DOCKETED

Docket Number:	15-AFC-01
Project Title:	Puente Power Project
TN #:	214336
Document Title:	Applicant's Responses to CEC Data Requests, Set 4 (77-107)
Description:	N/A
Filer:	Paul Kihm
Organization:	Latham & Watkins LLP
Submitter Role:	Applicant Representative
Submission Date:	11/1/2016 4:51:53 PM
Docketed Date:	11/1/2016

Application for Certification
(15-AFC-01)

Puente Power Project (P3)
Oxnard, CA

Responses to CEC Data Requests Set 4 (77-107)

October 2016

Submitted to:
The California Energy Commission

Prepared by:

TABLE OF CONTENTS

RESPONSES TO CEC DATA REQUESTS SET 4

TABLES

FIGURES

ATTACHMENTS

LIST OF ACRONYMS AND ABBREVIATIONS USED IN RESPONSES

ACOE	United States Army Corps of Engineers
AFC	Application for Certification
CAISO	California Independent System Operator
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CFR	United States Code of Federal Regulations
CNDDB	California Natural Diversity Database
CWA	Clean Water Act
kV	kilovolt
LARWQCB	Los Angeles Regional Water Quality Control Board
LGIA	Large Generator Interconnection Agreement
MGS	Mandalay Generating Station
MW	megawatt
NPDES	National Pollutant Discharge Elimination System
NRG	NRG Energy Center Oxnard LLC or Applicant
NWP	nationwide permit
P3	Puente Power Project
PAA	Project Areas of Analysis
PSA	Preliminary Staff Assessment
RHA	Rivers and Harbors Act of 1899
SCE	Southern California Edison
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
WRC	Water Resource Control

Technical Area: Biological Resources
Author: Carol Watson

BACKGROUND:

The Project Enhancement: Outfall Removal and Beach Restoration (TN213802) contains unclear information regarding the jurisdictional status and nature of the potential waters (Edison Canal and the outfall structure) on the project site. As part of the project reconfiguration, process wastewater and stormwater would be comingled and conveyed to the Edison Canal via an 18-inch pipe, or transfer pipe. The transfer pipe would discharge into a small sump near the Edison Canal, before discharging into the Edison Canal. The applicant further states that additional riprap may be necessary along the banks of the Edison Canal, to prevent the discharge from eroding the bank; yet Section 3.2.2.1 (page 3.7) states that no impacts to the canal are expected because work activities would be confined to upland, developed areas. Section 3.2.1.1 (page 3.4) states that the Edison Canal may be a non-wetland water of the U.S., Waters of the State, and/or a California Department of Fish and Wildlife (CDFW)-jurisdictional channel. Discharge of dredge and fill material to waters of the U.S. are regulated by the U.S. Army Corps of Engineers (ACOE) via the Clean Water Act, Section 404, and require a permit. Impacts to CDFW-jurisdictional channels may require a Section 1600 Lake and Streambed Alteration Agreement permit. The Energy Commission staff needs more information regarding these issues to complete its analysis.

DATA REQUEST

77. Please further describe the amount of riprap to be placed in the Edison Canal, and describe potential impacts to wildlife and habitat.

RESPONSE

The discharge point for wastewater from the Puente Power Project (P3) and Mandalay Generating Station (MGS) Unit 3, and for stormwater from the MGS property (including the P3 site), will be either an existing concrete structure or a new culvert pipe. The decision about which alternative to implement will be made during final design. It may be necessary to place a limited amount of additional riprap to support the new discharge structure. If the culvert method is used for the discharge, and if additional erosion control is needed, energy dissipation measures (i.e., flow diffuser at end of pipe) could be installed in lieu of adding riprap. In any case, no new structures or fill, including riprap, will be placed below the high tide line or mean high water line.

As described in the Project Enhancement – Outfall Removal and Beach Restoration, the banks of the Edison Canal are already covered in riprap in the vicinity of the proposed discharge. Nonnative invasive iceplant (*Carpobrotus edulis*), which provides very limited habitat, has colonized the bank in this area.

Given the existing conditions in the vicinity of the proposed discharge and the nature, extent, and location of any new structures or fill, no significant impacts to biological resources are expected as a result of installation of the new discharge point.

DATA REQUEST

78. Please contact CDFW and complete a Notification of Lake or Streambed Alteration, if appropriate.

RESPONSE

Neither the Edison Canal nor the intermittent channel across the beach between the existing outfall structure and the ocean constitute a river, stream, or lake subject to the lake and streambed alteration program set forth in California Fish and Game Code Sections 1600-1616. Therefore, a Notification of Lake or Streambed Alteration is not required.

The Applicant contacted Ms. Mary Meyers of California Department of Fish and Wildlife (CDFW) on October 27, 2016. Applicant informed Ms. Meyers that, based on its review of the applicability of California Fish and Game Code Sections 1600-1616 to the proposed project refinements, no Notification of Lake or Streambed Alteration nor Lake or Streambed Alteration Agreement would be required for either removal of the existing outfall or installation of the new discharge. The tidal channel, which has been created on the beach as a result of the intermittent discharge of MGS wastewater and stormwater and which will be eliminated with implementation of the project, does not constitute a river, stream or lake subject to the lake and streambed alteration program. The Edison Canal, which is also a tidal water, would not be altered in any way as a result of installation of the new discharge point. Therefore, the Applicant has concluded that the outfall removal and the discharge to the canal are not subject to the requirement to obtain a Lake or Streambed Alteration Agreement. Ms. Meyers indicated that she would discuss the project further with management in her regional office.

Contact information is as follows:

California Department of Fish and Wildlife
Mary Meyers
Mary.Meyers@wildlife.ca.gov
Senior Environmental Scientist, South Coast Region
(805) 640-8019

DATA REQUEST

79. Please provide the contact information and reports of conversation for your contacts with CDFW.

RESPONSE

Please see the response to Data Request 78.

DATA REQUEST

80. Please contact ACOE to determine if the project requires a Section 404 permit. Provide the contact information and reports of conversation.

RESPONSE

Clean Water Act Section 404

Section 404 of the federal Clean Water Act (CWA Section 404) establishes a program to regulate, among other things, the discharge of dredged or fill material into waters of the United States, including wetlands.[1] Activities in waters of the United States regulated under CWA Section 404 include fill for development, such as placement of fill necessary for construction of outfall or discharge structures.[2] CWA Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States.[3] Regulated activities may be authorized by individual permits issued by the United States Army Corps of Engineers (ACOE). In addition, discharges that will have only minimal adverse effects may be authorized by general permits issued by the ACOE, which are referred to as nationwide permits (NWPs).

Waters of the United States include, among other water bodies, all waters that are subject to the ebb and flow of the tide,[4] the territorial seas,[5] and all tributaries[6] and waters adjacent[7] thereto. For tidal waters of the United States, CWA Section 404 jurisdiction extends to the high tide line,[8] which is defined as the line of intersection of the land with the water's surface at the maximum height reached by a rising tide.[9] For nontidal waters of the United States, jurisdiction extends to the ordinary high water mark,[10] which is defined as that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, or the presence of litter and debris.[11] For the territorial seas, which would include the Pacific Ocean to a distance of 12 nautical miles from the mean low water mark,[12] CWA Section 404 jurisdiction is limited to a seaward distance of 3 nautical miles.[13]

Rivers and Harbors Act of 1899 Section 10

Although not specifically raised in the Data Request, Applicant also addresses herein Section 10 of the federal Rivers and Harbors Act of 1899 (RHA Section 10), which requires authorization from the ACOE for construction of any structure in or over any navigable water of the United States.[14] The term “structure” includes, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other obstacle or obstruction.[15] Similar to CWA

[1] 33 United States Code (USC) Section 1344.
[2] United States Code of Federal Regulations (CFR), Title 33, Part 323.2(f).
[3] 33 USC Section 1344(a).
[4] 33 CFR Part 328.3(a)(1).
[5] 33 CFR Part 328.3(a)(3).
[6] 33 CFR Part 328.3(a)(5).
[7] 33 CFR Part 328.3(a)(6).
[8] 33 CFR Part 328.4(b)(1).
[9] 33 CFR Part 328.3(c)(7).
[10] 33 CFR Part 328.4(c)(1).
[11] 33 CFR Part 328.3(c)(6).
[12] 1982 U.N. Convention on the Law of the Seas.
[13] 33 CFR Part 328.4(a).
[14] 33 USC Section 403.
[15] 33 CFR Part 322.2(b).

Section 404, activities regulated under RHA Section 10 may be authorized by individual permits or by NWP. A number of the NWPs issued by the ACOE authorize activity pursuant to both CWA Section 404 and RHA Section 10.

Navigable waters of the United States include, among other water bodies, waters that are subject to the ebb and flow of the tide.[16] This includes canals and other artificial water bodies that are subject to the ebb and flow of the tides.[17] For tidal waters, jurisdiction extends landward to the mean high water mark.[18]

Contact with ACOE

The Applicant contacted Dr. Daniel Swenson, Chief, ACOE Los Angeles and San Bernardino Section, Regulatory Division, on October 25, 2016. The Applicant provided information concerning the Project Enhancement – Outfall Removal and Beach Restoration, including removal of the existing outfall structure and installation of the new discharge point at the Edison Canal. Dr. Swenson generally confirmed the permitting requirements of CWA Section 404 and RHA Section 10, as described above, and stated that if permits were required, the permitting would be handled out of the ACOE's Ventura office.

Contact Information is as follows:

U.S. Army Corps of Engineers
Dr. Daniel P. Swenson
Chief, Los Angeles and San Bernardino Section, Regulatory Division
Daniel.P.Swenson@usace.army.mil
(213) 452-3414

Permitting Requirements Associated with Project Refinements

Installation of New Discharge to Edison Canal

Although no formal delineation has been performed, the Edison Canal likely meets the definition of both "waters of the United States" and "navigable waters of the United States." Jurisdictional waters beyond the canal itself, such as wetlands, are not expected to be present in the vicinity of the new discharge point due to the minimal topographical relief needed to collect or concentrate water, lack of stable substrate where wetlands would have the time to form, abundance of riprap, and absence of hydrophytic vegetation. No fill or structures associated with the new discharge point will be constructed in the Edison Canal below either the high tide line or the mean high water mark, meaning that if the Edison Canal is in fact a jurisdictional water under CWA Section 404 and/or RHA Section 10, all activity will fall outside the jurisdictional boundaries, and no permits will be required from the ACOE in connection with installation of the new discharge point. The discharge itself will be authorized by the modified National Pollutant Discharge Elimination System (NPDES) permit for the MGS property.

Removal of Existing Outfall

As a water body subject to the ebb and flow of the tide, and constituting territorial seas out to a distance of 12 nautical miles, the Pacific Ocean constitutes waters of the United States and navigable waters of the United States over which ACOE has jurisdiction seaward to a distance

[16] 33 CFR Part 329.4.
[17] 33 CFR Part 329.8.
[18] 33 CFR 329.12(a)(2).

of 3 nautical miles. In addition, although no formal delineation has been performed, based on currently available information, the channel associated with the outfall to the ocean likely constitutes waters of the United States as a tributary and/or waters adjacent to waters of the United States (i.e., the Pacific Ocean). Other jurisdictional waters, such as wetlands, are not expected to be present due to the minimal topographical relief needed to collect or concentrate water, lack of stable substrate where wetlands would have the time to form, abundance of riprap, and absence of hydrophytic vegetation. Work activities associated with the removal of the outfall and placement of fill will be conducted within the high tide line and mean high water mark. Therefore, a permit is required from the ACOE pursuant to CWA Section 404 and possibly RHA Section 10. Removal of the existing outfall is authorized by NWP 7, which authorizes regulated activity related to outfall structures under both CWA Section 404 and RHA Section 10.

DATA REQUEST

81. Please contact the Regional Water Quality Control Board to determine if the project requires a Section 401 water quality certification. Provide the contact information and reports of conversation.

