&D – MOISTURE & DENSITY
PP – POCKET PENETROMETER

GENERAL NOTES:

1. *Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.*
2. *No warranty is provided as to the continuity of soil conditions between individual sample locations.*
3. *Logs represent general soil conditions observed at the point of exploration on the date indicated.*
4. *In general, Unified Soil Classification designations presented on the logs were evaluated by visual methods only. Therefore, actual designations (based on laboratory tests) may vary.*

CONSISTENCY CRITERIA BASED ON FIELD TESTS

RELATIVE DENSITY	SPT* (# blows/ 300 mm)	RELATIVE DENSITY (%)
Very Loose	<4	0 – 15
Loose	4 – 10	15 – 35
Medium Dense	10 – 30	35 – 65
Dense	30 – 50	65 – 85
Very Dense	>50	85 – 100

		TORVANE	POCKET** PENETROMETER
CONSISTENCY	SPT (# blows/ 300 mm)	UNDRAINED SHEAR STRENGTH (MPa)	UNCONFINED COMPRESSIVE STRENGTH
Very Soft	<2	0.012	0.024
Soft	2 – 4	0.012 – 0.024	0.024 – 0.05
Medium Stiff	4 – 8	0.024 – 0.05	0.05 – 0.10
Stiff	8 – 15	0.05 – 0.10	0.10 – 0.20
Very Stiff	15 – 30	0.10 – 0.20	0.20 – 0.40
Hard	>30	>0.2	>0.40

NUMBER OF BLOWS OF 63 kg HAMMER FALLING 750 mm TO DRIVE A 50 mm O.D. (34 mm I.D.) SPLIT BARREL SAMPLER (ASTM–1386 STANDARD PENETRATION TEST)

** UNCONFINED COMPRESSIVE STRENGTH IN MPa READ FROM POCKET PENETROMETER

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

CHECKED BY: KW | FN: 67735_Keys
PROJECT NO. 67735 | DATE: 06/2007

KEY TO LOGS

SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

FIGURE
A2

DATE DRILLED:	1/18/2007	WATER DEPTH:	None
DRILLING COMPANY:	Tri-County Drilling	DATE OBSERVED:	1/18/2007
DRILLING METHOD:	ATV Auto Hammer, 140 lb hammer, 30" drop	GROUND ELEVATION:	551' MSL
		LOGGED BY:	JL
HOLE DIAMETER:	8" Hollow Stem Auger (HSA)		

ELEVATION (ft)	DEPTH (ft)	SAMPLES BULK	SAMPLES DRIVEN	SAMPLE NUMBER	BLOW COUNTS (blows/foot)	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	NOTES
	0						**TOPSOIL:** SANDY CLAY (CL), dark brown, dry to moist, stiff, trace of roots			
							OTAY FORMATION: CLAYEY SANDSTONE, very light grayish brown, moist, very dense, fine to coarse grained, highly weathered, weakly cemented, massive			
	5	X	■	1	50/5"					SA (42.5%) DS
		X	■	2						
	10		■	3	75		Color change to brownish gray			
							Color change to light gray			
	15		■	4	50/5"			121	5	
							Fine to medium subangular gravels observed from 17.5 feet			
	20		■	5	50/5"					
							Becomes light brown			

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 67735

SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

LOG OF BORING B1

FIGURE
A3

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT pcf	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
							(Continued From Previous Page)			
			■	50/3"	6		SILTY SANDSTONE, pale brownish gray with mottled red, moist, very dense, fine to coarse grained, poorly graded, weakly cemented, highly weathered, massive			
	30		■	50/3"	7					
	35		■	50/5"	8			104	11.0	
	40		■	50/3"	9					
							Bottom of boring at 40.3' No groundwater observed Boring backfilled with grout			
	45									
	50									

KLEINFELDER
5015 SHOREHAM PLACE
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PROJECT NO. 67735

SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

LOG OF BORING B1

FIGURE
A4

DATE DRILLED:	1/18/2007	WATER DEPTH:	None
DRILLING COMPANY:	Tri-County Drilling	DATE OBSERVED:	1/18/2007
DRILLING METHOD:	ATV Auto Hammer, 140 lb hammer, 30" drop	GROUND ELEVATION:	492' MSL
		LOGGED BY:	JL
HOLE DIAMETER:	8" Hollow Stem Auger (HSA)		

ELEVATION (ft)	DEPTH (ft)	SAMPLES BULK	SAMPLES DRIVEN	SAMPLE NUMBER	BLOW COUNTS (blows/foot)	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	NOTES
				1	50/5"		**TOPSOIL:** SANDY CLAY (CL), dark brown, dry to moist, stiff to hard, trace of roots			
							OTAY FORMATION: SILTY SANDSTONE, light brown, moist, very dense, fine to coarse grained, massive, weakly cemented, trace of gravel, highly weathered	110	9	
	5			2	24					SA (20%)
	10			3	50/5"		Cobble larger at 10.5 feet CLAYEY SANDSTONE, light brown with mottled black and red, slightly moist, very dense, highly weathered, moderately cemented, massive			DS
	15			4	50/5"		SILTY SANDSTONE, light brown with mottled white and green, moist, very dense, fine to coarse grained, highly weathered, moderately cemented, massive, trace gravel			
	20			5	50/2"		Few gravels, subangular, greenish			
				6	50/4"		Cobble layer, dark gray rock			
							Drill action indicates cobble layer at 23 feet SILTY SANDSTONE, light brown with white, slightly moist, very dense, fine to coarse grained, highly weathered, massive			

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SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

LOG OF BORING B2

FIGURE
A5

ELEVATION (ft)	DEPTH (ft)	SAMPLES BULK	SAMPLES DRIVEN	SAMPLE NUMBER	BLOW COUNTS (blows/foot)	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	NOTES
							(Continued From Previous Page)			
			■	7	67/6"		SILTY SANDSTONE, light brown with white, slightly moist, very dense, fine to coarse grained, highly weathered, massive			
	30		▨	8	50/3"					
	35		■	9	50/3"					
	40		▨	10	50/5"					
							Bottom of boring at 40' No groundwater observed Boring backfilled with grout			
	45									
	50									

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ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

LOG OF BORING B2

FIGURE
A6

DATE DRILLED:	1/18/2007	WATER DEPTH:	None
DRILLING COMPANY:	Tri-County Drilling	DATE OBSERVED:	1/18/2007
DRILLING METHOD:	ATV Auto Hammer, 140 lb hammer, 30" drop	GROUND ELEVATION:	480' MSL
		LOGGED BY:	JL
HOLE DIAMETER:	8" Hollow Stem Auger (HSA)		

ELEVATION (ft)	DEPTH (ft)	SAMPLES BULK	SAMPLES DRIVEN	SAMPLE NUMBER	BLOW COUNTS (blows/foot)	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	NOTES
							TOPSOIL:			
							SANDY CLAY (CL), dark brown, dry, stiff			
							OTAY FORMATION:			
				1	50/5"		SILTY SANDSTONE, light brown, dry, very dense, fine to coarse grained with silt, massive, highly weathered, trace of gravels, well graded	96	6	CORR
				2						
	5			3	50/2"		Greenish angular gravel, light brown with mottled red and black, dry, very dense, massive, highly weathered			
							Gravel and cobble layer at approximately 6 to 7 feet			
	10			4	50/5"					
	15			5	50/3"		No recovery			
				NR	50/5"		No recovery			
	20			NR	50/3"					
				6	50/3"		No recovery			

KLEINFELDER
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SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

LOG OF BORING B3

FIGURE
A7

ELEVATION (ft)	DEPTH (ft)	SAMPLES BULK	SAMPLES DRIVEN	SAMPLE NUMBER	BLOW COUNTS (blows/foot)	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	NOTES
							(Continued From Previous Page)			
			■	7	50/3"					
	30		■	8	50/4"		SILTY SANDSTONE, light brown, dry, very dense, fine to coarse grained, highly weathered, massive, some gravel			
	35		■	9	50/4"		Bottom of boring at 36.4' No groundwater observed Boring backfilled with grout			
	40									
	45									
	50									

KLEINFELDER
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PROJECT NO. 67735

SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

LOG OF BORING B3

FIGURE

A8

DATE DRILLED:	3/8/2007	WATER DEPTH:	None
DRILLING COMPANY:	Tri-County Drilling	DATE OBSERVED:	3/8/2007
DRILLING METHOD:	CME-75, 140 lb hammer, 30" drop	GROUND ELEVATION:	524' MSL
		LOGGED BY:	JL
HOLE DIAMETER:	8" Hollow Stem Auger (HSA)		

ELEVATION (ft)	DEPTH (ft)	SAMPLES BULK	SAMPLES DRIVEN	SAMPLE NUMBER	BLOW COUNTS (blows/foot)	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	NOTES
							6 inches of asphalt pavement			
							FILL (Qaf):			
				1			LEAN CLAY WITH SAND (CL), grayish brown, moist, very stiff to hard, low plasticity, trace of fine sand and cemented sandstone clasts			
	5			2	50					
	10			3	63		Sand and silt content increased	91	16	
	15			4	46		Pocket of fat clay			
	20			5	39		Red color lean clay interlayer at 21.5 feet			

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SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

LOG OF BORING B4

FIGURE
A9

ELEVATION (ft)	DEPTH (ft)	SAMPLES BULK	SAMPLES DRIVEN	SAMPLE NUMBER	BLOW COUNTS (blows/foot)	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	NOTES
							(Continued From Previous Page)			
			■	6	40		Becomes reddish brown with greenish gray			DS
	30		■	7	58			104	20	
	35		■	8	55		Becomes dark gray, fine silty sand pockets			
	40		■	9	41			105	21	
	45		■	10	32		FAT CLAY (CH), very dark brown, moist, hard, trace of mottled sand and silt, buried grass and roots, strong odor			
							LEAN CLAY (CL), reddish brown, moist, hard, low plasticity			
	50		■	11	40			93	24	CONSOL

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SDG&E SUBSTATION
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LOG OF BORING B4

FIGURE
A10

ELEVATION (ft)	DEPTH (ft)	SAMPLES BULK	SAMPLES DRIVEN	SAMPLE NUMBER	BLOW COUNTS (blows/foot)	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	NOTES
							(Continued From Previous Page)			
	55			12	49		Becomes brown			
	60			13	60		Becomes hard			
	65			14	69		Clast of cemented sand at 66.5 feet			
	70			15	69		LEAN CLAY (CL), brown with mottled red, moist, very hard, clast of cemented sand	98	20	
	75			16	52					
	80			17	49		FAT CLAY (CH), dark brown with mottled light gray, moist, hard, high plasticity	101	22	

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 67735

SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

LOG OF BORING B4

FIGURE
A11

ELEVATION (ft)	DEPTH (ft)	SAMPLES BULK	SAMPLES DRIVEN	SAMPLE NUMBER	BLOW COUNTS (blows/foot)	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	NOTES
							(Continued From Previous Page)			
	85			18	39		Becomes dark brown, trace of fine gravel SILTY SAND (SM), light brown, moist, very dense, fine grained	101	22	CONSOL
	90			19	74		**OTAY FORMATION (To):** SILTY SANDSTONE, CLAYEY SAND, very light brown with mottled red and black, moist, very dense, fine grained, trace of fine gravel Bottom of boring at 91.5 feet No groundwater observed Boring backfilled with grout			
	95									
	100									
	105									
	110									

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

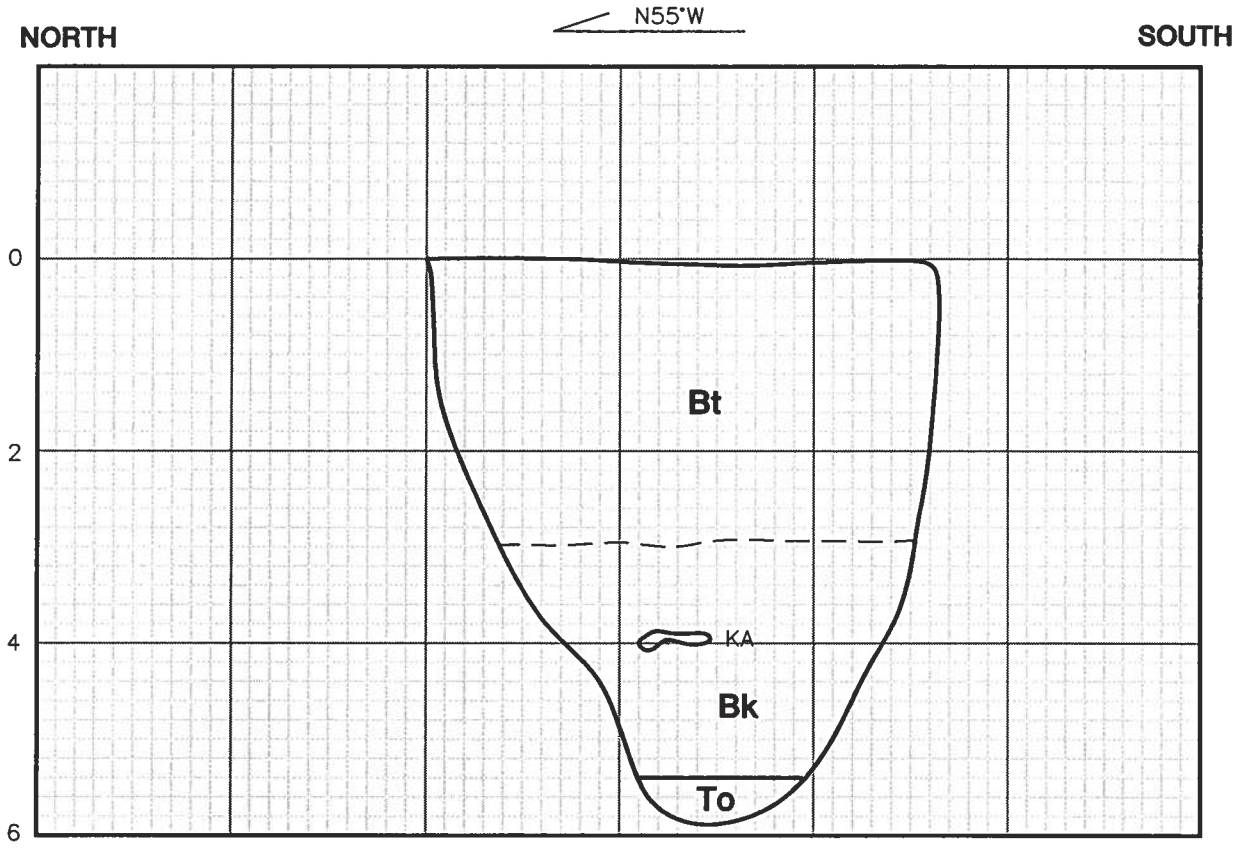
PROJECT NO. 67735

SDG&E SUBSTATION
ORAY RANCH SUBSTATION
CHULA VISTA, CALIFORNIA

LOG OF BORING B4

FIGURE
A12

PROJECT NO.					SHEET
67735	LOG OF TEST PIT NO. 1				1 OF 1
EXCAVATION EQUIPMENT: BACKHOE	PROJECT NAME: OTAY RANCH SUBSTATION			LOCATION:	
DATE: 12/20/2006	LOGGED BY: SHR	CHECKED BY: KMC	DEPTH: 6'	ELEVATION: 530'	DIRECTION:



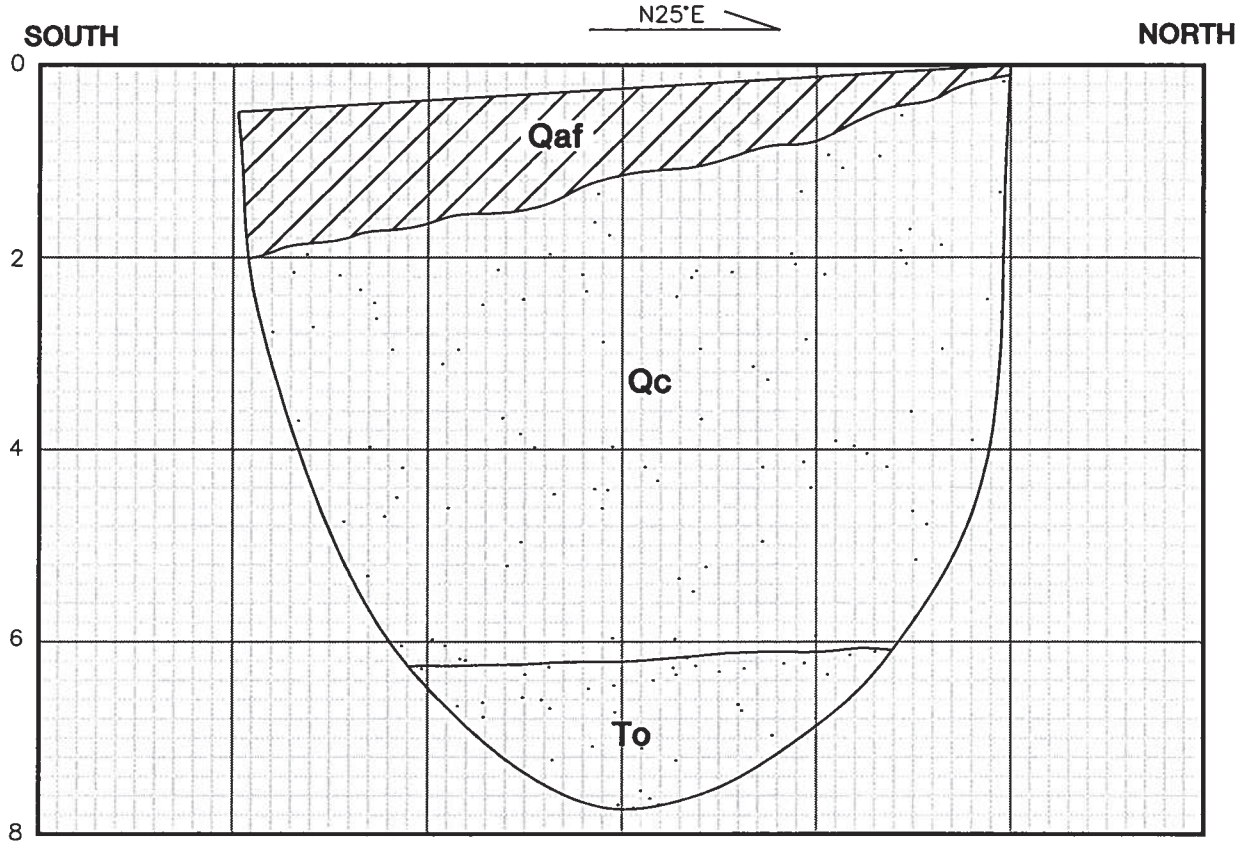
DEPTH IN FEET	MATERIAL DESCRIPTION
0 to 3'	**TOPSOIL:** **Bt** CLAYEY SILT (ML), DARK BROWN, MOIST, SOFT
3' to 5.5'	**Bk** SANDY SILT (ML), WHITE, DRY, MEDIUM STIFF, LIGHT ???
5.5' TO 6'	**OTAY FORMATION:** **To** SILTY SANDSTONE, YELLOW BROWN, MOIST, VERY DENSE, FINE TO COARSE GRAINED WITH TRACE GRAVEL

K – KROTOVINA ANIMAL BURROWS

PROJECT NO.	LOG OF TEST PIT NO. 2	SHEET
67735		1 OF 1

EXCAVATION EQUIPMENT	PROJECT NAME	LOCATION
BACKHOE	OTAY RANCH SUBSTATION	

DATE:	LOGGED BY:	CHECKED BY:	DEPTH:	ELEVATION:	DIRECTION:
12/20/2006	SHR	KMC	8'	470'	