As explained in the response to Data Request 80, no fill or structures associated with the new discharge point will be constructed in the Edison Canal below the high tide line, meaning they will fall outside the jurisdictional boundaries of CWA Section 404, and no CWA Section 404 permit will be required from the ACOE in connection with this aspect of the project. As a result, it will not be necessary to obtain a CWA Section 401 water quality certification from the Los Angeles Regional Water Quality Control Board (LARWQCB) for construction of the new discharge to the Edison Canal. It should be noted, however, that the existing MGS NPDES permit will be modified to address the new discharge to the Edison Canal.

As further explained in the response to Data Request 80, a permit is likely required from the ACOE pursuant to CWA Section 404 and possibly RHA Section 10 in connection with removal of the existing outfall. However, this activity is authorized by NWP 7. CWA Section 401 water quality certification is performed during the rulemaking process adopting the NWPs, and therefore no additional certification is required in connection with the project.

The Applicant contacted Ms. L.B. Nye, Total Maximum Daily Loads (TMDL) and Standards Unit Chief with the LARWQCB, on October 20, 2016. The Applicant provided information concerning the Project Enhancement – Outfall Removal and Beach Restoration, including removal of the existing outfall structure and installation of the new discharge point at the Edison Canal, and inquired about the CWA Section 401 water quality certification process. Ms. Nye confirmed that a Section 401 Water Quality Certification would be required for the installation of a new discharge point to the Edison Canal and removal of the existing outfall, if either activity required an individual CWA Section 404 permit from the ACOE. Ms. Nye confirmed that the need for the CWA Section 401 water quality certification would depend on the need to obtain a CWA Section 404 Permit from the ACOE. Ms. Nye also stated that she would rely on the determination of the ACOE regarding the need to obtain a CWA Section 404 Permit.

Contact information is as follows:

LARWQCB
Ms. L.B. Nye
TMDLs and Standards – Unit Chief
lnye@waterboards.ca.gov
(213) 576-6785

BACKGROUND:

The Edison Canal provides habitat for fish and wildlife, and may support the federally endangered tidewater goby. As part of the project, the project would discharge into the Edison Canal, instead of to the Pacific Ocean. Water discharges may adversely impact the Edison Canal and any species inhabiting it by affecting the temperature, quality, or salinity of the water. Tidewater gobies have been documented in waters with salinity levels from 0 to 42 parts per thousand (ppt) or higher (as a comparison, sea water is about 34 ppt), temperature levels from 8 to 25 degrees Celsius (46 to 77 degrees Fahrenheit), and water depths from 25 to 200 centimeters (10 to 79 inches) (USFWS 2016).

DATA REQUEST

82. Please describe how storm and wastewater discharges would be treated to control release of sediments and to reduce its temperature to that of the Edison Canal.

RESPONSE

The LARWQCB's Water Quality Control Plan – Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (LARWQCB, 1994) (Basin Plan) sets forth the following limitation with respect to the release of sediments: "Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses." The Edison Canal is listed in the Basin Plan as the "Edison Canal Estuary," with existing beneficial uses (E) for Marine Habitats of the Channel islands and Mugu Lagoon, which serve as pinniped haul-out areas for one or more species (o). Standard Best Management Practices will be implemented on site to minimize erosion and control the release of sediments to the canal. Stormwater will initially be directed to the retention basins, where any sediments that are conveyed to the basin would be allowed to settle prior to discharge to the canal.

The State Water Resources Control Board adopted the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California on January 7, 1971, and amended it on September 18, 1975 (SWRCB, 1975) (California Thermal Plan). The California Thermal Plan states that "Elevated temperature wastes shall comply with limitations necessary to assure protection of the beneficial uses and areas of special biological significance" (Water Quality Objective 3.A.1). As applicable, the project will manage releases to the canal in accordance with the California Thermal Plan, which includes limits on new discharges to estuaries (i.e., waters that serve as mixing zones for fresh and ocean waters during a major portion of the year).

The discharge of process wastewater and stormwater into the canal will be managed in compliance with the effluent monitoring, effluent limitations, and discharge specifications in the modified NPDES permit (NPDES No. CA0001180) that will be obtained for the project. The NPDES permit incorporates the requirements of the LARWQCB Basin Plan and California Thermal Plan, which, together with other effluent limitations in the NPDES permit, will prevent adverse impacts to the canal.

It is also important to note that, with the exception of the relatively small volume of process wastewater from P3, all of the discharges that will be directed to the manmade Edison Canal (i.e., wastewater from MGS Unit 3 and stormwater from the entirety of the MGS property) are currently being discharged across the beach and to the ocean via the existing outfall structure. Any potential impacts associated with the proposed discharge to the Edison Canal, none of

which are significant, must be evaluated in the context of the improvements to baseline conditions that will result from removal of the existing outfall, including restoration of the beach and dune habitat in the vicinity of the outfall.

References

LARWQCB (Los Angeles Regional Water Quality Control Board), 1994. Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties. June 13.

SWRCB (State Water Resources Control Board), 1975. Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California. Adopted in 1971, amended in 1975.

DATA REQUEST

83. Please describe how discharge of storm and wastewater would impact the Edison Canal in terms of turbidity, salinity, temperature, pH, or other relevant chemical constituents, and discuss how wildlife in the canal, particularly tidewater goby, may be affected by such discharges.

RESPONSE

P3 will use potable water as its source water, and the amount of wastewater generated will be approximately 6.5 acre-feet per year. MGS Unit 3 will continue to draw source water from the Edison Canal, as it does currently. With implementation of the project refinements, MGS Unit 3 wastewater, up to approximately 240 acre-feet per year, will be discharged to the Edison Canal, which is equivalent to the MGS Unit 3's withdrawal from the canal. Thus, the combined wastewater discharges from P3 and MGS Unit 3 would be small in comparison to the tidal prism of the canal and would not substantially change the turbidity, salinity, temperature, pH, or other relevant chemical constituents in the canal. Furthermore, the discharge of process wastewater to the canal will be subject to effluent limitations and discharge specifications in the modified NPDES permit (NPDES No. CA0001180) that will be obtained for the facility. Please refer to the responses to Data Requests 77 and 82 for further discussion of measures that will be implemented to ensure that discharge of wastewater will not adversely impact the Edison Canal and associated wildlife.

The current stormwater drainage area to the Edison Canal is approximately 3,300 acres (5.2 square miles) and is roughly bounded by Harbor Boulevard to the west, Gonzales Road to the north, Ventura Road to the east, and Fifth Street and Wooley Road to the south. There are more than 60 existing discharge points along the 2-mile length of the canal. Stormwater enters the canal through major drainage ditches, numerous culvert pipes, and one concrete paved flume. There are three major storm drains that discharge to the canal: the Doris Drain, the West Fifth Street Drain, and the Wooley Road Drain. For decades, Edison Canal has received stormwater from the area, with no apparent negative impacts to the marine life in the canal. Please refer to the response to City of Oxnard Data Request 104 for further discussion of current stormwater discharges to the Edison Canal. Figure 104-2 contained therein shows the major watersheds that drain to the canal, and Table 104-1 summarizes their areas and percent developed and undeveloped (Parma, 2003).

The volume of additional stormwater discharged to the canal from the MGS property, including the P3 site, will be minimal compared to current baseline discharges. As explained in the response to City of Oxnard Data Request 104, the additional volume is approximately 1.3 percent of the estimated total peak runoff into the Edison Canal. This figure likely overestimates the incremental contribution from the MGS property, because it does not factor in recycling and reuse of stormwater from the P3 site. Furthermore, discharges of stormwater from the MGS property will be subject to effluent limitations contained in the NPDES permit for the facility; whereas much of the urban and agricultural stormwater currently discharged to the canal is not subject to any specific water quality standards. The relatively low volume of relatively high quality stormwater that will be discharged to the Edison Canal from the MGS property will not result in significant impacts to water quality in the canal.

In the Application for Certification (AFC) and the Project Enhancement – Outfall Removal and Beach Restoration, it was conservatively assumed that the potential could exist for tidewater goby to be present in the Edison Canal, because the species is known to occur within the 10-mile regional study area for biological resources evaluated for P3, specifically at the Santa

Clara River estuary, in the Oxnard Drain ("J Street Canal"), the Ormond Beach Area, and southeast of Port Hueneme (CDFW, 2015). However, based on water quality and habitat requirements for tidewater goby outlined in U.S. Environmental Protection Agency and U.S. Fish and Wildlife Services documents, and conditions observed during onsite surveys, the Channel Islands Harbor and Edison Canal do not appear to possess the estuarine environment preferred by tidewater goby, or several of the other physical or biological features required for tidewater goby life history processes, and therefore is not suitable habitat for the tidewater goby. Based on information in the 2013 Designation of Critical Habitat for Tidewater Goby; Final Rule (USFWS, 2013) and historical location information (Swift et al., 1989), tidewater goby would not be expected in the Channel Islands Harbor and Edison Canal. Although there is a potential for tidewater goby to enter the harbor following wash-out events from nearby source populations (i.e., Santa Clara River and Ventura River) during winter storms, due to the largely marine environment in the harbor and canal, tidewater goby that could enter these water bodies at any time would not be expected to persist or establish a population.

Federal and state documents report that tidewater goby prefer salinities of less than 12 parts per thousand (USFWS, 2005). The salinity in the Edison Canal is typically very close to the salinity of the Pacific Ocean, which is where the Edison Canal originates. Additionally, tidewater goby prefer shallow water (i.e., less than approximately 3 feet) habitats with emergent vegetation. The water depth of the canal varies throughout the year, and daily due to the tide fluctuation, but is generally more than 10 feet deep. The canal does not typically harbor emergent vegetation.

Taking into consideration the volume and quality of the water that will be discharged to the Edison Canal, the regulatory and permitting requirements applicable to the discharge, and the unsuitability of the habitat in the vicinity of the discharge to tidewater goby, adverse impacts to this species are not expected. Finally, as stated in the response to Data Request 82, any potential impacts associated with the proposed discharge to the Edison Canal, none of which are significant, must be evaluated in the context of the improvements to baseline conditions that will result from removal of the existing outfall, including restoration of the beach and dune habitat in the vicinity of the outfall. These improvements can only be achieved by redirecting discharges to the Edison Canal.

References

CDFW (California Department of Fish and Wildlife), 2015. California Natural Diversity Database (CNDDB). The CNDDB GIS data in shapefile format. Available online at: https://nrm.dfg.ca.gov/cnddb/view/updates.aspx. Accessed January 2015.

Parma James, G., 2003. Mandalay Generating Station Intake Canal Shoaling Study. Prepared by Reliant Energy Wholesale Service Company, Engineering Services. November 18. PF#MAN 300008.

Swift, C.C., J.L. Nelson, C. Maslow, and T. Stein, 1989. Biology and distribution of the tidewater goby, *Eucyclogobius newberryi* (Pisces: Gobiidae) of California. Contributions in Science 404, Natural History Museum of Los Angeles County, Los Angeles. 19 pp.

USFWS (U.S. Fish and Wildlife Service), 2005. Recovery Plan for the Tidewater Goby (*Eucyclogobius newberryi*). Pacific Region, U.S. Fish and Wildlife Service, Portland, Oregon. December 7. Accessed online at https://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/TidewaterGobyfinalRecoveryPlan.pdf. Accessed through October 2016.

USFWS (U.S. Fish and Wildlife Service), 2013. Federal Register Volume 78. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Tidewater Goby (*Eucyclogobius newberryi*). U.S. Fish and Wildlife Service, Interior. February 6. Available online at: https://www.gpo.gov/fdsys/pkg/FR-2013-02-06/pdf/2013-02057.pdf. Accessed through October 2016.

BACKGROUND:

Dune mats at the site of the outfall structure are a sensitive natural community, and may contain special status species such as globose dune beetle, silvery legless lizard, dunedelion or South Coast saltscale, among others. Section 3.2.2.2 (page 3-7) states that outfall demolition and removal activities would occur on the beach adjacent to the dunes. Section 3.2.2.2 (page 3-8) further states that demolition would result in the temporary disturbance of sandy beach and dune vegetation, with overall impacts stated as being 0.4 acres (Section 2.1.2, page 2-2). The acres of temporary impact to vegetation communities and developed portions of the site is unclear. Furthermore, without specific data on which species inhabit the outfall and access road, staff is unable to complete its analysis of impacts to special status plants and wildlife.

DATA REQUEST

84. Please provide impact acres for land cover types, including sandy beach, dune vegetation, and developed (outfall structure, wing walls and riprap).

RESPONSE

Potential impact acres for vegetation communities and land cover types by activities associated with the outfall removal, including an assumed 20-foot buffer zone, are presented in Table 84-1 and shown on Figure 84-1. It must be noted that, with the exception of the beneficial loss of manmade land cover type (i.e., open water habitat associated with the manmade channel, culverted water, and developed land cover), the impacts to vegetation communities and other land cover types are temporary in nature. It is anticipated that these temporarily disturbed areas will return to their pre-project condition following completion of demolition. Furthermore, once demolition of the existing outfall is complete and the beach and dune area is restored, the net effect will be an increase in natural vegetation communities and land cover types relative to current baseline conditions. The last column in Table 84-1 includes the net gain in natural land cover types as a result of the project.

Approximately 1.14 acres associated with impacts due to construction activities, plus an additional 1.91 acres of existing open water channel, will be naturally restored to sandy beach, for a total of 3.05 acres. Approximately 1 acre of this area is expected to also be recolonized by adjacent dune mat vegetation. Thus, any impacts associated with removal of the outfall will be temporary in nature, and the long-term result of the project will be restoration of natural beach and dune habitat over an area that is greater than that temporarily impacted by demolition activities.

Table 84-1
Impact Areas for Land Cover Types Associated with Outfall Removal

Land Cover Type	Construction Impacts[2] (acres)	Access to Outfall (acres)	Total (acres)	Naturally Restored to Sandy Beach (acres)
Anthropogenic, Nonnative, and Naturalized				
Culverted Water	0.09	0	0.09	0.09
Developed[1]	0.39	0	0.39	0.39
Ice Plant Mats	0.09	0.12	0.21	0.09
Ruderal	0	0.003	0.003	0
Sub-total	*0.57*	*0.123*	*0.69*	*0.57*
Native				
Dune Mats	0.3	0.37	0.67	0.3
Open Water[3]	0.23	0	2.14	2.14
Sandy Beach	0.04	0	0.04	0.04
Sub-total	*0.57*	*0.37*	*2.85*	*2.48*
Grand Total	**1.14**	**0.49**	**3.54**	**3.05**

Notes:

[1] Developed land cover type includes outfall structure, wing walls, and riprap.
[2] Construction impacts include the aboveground outfall demolition area, slurry-filling of the mixing vault and concrete culvert, and the 20-foot buffer zone surrounding the demolition activity area and culvert.
[3] Post-construction impacts include the conversion of 1.91 acres of open water habitat to a naturally restored sandy beach.

DATA REQUEST

85. Please perform focused surveys for special status plants and wildlife on dune habitat to be impacted by outfall removal and use of the access road.

RESPONSE

Surveys were conducted on the dune areas that may be impacted by outfall removal, including the access road to the outfall removal area, and are documented in the AFC Biological Resources section. A biological field reconnaissance was performed by AECOM biologist Christopher Julian on January 12, 2015, and botanical and wildlife surveys of the site and surrounding vicinity (1,000-foot buffer) were conducted by AECOM biologists Christopher Julian, Julie Love, and Elihu Gevirtz on March 12 and 31, 2015. During each survey, common and special-status species were documented. Specifically, AFC Tables 4.2-2 and 4.2-3 document the plant and wildlife species observed by habitat in the project site and the immediate vicinity. Further information on these surveys, including survey methods and results, can be found in Section 4.2, Biological Resources, of the AFC.

As described in Section 3.2.1.2 of the Project Enhancement – Outfall Removal and Beach Restoration (TN# 213802), various special-status plant and wildlife species have the potential to occur in the area surrounding the outfall. The two plant species noted by the California Energy Commission (CEC) in the Background to this Data Request, dunedelion and South Coast salt scale, are analyzed in Section 3.2.2.2 of the Project Enhancement. Although these species are not expected to be present in the affected area, pre-construction surveys, biological monitoring during demolition, and implementation of proposed avoidance and minimization measures in accordance with proposed Preliminary Staff Assessment (PSA) Conditions of Certification BIO-6, Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and BIO-7, General Impact Avoidance and Minimization Measures, will limit impacts in the event that these species are found.

The other two special-status species noted by the CEC, globose dune beetle and silvery legless lizard, have the potential to occur in the impact area, as described in Table 4.2-1 of the AFC. Although these are sensitive resources, they are not federally or state listed. The globose dune beetle, which maintains no federal or state designation, and the silvery legless lizard, which is a California Species of Concern, are species of low mobility. As discussed in Section 3.2.2.2 of the Project Enhancement, species of low mobility such as these would be unable to escape mortality. Pre-construction surveys, biological monitoring during demolition, and implementation of proposed avoidance and minimization measures in accordance with proposed PSA Conditions of Certification BIO-6 and BIO-7, will limit impacts to these species if present.

Any impacts associated with removal of the outfall will be temporary in nature, and the long-term result of the project will be restoration of natural beach and dune habitat over an area that is greater than that temporarily impacted by demolition activities. Thus, the project results in a net benefit to the species identified above, and others that may occupy the area in the vicinity of the existing outfall.

DATA REQUEST

86. Following completion of surveys and only if special status plants or wildlife are detected, please describe how impact avoidance and minimization practices such as use of protective barrier fencing, or salvage and relocation of special status wildlife, may reduce impacts to below significance.

REFERENCES

USFWS—U.S. Fish and Wildlife Service 2016. Accessed October 5, 2016. Available at: https://www.fws.gov/arcata/es/fish/goby/goby.html

RESPONSE

As noted in the response to Data Request 85, sufficient biological surveys have been conducted in the vicinity of the outfall demolition area, and no further surveys are needed to identify potential special-status species in the area. Pre-construction surveys, biological monitoring during demolition, and implementation of proposed avoidance and minimization measures in accordance with proposed PSA Conditions of Certification BIO-6 and BIO-7 will limit impacts to special-status species, as described in Section 3.2.4 of the Project Enhancement.

Technical Area: Cultural Resources
Authors: Matthew Braun and Melissa Mourkas

BACKGROUND:

Staff finds that the applicant's documentation of cultural resources fieldwork regarding the Refinement to Transmission Interconnection (AECOM 2016c) and the Project Enhancement Outfall Removal and Beach Restoration (AECOM 2016d) is incomplete. These two documents change the Puente Power Project project description and necessitate changes to the archaeological and built-environment Project Areas of Analysis (PAA), and require additional fieldwork and documentation efforts that allow staff to fully assess impacts to cultural resources.

DATA REQUEST

87. Please adjust the archaeological and built-environment PAAs based on the changes in project description in the Refinement to Transmission Interconnection (AECOM 2016c) and the Project Enhancement Outfall Removal and Beach Restoration (AECOM 2016d) in accordance with the Energy Commission siting regulations (Cal. Code Regs., tit. 20, App. B[g][2]).

RESPONSE

As requested, both the archaeological and built-environment Project Areas of Analysis (PAA) were altered to account for recent changes in the project description, specifically the Refinement to Transmission Interconnection (TN # 213002) and the Project Enhancement – Outfall Removal and Beach Restoration (TN# 213802).

The revised PAAs are presented in the respective supplemental technical reports submitted to the CEC in the responses to Data Requests 87 through 90. Please see the *Supplement to the Confidential Archaeological Resources Technical Report for the Puente Power Project* filed under confidential cover, and the *Historic Architecture Resources Supplemental Technical Report for the Puente Power Project* included in Attachment 89-1.

DATA REQUEST

88. Please compare the original archaeological PAA (AECOM 2016b: Figure 4.3-1) to the new archaeological PAA and conduct pedestrian archaeological survey for those portions that were not surveyed during the previous effort.

RESPONSE

The original PAA presented in the AFC and the revised PAA as modified in the response to Data Request 87 above were compared, and the areas that were not covered during the original archaeological survey were subjected to a pedestrian archaeological survey conducted on October 18, 2016.

DATA REQUEST

89. Please compare the original built-environment PAA (AECOM 2016b: Figure 4.3-2) to the new built-environment PAA and conduct windshield survey for those parcels that were not surveyed during the previous effort.

RESPONSE

The original PAA presented in the AFC and the revised PAA as modified in the response to Data Request 87 above were compared, and the areas that were not covered during the original built-environment survey were subjected to a windshield survey conducted on October 18, 2016. The *Historic Architecture Resources Supplemental Technical Report for the Puente Power Project* is included in Attachment 89-1.

DATA REQUEST

90. Please submit to the Energy Commission, under confidential cover, a supplemental technical report meeting California Office of Historic Preservation Archaeological Resource Management Report (ARMR) requirements (OHP 1995) that provides the items listed below:

a. Methods used to identify cultural resources

b. Results of the pedestrian survey.

c. Descriptions of newly recorded cultural resources.

d. A comprehensive California Register of Historical Resources (CRHR) evaluation of any cultural resources considering all four criteria and all seven aspects of integrity, and using data from fieldwork, laboratory analysis, and historical research to support all recommendations.

e. An assessment of impacts to all potential historical resources.

f. Proposed mitigation measures for identified impacts.

g. Complete Department of Parks and Recreation (DPR) 523 forms for all cultural resources identified during the survey as being 45 years or older or of exceptional importance. The appropriate DPR 523 detail forms 523 B (Building, Structure, and Object), E (Linear Feature), J (Location), and K (Sketch Map) – should also be included.

h. Each 523J form should only depict one resource at a time; not multiple resources. The USGS map name and publication date should be provided, along with a north arrow and scale, and the name of the resource being identified. The map should be provided in 7.5-minute, 1:24,000 scale format.

i. Figures depicting survey coverage and results. The figures should also depict ground surface visibility in the survey areas, expressed as a percentage. Figures shall be on a 1:24,000-scale USGS topographic quadrangle map. Previously and newly recorded cultural resources shall be mapped on the figures. Each resource shall be clearly labeled with trinomials, or temporary numbers if trinomials have not been assigned.

j. As part of this survey effort, please update either the Edison Canal or the Mandalay Generating station (MGS) DPR forms to include photograph(s) of the outfall structure, a description of the outfall structure, its relationship to either the Edison Canal or the MGS and evaluation of the structure's potential eligibility as a historical resource under CEQA.

a. The resource is to be recorded following the California Office of Historic Preservation's (OHP) Instructions for Recording Historical Resources (OHP 1995), and included on the DPR Primary and Building, Structure, Object (BSO) record for the resource. The architectural survey is to be performed by a cultural resource professional who meets the Secretary of the Interior's Professional Qualification Standards for Architectural Historian;

b. Evaluate CRHR eligibility (CRHR Criteria 1-4) of the resource indicated above; and

c. If the resource is found to be eligible for the CRHR, provide a revised project impacts assessment.

REFERENCES

AECOM 2015b—AECOM. Application for Certification for Puente Power Project (15-AFC-01).Volume 2, Appendix E2. TN # 204220-5. Prepared for: NRG Energy Center Oxnard LLC. April 2015.

AECOM 2016c—AECOM. Puente Power Project (15-AFC-01). Refinement to Transmission Interconnection. TN# 213000. August 26, 2016.

AECOM 2016d—AECOM. Puente Power Project (15-AFC-01). Project Enhancement Outfall Removal and Beach Restoration. TN# 213802. September 26, 201

OHP 1995 – Office of Historic Preservation. Instructions for Recording Historical Resources. March. Sacramento, CA. Electronic document, http://ohp.parks.ca.gov/pages/1054/files/manual95.pdf, accessed November 16, 2015.

RESPONSE

A supplemental archaeological survey report conforming to Data Request 90 has been prepared and submitted to the CEC under a request for designation as confidential, as an addendum to the previously submitted archaeological technical report (Confidential Appendix E-1 of the AFC).

An archaeological site, CA-VEN-1807/H, was previously recorded in the lands owned by Southern California Edison (SCE) in the area surrounding the existing transmission tower on the east side of Harbor Boulevard. CA-VEN-1897/H is not located within the Revised PAA, because the work at this tower, specifically stringing a connection to the proposed Take-Off structure in the MGS property (i.e., the point of first interconnection), is outside the scope of the P3 AFC.