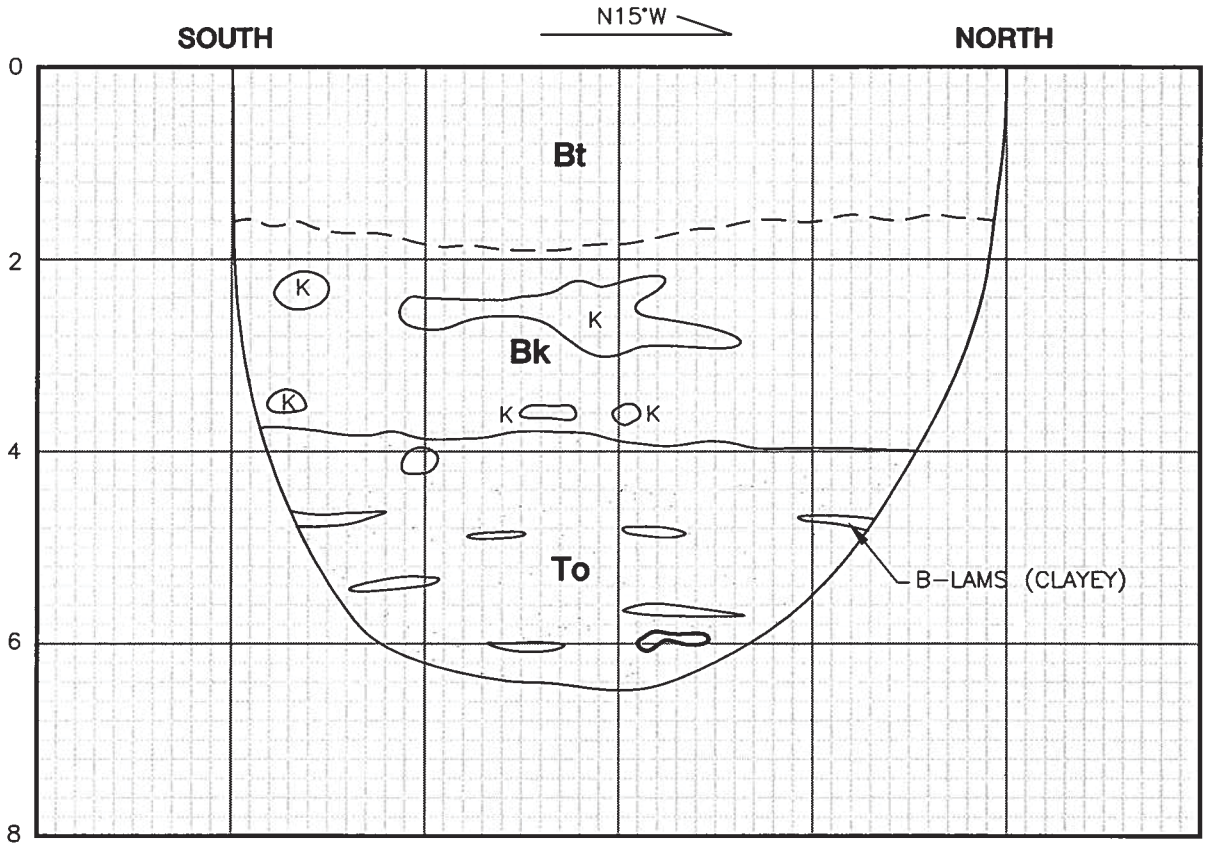


DEPTH IN FEET	MATERIAL DESCRIPTION
0 to 2'	**ARTIFICIAL FILL:** **Qaf** CLAYEY SANDY SILT (ML), DARK BROWN, MOIST, SOFT
2' to 6'	**COLLUVIUM** **Qc** CLAYEY SANDY SILT (ML), DARK BROWN, MOIST, SOFT, MINOR CARBONATE ON PEDOGENIC SURFACES
6' to 8'	**OTAY FORMATION:** **To** SILTY SANDSTONE, YELLOW BROWN, MOIST, DENSE COARSE SAND FRACTION ROUNDED UP TO 1/4", TRACE GRAVEL

PROJECT NO.	LOG OF TEST PIT NO. 3	SHEET
67735		1 OF 1

EXCAVATION EQUIPMENT	PROJECT NAME	LOCATION
BACKHOE	OTAY RANCH SUBSTATION	

DATE:	LOGGED BY:	CHECKED BY:	DEPTH:	ELEVATION:	DIRECTION:
12/20/2006	SHR	KMC	6.5'	507'	

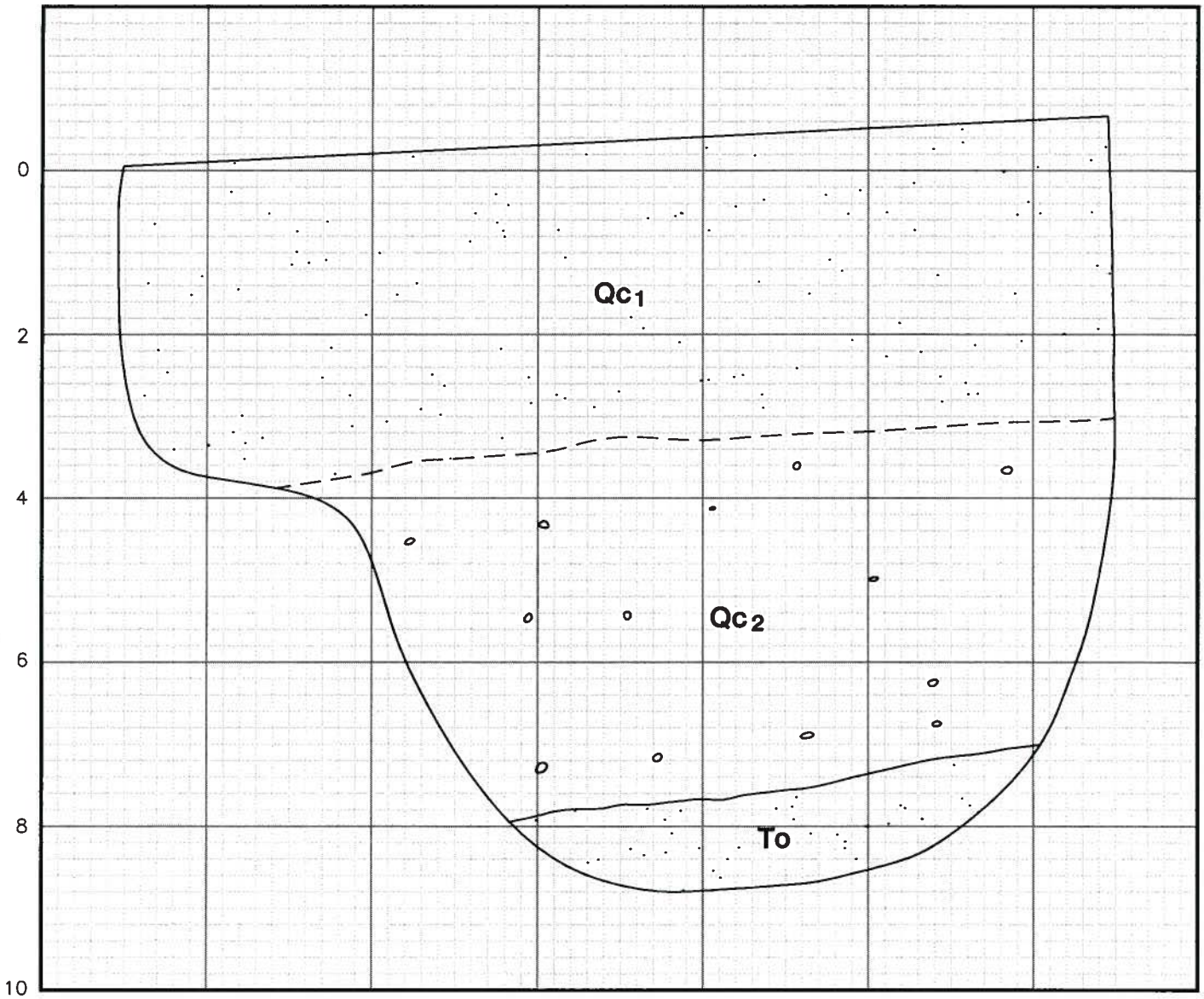


DEPTH IN FEET	MATERIAL DESCRIPTION
0 – 2'	**Bt** **TOPSOIL:** CLAYEY SILT (ML), DARK BROWN, MOIST, SOFT
2' – 4'	**Bk** SANDY SILT (ML), WHITE, DRY, MEDIUM STIFF
4' – 6.5'	**To** **OTAY FORMATION:** SILTY SANDSTONE, WHITE GRAY, MOIST, DENSE, FINE TO COARSE GRAINED, TRACE GRAVEL

K – KROTOVINA ANIMAL BURROWS

PROJECT NO.		LOG OF TEST PIT NO. 4		SHEET
67735				1 OF 1
EXCAVATION EQUIPMENT: BACKHOE		PROJECT NAME: OTAY RANCH SUBSTATION		LOCATION:
DATE: 12/20/2006	LOGGED BY: SHR	CHECKED BY: KMC	DEPTH: 9'	ELEVATION: 438'	DIRECTION:

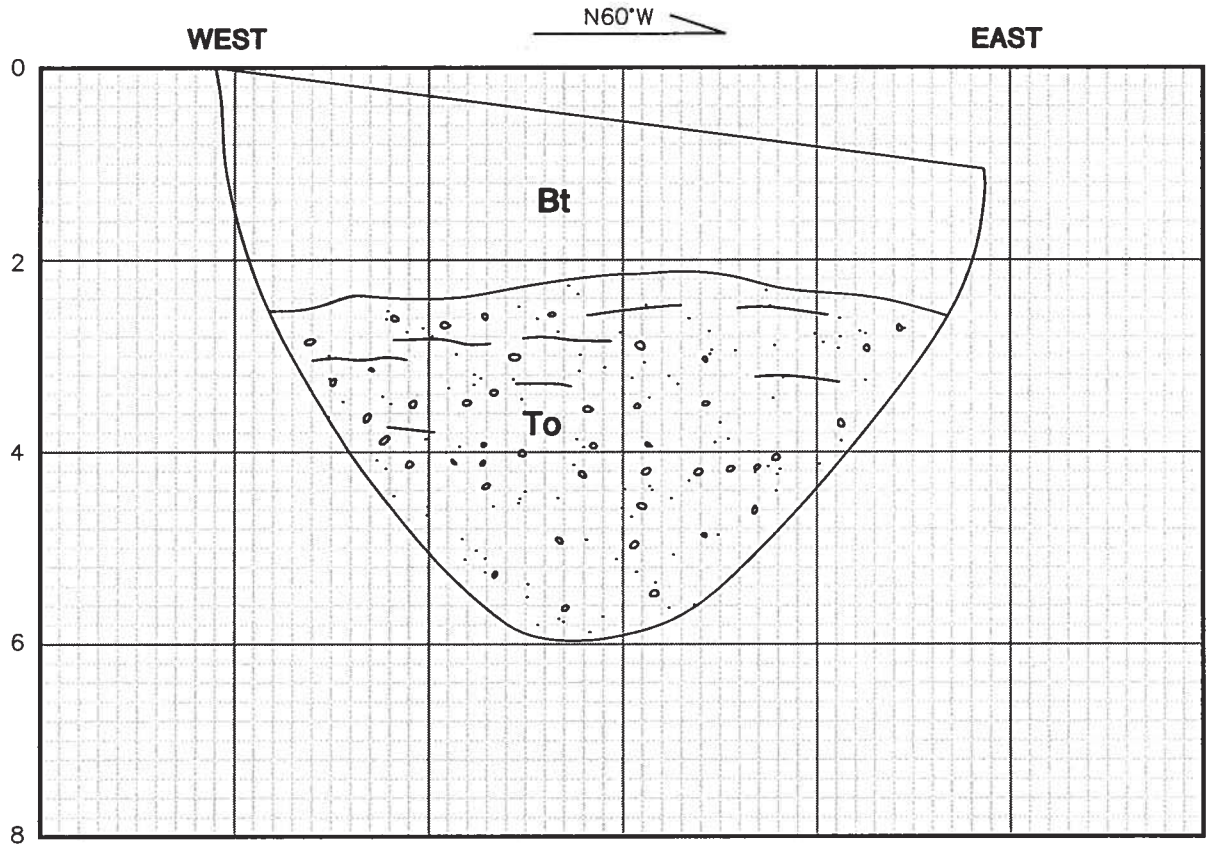
SOUTH N15°W NORTH



DEPTH IN FEET	MATERIAL DESCRIPTION
0 to 4'	**Qc1** **COLLUVIUM:** SANDY SILT (ML) WITH CLAY, DARK BROWN, MOIST, MEDIUM STIFF
4' to 8'	**Qc2** SANDY CLAY (CL), DARK BROWN, MOIST, MEDIUM STIFF, CONTAINS GRAVEL
8' to 8.4'	**To** **OTAY FORMATION:** SILTY SANDSTONE, YELLOW BROWN, MOIST VERY DENSE, FINE TO COARSE GRAINED, TRACE GRAVEL

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

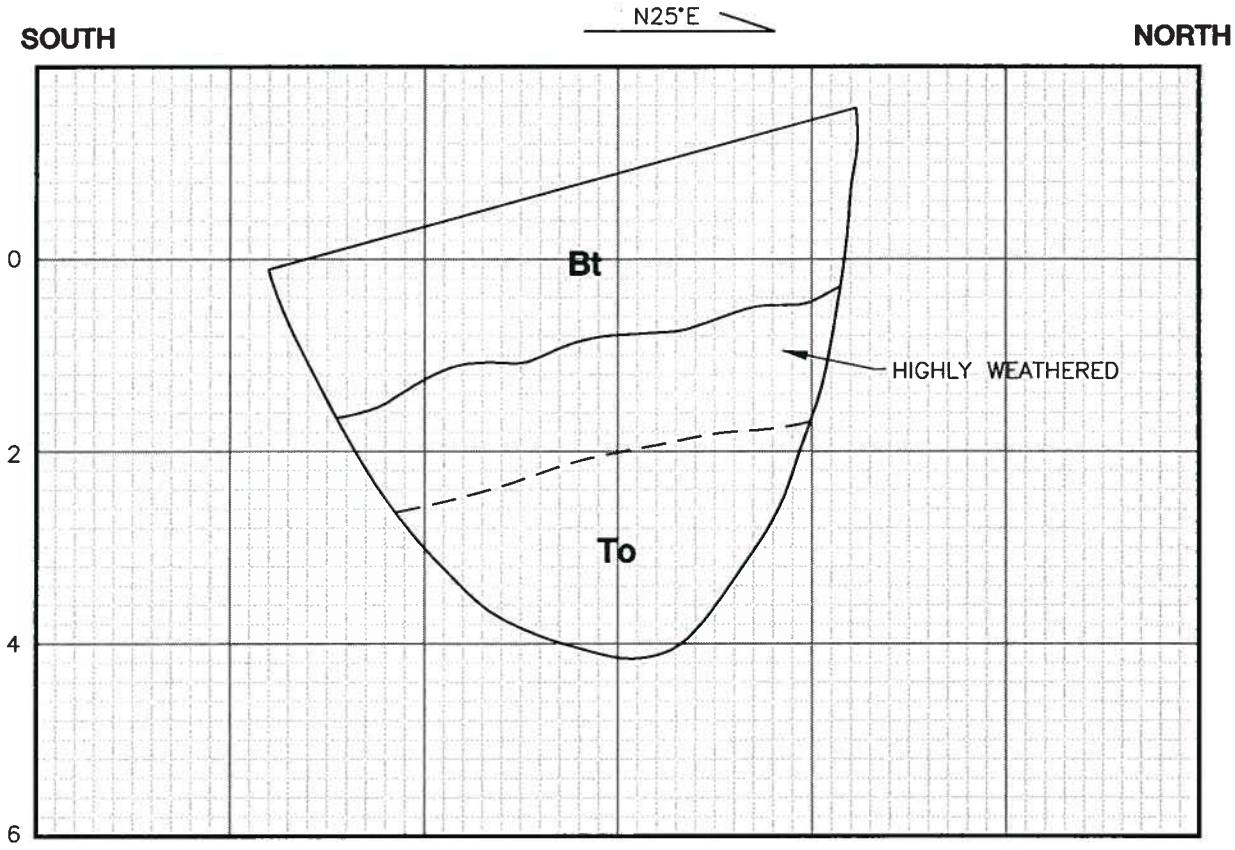
PROJECT NO.		LOG OF TEST PIT NO. 5		SHEET
67735				1 OF 1
EXCAVATION EQUIPMENT: BACKHOE	PROJECT NAME: OTAY RANCH SUBSTATION		LOCATION:	
DATE: 12/20/2006	LOGGED BY: SHR	CHECKED BY: KMC	DEPTH: 6'	ELEVATION: 471'	DIRECTION:



DEPTH IN FEET	MATERIAL DESCRIPTION
0 to 2'	**Bt** **TOPSOIL:** SANDY SILTY CLAY (CL), DARK BROWN, MOIST, SOFT
2' to 6'	**To** **OTAY FORMATION:** SANDY SILT STONE, YELLOW BROWN MOIST, VERY DENSE, COARSE GRAINED WITH GRAVEL AND TRACE COBBLE

K – KROTOVINA ANIMAL BURROWS

PROJECT NO.		LOG OF TEST PIT NO. 6		SHEET
67735				1 OF 1
EXCAVATION EQUIPMENT: BACKHOE	PROJECT NAME: OTAY RANCH SUBSTATION		LOCATION:	
DATE: 12/20/2006	LOGGED BY: SHR	CHECKED BY: KMC	DEPTH: 4'	ELEVATION: 453'	DIRECTION:

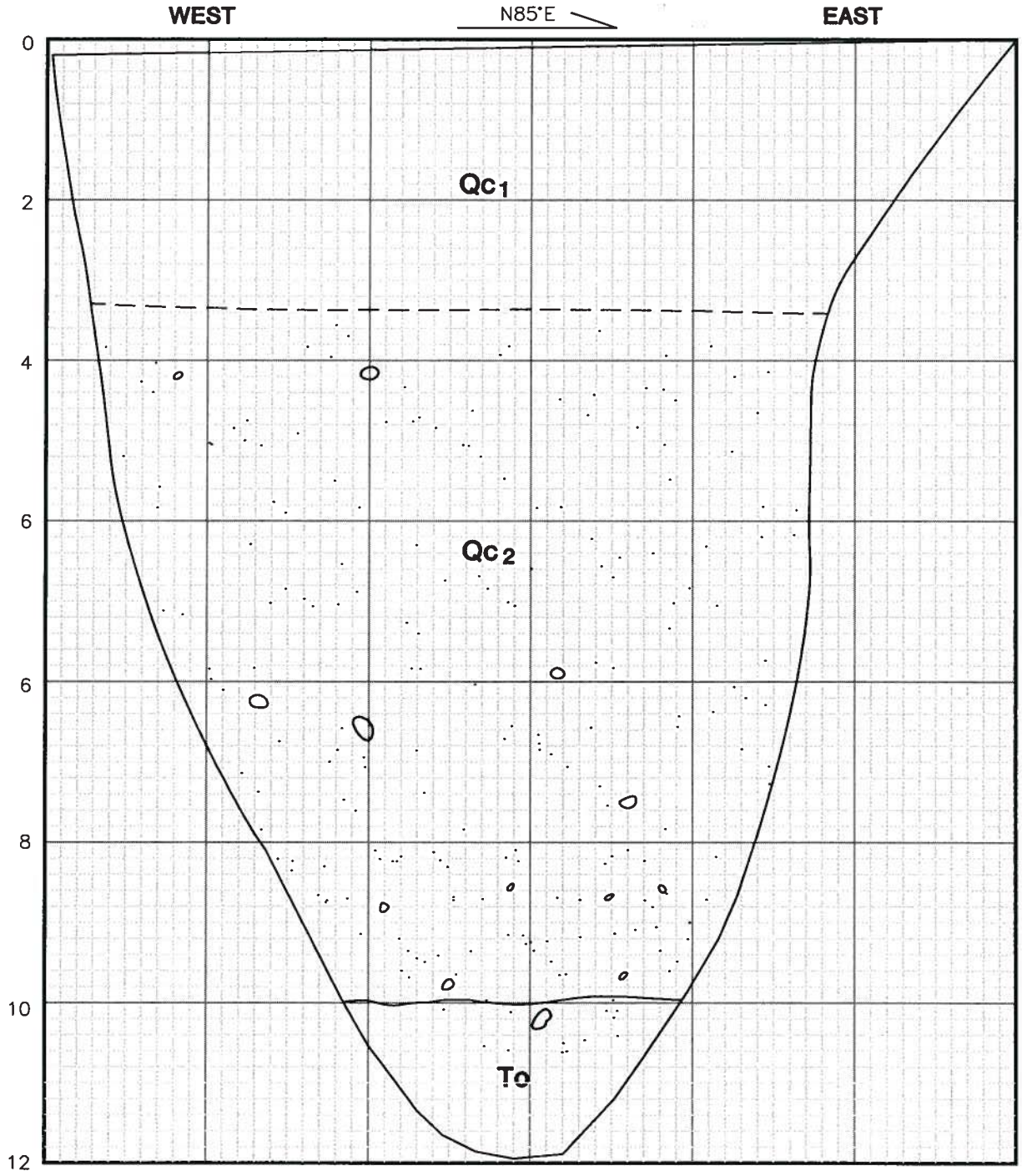


DEPTH IN FEET	MATERIAL DESCRIPTION
0' TO 2'	**TOPSOIL:** **Bt** CLAYEY SAND (SC), DARK BROWN, MOIST, MEDIUM DENSE
2' to 4'	**OTAY FORMATION:** **To** SILTY SANDSTONE, YELLOW BROWN, MOIST, VERY DENSE, UPPER PART REDDISH BROWN, CONTAINS TRANSLOCATED CLAY

PROJECT NO.		SHEET
67735	**LOG OF TEST PIT NO. 7**	1 OF 1

EXCAVATION EQUIPMENT	PROJECT NAME	LOCATION
BACKHOE	**OTAY RANCH SUBSTATION**	

DATE:	LOGGED BY:	CHECKED BY:	DEPTH:	ELEVATION:	DIRECTION:
12/20/2006	SHR	KMC	12'	427'	

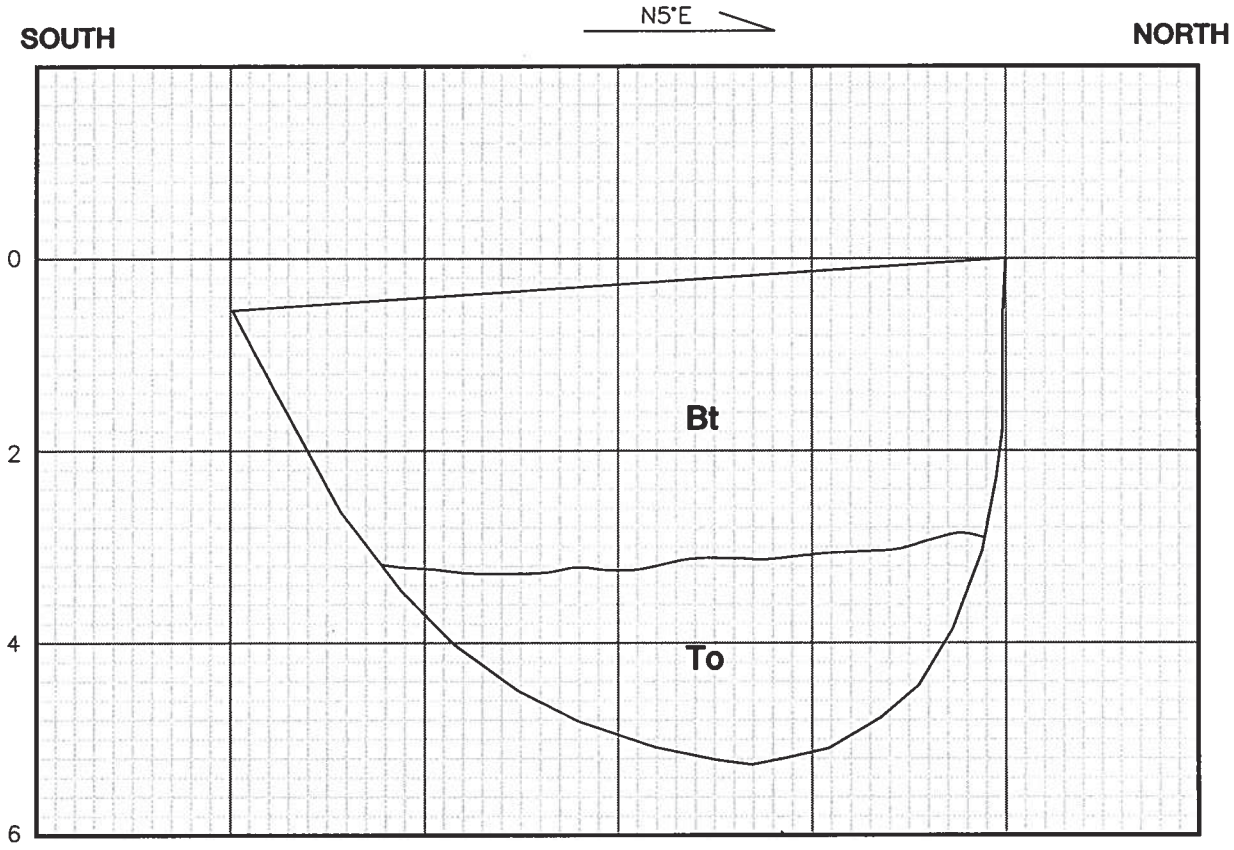


DEPTH IN FEET	MATERIAL DESCRIPTION
0 to 3.4'	**Qc1** **COLLUVIUM** CLAYEY SAND (SC), DARK BROWN, MOIST, SOFT
3.4' to 10'	**Qc2** **COLLUVIUM** SANDY CLAY (CL), STIFF TO VERY STIFF, MOIST
10' to 12'	**To** **OTAY FORMATION:** CLAYEY SANDSTONE (SC), YELLOW–REDDISH BROWN, MOIST, DENSE, HIGHLY WEATHERED

PROJECT NO.	LOG OF TEST PIT NO. 8	SHEET
67735		1 OF 1

EXCAVATION EQUIPMENT	PROJECT NAME	LOCATION
BACKHOE	OTAY RANCH SUBSTATION	

DATE:	LOGGED BY:	CHECKED BY:	DEPTH:	ELEVATION:	DIRECTION:
12/20/2006	SHR	KMC	5'	465'	



DEPTH IN FEET	MATERIAL DESCRIPTION
0 to 3'	**TOPSOIL:** **Bt** SANDY CLAY (CL), DARK BROWN, MOIST, MEDIUM STIFF
3' to 5.2'	**OTAY FORMATION:** **To** SILTY SANDSTONE, YELLOW BROWN, MOIST, VERY DENSE FINE TO COARSE GRAINED

APPENDIX B

Laboratory Test Results

APPENDIX B
LABORATORY TEST RESULTS

Laboratory tests were performed on selected bulk and drive samples to estimate engineering characteristics of the various earth materials encountered. Testing was performed in accordance with ASTM Standards for Soil Testing, latest revisions.

MOISTURE CONTENT AND DRY UNIT WEIGHT

Natural moisture content and dry unit weight tests were performed on four drive samples collected from the borings in accordance with ASTM D 2216 and D 2937, respectively. The results of these tests are presented on the Logs of Borings in Appendix A and on Figure B-1.

SIEVE ANALYSIS

Three sieve analyses were performed on a representative sample of the materials encountered at the site to evaluate the gradation characteristics of the soil and to aid in classification. The tests were performed in general accordance with ASTM Test Method D 422. The result of the test is presented on Figure B-2 and B-4.

DIRECT SHEAR TEST

Four direct shear tests were performed on representative soil samples. The test procedures were in general accordance with the ASTM D 3080. The results are presented in Figures B-5 and B-8. Two of the samples were remolded to about 90 percent of the maximum dry density determined by ASTM D 1557.

COMPACTION TEST

The maximum dry density and optimum moisture content of two samples was evaluated by performing a compaction test in general conformance with ASTM test procedure D 1557. The results of these tests are shown on Figures B9 and B10.

EXPANSION INDEX TEST

One expansion index tests were performed on a representative soil sample. Test procedures were in general accordance with the Uniform Building Code (UBC) standard 18-2. The results are presented in Figure B-11.

CONSOLIDATION TEST

Consolidation tests were performed on two samples to aid in evaluating the compressibility of the fine grained soil when subjected to new loads. This test was performed in general accordance with ASTM Test Method D2435. The results of the tests are presented on Figures B4 and B5.

R-VALUE TESTS

R-value testing was performed on one sample of the potential subgrade soil. The test was performed in general accordance with Caltrans Standard Test Method 301. The test results are presented on Figure B14.

CORROSION TESTS

A series of chemical tests were performed on one representative sample of the anticipated near surface soils (after grading) to estimate pH, resistivity and sulfate and chloride contents. The test results are presented in Table B-1 and are attached.

Table B-1
Corrosion Test Results

Boring	Depth (ft)	pH	Sulfate (ppm)	Chloride (ppm)	Minimum Resistivity (ohm-cm)
B-3	3-10	9.4	<10	10	1,400

Boring #	Sample #	Depth (ft)	Dry Density (pcf)	Moisture Content (%)	Description
B1	4	15	121.0	4.9%	light gray silty sand
B1	8	35	104.2	10.6%	brown silty sand
B2	1	2	110.3	8.6%	brown silty sand
B3	2	2	95.7	6.1%	light gray silty sand
B4	3	10	90.7	15.5%	grayish brown sandy clay
B4	7	30	103.5	20.0%	reddish brown clay
B4	9	40	105.1	21.0%	reddish brown clay
B4	15	70	98.2	19.5%	reddish brown clay
B4	17	80	101.2	21.5%	dark brown clay

Performed in General Accordance with ASTM D2937 and D2216

KLEINFELDER
An employee owned company

Dry Density and Unit Weight

FIGURE

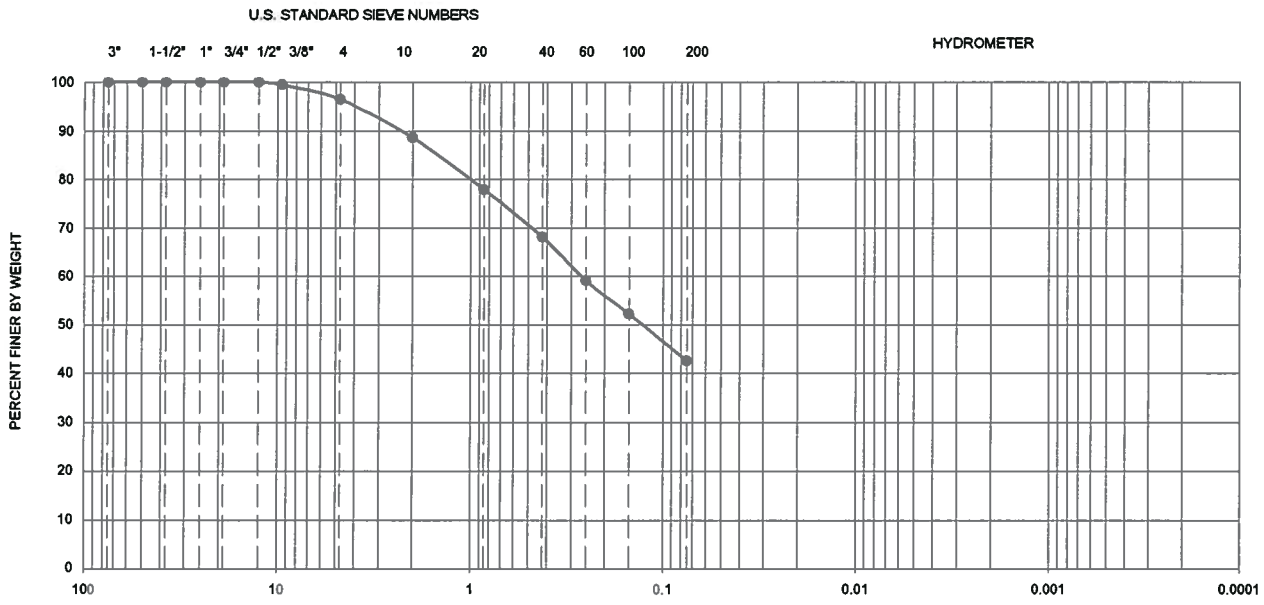
B1

SDG&E Otay Ranch Substation, Otay California

CHECKED BY: Uly TECH: E.M./R.R

JOB NUMBER: 67735 DATE: 23-May-07

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Sample Number	Location	Depth (ft)	Passing 200 (%)	USCS Classification
2	B1	5-9'	42.5	SM

Sample Description	light grayish brown clayey sand

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

KLEINFELDER
An employee owned company

CHECKED BY: Uly	TECH: E.M.
PROJECT NO: 67735	DATE: 23-May-07

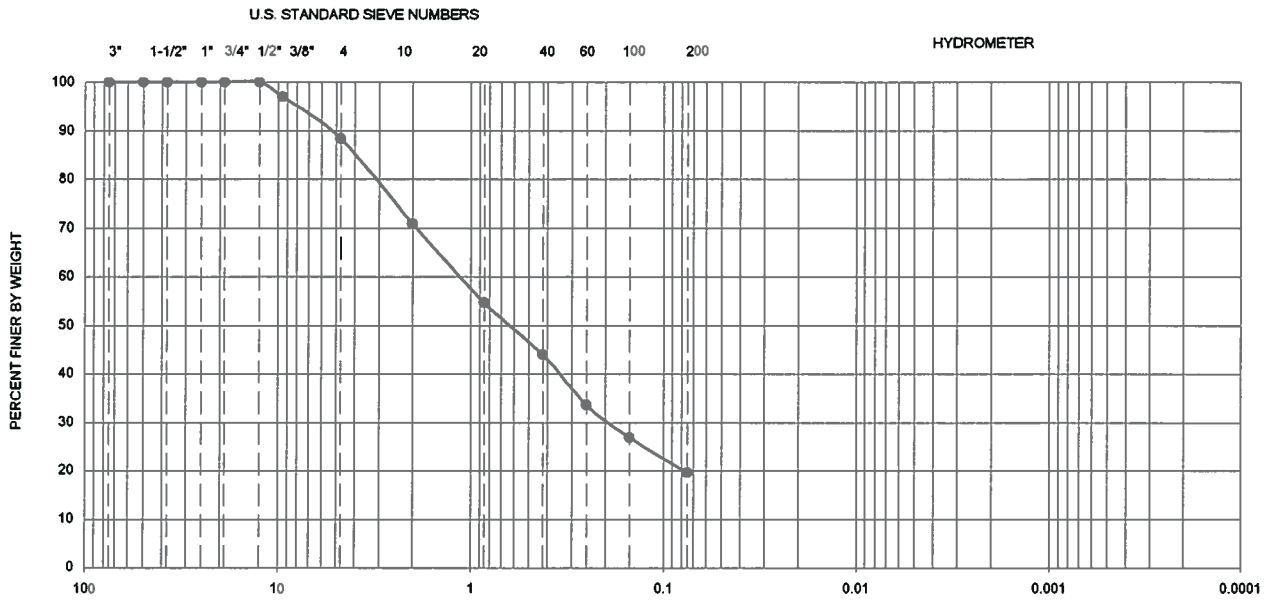
GRADATION TEST RESULTS

SDG&E Otay Ranch Substation
Otay California

FIGURE

B2

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Sample Number	Location	Depth (ft)	Passing 200 (%)	USCS Classification
2	B2	5	19.6	SM

Sample Description	light brown silty sand

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

KLEINFELDER
An employee owned company

GRADATION TEST RESULTS

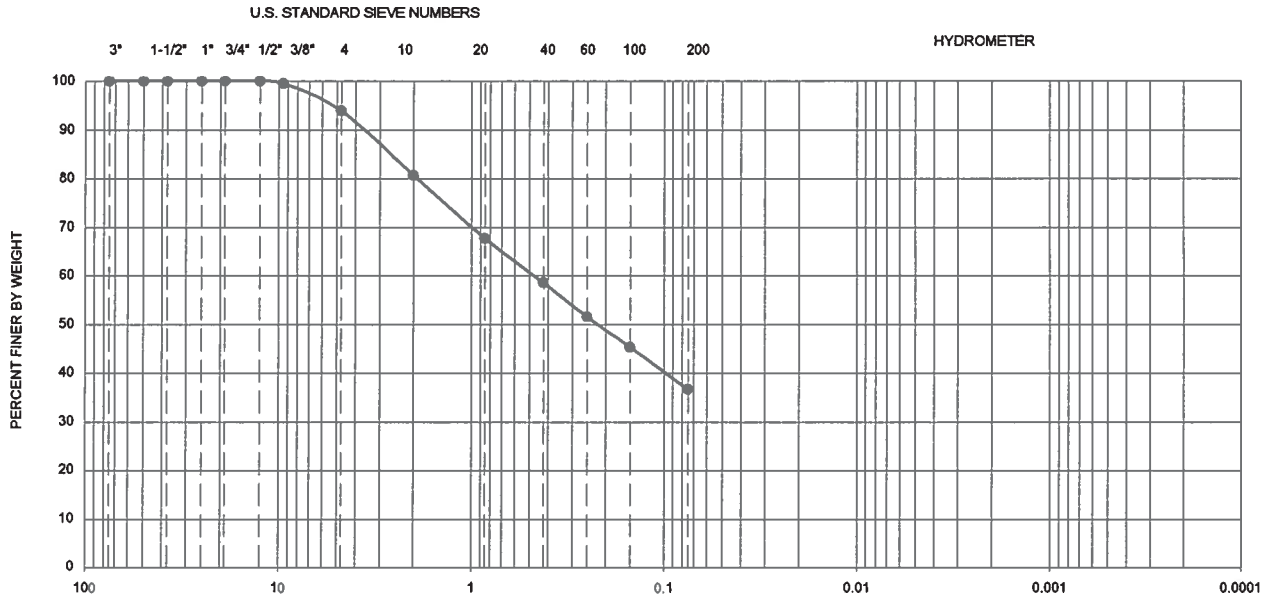
SDG&E Otay Ranch Substation
Otay California

FIGURE

B3

CHECKED BY: Uly	TECH: E.M.
PROJECT NO: 67735	DATE: 23-May-07

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Sample Number	Location	Depth (ft)	Passing 200 (%)	USCS Classification
1	TP7	1-3'	36.8	SC