It should also be noted, however, that all of SCE's proposed work in the vicinity of CA-VEN-1807/H is to occur at the upper reaches of the existing transmission tower. The crew will access the work area via a bucket truck parked on an existing access road, and no ground-disturbing activities are proposed. Because CA-VEN-1807/H is situated below the vertical limits of the potential disturbance, impacts to the resource are not anticipated from implementation of SCE's interconnection effort.

In addition to the supplemental archaeological survey report, a supplemental built-environment survey report conforming to Data Request 90 was also prepared and is included in Attachment 89-1 in the response to Data Request 89. This supplemental report was prepared as an addendum to the previously submitted built-environment technical report (Appendix E-2 of the AFC).

Technical Area: Soil and Water Resources
Author: Marylou Taylor

BACKGROUND:

Section 2.1.1 of the Project Enhancement states that a new pump vault would be constructed west of the existing South basin to transfer storm water and wastewater from the basins to the Edison Canal. Figure 2-1 shows this new vault located at the outside edge of the existing access road. Staff is concerned that construction activities underneath the dunes at this location would result in damage that could take years to recover. Special effort should be made to protect the integrity of the natural dune ecology and structure.

DATA REQUEST

91. Please discuss the measures and practices that will be used to install the proposed pump vault in its proposed location, that protect the natural dune ecology and structure.

RESPONSE

Please see Figure 91-1 for the revised location of the proposed pump vault. The vault will now be on the eastern side of the basins, and will avoid the dunes.

DATA REQUEST

92. Please discuss the feasibility of constructing this new vault and associated pipes at a location away from the dunes (e.g., underneath the existing access road).

RESPONSE

Please see Figure 91-1 for the revised location of the proposed pump vault and associated pipes. The vault and pipes will now be on the eastern side of the basins, and will avoid the dunes.

BACKGROUND:

Section 3.15.2.2 of the Project Enhancement discusses estimated wastewater flows to the Edison Canal due to the proposed modifications. Staff notes that the existing Mandalay Generating Station (MGS) storm water collection system includes a bypass that could discharge storm water directly to the ocean outfall during periods of prolonged high runoff. The Project Enhancement does not include information regarding site drainage for large storm events (e.g., greater than a 2-year event or duration of a day or more).

DATA REQUEST

93. Please discuss how onsite storm water would be managed when runoff exceeds the basins' combined storage capacity.

RESPONSE

The stormwater system, which consists of the collection and conveyance/discharge pipelines, discharge pumps, retention basins, and the Service Water Storage Tank, and discharge to the canal, will be designed to handle stormwater without discharge to the ocean. With the closure of the outfall to the ocean, stormwater will no longer be discharged to the ocean. Stormwater from the P3 site will be conveyed to the Service Water Storage Tank as long as there is available storage capacity in the tank, and will be used for onsite industrial or irrigation purposes. Stormwater from P3 that is not recycled and stormwater from the remainder of the MGS property will be stored in the North and South retention basins or directed to the new discharge pump vault to be pumped to the Edison Canal.

BACKGROUND:

Section 2.1.2 of the Project Enhancement states that circulating water pipes that connect to the outfall would be plugged with concrete. Section 3.11.2 and Figure 2-2 indicate that an underground portion of the outfall (e.g., area between the MGS chain-link perimeter fencing and the outfall wing walls) would be abandoned instead of removed. Staff assumes that the applicant's intention is to preserve the dunes near the outfall by allowing the underground structure to support this section of the dunes. Staff acknowledges the importance of maintaining the dunes, but large voids must be prevented.

Staff is concerned that any subsurface pipelines or vaults that allow water to flow into and away from the site after demolition could result in water quality impacts. It is unclear from the figures in the Project Enhancement how many connections there are to the outfall and their purpose. Staff anticipates there are connections for the once through cooling water discharge and storm water discharge, and the possibility of pipelines used to convey fuel oil. In addition, staff understands there could be several underground pipes and vaults that are connected at the inlet. Staff is concerned that flows into and out of these conduits could also result in water quality impacts. Staff needs information showing the number, location, and dimensions of conduits that could allow for flow of water into and out of the site.

DATA REQUEST

94. Please provide a site plan showing the locations and dimensions of all underground conduits including circulating water pipes, vaults, and tunnels associated with the existing MGS once-through cooling system. Indicate which underground elements would be plugged (and what materials would be used (e.g., concrete, riprap or rubble)), abandoned, removed, or repurposed.

RESPONSE

Figure 94-1 shows the elements of the MGS circulating water system that will be plugged.

The removal of the outfall will consist of the following activities:

- The intake of the outfall will be plugged with concrete.
- At the ocean end of the outfall, the existing riprap will be pushed up to 5 feet into the tunnel using a backhoe, then a concrete plug will be installed. Concrete slurry will be pumped behind the plug. Slurry may also be pumped via holes drilled into the top of the outlet structure from Beach Road.
- The mixing vault will be filled with riprap, and then filled with concrete slurry.
- The circulating water pipes will be filled with concrete slurry.
- The outfall structure wing walls will be removed.
- The remaining riprap on the beach will be moved by backhoe to protect the plugged outfall. Excess riprap will be either recycled or removed from site. Sand that is currently adjacent to the riprap would be used to cover the plugged outfall.

- Dozers and backhoes will then spread and redistribute sand to fill in the outfall channel. The sand bars that have been created north and south of the outfall by the MGS discharge to the ocean would be recontoured.

- Sand from the main dunes will not be moved.

Furthermore, the project will implement a Beach and Dune Monitoring Program to be carried out over the life of the project. The purpose of this monitoring would be to determine if, and at what rate, the beach and/or dunes are eroding. The Program would include triggers for further action based on the degree of beach narrowing and/or dune loss, and measures would be identified that could halt or slow the observed erosion without construction of shoreline protective devices.

DATA REQUEST

95. Discuss the methods that are under consideration to prevent large underground voids.

RESPONSE

The circulating water system piping will be plugged and filled with concrete slurry, as described in the response to Data Request 94. The below-grade voids beneath MGS Units 1 and 2 will be filled with concrete debris from MGS Units 1 and 2 demolition and the outfall removal, broken and crushed for use as backfill material.

DATA REQUEST

96. Also identify locations of oil storage and underground and above ground piping runs used (currently or historically) to convey fuel oil, and discuss methods to prevent releases of fuel oil during and after MGS demolition.

RESPONSE

Locations of historical oil storage were identified in the Phase I Environmental Site Assessment for the MGS Site, dated March 31, 2015, and attached as Appendix M-1 to the AFC. The AFC also identified approximately 500 linear feet of an abandoned 10-inch-diameter fuel oil pipeline located to the south of MGS Unit 2, near the water storage tanks.

Figure 96-1 shows the MGS fuel oil system (No. 6 oil) piping arrangement. The current proposed method is to saw cut piping into manageable sections, then tilt the sections and apply heat to drain any remaining No. 6 oil. This method could be revised depending on conditions found during decommissioning and demolition. Proper materials handling and disposal practices will be followed for this procedure.

As explained in the Project Enhancement and Refinement for the Demolition of MGS Units 1 and 2 (TN # 206698), all chemicals and hazardous materials associated with MGS Units 1 and 2 will be removed from the site and disposed of as part of the decommissioning process. Prior to the demolition of the MGS structures, demolition plans will be developed for the identification, testing, removal, monitoring, and disposal of any hazardous fluids. Following decommissioning of MGS Units 1 and 2, there will be some equipment and piping (such as lube oil tanks or fuel oil piping) that, although emptied of hazardous materials, may still be contaminated. This equipment will be removed and disposed of in compliance with all applicable federal, state, and local requirements. According to Applicant's proposed Mitigation Measure WM-10, hazardous materials surveys will be conducted for MGS Units 1 and 2 to identity materials or equipment that are known to or have the potential to contain hazardous waste. According to proposed Mitigation Measure WM-11, a Toxic Substances Control Act (TSCA) hazardous materials/waste survey will be conducted prior to demolition activities for MGS Units 1 and 2. TSCA hazardous materials and material with TSCA-identified equipment such as transformers, compressors, or other equipment identified with polychlorinated biphenyls greater than 50 parts per million will be managed as TSCA hazardous waste. According to proposed Mitigation Measure WM-12, a Demolition Waste Management Plan will be prepared for all wastes generated during demolition of MGS Units 1 and 2. The Demolition Waste Management Plan will include a description of all demolition waste streams, including projections of frequency, amounts generated, and hazard classifications, as well as management methods to be used for each waste stream, including waste container and label requirements; accumulation, handling, transport, treatment, and disposal procedures for each waste; waste minimization and recycling procedures, housekeeping, and best management practices to be employed; and preparedness, prevention, contingency, and emergency procedures. Applicant's proposed Mitigation Measures WM-10, WM-11, and WM-12 address the methods to prevent releases of fuel oil during MGS demolition. The PSA's conditions of certification WASTE-3, WASTE-4, WASTE-6, and WASTE-9 are similar to the measures proposed by the Applicant.

BACKGROUND:

Section 3.15.2.2 of the Project Enhancement discusses the volume of wastewater discharges to the Edison Canal during storm events and the number of days estimated for dilution from daily tide cycles. Although the water in the Edison Canal is technically ocean water, its characteristics are very different from the water at the shoreline (e.g., water temperature, mixing rates). The project's discharges could affect the Edison Canal and the ocean shoreline very differently. The applicant would be required to comply with the Los Angeles Regional Water Quality Control Board (LARWQCB) National Pollutant Discharge Elimination System (NPDES) regulatory program for the proposed discharges of storm water and industrial wastewater to the Edison Canal. Staff is concerned that there has not been adequate coordination with the LARWQCB to determine whether the proposed design for discharge is feasible.

DATA REQUEST

97. Please discuss what, if any, coordination has been conducted with the LARWQCB regarding the proposed Project Enhancement.

RESPONSE

The Applicant held a conference call with David Hung (Supervising Water Resource Control [WRC] Engineer), Cassandra Owens (Senior Environmental Scientist, Supervisor), and Rosario Aston (WRC Engineer) on October 17, 2016. The Applicant provided information concerning the Project Enhancement – Outfall Removal and Beach Restoration, including the proposed discharge to the Edison Canal, and inquired about the NPDES permit modification process. The discharge of excess stormwater and process water from P3 and MGS Unit 3 was also discussed. The LARWQCB confirmed that the NPDES permit modification process would be the same as that previously presented by the LARWQCB, in which an application (Report of Waste Discharge) would be submitted to the LARWQCB to modify the existing Individual NPDES permit.

DATA REQUEST

98. Please discuss what, if any, comments LARWQCB has had on the Project Enhancement and any information they have requested.

RESPONSE

The LARWQCB informed the Applicant that a single Individual NPDES permit, including coverage for industrial process wastewater and stormwater, would be appropriate for the site. The LARWQCB informed the Applicant that the permit modification process would be appropriate for the facility (combined P3 and MGS Unit 3 discharges). The LARWQCB stated that a Report of Waste Discharge would need to be submitted as part of the NPDES permit modification process. The LARWQCB inquired about the nature of the discharge from MGS Unit 3. The Applicant described the anticipated MGS Unit 3 discharge as up to 3,200 gallons per minute. The LARWQCB inquired about the length of the Edison Canal and connecting harbor and marina community. The Applicant confirmed that the canal length is approximately 2 miles and that the nearest community is the Channel Islands marina. The LARWQCB inquired whether the Applicant has reached out to Section 401 of the LARWQCB for Water Quality Certification. The Applicant explained that contact was being made with Section 401 of the LARWQCB. Please refer to the response to Data Request 81 for further information related to CWA Section 401 water quality certification.

Technical Area: Traffic and Transportation
Authors: Jonathan Fong and Scott Polaske

BACKGROUND:

In the supplemental submission "Refinement to Transmission Interconnection" the applicant states: "The existing transmission line from the SCE's Mandalay Switchyard to an existing transmission structure across and east of Harbor Boulevard will be rerouted/reconfigured from the new take-off structure to the transmission system, thereby bypassing the Mandalay Switchyard." (Page 1)

Staff has concluded that the true point of grid interconnection would be located at the transmission structure east of Harbor Boulevard (not the new take-off structure) and therefore must analyze the impacts accordingly.

DATA REQUEST

99. Please indicate the location of necessary staging and parking areas.

RESPONSE

Staging and parking areas would include the same staging and parking areas used for P3 construction. The paved areas near the SCE transmission tower on the eastern side of Harbor Boulevard could also be used.

DATA REQUEST

100. Please indicate the number of workers and additional associated truck trips generated by the rerouting/reconfiguring activities.

RESPONSE

The workers, truck trips, and equipment identified in the AFC Table 2.9-1, Craft/Trade and Construction Staff, Table 2.9-2 Expected Construction Deliveries, and Table 2.9-3, Average Construction Equipment on Site Per Month, included workers and equipment to install the generation tie-in. In the AFC, the interconnection included four new poles; the reconfigured interconnection includes two new poles (the mono-pole and the take-off structure). No additional workers or truck trips are required.

DATA REQUEST

101. Please detail any necessary road closures or encroachments for the rerouting/ reconfiguring activities.

RESPONSE

Temporary and short-duration access to the base of the SCE transmission tower would be needed via the existing paved and gravel access road on the eastern side of Harbor Boulevard. The routing of the line across Harbor Boulevard would be done at low volume traffic times, with minimum interruption of traffic. Prior to the start of construction, the Applicant will prepare and implement a Traffic Control Plan that will include the necessary road closure for the rerouting/ reconfiguring of the transmission line. Therefore, potential traffic and transportation impacts are expected to be less than significant with implementation of proposed Condition of Certification TRANS-2, presented in the PSA.

Technical Area: Transmission System Engineering
Authors: Laiping Ng and Mark Hesters

BACKGROUND:

Staff needs to determine the transmission system impacts of the project and to identify the interconnection facilities, including downstream facilities, needed to support the reliable interconnection of the proposed Puente Power Project in the Southern California Edison (SCE) service area. The proposed interconnection facilities must comply with the utility (SCE) rules for new interconnection, California Public Utilities Commission (CPUC) General Order (GO) 95 and the CPUC GO 128. The interconnection must also comply with the Western Reliability and Planning Criteria, North American Electric Reliability Corporation (NERC) Reliability Standards, Western Electricity Coordinating Council (WECC) Regional System Performance Criteria, and the California Independent System Operator (California ISO) Planning Standards for impacts in the California ISO system. In addition, the California Environmental Quality Act (CEQA) requires the identification and description of the "Direct and indirect significant effects of the project on the environment."

Provide a detailed description of the change in design, construction, and operation of any electric transmission facilities, such as interconnection power lines, substations, switchyards, or other transmission equipment, which will be constructed or modified to transmit electrical power from the Puente project site to the SCE Santa Clara Substation.

DATA REQUEST

102. Provide a simulation map showing the entire generator tie-line route from the Puente project site to the existing 230 kV transmission structure across and east of Harbor Boulevard.

RESPONSE

Figure 102-1 shows the entire interconnection tie-line route from the P3 site to the existing 220-kilovolt (kV) transmission structure across and east of Harbor Boulevard. P3 will include a new mono-pole and 220-kV take-off structure. The point of interconnection is the 220-kV take-off structure on the MGS property.

DATA REQUEST

103. Provide a one-line diagram showing the entire generator tie-line route from the Puente project site to the SCE transmission structure across and east of Harbor Boulevard. Please indicate where the generator tie-line would end.

RESPONSE

Figure 103-1 provides a one-line diagram showing the entire interconnection tie-line route from the P3 site to the existing SCE transmission structure across and east of Harbor Boulevard. The point of interconnection is at the P3 220-kV take-off structure, as indicated on Figure 103-1.

DATA REQUEST

104. Provide the length, conductor type, size, and current carrying capacity of the generator tie-line and any additional transmission line that would be used for the generator tie-line modification.

RESPONSE

Figure 102-1 shows the 220-kV transmission line materials and equipment ratings. The lines will be 1033.5 thousands of circular mils Aluminum Conductor Steel Supported Curlew conductor, with 1,000 Amps Allowable Ampacity.

DATA REQUEST

105. Provide the details for and modifications to the substation or tower equipment necessary for the project interconnection. Provide proposed ratings for this equipment.

RESPONSE

Figure 105-1 shows the double-circuit structure outline, and Figure 105-2 shows the single-circuit structure outlines. The figures show the details for materials and equipment ratings.

DATA REQUEST

106. Since the existing double circuit line from the SCE transmission structure across and east of the Harbor Boulevard would be rerouted to the new Puente "take-off" structure, describe the process which would be used for the re-routing of the existing transmission lines.

RESPONSE

The existing SCE 220-kV lattice structure across and east of Harbor Boulevard currently has a maintained access road off Harbor Boulevard that will be used for line trucks to access the structure. Construction of the new 220-kV interconnection tie-line will require line SCE crews to temporarily provide a crossing for the line conductor to be routed across Harbor Boulevard.

SCE crews will be responsible for the construction of the 220-kV line from the 220-kV take-off structure to the SCE 220-kV lattice structure. To avoid ground-disturbing activities near the base of the existing SCE transmission tower, it is assumed that SCE will use high-reach utility bucket trucks that would be placed on each side of Harbor Boulevard to hold the line conductors in the air above the road and pull the line across the roadway. This work is normally planned for low-volume traffic times with minimum interruption of traffic.

DATA REQUEST

107. Since the Puente Power Project would not be connected to the Mandalay 230 kV switchyard, please provide evidence showing that the refinement to the generation interconnection is approved/coordinated with the California ISO.

RESPONSE

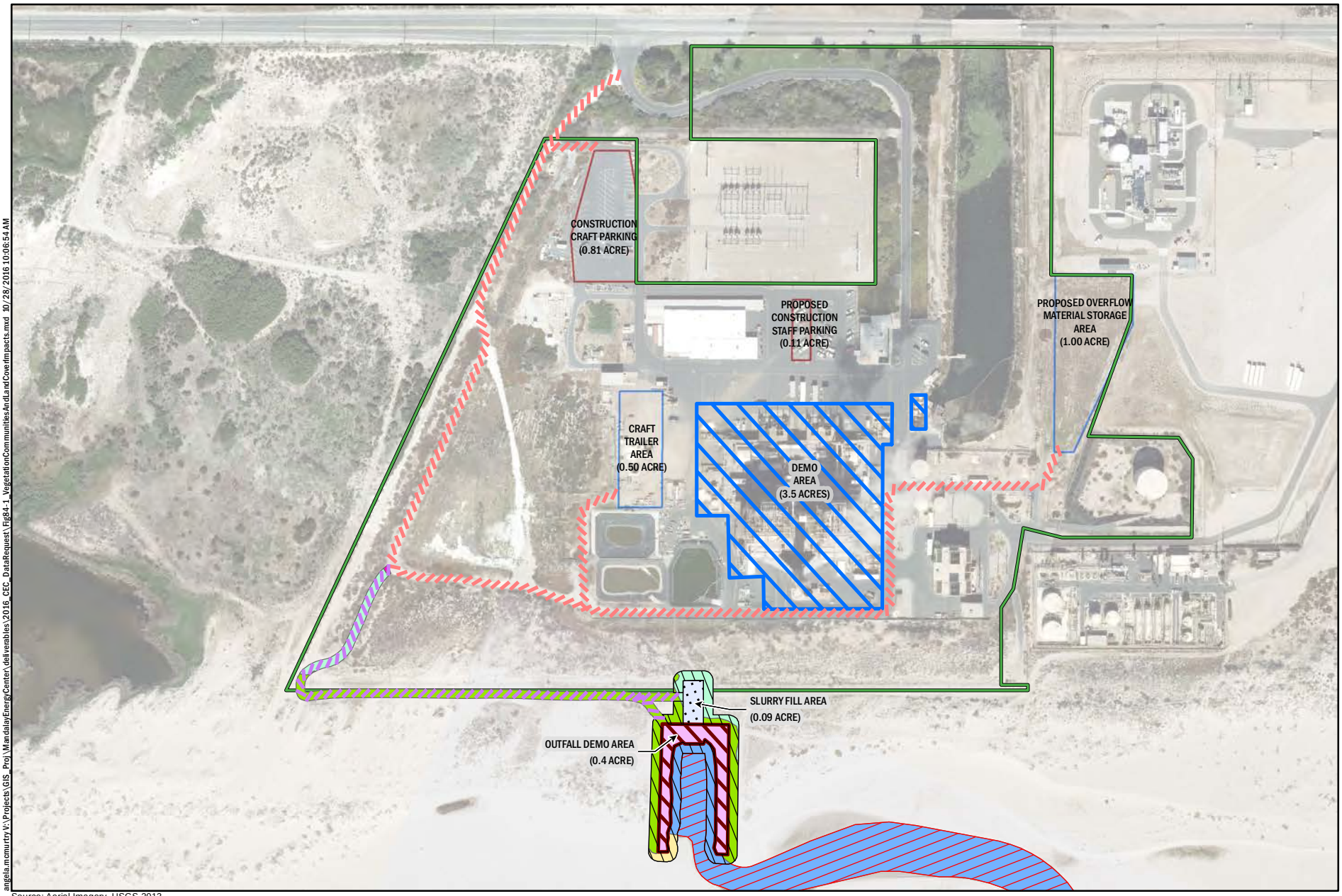
NRG Energy Center Oxnard LLC (NRG) submitted a Generating Unit Repowering request to the California Independent System Operator (CAISO) and proposed to repower the existing MGS by removing the existing 220-kV MGS Units 1 and 2 and replacing them with one General Electric 7HA.01 simple-cycle unit (i.e., P3).

CAISO Repowering Technical Bulletin published by CAISO on September 12, 2013, describes the CAISO procedures for evaluating repower requests by an owner of an existing generating unit made pursuant to Section 25.1.2 of the CAISO tariff. In accordance with the procedures, SCE performed a technical assessment to ascertain and verify that the repower request does not result in substantially changing the total capability and/or electrical characteristics of the electric generating facility. The Facility Study results for the assessment confirm that the total capability and/or electrical characteristics for the facility resulted in a reduction of total net megawatt (MW) capability from 430 MW to 267.9 MW, and that the generating facility will remain substantially unchanged.

The SCE Facility Study analyzed the options for interconnection of P3, and SCE's Grid Planning Committee approved a direct interconnection to P3. This option includes removal of SCE Mandalay substation equipment (SCE will maintain property ownership), and installing the appropriate number of transmission structures to connect the P3 220-kV line from the last customer-owned structure bypassing the SCE Mandalay substation with a box loop configuration to tie the Santa Clara No. 1 and Santa Clara No. 2 lines together. SCE's proposed box loop configuration is shown on the one-line diagram (Figure 103-1).

The CAISO is not a party to the Facilities Study; however, NRG has been in close coordination with CAISO and they will ultimately be a party to P3's Large Generator Interconnection Agreement (LGIA). The interconnection configuration approved by SCE will be the basis for the LGIA.

FIGURES



angela.mcmurtry V:\Projects\GIS_Proj\MandalayEnergyCenter\deliverables\2016_CEC_DataRequest\Fig84-1_VegetationCommunitiesAndLandCoverImpacts.mxd 10/28/2016 10:06:54 AM

Source: Aerial Imagery, USGS 2013.