Sample Description	dark brown clayey sand with trace of gravel

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

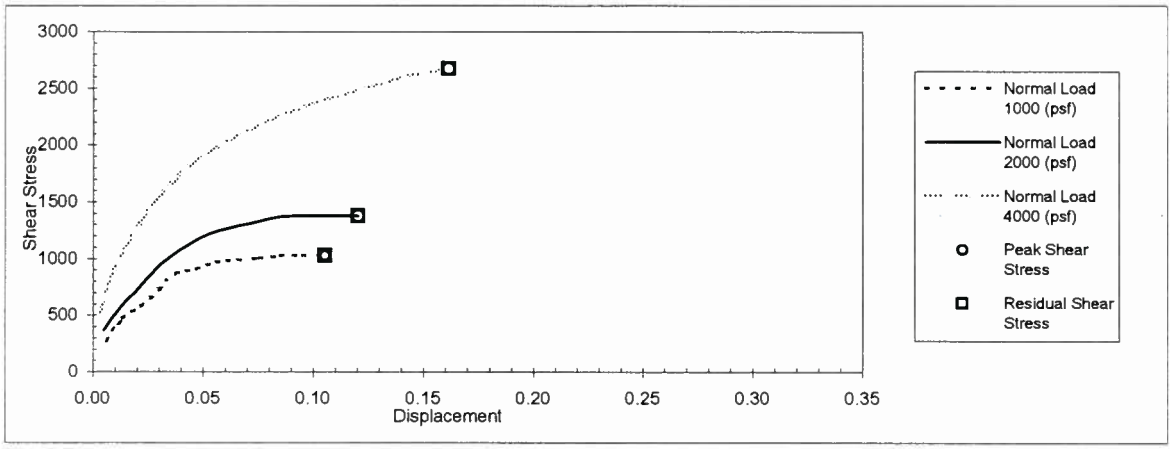
KLEINFELDER
An employee owned company

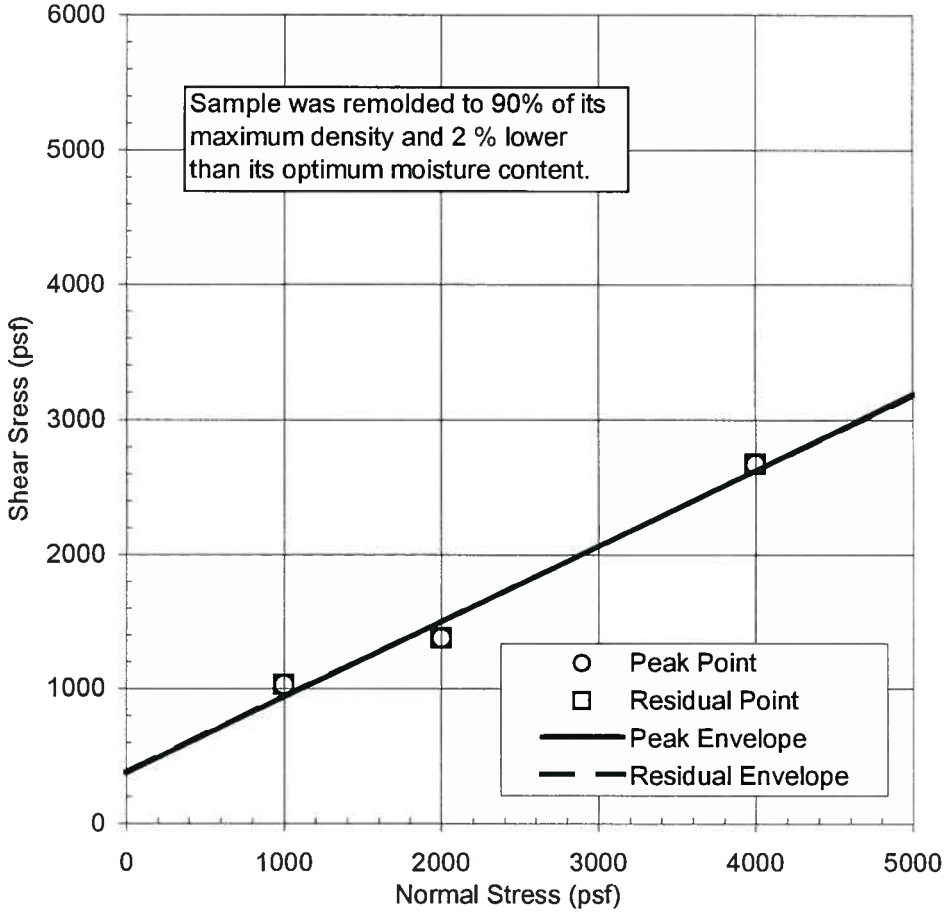
GRADATION TEST RESULTS

SDG&E Otay Ranch Substation
Otay, California

FIGURE
B4

CHECKED BY: Uly	TECH: RR
PROJECT NO: 67735	DATE: 23-May-07



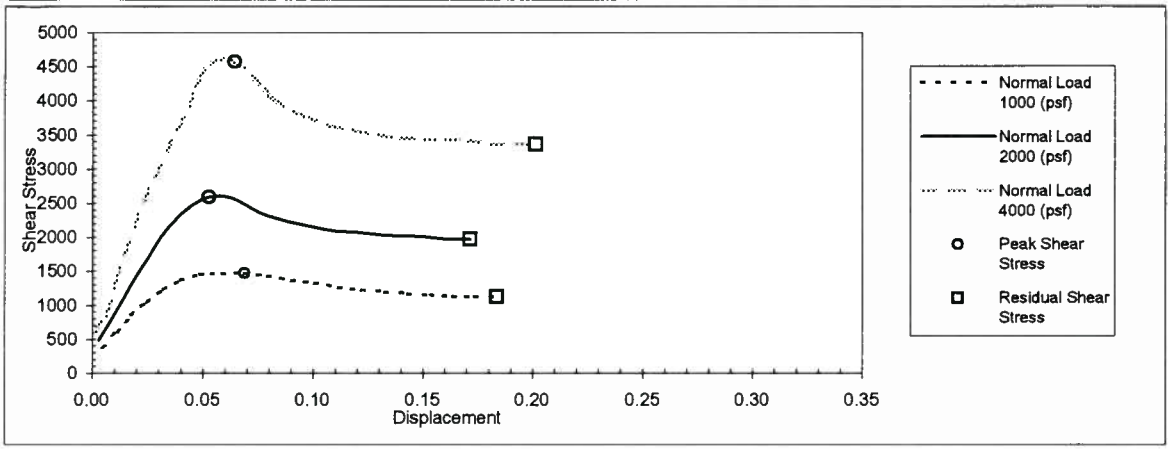


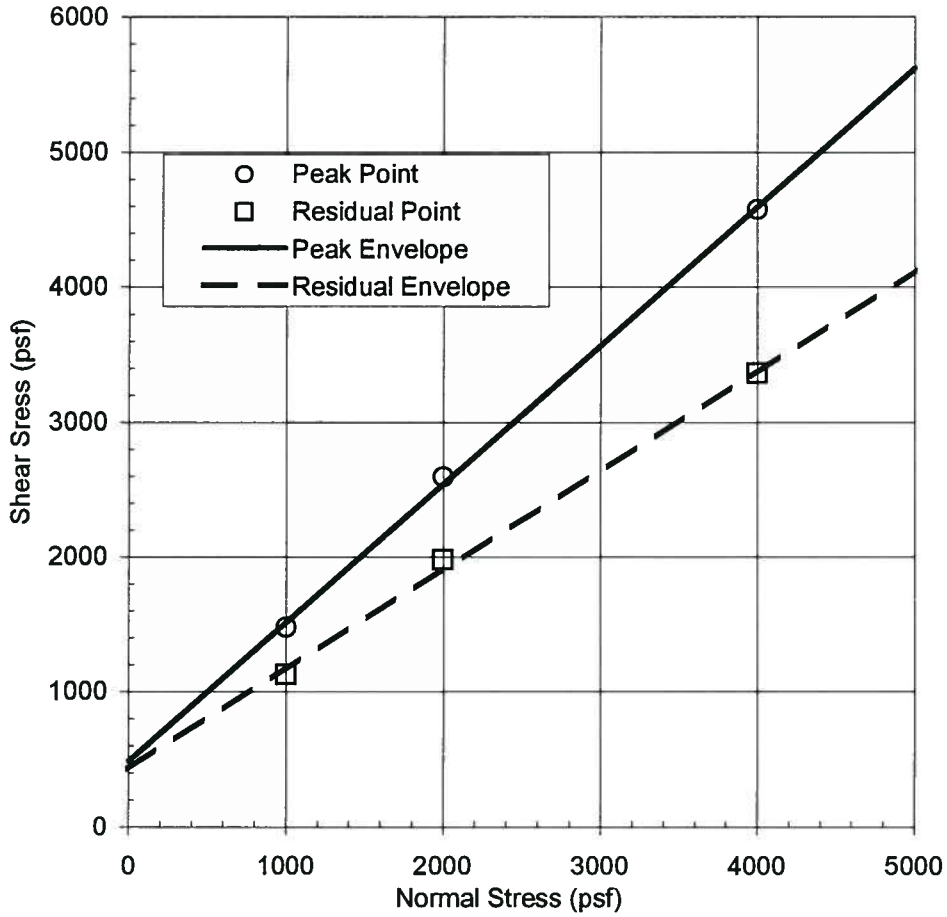
Strain Rate = 0.0158 inch/min

				Interpreted Shear Strength			
				Peak		Residual	
Description	Location	Depth	UCSC	Cohesion (psf)	Friction Angle (deg)	Cohesion (psf)	Friction Angle (deg)
See below	B1-2	5-9'	SC	378	29.4	378	29.4

Sample description: light gray clayey sand (Remolded Sample)

KLEINFELDER *An employee owned company*	**Remolded Shear**	Figure
Checked I Uly / FN: LAB	**SDG&E Otay Ranch Substation Otay California**	**B5**
Project # 67735 / 24-Feb-07		



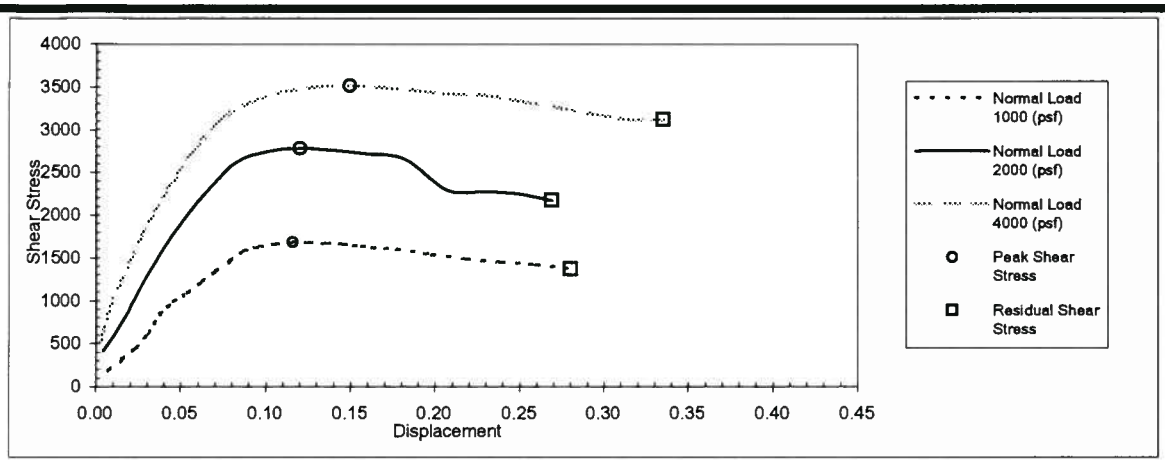


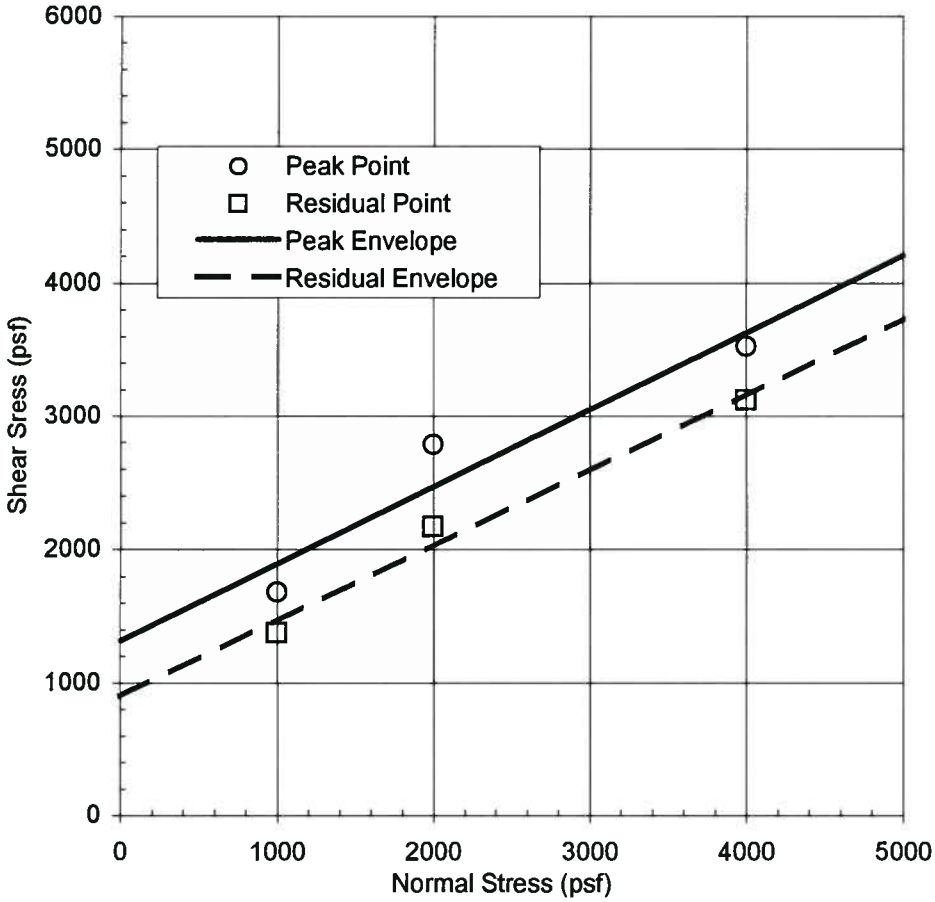
Strain Rate = 0.0158 inch/min

				Interpreted Shear Strength			
				Peak		Residual	
Description	Location	Depth	UCSC	Cohesion (psf)	Friction Angle (deg)	Cohesion (psf)	Friction Angle (deg)
See below	B2-3b	10'	SM	486	45.8	430	36.5

Sample description: light brown silty sand with some clay and trace of gravel

KLEINFELDER *An employee owned company*	**Direct Shear Test Results (ASTM D 3080)**	Figure
Checked I Uly / FN: LAB	**SDG&E Otay Ranch Substation**	**B6**
Project # 67735 / 23-Feb-07		



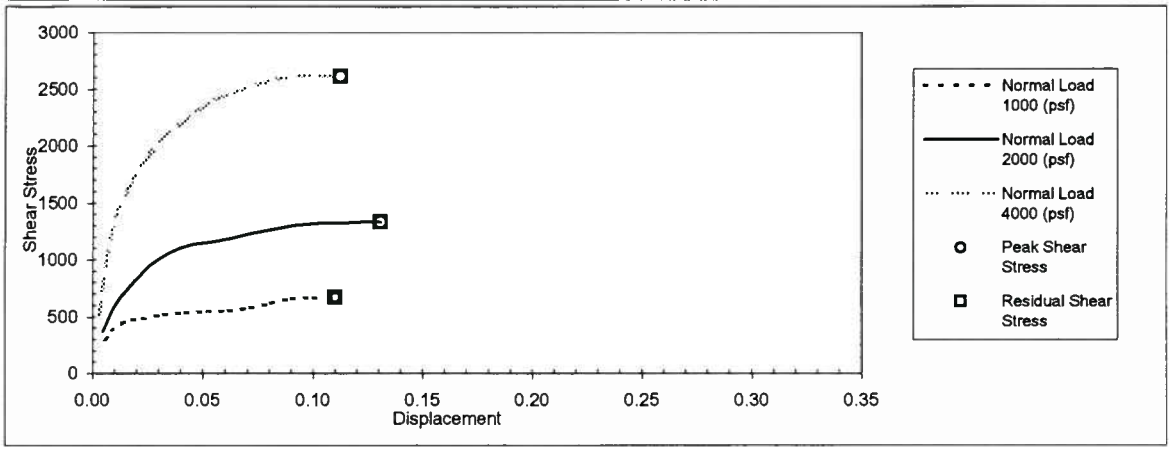


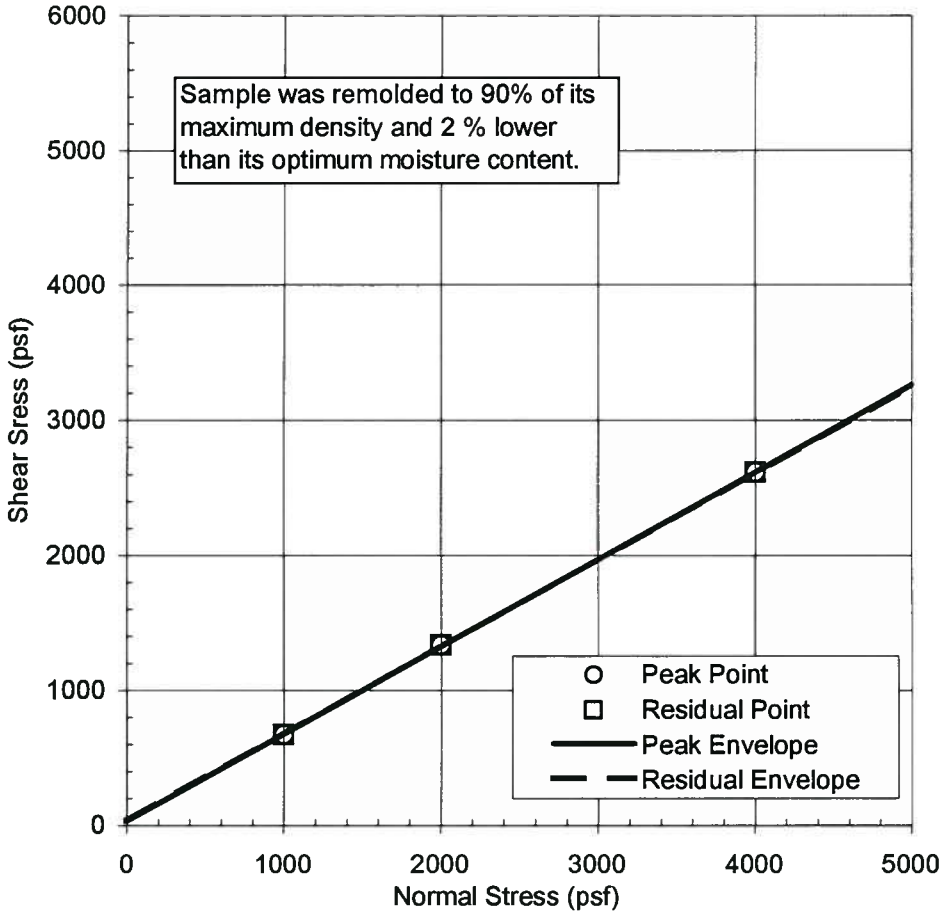
Strain Rate = 0.00315 inch/min

				Interpreted Shear Strength			
				Peak		Residual	
Description	Location	Depth	UCSC	Cohesion (psf)	Friction Angle (deg)	Cohesion (psf)	Friction Angle (deg)
See below	B4-6	25'	CL	1318	30	898	30

Sample description: Reddish brown with gray clay (fill)

KLEINFELDER An employee owned company	**Direct Shear Test Results (ASTM D 3080)**	Figure
	SDG&E Otay Ranch Substation Otay California	**B7**
Checked I JL	FN: LAB	
Project # 67735	20-Mar-07	





Strain Rate = 0.00315 inch/min

				Interpreted Shear Strength			
				Peak		Residual	
Description	Location	Depth	UCSC	Cohesion (psf)	Friction Angle (deg)	Cohesion (psf)	Friction Angle (deg)
See below	TP7-1	1-3'	SC	31	32.9	31	32.9

Sample description: dark brown clayey sand (Remolded Sample)

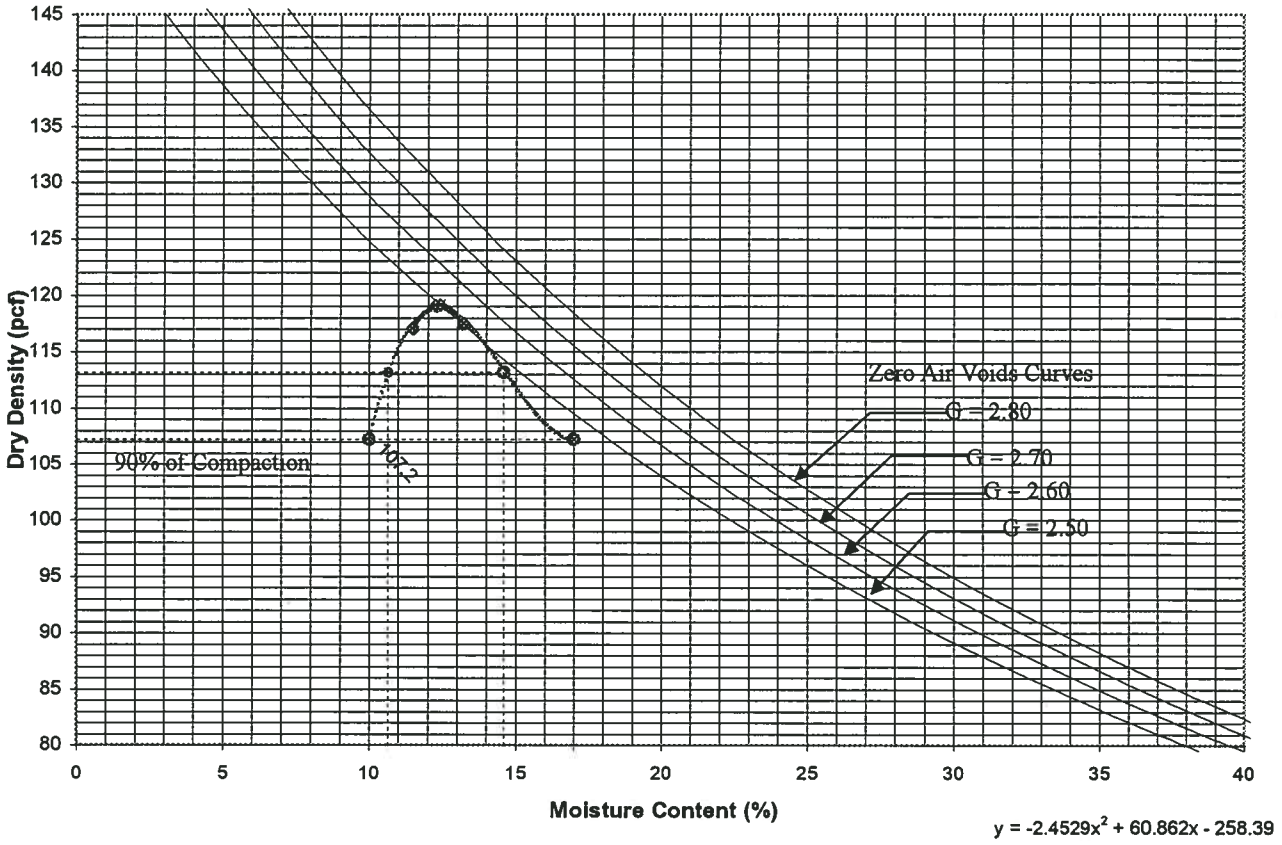
KLEINFELDER *An employee owned company*	**Remolded Shear Test**	Figure
Tech Uly / FN: LAB	**SDG&E Otay Ranch Substation**	**B8**
Project # 67735 / 28-Feb-07	**Otay, California**	

Technician	S. Maletic
Sample No.	2
Date Tested	2/13/2007
Location	B1 @ 5-9'
Description	light grayish brown clayey sand

Method	
D1557	X
D698	

Performed in General Accordance with ASTM D1557

		4" or 6"					
		x					
Scalp Fraction	X	-No. 4	-3/4	**Wet Density Determination**			
Hammer Wt. (lb)	X	10	10	Soil + Mold	4008.8	3998	3961
Mold Size (c.f)	X	1/30	1/13.3	Mold Tare	1986.8	1986.8	1986.8
Drop Ht. (in.)	X	18	18	Wet Wt. Of Soil (g)	2022	2011.2	1974.2
Blows per Layer	X	25	56	Wet Density (pcf)	133.7	133.0	130.6
No. of Layer	X	5	5	**Moisture Content Determination**			
				Wet Wt. Of Soil (g)	170	165.2	163.9
				Dry Wt. Of Soil (g)	151.4	145.9	147
Results:				Tare (g)	0	0	0
Maximum Density (pcf) :			**119.1**	Moisture Content (%)	12.3	13.2	11.5
Optimum Moisture (%) :			**12.4**	Dry Density (pcf)	119.1	117.5	117.1



$y = -2.4529x^2 + 60.862x - 258.39$

KLEINFELDER
An employee owned company

MAXIMUM DENSITY

FIGURE

B9

SDG&E Otay Ranch Substation,
Otay California

CHECKED BY:	Uly	FN.	LAB
JOB NUMBER:	67735	DATE	23-May-07

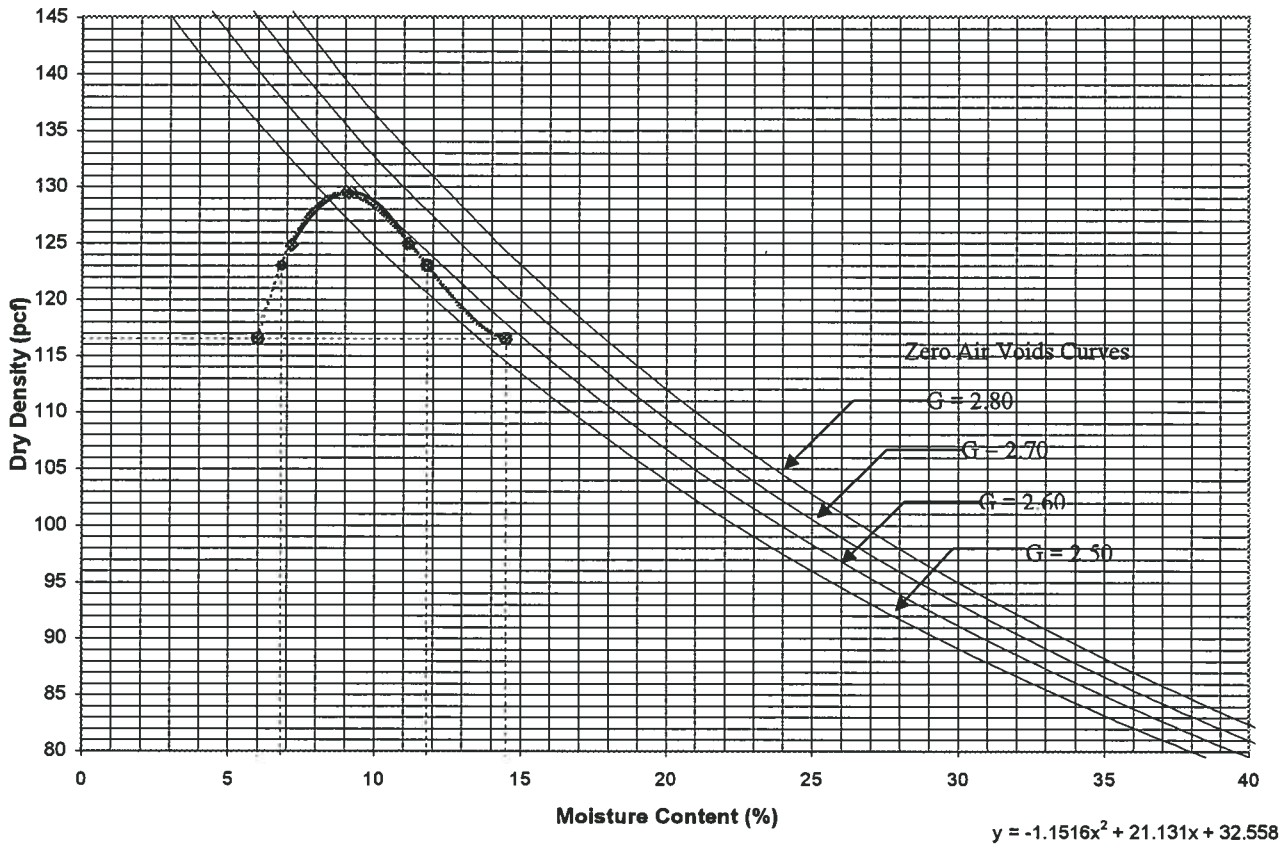
Kleinfelder Inc., 5015 Shoreham Place, San Diego Ca, 92122. Phone: (858)320-2000, Fax: (858)320-2001

Technician	RAR		
Sample No.	1	Date Tested	2/26/2007
Location	TP7 @ 1-3'		
Description	dark brown clayey f-c sand		

Method	
D1557	X
D698	

Performed in General Accordance with ASTM D1557

		4" or 6"					
		x					
Scalp Fraction	X	-No. 4	-3/4	**Wet Density Determination**			
Hammer Wt. (lb)	X	10	10	Soil + Mold	4137.9	4103.2	4025.7
Mold Size (c.f)	X	1/30	1/13.3	Mold Tare	2003	2003	2003
Drop Ht. (in.)	X	18	18	Wet Wt. Of Soil (g)	2134.9	2100.2	2022.7
Blows per Layer	X	25	56	Wet Density (pcf)	141.2	138.9	133.8
No. of Layer	X	5	5	**Moisture Content Determination**			
				Wet Wt. Of Soil (g)	151.8	152.4	151.1
				Dry Wt. Of Soil (g)	139.2	137.1	141
Results:				Tare (g)	0	0	0
Maximum Density (pcf) :			**129.5**	Moisture Content (%)	9.1	11.2	7.2
Optimum Moisture (%) :			**9.2**	Dry Density (pcf)	129.5	125.0	124.8



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MAXIMUM DENSITY

FIGURE

SDG&E Otay Ranch Substation
Otay, California

B10

CHECKED BY:	Uly	FN.	LAB
JOB NUMBER:	67735	DATE	23-May-07

Kleinfelder Inc., 5015 Shoreham Place, San Diego Ca, 92122. Phone: (858)320-2000, Fax: (858)320-2001

Sample Number	Location	Depth (ft)	Sample Description
1	TP3	1-3'	dark brown clayey sand

Density Determination	Trial #1	Trial #2
Weight Compacted Sample and Ring	596.0	
Weight of Ring	229.3	
Net Weight of Sample	366.7	
Wet Density, pcf	111.1	
Dry Density, pcf	96.6	

Moisture Determination		
Wet Weight of Sample, g	162.3	
Dry Weight of Sample, g	141	
Moisture Content, %	15.1%	

Expansion Index	43	
Corrected Expansion Index	**46**	**(LOW)**
% Saturation	54.7	

Expansion Readings			
DATE	TIME	READING	
2/26/2007	6:26pm	0.358	
2/26/2007	6:36pm	0.3587	<< Add Water
2/27/2007	3:47pm	0.3153	<< Final

Moisture Content after Test	
Wet+Ring	**631.8**
Dry	318.6
	26.3%

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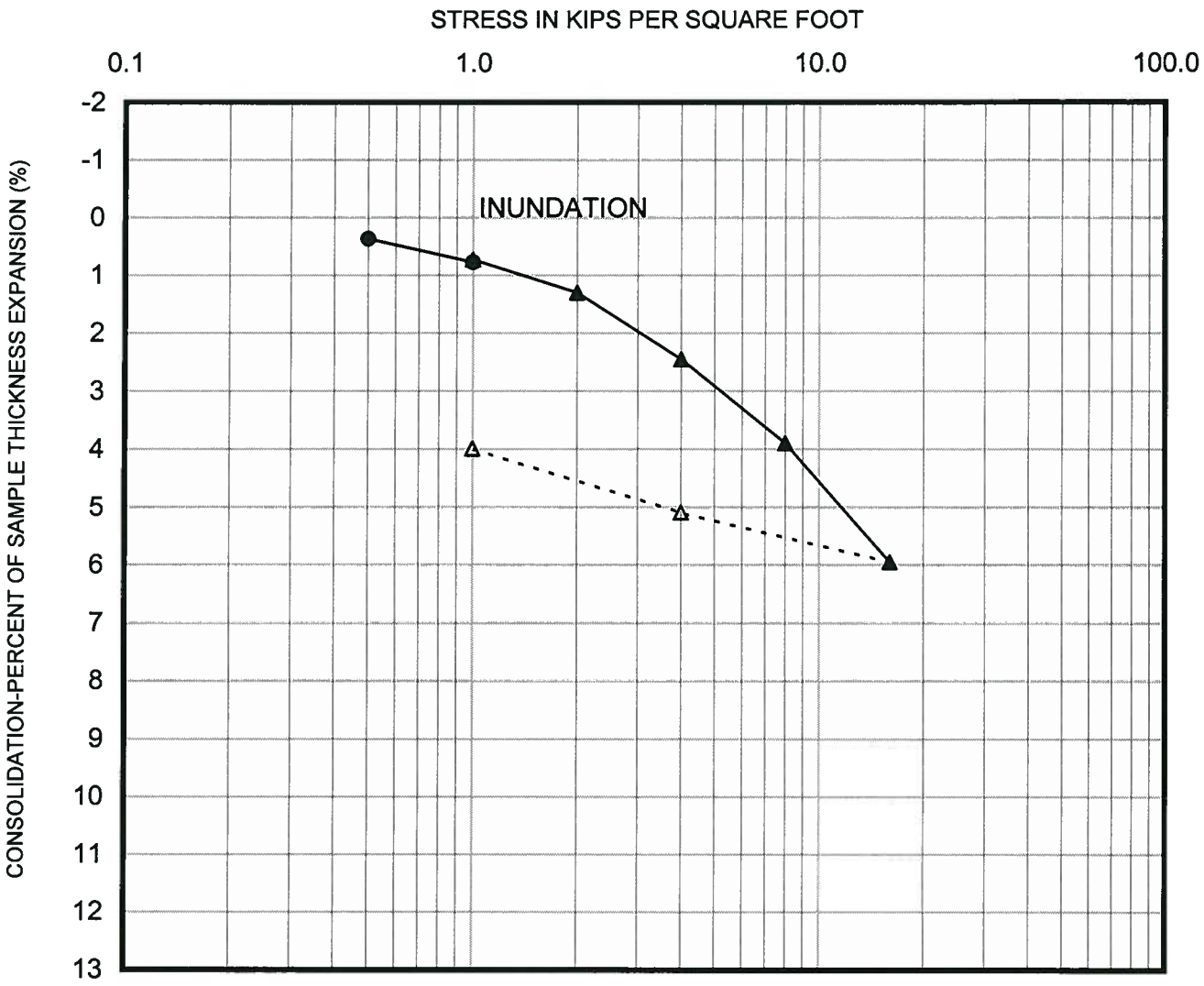
Expansion Index (ASTM D4829)

SDG&E Otay Ranch Substation
Otay, California

FIGURE

B11

CHECKED BY: Uly	TECH: Uly
JOB NUMBER: 67735	DATE: 23-May-07



Seating Cycle
Loading Prior to Inundation
Loading After Inundation
Rebound Cycle

Boring No. B4-11
Depth (ft) 50

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435-96

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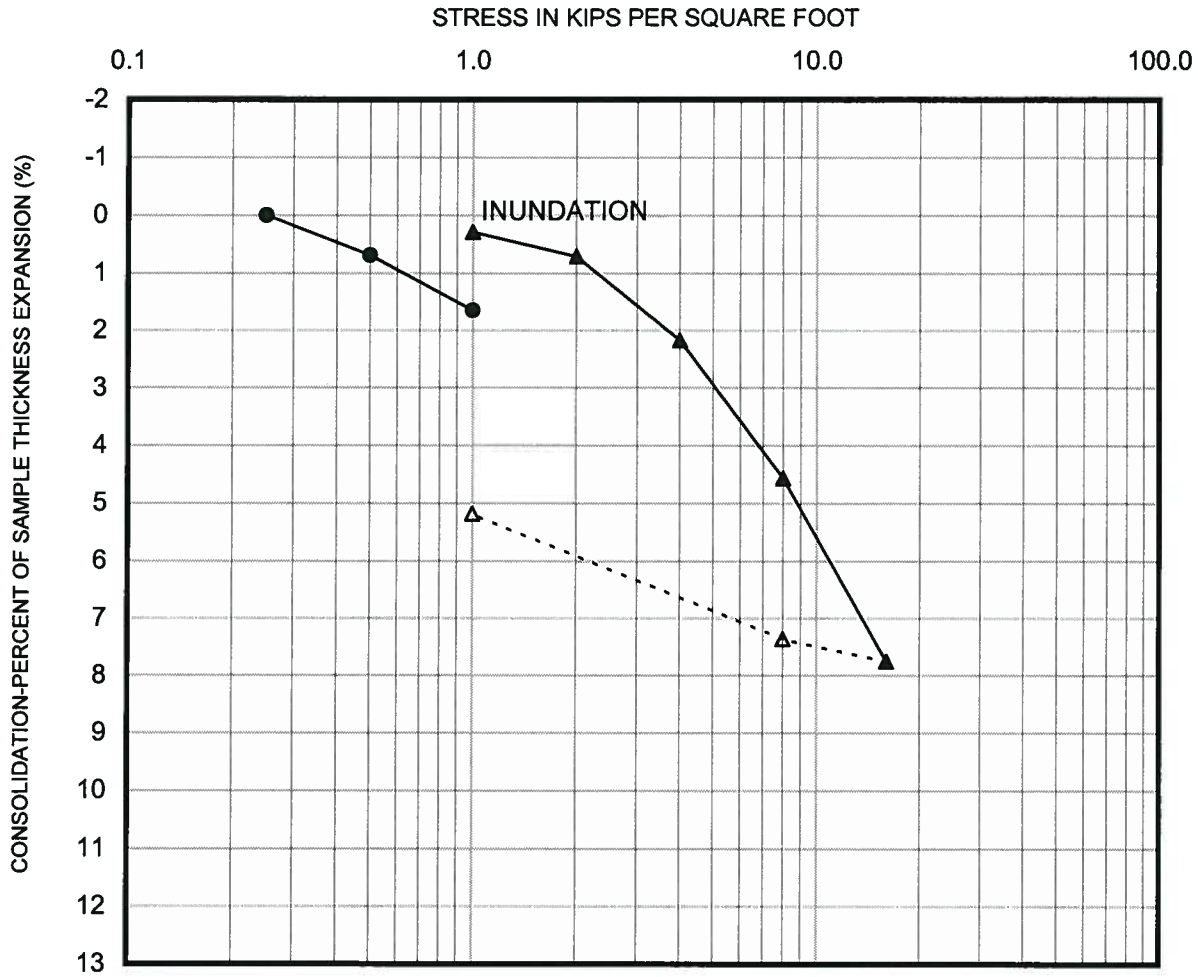
CHECKED BY: JL	FN: LAB
PROJECT NO.: 67735	DATE: 3/20/07