Project Components

- Demolition Access on Existing Roads
- Mandalay Generating Station Property
- Aboveground Demolition
- Staging Area
- Existing Parking Used During Demolition

Impact Types

- Access to Outfall (0.50)
- Construction Access (20 ft. buffer)(0.66 ac)
- Aboveground Demolition of Outfall (0.39 ac)
- Slurry Fill (0.09 ac)
- Post-construction (1.9 ac)

Vegetation Communities and Land Cover Types

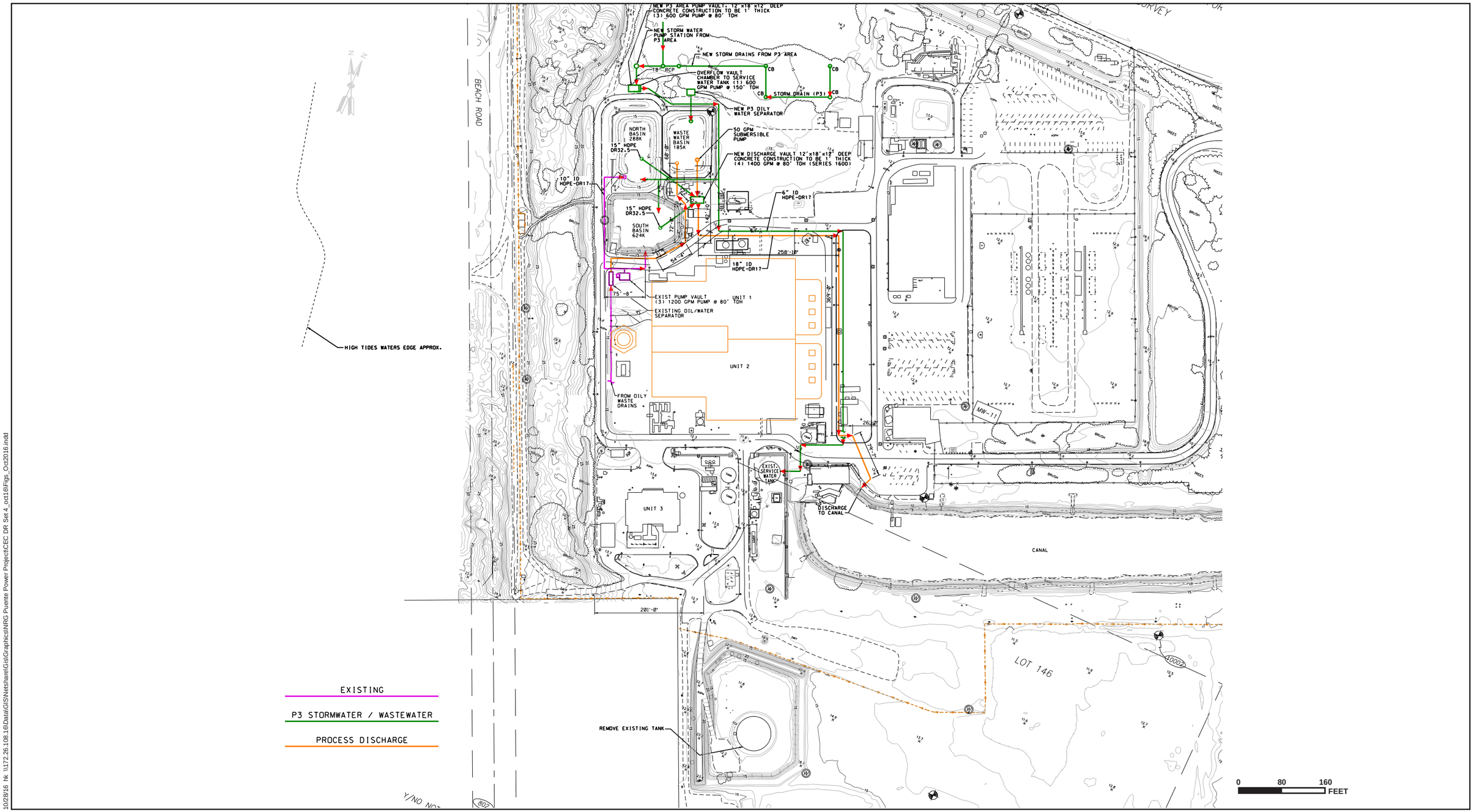
- Culverted water (0.09 ac)
- Developed (0.39 ac)
- Dune mats (0.67 ac)
- Ice plant mats (0.22 ac)
- Open water (2.1 ac)
- Ruderal (0.003 ac)
- Sandy beach (0.04 ac)

0 125 250 Feet

VEGETATION COMMUNITIES AND LAND COVER IMPACTS

NRG
Puente Power Project
October 2016 Oxnard, California

FIGURE 84-1



10/28/16 hk \\172.26.108.16\Data\GIS\Netshare\Gis\Graphics\NRG Puente Power Project\CEC DR Set 4_oct16\Figs_Oct2016.indd

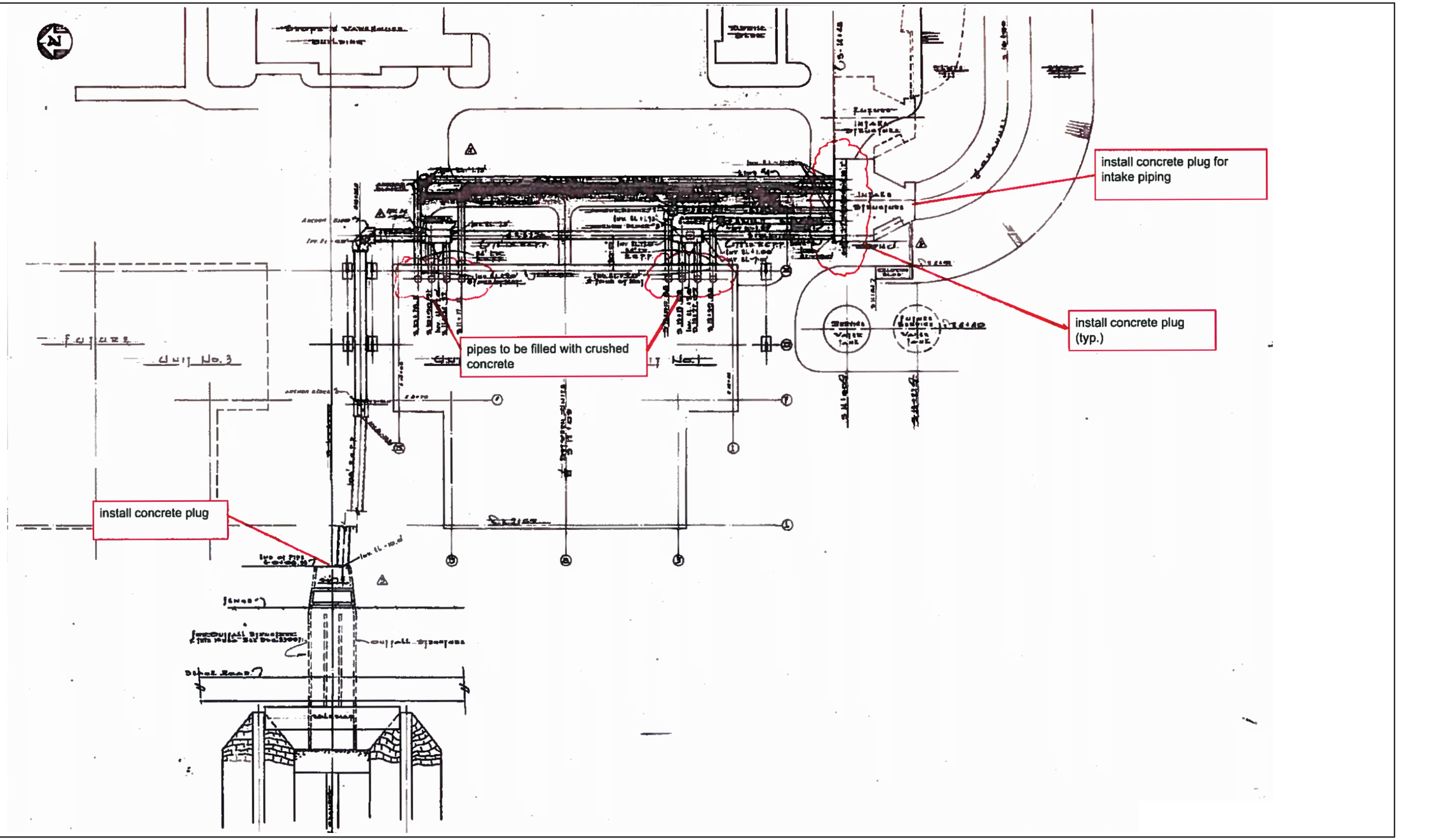
Source: URS DW. No. 3180-P029-MAN-SKETCH 14, REV. D, 10/26/16.

STORMWATER AND WASTEWATER DISCHARGE PLAN

NRG
Puente Power Project
Oxnard, California

October 2016

FIGURE 91-1

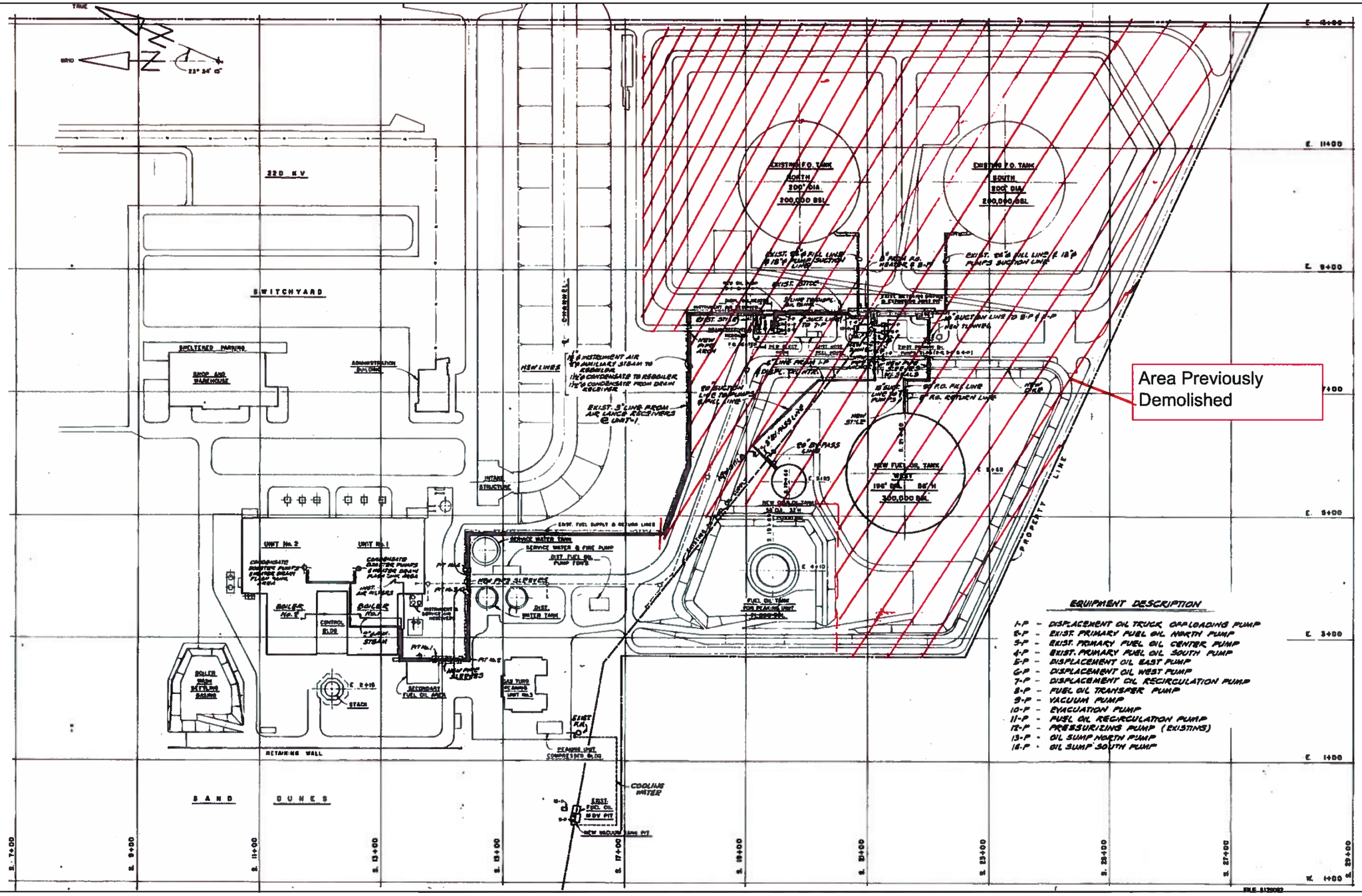


10/31/16 hk \\172.26.108.16\Data\GIS\Netshare\Gis\Graphics\NRG Puente Power Project\CEC DR Set 4_oct16\Figs_Oct2016.indd

MGS CIRCULATING WATER SYSTEM TO BE PLUGGED

NRG
Puente Power Project
October 2016 Oxnard, California

FIGURE 94-1



10/31/16 hk \\172.26.108.16\Data\GIS\Netshare\Gis\Graphics\NRG Puente Power Project\CEC DR Set 4_oct16\Figs_Oct2016.indd

FUEL OIL PIPING

NRG
Puente Power Project
October 2016 Oxnard, California

FIGURE 96-1

10/28/16 bk \\172.26.108.16\Data\GIS\Wetshare\Gis\Graphics\NRG Puente Power Project\CEC DR Set 4_oct16\Figs_Oct2016.indd

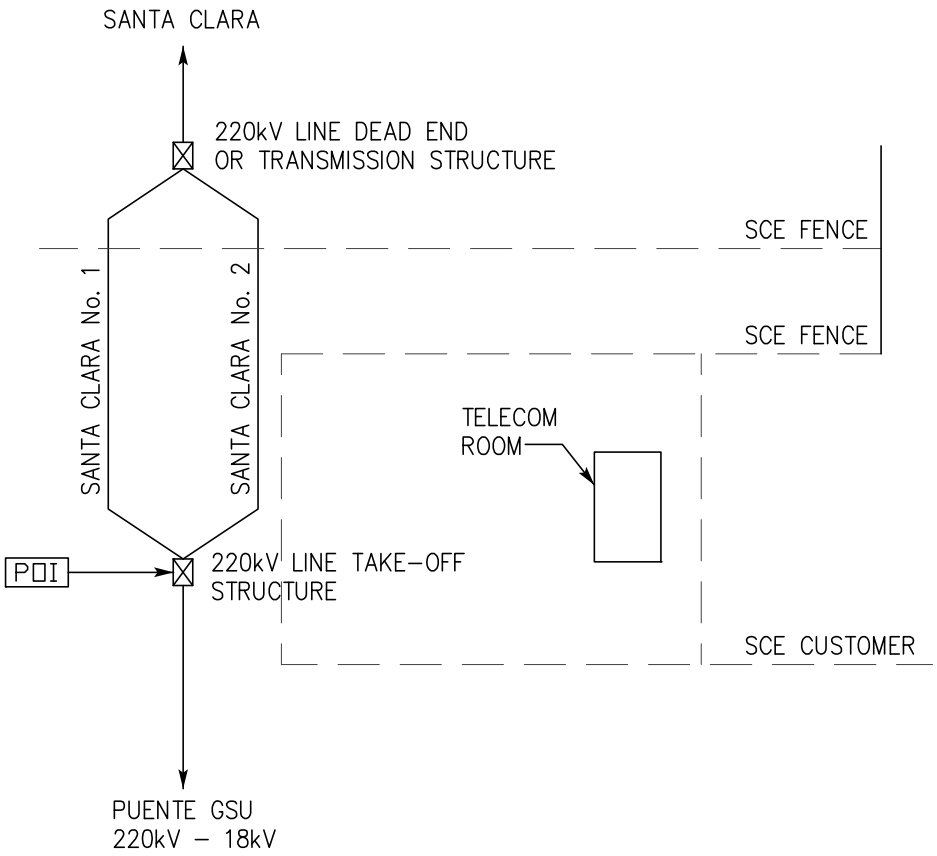
Source: URS DW. No. SKETCH 3: PLAN VIEW, REV. B, 10/19/16.

Not to Scale

TRANSMISSION INTERCONNECTION TIE-IN MAP

NRG
Puente Power Project
October 2016 Oxnard, California

FIGURE 102-1



Not to Scale

10/19/16 hk \\172.26.108.16\Data\GIS\Netshare\Gis\Graphics\NRG Puente Power Project\Oct2016\Figs_Oct2016.indd

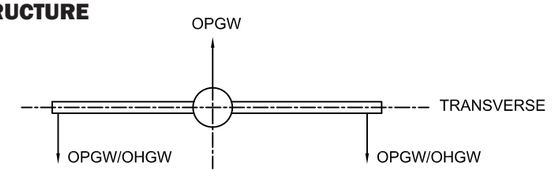
Source: URS DW. No. SKETCH 3-6, REV. A, 10/5/16.

ONE-LINE DIAGRAM

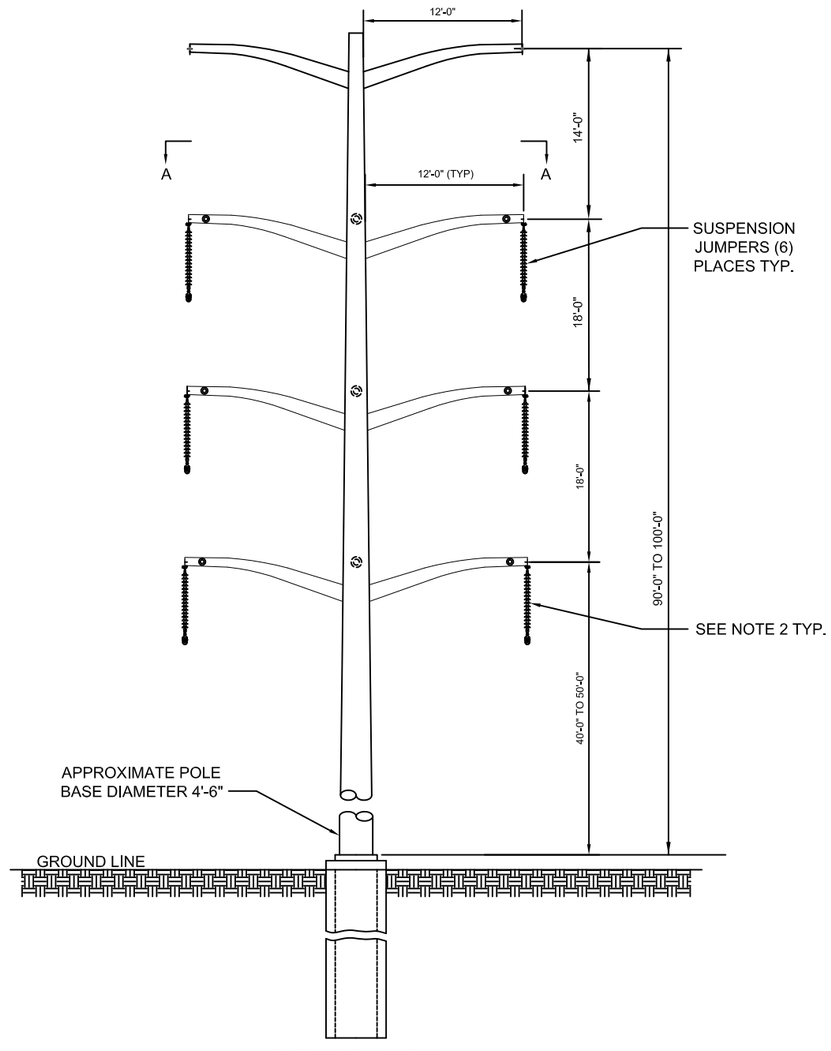
NRG
Puente Power Project
October 2016 Oxnard, California

FIGURE 103-1

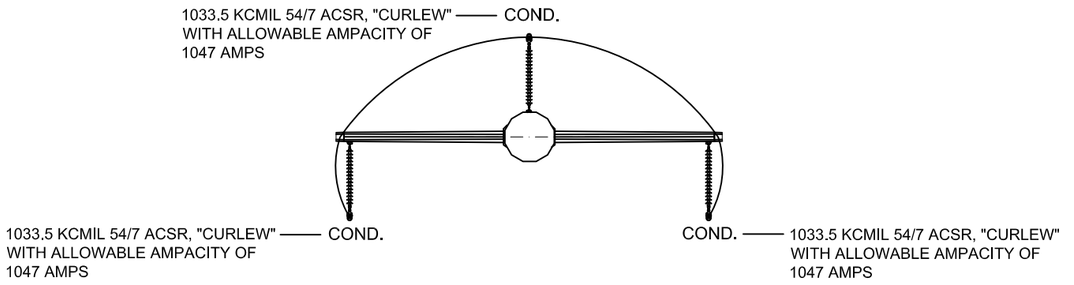
TAKE OFF STRUCTURE



PLAN VIEW



ELEVATION VIEW



SECTION A–A

NOTES
1. DIMENSIONS ARE TO HOLES FOR ATTACHMENT WHERE APPLICABLE.
2. ALL SUSPENSION JUMPER INSULATORS SHALL BE TOUGHENED GLASS WITH MINIMAL BIL RATING OF 1700 kV.

Not to Scale

10/19/16 hk \\172.26.108.16\Data\GIS\Netshare\Gis\Graphics\NRG Puente Power Project\Oct2016\Figs_Oct2016.indd

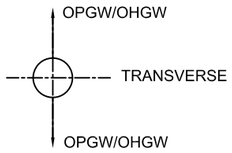
Source: URS DW. No. SKETCH 1: POLE OUTLINE, REV. C, 10/5/16.

DOUBLE CIRCUIT STRUCTURE DETAILS

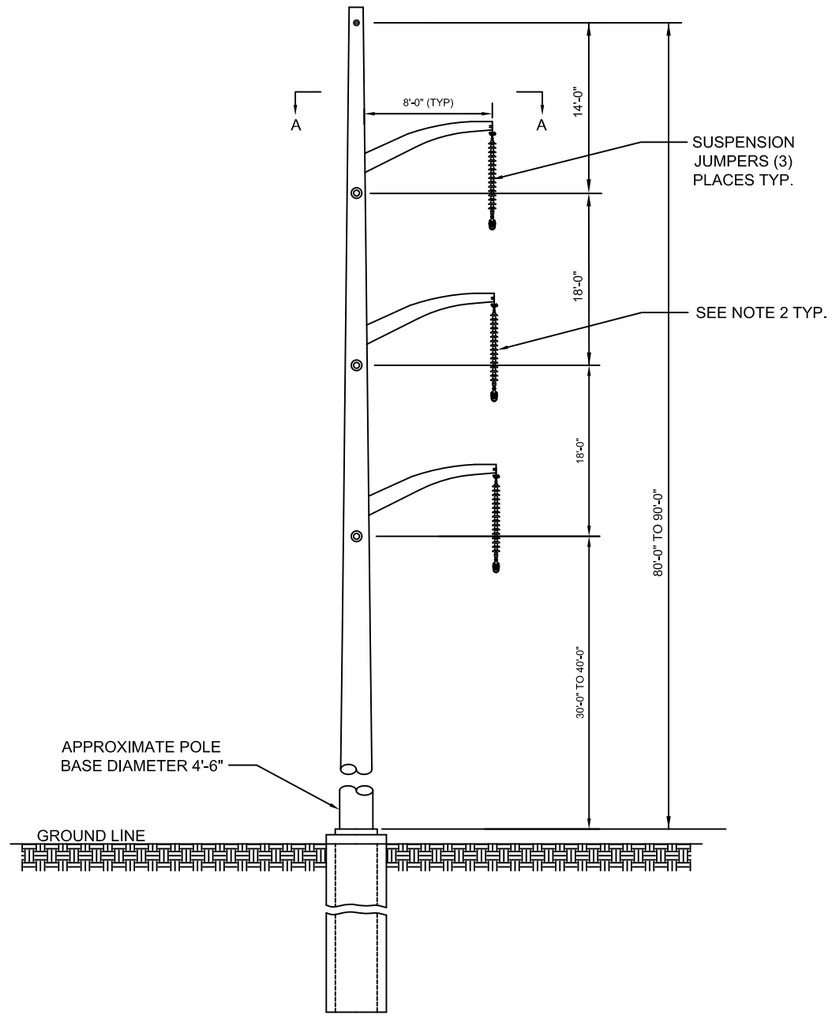
NRG
Puente Power Project
October 2016 Oxnard, California

FIGURE 105-1

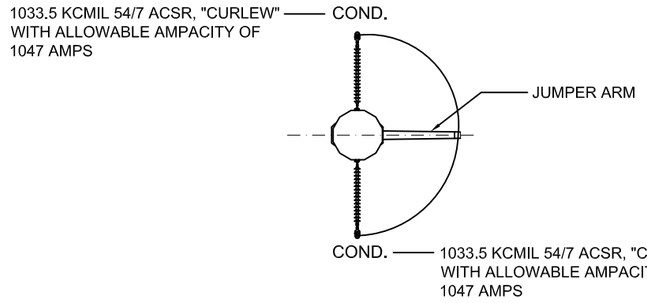
TAKE OFF STRUCTURE



PLAN VIEW



ELEVATION VIEW



SECTION A–A

NOTES
1. DIMENSIONS ARE TO HOLES FOR ATTACHMENT WHERE APPLICABLE.
2. ALL SUSPENSION JUMPER INSULATORS SHALL BE TOUGHENED GLASS WITH MINIMAL BIL RATING OF 1700 kV.