CONSOLIDATION TEST

SDG&E Otay Ranch Substation
Otay California

FIGURE

B12



Seating Cycle
Loading Prior to Inundation
Loading After Inundation
Rebound Cycle

Boring No. B4-18a
Depth (ft) 85

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435-96

KLEINFELDER
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CHECKED BY: JL	FN: LAB
PROJECT NO.: 67735	DATE: 3/20/07

CONSOLIDATION TEST

SDG&E Otay Ranch Substation
Otay California

FIGURE

B13

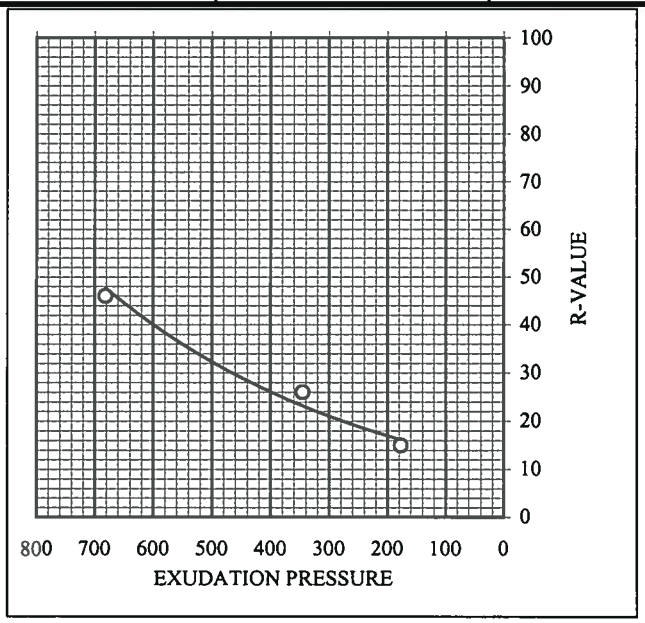
Sample No	Location	Description	Date Tested
Bulk 2	0-2'	Light yellow brown, silty f-c sand (SM) with few gravel	3/21-22/2007

TEST SPECIMEN				
MOLD NO.	#7	#3	#8	
FOOT PRESSURE, psi	**130**	**250**	**350**	
INITIAL MOISTURE, %	6.4	6.4	6.4	
"AS-IS" WEIGHT, g	1200	1200	1200	
DRY WEIGHT, g	1128.2	1128.2	1128.2	
WATER ADDED, ml	**80**	**65**	**50**	
COMPACTION MOISTURE, %	13.5	12.1	10.8	
HEIGHT OF BRIQUETTE, in.	**2.55**	**2.4**	**2.45**	
WEIGHT BRIQUETTE/MOLD, g	**3283**	**3248**	**3249**	
WEIGHT OF MOLD, g	**2106**	**2106**	**2114**	
WEIGHT OF BRIQUETTE, g	1177	1142	1135	
DRY DENSITY, pcf	123.4	128.7	126.8	
STABILOMETER, 1000 lbs	**54**	**41**	**20**	
2000lbs	**125**	**103**	**72**	
DISPLACEMENT, in	**4.01**	**3.58**	**3.44**	
EXUDATION LOAD, lbs	**2225**	**4339**	**8565**	
EXUDATION PRESSURE, psi	177.1	345.5	681.9	
R-VALUE	15	28	47	
CORRECTED R-VALUE	15	26	46	
DIAL READING, END				
DIAL READING, START				
DIFFERENCE				
EXPANSION PRESSURE, PSF				

INITIAL MOISTURE	
WET WEIGHT, g	1204.0
DRY WEIGHT, g	1132.0
WEIGHT OF WATER	
WEIGHT OF SAMPLE	
MOISTURE CONTENT %	6.4

R-VALUE: 21

REMARKS:



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Checked By: Uly	TECH: Uly
Job Number: 67735	DATE: 23-May-07

R-Value (ASTM D2844)

SDG&E Otay Ranch Substation

FIGURE

B14

LABORATORY REPORT

Telephone (619) 425-1993 Fax 425-7917 Established 1928

CLARKSON LABORATORY AND SUPPLY INC.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
ANALYTICAL AND CONSULTING CHEMISTS

Date: February 22, 2007
Purchase Order Number: 67735
Sales Order Number: 87394
Account Number: KLE

To:

Kleinfelder Inc.
5015 Shoreham Drive
San Diego, CA 92122
Attention: Uly Panuncialman

Laboratory Number: SO2161 Customers Phone: 858-320-2000
Fax: 858-320-2001

Sample Designation:

One soil sample received on 02/21/07, taken on 02/21/07 taken from SDG&E Substation Otay Ranch marked as B3/1, B3/2, B3/4 @ 2'.5' '0' Respectivity

Analysis By California Test 643, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 9.4

Water Added (ml)	Resistivity (ohm-cm)
10	3,100
5	1,700
5	1,400
5	1,800
5	1,900

35 years to perforation for a 16 gauge metal culvert.
46 years to perforation for a 14 gauge metal culvert.
63 years to perforation for a 12 gauge metal culvert.
81 years to perforation for a 10 gauge metal culvert.
98 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417	<0.001%
Water Soluble Chloride Calif. Test 422	0.001%

Laura Torres
LT/ovv

APPENDIX C
SUGGESTED GUIDELINES FOR EARTHWORK CONSTRUCTION

1.0 GENERAL

1.1 **Scope** - The work done under theses specifications shall include clearing, stripping, removal of unsuitable material, excavation, preparation of natural soils, placement and compaction of on-site and imported fill material and placement and compaction of pavement materials.

1.2 **Contractor's Responsibility** - The Contractor shall attentively examine the site in such a manner that he can correlate existing surface conditions with those presented in the geotechnical evaluation report. He shall satisfy himself that the quality and quantity of exposed materials and subsurface soil or rock deposits have been satisfactorily represented by the Geotechnical Engineer's report and project drawings. Any discrepancy of prior knowledge to the Contractor to that is revealed through his evaluations shall be made known to the Owner. It is the Contractor's responsibility to review the report prior to construction. The selection of equipment for use on the project and the order of the work shall similarly be the Contractor's responsibility. The Contractor shall be responsible for providing equipment capable of completing the requirements included in the following sections.

1.3 **Geotechnical Engineer** - The work covered by these specifications shall be observed and tested by Kleinfelder, the Geotechnical Engineer, who shall be hired by the Owner. The Geotechnical Engineer will be present during the site preparation and grading to observe the work and to perform the tests necessary to evaluate material quality and compaction. The Geotechnical Engineer shall submit a report to the Owner, including a tabulation of tests performed. The costs of re-testing unsuitable work installed by the Contractors shall be deducted by the Owner from the payments to the Contractor.

1.4 **Standard Specifications** - Where referred to in these specifications, "Standard Specifications" shall mean the State of California Standard

APPENDIX C

Earthwork Guidelines

Specifications for Public Works Construction, with Regional Supplement Amendments for San Diego County, 2000 Edition.

1.5 **Compaction Test Method** - Where referred to herein, relative compaction shall mean the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material, as determined by the ASTM D 1557 Compaction Test Procedure. Optimum moisture content shall mean the moisture content at the maximum dry density determined above.

2.0 SITE PREPARATION

2.1 **Clearing** - Areas to be graded shall be cleared and grubbed of all vegetation and debris. These materials shall be removed from the site by the Contractor.

2.2 **Stripping** - Surface soils containing roots and organic matter shall be stripped from areas to be graded and stockpiled or discarded as directed by the Owner. In general, the depth of stripping of the topsoil will be approximately 3 inches. Deeper stripping, where required to remove weak soils or accumulations of organic matter, shall be performed when determined necessary by the Geotechnical Engineer. Stripped material shall be removed from the site or stockpiled at a location designated by the Owner.

2.3 **Removal of Existing Fill** - Existing fill soils, trash and debris in the areas to be graded shall be removed prior to the placing of any compacted fill. Portions of any existing fills that are suitable for use in new compacted fill may be stockpiled for future use. All organic materials, topsoil, expansive soils, oversized rock or other unsuitable material shall be removed from the site by the Contractor or disposed of at a location on-site, if so designated by the Owner.

2.4 **Ground Surface** - The ground surface exposed by stripping shall be scarified to a depth of 6 inches, moisture conditioned to the proper moisture content for compaction and compacted as required for compacted fill. Ground surface preparation shall be approved by the Geotechnical Engineer prior to placing fill.

3.0 EXCAVATION

3.1 **General** - Excavations shall be made to the lines and grades indicated on the plans. The data presented in the Geotechnical Engineer's report is for information only and the Contractor shall make his own interpretation with regard to the methods and equipment necessary to perform the excavation and to obtain material suitable for fill.

3.2 **Materials** - Soils which are removed and are unsuitable for fill shall be placed in nonstructural areas of the project, or in deeper fills at locations designated by the Geotechnical Engineer.

All oversize rocks and boulders that cannot be incorporated in the work by placing in embankments or used as rip-rap or for other purposes shall be removed from the site by the Contractor.

3.3 **Treatment of Exposed Surface** - The ground surface exposed by excavation shall be scarified to a depth of 6 inches, moisture conditioned to the proper moisture content for compaction and compacted as required for compacted fill. Compaction shall be approved by the Geotechnical Engineer prior to placing fill.

3.4 **Rock Excavation** - Where solid rock is encountered in areas to be excavated, it shall be loosened and broken up so that no solid ribs, projections or large fragments will be within 6 inches of the surface of the final subgrade.

4.0 COMPACTED FILL

4.1 **Materials** - Fill material shall consist of suitable on-site or imported soil. All materials used for structural fill shall be reasonably free of organic material, have a Expansion Index of 50 or less, 100% passing the 3 inch sieve and less than 30 percent passing the #200 sieve.

4.2 **Placement** - All fill materials shall be placed in layers of 8 inches or less in loose thickness and uniformly moisture conditioned. Each lift should then be compacted with a sheepsfoot roller or other approved compaction equipment to at least 90 percent relative compaction in areas under

structures, utilities, roadways and parking areas. No fill material shall be placed, spread or rolled while it is frozen or thawing, or during unfavorable weather conditions.

4.3 **Compaction Equipment** - The Contractor shall provide and use sufficient equipment of a type and weight suitable for the conditions encountered in the field. The equipment shall be capable of obtaining the required compaction in all areas.

4.4 **Recompaction** - When, in the judgment of the Geotechnical Engineer, sufficient compactive effort has not been used, or where the field density tests indicate that the required compaction or moisture content has not been obtained, or if pumping or other indications of instability are noted, the fill shall be reworked and recompacted as needed to obtain a stable fill at the required density and moisture content before additional fill is placed.

4.5 **Responsibility** - The Contractor shall be responsible for the maintenance and protection of all embankments and fills made during the contract period and shall bear the expense of replacing any portion which has become displaced due to carelessness, negligent work or failure to take proper precautions.

5.0 UTILITY TRENCH BEDDING AND BACKFILL

5.1 **Material** - Pipe bedding shall be defined as all material within 4 inches of the perimeter and 12 inches over the top of the pipe. Material for use as bedding shall be clean sand, gravel, crushed aggregate or native free-draining material, having a Sand Equivalent of not less than 30.

Backfill should be classified as all material within the remainder of the trench. Backfill shall meet the requirements set forth in Section 4.2.7 for compacted fill.

5.2 **Placement and Compaction** - Pipe bedding shall be placed in layers not exceeding 8 inches in loose thickness, conditioned to the proper moisture content for compaction and compacted to at least 90 percent relative compaction. All other trench backfill shall be placed and compacted in

accordance with Section 306-1.3.2 of the Standard Specifications for Mechanically Compacted Backfill. Backfill shall be compacted as required for adjacent fill. If not specified, backfill shall be compacted to at least 90 percent relative compaction in areas under structures, utilities, roadways, parking areas and concrete flatwork.

6.0 SUBSURFACE DRAINAGE

6.1 **General** - Subsurface drainage shall be constructed as shown on the plans. Drainage pipe shall meet the requirements set forth in the Standard Specifications.

6.2 **Materials** - Permeable drain rock used for subdrainage shall meet the following gradation requirements:

Sieve Size	Percentage Passing
3"	100
1-1/2"	90 - 100
3/4"	50 - 80
No. 4	24 - 40
No. 100	0 - 4
No. 200	0 - 2

6.3 **Geotextile Fabric** - Filter fabric shall be placed between the permeable drain rock and native soils. Filter cloth shall have an equivalent opening size greater than the No. 100 sieve and a grab strength not less than 100 pounds. Samples of filter fabric shall be submitted to the Geotechnical Engineer for approval before the material is brought to the site.

6.4 **Placement and Compaction** - Drain rock shall be placed in layers not exceeding 8 inches in loose thickness and compacted as required for adjacent fill, but in no case, to be less than 85 percent relative compaction. Placement of geotextile fabric shall be in accordance with the manufacturer's specifications and shall be checked by the Geotechnical Engineer.

7.0 AGGREGATE BASE BENEATH INTERIOR CONCRETE SLABS

7.1 **Materials** - Aggregate base beneath concrete slabs shall consist of clean free-draining sand, gravel or crushed rock conforming to the following gradation requirements:

Sieve Size	Percent Passing
1"	100
3/8"	30 – 100
No. 20	0 – 10

7.2 **Placement** - Aggregate base shall be compacted and kept moist until placement of concrete. Compaction shall be by suitable vibrating compactors. Aggregate base shall be placed in layers not exceeding 8 inches in loose thickness. Each layer shall be compacted by at least four passes of the compaction equipment or until 95 percent relative compaction has been obtained.

APPENDIX D

Preliminary Geotechnical Siting Study

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An employee owned company

July 20, 2006
Project No. 67735

Mr. Selim Tarabus
San Diego Gas & Electric
8316 Century Park Court
San Diego, California 92123

Subject: **Preliminary Siting Study Report**

Project: **SDG&E Substation**
Otay Ranch
Chula Vista, California

Dear Mr. Tarabus:

Kleinfelder is please to present this letter report concerning our preliminary siting study for a proposed SDG&E substation site located in the Otay Ranch area of Chula Vista, California. This is a revised report to our draft report dated on May 5, 2006. This report includes analysis of grading option 2A which was unavailable at the time of our draft report.

PURPOSE AND SCOPE OF SERVICES

San Diego Gas & Electric (SDG&E) is evaluating the suitability of a site in the Otay Ranch area of Chula Vista for the development of a new substation. In preparation of our study, we reviewed pertinent documents concerning the site and performed a site geologic reconnaissance. Our study was performed in accordance with the general guidelines for a preliminary siting study contained in "Technical Guidelines for Geo-Engineering Studies at Electrical Substation Sites," prepared by Woodward-Clyde, dated May 31, 1996. A subsurface exploration and laboratory testing were not included in the scope of this limited evaluation.

BACKGROUND RECORD REVIEW

We have reviewed the following documents in preparation of this report:

1. Grading Plan for the Otay Ranch – Village 11, Phase III subdivision, prepared by Hunsaker & Associates, undated.
2. Option 1 Preliminary Grading Plan for the Otay Ranch Substation, prepared San Diego Gas and Electric, dated October 19, 2005.
3. Option 2 Preliminary Grading Plan for the Otay Ranch Substation, prepared San Diego Gas and Electric, dated October 19, 2005.

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4. Option 2A Preliminary Grading Plan for the Otay Ranch Substation, prepared San Diego Gas and Electric, dated May 2, 2006.
5. Stereoscopic Aerial Photographic Plates 210-32F-5 & 4, on file at the County of San Diego Cartographic Services, dated November 29, 1978.
6. Aerial Photographic Plate 78-E11, on file at the County of San Diego Cartographic Services, dated 1928.
7. Geology of National City, Imperial Beach and Otay Mesa Quadragles, Southern San Diego Metropolitan Area, California, Map Sheet 29, Michael P. Kennedy and Siang S. Tan, CDMG, 1977.
8. Geotechnical Investigation, Otay Ranch Village 11 Subdivsion, Chula Vista California, prepared by GeoCon, dated February 2000.

SITE LOCATION AND SITE BACKGROUND

The general, the project area for the subject site is within the Otay Ranch region of Chula Vista, California (see Vicinity Map, Figure 1). This site is just southeast of the new extension of Hunte Parkway, which is currently under construction for the Otay Ranch – Village 11 Subdivision (see Site Map and aerial view, Figure 2). Review of historic aerial photography indicates that the site and surrounding area were previously used for agricultural purposes, most probably for cattle grazing. The site appears to have remained relatively unchanged between 1928 (the time of the oldest photo reviewed) and the initiation of the residential subdivision.

FIELD RECONNAISSANCE AND SITE DESCRIPTION

A certified engineering geologist and a geotechnical engineer from Kleinfelder conducted a site reconnaissance in January 2006, to assess and document current site conditions. Site access is provided via a recently constructed access road from the south side of Hunte Parkway. This access road and the newly constructed extension of Hunte Parkway are part of a significant grading project for the Otay Ranch – Village 11 residential subdivision. This earthwork has included grading work on the north side of the proposed substation site and consisted primarily of cut type grading of up to 30 feet in depth. The earthwork resulted in the creation of a v-shaped cut made for the access road with slopes up to 30 feet in height and gradients of approximately 2:1 horizontal to vertical units.

The south side of the site has remained relatively undisturbed and consists of gentle to moderately sloping hillsides which descend downward to the west, south and east to a natural drainage system below the site. The undeveloped portions of the site are covered with grasses which appear to have been previously used for cattle grazing. Based on our discussions with SDG&E, we understand that from an engineering standpoint, a suitable site for a substation would generally have approximately two acres of level space, and access roads having no more than a six to ten percent grade. Due to the present site conditions a significant amount of grading will be required to meet these conditions.

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SITE GEOLOGY

The geologic map by Kennedy and Tan (1977) indicates that the Pliocene age Otay Formation underlies the site (see local Geologic Map, Figure 3). The Otay Formation typically consists of arkosic sandstone and claystone. The claystone includes of beds of tan to gray bentonitic clay up to 1 meter in width. Our inspection of the cut slopes on the property indicate that geologic materials below the site consist of a very coarse friable silty sand. We did not observe any significant clay beds within the full height of the cut slopes. We also reviewed a geologic map prepared by GeoCon of this area for the adjacent subdivison. Their map show the site to be underlain by the coarse "gritstone" member of the Otay Formation. GeoCon's 2000 map does not show any landslides on or nearby the site.

The undisturbed natural ground surfaces are covered with a dark brown clay soil horizon to a depth of up to about 18 inches. This clay is related to natural soil development processes (pedogenesis).

Several tonal bands are apparent on aerial photography on hillslopes nearby the site that closely follow the surface topography. These bands are due to slight color variations between adjacent stratagraphic subunits and indicate that the geologic structure is generally horizontal. Regionally, the Kennedy and Tan geologic map indicate the structure has very low dips to the southwest.

POTENTIAL GEOLOGIC HAZARDS

Potential geologic hazards evaluated in our study include; fault rupture, seismic shaking, liquefaction, seismically induced settlement ground lurching and landslides. The following sections discuss these hazards and their potential at the sites in more detail.

Faulting and Ground Rupture

The project vicinity is considered to be seismically active, as is most of southern California. Our review of the referenced geologic maps do not show any mapped fault traces extending through or nearby the site. We also reviewed stereoscopic aerial photographs and specifically looked for indications of faulting during our recent geologic reconnaissance. Based on these surface interpretive methods, we did not observe indication of faulting on or nearby the site.

The Rose Canyon fault zone is the closest active fault system to the site and is located approximately 11.3 miles (18.1 km) to the west. Studies indicate that the most recent earthquake on the Rose Canyon fault in San Diego occurred after A.D. 1523 but before the Spanish arrived in 1769. Two additional later earthquakes may have occurred, on offshore segments of the Rose Canyon fault in the 1800s.

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The Rose Canyon fault zone consists of predominantly right-lateral strike-slip faults that extend south-southeast from La Jolla bisecting the San Diego metropolitan area. Various fault strands display strike-slip, normal, oblique, or reverse components of displacement which is typical of faults that have variations in strike and dip along their length. The fault zone extends offshore at La Jolla and continues north-northwest subparallel to the coastline. South of downtown San Diego, the fault zone splits into several splays that underlie San Diego Bay, Coronado, and the ocean floor south of Coronado. Portions of the fault zone in the Mount Soledad, Rose Canyon, and downtown San Diego areas have been designated by the State of California (CDMG, 1991, 2003) as being Earthquake Fault Zones.

A major strand of the potentially active La Nacion fault has been mapped approximately 3.8 miles (6.1 km) west of the site. The La Nacion fault zone is composed of several parallel to subparallel, west dipping normal faults that displace Tertiary and Quaternary deposits. Radiocarbon dates of unfaulted Holocene alluvium overlying the fault range from approximately 6,800 years to 13,400 years old (Hart, 1974). In addition, geomorphic features commonly associated with Holocene faulting, such as sag ponds and well-defined scarps, have not been observed along the La Nacion fault zone (Elliott and Hart, 1977). Furthermore, the California Geological Survey (CGS) does not consider the La Nacion fault zone to be an active or independent seismogenic source. Based on this data, we consider the seismic parameters associated with the closest known active fault, the Rose Canyon fault, more appropriate for design purposes. Based on the above information, the hazard with respects to ground rupture at the site is considered low.

Seismic Shaking

The most significant seismic event likely to affect the project sites would be strong seismic shaking from a maximum moment magnitude 6.9 earthquake resulting in the Rose Canyon fault zone. Based on a Probabilistic Seismic Hazard Assessment for the Western United States, issued by the United States Geological Survey the project site is located in an area where the horizontal peak ground acceleration having a 10 percent probability of exceedance in 50 years will be approximately 0.23g (23 percent of the acceleration of gravity). The requirements of the governing jurisdictions and other governing standards should be considered in the design of structures.

Liquefaction and Secondary Seismic Hazards

There are several secondary hazards caused by seismic shaking from a significant earthquake event. The most notable is liquefaction. Other seismically induced hazards include lateral spread, seismic settlement and ground lurching.

Liquefaction describes a phenomenon in which saturated, cohesionless soils temporarily lose shear strength (liquefy) due to increased pore water pressures induced by strong, cyclic ground motions during an earthquake. Structures founded on or above potentially liquefiable soils may experience bearing capacity failures due to the

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temporary loss of foundation support, vertical settlements (both total and differential), and undergo lateral spreading. The factors known to influence liquefaction potential include soil type, relative density, grain size, confining pressure, depth to groundwater, and the intensity and duration of the seismic ground shaking. The cohesionless soils most susceptible to liquefaction are loose, saturated sands and some silts.

The subject site is underlain at depth by dense sandstone. Our inspection of cut and natural slopes did not show signs of water seepage. Based on the dense nature of the on-site formational deposits and the apparent absence of a near surface groundwater, it is our opinion that the potential for liquefaction is low.

Lateral spread occurs when a clayey or weak water saturated subsurface layer undergoes a threshold reduction in of strength due to an instantaneous rise in pore water pressure during to seismic shaking. The weakened layer provides a surface of translational movement which causes the ground surface to spread laterally down an incline toward an unsupported slope face. We did not observe potential weak water layers during our site reconnaissance and we consider hazard with respects to lateral spread to be low.

Seismic settlement occurs when low density, natural or artificially placed fill soils undergo a volumetric reduction during a seismic event. Natural soils which are prone to seismic settlement are poorly consolidated coarse to medium grained alluvium and colluvium. Non-engineered poorly compacted fill soils are also prone to seismic settlement. We did not observe alluvium or colluvium at the site. Fill soils are present on slopes nearby the site which have been placed during earthwork on the residential subdivision. These fills are engineered and any fill placed during earthwork of the substation site will obviously be engineered. Based on these conditions, seismic settlement is considered be low.

Ground lurching is defined as mass movement of low-density materials on a bluff, steep slope, or embankment which yield laterally during an earthquake. Because the site is surrounded by gentle to moderately steep slopes, ground lurching is considered possible during a significant seismic event. However, the dense sandstone underlying the site is not the type of material particularly prone ground lurching and we therefore consider the hazard with respect to ground lurching to be low to moderate. Fill slopes are typically less dense and have lower strength characteristics than slopes of natural geologic material and therefore are more prone to lurching. If fill slopes are planned, it is important to maintain good quality control and proper benching during fill placement in order to achieve proper compaction, thus minimizing the potential for seismic ground lurching

Landslides

Landslides are deep-seated ground failures (several tens to hundreds of feet deep) in which a large arcuate shaped section of a slope detaches and slides downhill. Landslides can cause damage to structures both above and below the slide mass.

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Structures above the slide area are typically damaged by undermining of foundations. Areas below a slide mass can be damaged by being overridden and crushed by the failed slope material. Landslides are not to be confused with minor slope failures (slumps), which are usually limited to the topsoil zone and can occur on slopes composed of almost any geologic material.

Several formations within San Diego County are particularly prone to landsliding. These formations generally have high clay content and mobilize when they become saturated with water. Other factors, such as steeply dipping bedding that project out of the face of the slope and/or the presence of fracture planes, will also increase the potential for landsliding.

Certain strata within the Otay Formation are highly susceptible to landsliding. These strata consist of layers of low strength bentonite clay and have been responsible for spectacular landslides in the border area south of the site. The geologic map covering the site does not show any landslides on or nearby the site. Additionally, our review of historical aerial photography did not show clear surface disruptions or topographic features indicative of landsliding. We did not observe clay beds within the sandstone material on any of the cuts on the north side of the site. Based on this information it is our opinion the hazard with respects to landsliding is low. Borings during geotechnical design should verify the absence of clay beds which could impact stability.

Expansive Soils

Expansive soils are characterized by their ability to undergo significant volume changes (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from precipitation, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors and may result in unacceptable settlement or heave of structures or concrete slabs supported on grade. The geologic material underlying the sight consists of sandstone which we anticipate will have a low expansion potential. However, at the time of our site reconnaissance, we observed that the ground surface is underlain by a dark brown clayey soil horizon with dessication cracks up to about 8 inches deep. This soil horizon extends to depth of up to 18 inches and we anticipate that it will have a high expansion poteintial. Due to the shallow depth of the horizon, it can be addressed during grading by removal and either exportation or placement in non-sensitive areas.

Tsunamis and Seiches

Tsunamis are long wavelength sea waves (long compared to the ocean depth) generated by sudden movements of the ocean bottom during submarine earthquakes, landslides, or volcanic activity. Low lying, near shore coastal areas are particularly prone to damages from tsunamis. The run-up in these areas can reach several thousands of feet inland for large wave events. Inland surges of up to a mile or more can occur up low profile valleys which are open toward the ocean.

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Due to the elevation of the site (over 500 feet above mean sea-level) and the distance from the ocean, the hazard with respects to tsunami damage is considered nil.

A seiche is an oscillation (wave) of a body of water in an enclosed or semi-enclosed basin that varies in period, depending on the physical dimensions of the basin, from a few minutes to several hours, and in height from several inches to several feet. A seiche is caused chiefly by local changes in atmospheric pressure, aided by winds, tidal currents, and occasionally earthquakes. The closest body of the water to the site is Otay Reservoir which is located approximately near a mile (1.6 km) west of the site. Based on the distance to Otay Reservoir and the presence of an intervening valley, the potential for damage due to seiche is considered nil.

Flood Hazard

According to a Federal Emergency Management Agency (FEMA) flood insurance rate map 2177F (reviewed on website: www.sangis.org), the site is considered to be outside of 100-year and 500-year floodplains. Based on review of topography, the site is not located downstream from the nearby Otay reservoir and is at and elevation of over 500 feet MSL which is above the spillwater elevation of 491 feet MSL of the reservoir. Based on this review, the potential for flooding at the site is considered low.

GEOTECHNICAL CONSIDERATIONS

Based on the results of our preliminary geologic reconnaissance and review, it is our opinion that construction of the project at the proposed substation site is feasible from a geotechnical perspective. A significant amount of earthwork will be required for the site based on the required approximate 2-acre level pad and access roadway grades Specific geotechnical factors that should also be considered when evaluating Options 1 and 2 for grading development of this site are discussed below. Figures 4 and 5 present the preliminary grading plans for Options 1 and 2, respectively.

- Option 1: Creating a mostly cut pad at a notably lower elevation below Hunte Parkway will require a longer site access road and with cut into and fills over the existing graded slope. This will require detailed study and engineering analysis for the effects of grading and stability of this slope. Additionally, the sloping ground which descends essentially in three directions down the hillside nose, will result in fill placement along with several cut/fill transition lines across corner of the pad. Sensitive structures should not be positioned across these transitions or it will probably be necessary to overexcavate and recompact portions of the pad to provide a more uniform subgrade.
- Option 2: Creating a pad near the elevation of Hunte Parkway will require deep fill placement within the v-shaped cut feature for the existing access road on the north side of the site. This fill will have appreciable depth variation across the pad which may result in adverse differential settlement across the fill area. The deepest portion of the fill will be near the center of the pad and be up to about 45 feet deep.

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- Option 2A: This option results in a combination cut/fill pad with a cut of up to 25 feet on the north and fill of up to 50 feet on the south. Access is provided from the east via a roadway through the SDG&E easement on the northeast. The combination of cut/fill pad and resultant varible depth fill wedge which will increase from a daylight near the center of the pad up to 50 feet will have significant differential fill settlement potential.
- All Options: A thin cover of potentially highly expansive soils covers the natural ground surface. These soils will require removal during grading so they do not remain at finish grade below sensitive structures.

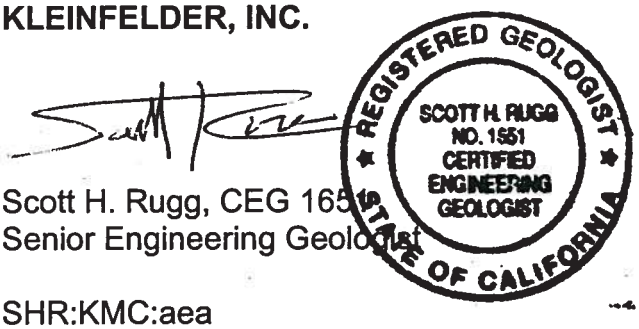
RECOMMENDATIONS FOR ADDITIONAL STUDY

We recommend that a comprehensive geotechnical evaluation, including development-specific subsurface exploration and laboratory testing be conducted prior to design and construction. The purpose of the subsurface evaluation would be to further evaluate the subsurface conditions and to provide information pertaining to the engineering characteristics of earth materials at the project site. We also recommend that corrosion testing be performed on all on-site soils and imported soils used in the project. Based on the results of the geotechnical evaluation and laboratory testing, recommendations for grading/earthwork, surface and subsurface drainage, foundations, pavement structural sections, and other pertinent geotechnical design considerations may be formulated.

We appreciate this opportunity to be of continued service and look forward to future endeavors. If you have any questions about our report, please contact us at (858) 320-2000.

Very truly yours,

KLEINFELDER, INC.



Scott H. Rugg, CEG 1551
Senior Engineering Geologist

SHR:KMC:aea

Attachments: Vicinity Map
Site Map
Local Geologic Map
Option 1 Grading
Option 2 Grading
Option 2A Grading

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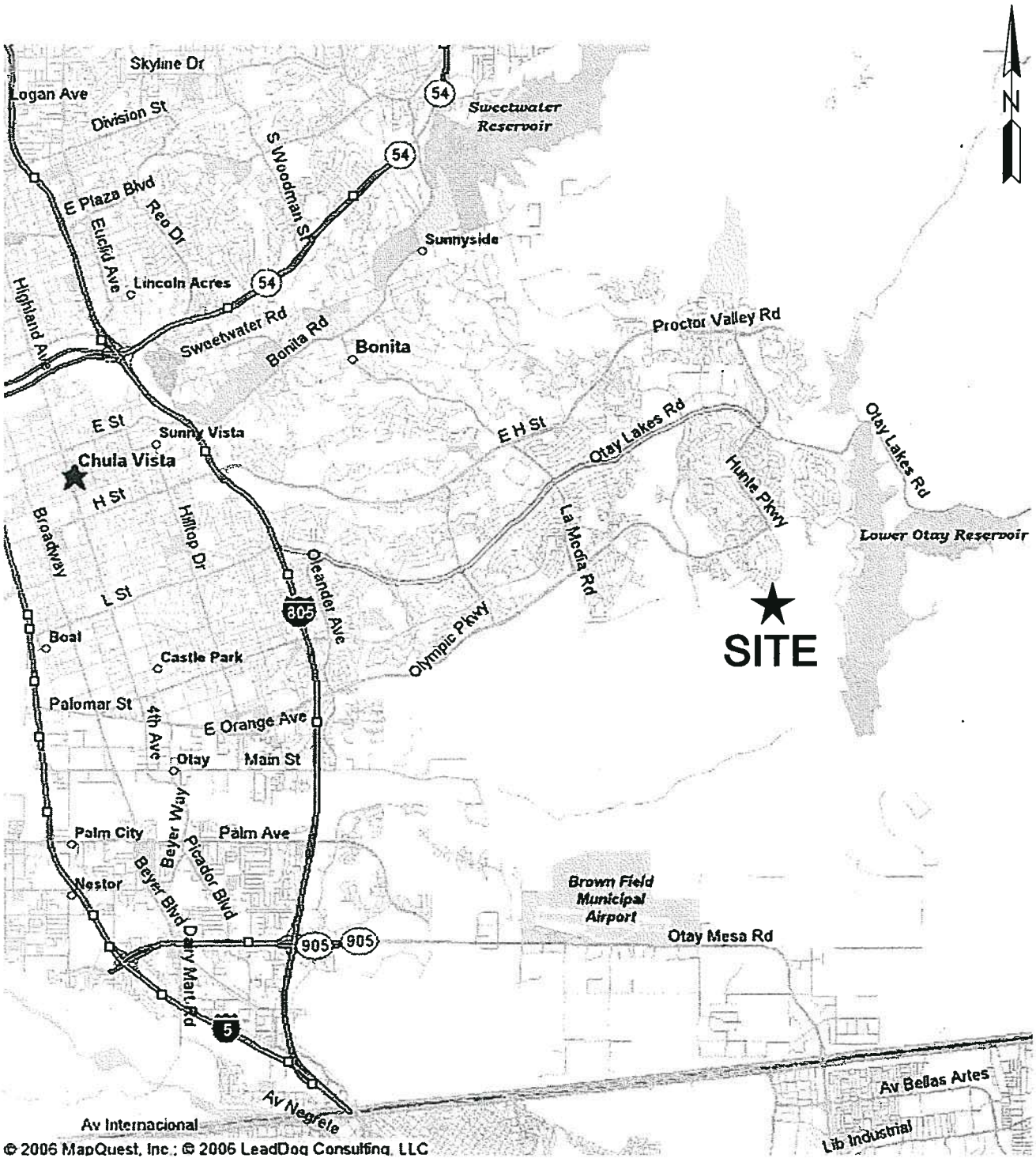
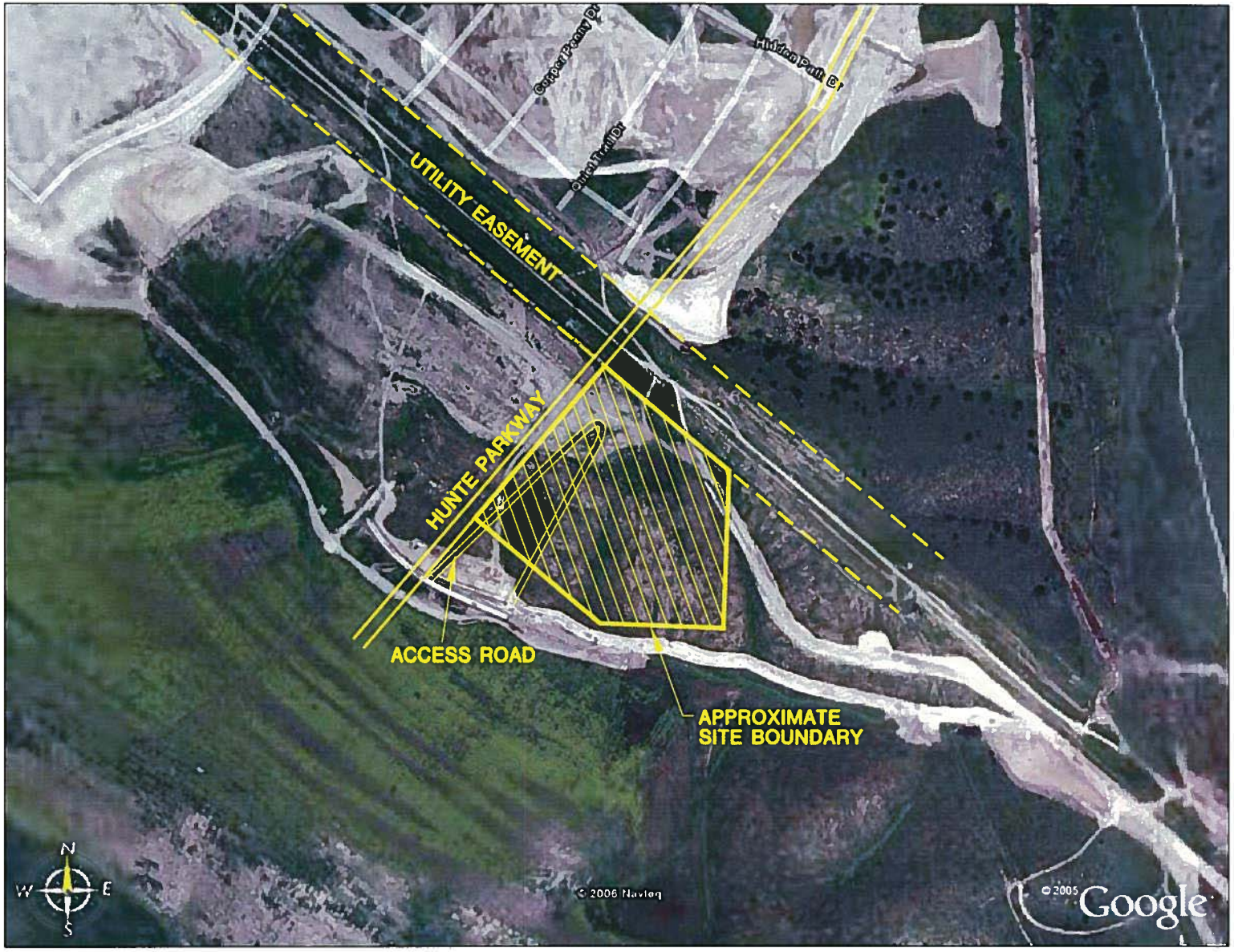


NOT TO SCALE

KLEINFELDER 5015 SHOREHAM PLACE SAN DIEGO, CALIFORNIA 92122	**VICINITY MAP** **OTAY RANCH SUBSTATION SITE** **OTAY, CALIFORNIA**	FIGURE **1**
CHECKED BY: SHR / FN: 67735SITE PROJECT NO. 67735 / DATE: 04/2006		



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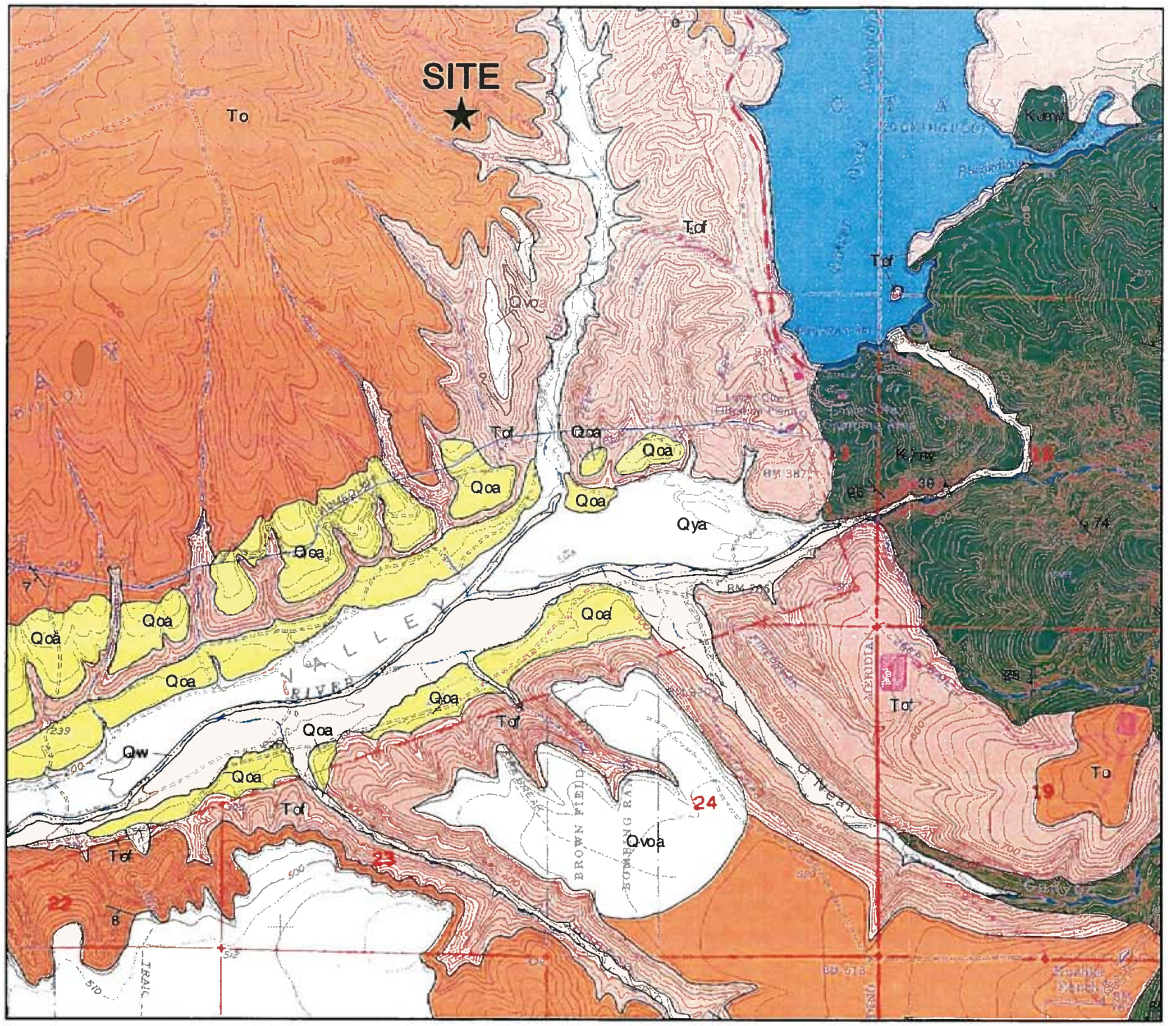
KLEINFELDER	SITE MAP	FIGURE
5015 SHOREHAM PLACE SAN DIEGO, CALIFORNIA 92122	OTAY RANCH SUBSTATION SITE OTAY, CALIFORNIA	2
CHECKED BY: SHR	FN: 67735SITE	
PROJECT NO. 67735	DATE: 04/2006	



DESCRIPTION OF MAP UNITS

Qw	Late Holocene active channel and wash deposits; unconsolidated sand, silt, gravel and clay. Deposits along smaller drainage channels are included in Qya.
Qya	Holocene alluvial deposits; unconsolidated to poorly consolidated silt, clay, sand and gravel. Includes modern active sediments along small drainage channels.
Qoa	Alluvial deposits (late to middle Pleistocene); moderately consolidated, poorly sorted flood plain deposits consisting of gravely sandy silt and clay.
Qvoa	Alluvial deposits (middle to early Pleistocene); well consolidated, poorly sorted flood plain deposits consisting of gravel, sand, silt and clay.
To	Otay Formation (Oligocene to Miocene); poorly indurated massive light colored sandstone, siltstone and claystone, interbedded with bentonite lenses.
Tof	Otay Formation-fanglomerate facies (Oligocene to Miocene); poorly cemented bouldery conglomerate and coarse-grained sandstone. Interfingered with overlying To.
KJmv	Metavolcanic rocks (Jurassic and Cretaceous); mildly metamorphosed volcanic, volcaniclastic and sedimentary rocks. Volcanic rocks range from basalt to rhyolite, but are predominately andesite and dacite. In general, metavolcaniclastic rocks are most abundant.

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NOT TO SCALE

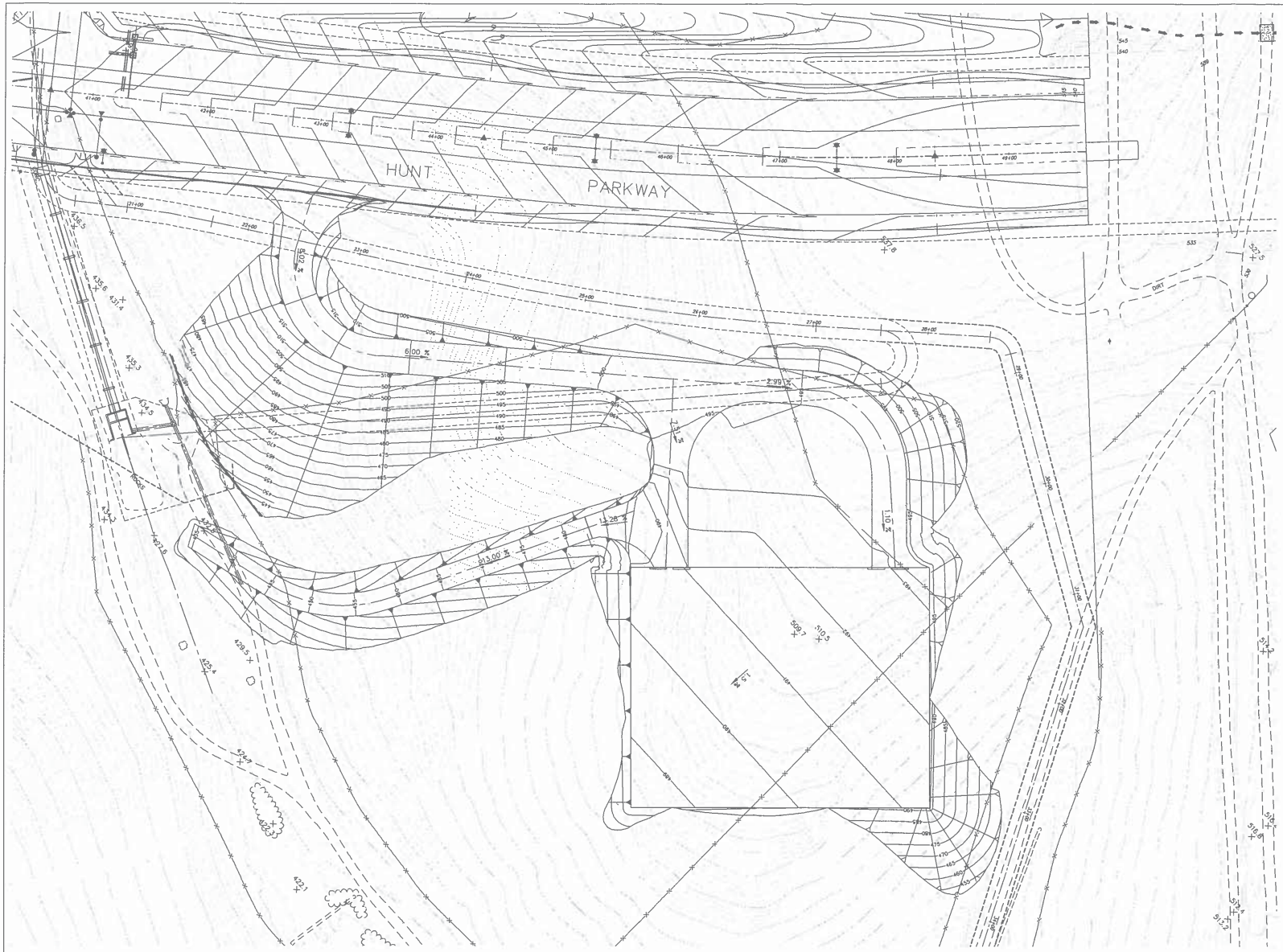
KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

CHECKED BY: SHR	FN: 67735SITE
PROJECT NO. 67735	DATE: 04/2006

LOCAL GEOLOGIC MAP

OTAY RANCH SUBSTATION SITE
OTAY, CALIFORNIA

FIGURE
3



PRELIMINARY
FOR PLANNING PURPOSES ONLY

SCALE: 1" = 40'
FULL SIZE

EARTHWORK:
CUT: 41,000 CY
FILL: 52,000 CY
NET: 11,000 CY.
SLOPES: 2:1

RETAINING WALL
AREA: 2,200 SQ.FT
LENGTH: 160 FT
MAX HEIGHT: 15 FT (ABOVE FINISHED GRADE)
AVE. HEIGHT: 12 FT (ABOVE FINISHED GRADE)

ACCESS ROAD

ASPHALT:
LENGTH: 920 FT
AREA: 27,600 SQ.FT.

CONCRETE:
LENGTH: 420 FT.
AREA: 8,400 SQ.FT.

LEGEND
CUT
FILL
RETAINING WALL

REVISIONS

NO.	WORK DONE	DATE	BY	APP'D

SAN DIEGO GAS & ELECTRIC COMPANY
SAN DIEGO, CALIFORNIA

OTAY RANCH SUBSTATION
OPTION 1

DRAWN BY: SA	DATE: 10/19/05	SCALE: AS NOTED	W.O.
CHECKED BY: MH	DATE:		
APPROVED BY:	DATE:		
CAD NO. OTAY-RANCH.DWG	PLOT SCALE: 1 = 1		

REV. 0

1/1

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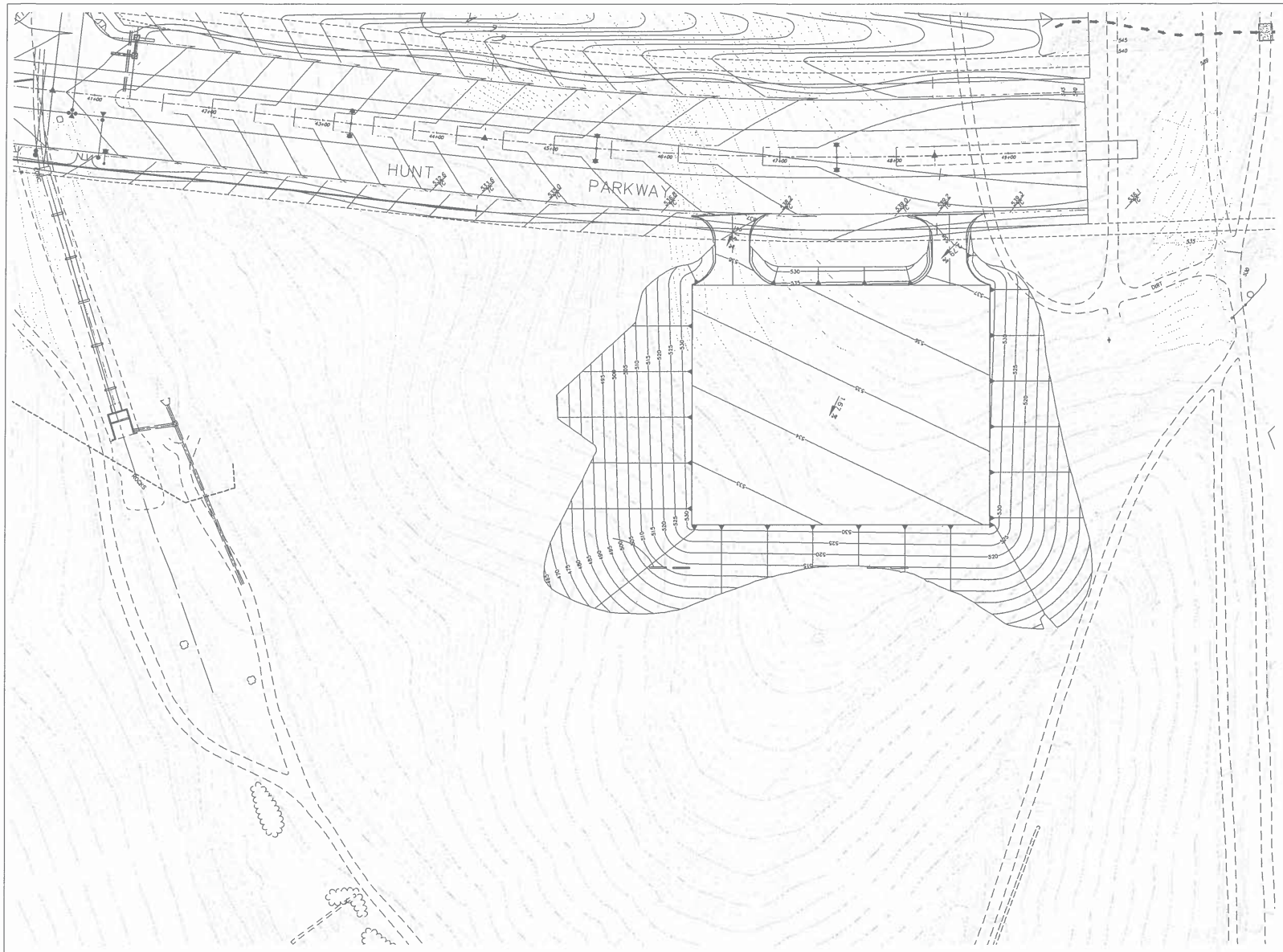
Figure 4



PRELIMINARY
FOR PLANNING PURPOSES ONLY

NORTH

SCALE: 1" = 40'
FULL SIZE

EARTHWORK:
CUT: MINIMAL
FILL: 85,400 CY
NET: 85,400 CY
SLOPES: 2:1

LEGEND
CUT
FILL

REVISIONS

NO.	WORK DONE	DATE	BY:	APP'D:	NO.	WORK DONE	DATE	BY:	APP'D:	NO.	WORK DONE	DATE	BY:	APP'D:	NO.	WORK DONE	DATE	BY:	APP'D:

SAN DIEGO GAS & ELECTRIC COMPANY
SAN DIEGO, CALIFORNIA

OTAY RANCH SUBSTATION
OPTION 2

DRAWN BY: SA	DATE: 10/19/05	SCALE: AS NOTED	W.O.
CHECKED BY: MH	DATE:		REV. 0
APPROVED BY:	DATE:		1/1
CAD NO.: OTAY-RANCH.DWG	PLOT SCALE: 1 = 1		

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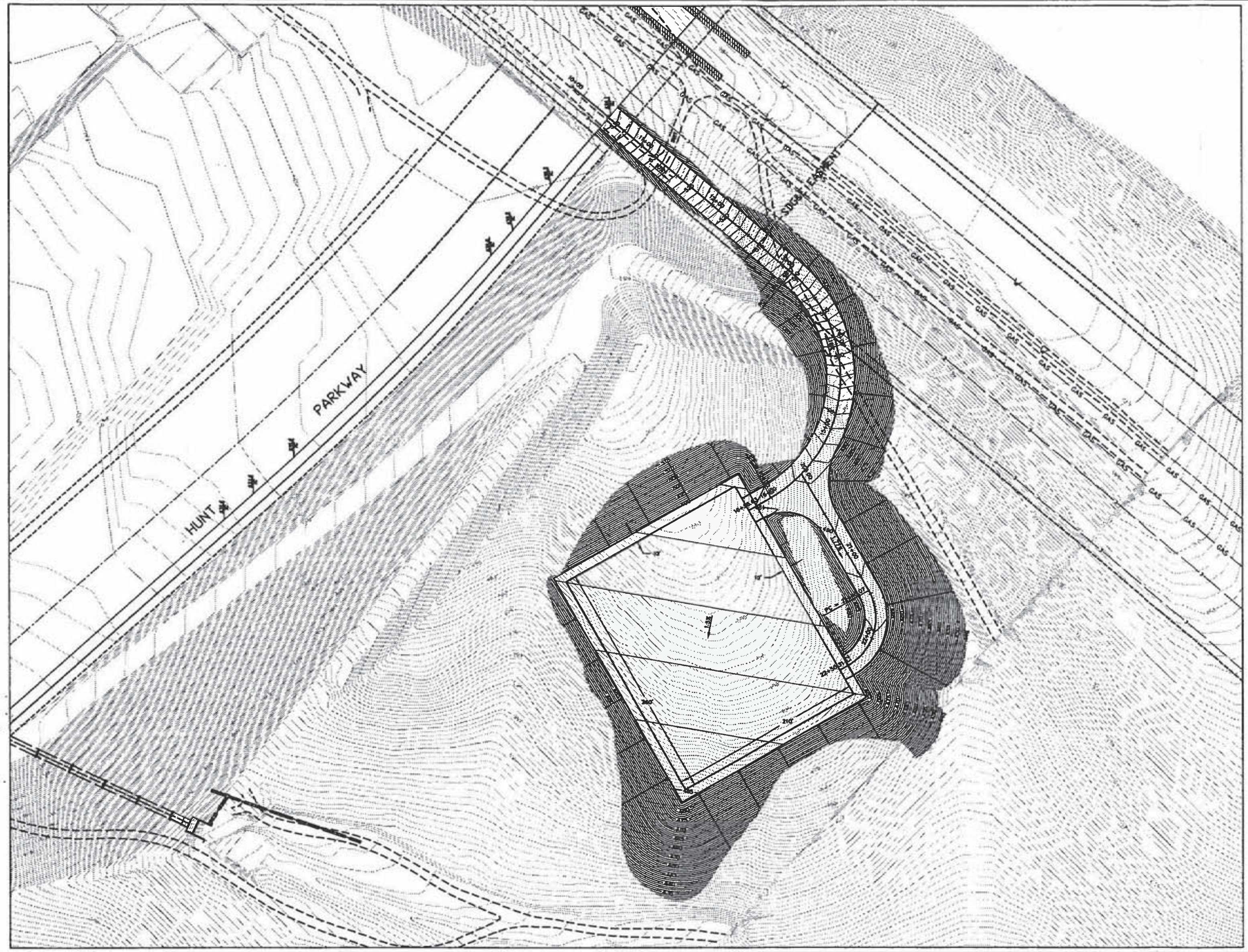
Figure 5

PRELIMINARY
FOR PLANNING PURPOSES ONLY



NORTH

SCALE: 1" = 50'
FULL SIZE

EARTHWORK:
CUT: 23,322 CY
FILL: 30,392 CY
NET: 7,070 CY (FILL)
SLOPES: 2:1

LEGEND
CUT
FILL

REVISIONS

NO.	WORK DONE	DATE	BY:	APP'D:	NO.	WORK DONE	DATE	BY:	APP'D:	NO.	WORK DONE	DATE	BY:	APP'D:	NO.	WORK DONE	DATE	BY:	APP'D:

SAN DIEGO GAS & ELECTRIC COMPANY
SAN DIEGO, CALIFORNIA

OTAY RANCH SUBSTATION
OPTION 2A

DRAWN BY: EN	DATE: 05/02/06	SCALE: AS NOTED	W.O.	REV. 0
CHECKED BY:	DATE:			
APPROVED BY:	DATE:			1/1
CAD NO.: OTAY-RANCH.DWG	PLOT SCALE: 1 = 1			

APPENDIX E

ASFE Insert

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

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