Not to Scale

Source: URS DW. No. SKETCH 2: POLE OUTLINE, REV. C, 10/5/16.

SINGLE CIRCUIT STRUCTURE DETAILS

NRG
Puente Power Project
October 2016 Oxnard, California

FIGURE 105-2

ATTACHMENT 89-1

HISTORIC ARCHITECTURAL RESOURCES SUPPLEMENTAL TECHNICAL REPORT FOR THE PUENTE POWER PROJECT

VENTURA COUNTY, CALIFORNIA

Prepared for:
NRG Energy Center Oxnard LLC

Prepared by:
AECOM
401 West A Street, Suite 1200
San Diego, CA 92101
(858) 812-9292 Fax: (858) 812-9293

AECOM Project Number 60412126

October 2016

TABLE OF CONTENTS

Appendices

AECOM	AECOM Technical Services, Inc.
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CRHR	California Register of Historical Resources
DPR	Department of Parks and Recreation
kV	kilovolt
LORS	laws, ordinances, regulations, and standards
MGS	Mandalay Generating Station
PAA	Project Area of Analysis
project	Puente Power Project
PSA	Preliminary Staff Assessment
SCE	Southern California Edison
SCCIC	South Central Coastal Information Center
WWII	World War II

SUMMARY OF FINDINGS

AECOM Technical Services, Inc. (AECOM) has been retained by NRG Energy, Inc., to perform a supplemental historic architectural resources survey and evaluation for the Puente Power Project (project) as a result of modifications in the project description and Project Area of Analysis (PAA). This supplemental technical report was prepared in response to data requests issued by the California Energy Commission (CEC) on October 11, 2016 regarding two recently filed project design changes: the "Refinement to Transmission Interconnection," and "Project Enhancement – Outfall Removal and Beach Restoration." These project changes are included in the supplemental PAA developed for this analysis, which includes a 0.5-mile buffer around the project improvement areas.

This supplemental report documents identification, recordation, and evaluation efforts for previously recorded and unrecorded historic architectural resources, such as buildings, structures, objects, districts, and sites (such as landscapes) in the original and supplemental PAA not previously evaluated in the 2015 Historic Architectural Resources Technical Report. This supplemental report was also conducted in compliance with CEC's "Instructions to the California Energy Commission Staff for the Review of and Information Requirements for an Application for Certification" (CEC, 1992); "Rules of Practice and Procedure and Power Plant Site Regulations" (CEC, 1997); and "Rules of Practice and Procedure and Power Plant Site Certification Regulations Revisions, 04-SIT-2" (CEC, 2006).

On October 18, 2016, a historic architecture survey was conducted of the supplemental PAA and the unevaluated parts of the original PAA, including the Mandalay Generating Station (MGS) Outfall (which is located in the original PAA, but was not evaluated in the 2015 Historic Architectural Resources Technical Report). The survey was completed by personnel qualified under the *Secretary of the Interior's Professional Qualification Standards* (36 Code of Federal Regulations [CFR] Part 61) in the disciplines of Architectural History and History. Investigators also conducted general and site-specific research on these areas with and/or at the South Central Coastal Information Center (SCCIC), state and local repositories and agencies, and various online sources (e.g., historic newspapers, United State Geological Society Historical Topographic Maps, and NETR Online) in January and February 2015 and October 2016.

As a result of this supplemental analysis, one previously unevaluated historic architectural resource was identified and evaluated: the MGS Outfall, which is a related feature to the MGS. After applying the procedures and criteria for the California Register of Historical Resources (CRHR) eligibility, as well as other means by which properties can be considered historical resources as defined in the California Environmental Quality Act (CEQA), it was determined that the MGS Outfall is not eligible for listing in the CRHR, or considered a historical resource for purposes of CEQA, either as an individual resource or as a contributing or related feature to the MGS. The MGS was also found to be ineligible for listing in the CRHR, and not considered a historical resource for purposes of CEQA in the 2015 Historic Architectural Resources Technical Report and CEC Revised Preliminary Staff Assessment Part 1. Therefore, significant impacts are not expected to occur to historic architectural resources.

SECTION 1
INTRODUCTION

1.1 PROJECT DESCRIPTION MODIFICATIONS

As a result of further engineering refinements, modifications have occurred to the project description as it was described in the 2015 Historic Architectural Resources Technical Report (AECOM, 2015). These modifications are documented in the Refinement to Transmission Interconnection and the Project Enhancement Outfall Removal and Beach Restoration documents, and summarized below.

The project's 220-kilovolt (kV) transmission interconnection would now consist of a single gen-tie connection, which will require one mono-pole structure and one take-off structure, providing a direct connection to Southern California Edison's (SCE's) transmission system and bypassing the existing SCE Switchyard. The transmission line interconnection would be approximately 250 feet in total length from the generator step-up transformer to the 220-kV tie-in point at the take-off structure.

The project would now eliminate the use of the existing outfall structure that currently serves as beach discharge for MGS Units 1, 2, and 3, and which had previously been proposed for reuse by the project. Once the project becomes operational and MGS Units 1 and 2 are decommissioned, the beach discharge will be eliminated, and the outfall structure will be demolished and removed. The reconfigured systems will discharge wastewater and surplus stormwater that cannot be reused to the Edison Canal. An access road will be used running north to south immediately west of the power plant perimeter fence. Additionally, new stormwater and wastewater lines will be installed in the power plant property. Figures depicting the new project modifications are included in Appendix A. Photographs depicting the project environs are included in Appendix B.

1.2 PROJECT LOCATION AND SETTING

The proposed project site location and setting is described in the 2015 Historic Architectural Resources Technical Report (AECOM, 2015). The modifications to the project do not result in any changes to information previously included in the 2015 report.

1.3 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The laws, ordinances, regulations, and standards (LORS) that pertain to architectural resources are provided in the 2015 Historic Architectural Resources Technical Report (AECOM, 2015). The modifications to the project do not result in any changes to the LORS.

1.4 CULTURAL RESOURCES PERSONNEL

The following are the key cultural resource personnel who contributed to this supplemental analysis:

- Jeremy Hollins, M.A., Senior Architectural Historian
- Shoshana Jones, M.A., Architectural Historian
- Patience Stuart, M.S., Architectural Historian,

- Monica Mello, M.A., Architectural Historian
- Lauren Downs, M.A., RPA, Historic Archaeologist

All work was overseen and led by individuals who meet the professional standards of the Secretary of the Interior in Architectural History, History, and Archaeology, in accordance with 36 CFR Part 61. Résumés for personnel are provided in Appendix D.

SECTION 2
HISTORIC CONTEXT

The following section provides historic context on the historic architectural resources analyzed in this supplemental report.

2.1 PROJECT AREA OVERVIEW

In terms of historic-period resources, regional history begins with Spanish explorations beginning in 1542. These explorations resulted in the establishment of Spanish missions and land-granted properties throughout the region. In the late 1800s, the Spanish land grants were parceled out to Ranchos for agriculture and cattle. A combination of railroads, oil, and natural agricultural soils (ideal for sugar beets) attracted more settlers, and the City of Oxnard was established as a planned community around the Oxnard brothers' American Beet Sugar Company factory. The City of Oxnard was further developed after the population boom following World War II (WWII) and the establishment of local military installations, including Naval Base Ventura County, Naval Air Station Point Mugu, and Oxnard Air Force Base, and sustained by the Southern California power boom during the mid- to late-twentieth century. Further information on the historic overview for the project is included in the 2015 Historic Architectural Resources Technical Report (AECOM, 2015) and the CEC Revised Preliminary Staff Assessment (PSA) Part 1 (CEC, 2016).

2.2 PROJECT-AREA–SPECIFIC HISTORY

The following provides new and additional historic context for the historic architectural resource analyzed in this supplemental report (i.e., the MGS Outfall). Information related to historic architectural resources that were previously analyzed is included in the 2015 Historic Architectural Resources Technical Report and the CEC PSA.

SCE filed an application with the California Public Utilities Authority for construction of a steam-electric–generating facility at Mandalay Bay in December 1956 on a 100-acre site on the Patterson Ranch subdivision. The station was to consist of three units, and have a combined rated capacity of 577 megawatts (AECOM, 2015). SCE originally planned for plant discharge to be through an underground tube extending 0.5 mile out to sea. SCE engineers, however, revised the plan based on the shifting ocean floor and silting conditions. The revised proposal planned for the outfall to consist of a box culvert and rock-rimmed open ditch.

Locally, however, the outfall design caused controversy (Oxnard Press-Courier, 1957). In December 1957, planners from the City of Oxnard and County of Ventura issued a resolution urging SCE to revise its canal alignment to prevent the outfall from bisecting the beach, interfering with recreational activities, and posing a hazard (Lyttle, 1957; Oxnard Press-Courier, 1957). City and county officials argued that oil firms were prohibited from constructing surface installations within 500 feet of the shoreline, and that this restriction should apply to all industries, including utility firms. As a result, SCE implemented another revised plan for the box culvert and open-ditch outfall, to shorten the canal and ditch (Lyttle, 1957; Oxnard Press-Courier, 1957). Construction of the MGS Outfall was underway by 1958.

The revised ditch was designed to be 130 feet wide and 17 feet deep, with water depth varying from 4 feet at low tide to 12 feet at high tide. After running through the plant's steam condensers, the cooling water was discharged into a pipe measuring 108 inches in diameter. The ditch for the pipe was excavated in January 1958.

The outfall is immediately west of the MGS property boundary between McGrath State Park, established between 1962 and 1964, and Mandalay County Park, established as a State Beach in 1985 (California State Park System, 2009/2010). The outfall on the beach attracts beachgoers collecting sea glass and, due to the higher water temperatures that may attract fish, the area is also frequented by fisherman.

SECTION 3
RESEARCH METHODS

3.1 PROJECT AREA OF ANALYSIS

As depicted in Appendix A, the supplemental PAA for historic architectural resources consists of the modified project improvements and a 0.5-mile buffer around these modified project improvements to address potential indirect effects (CEC, 2008:398). The modified project site improvements include the transmission line refinement, outfall improvements, an access road along the beach, and the stormwater and wastewater lines. In areas where private or utility property access was not feasible in the 0.5-mile buffer, investigators completed the analysis from public vantage points, and augmented their studies with available data.

3.2 BACKGROUND RESEARCH

As part of the 2015 Historic Architectural Resources Technical Report, a California Historical Resources Information System records search was conducted by the staff of the SCCIC on January 5, 2015 (Records Search #14648). The records search was completed for a 1-mile search radius from the MGS property boundaries; thereby encompassing the supplemental PAA. As a result, a supplemental records search was not conducted for this study. Based on the previous results, no additional previously conducted investigations or previously recorded cultural resources occurred in the supplemental PAA for historic architectural resources. Information from the records search is provided in Appendix C of the 2015 Historic Architectural Resources Technical Report.

Site-specific primary and secondary research relevant to historic architectural resources in this supplemental report was conducted through numerous online resources (e.g., Calisphere – A World of Digital Resources, California Historic Topographic Map Collection, Digital State Archives, Newspapers.com, Online Archive of California, and California State Park System) in October 2016. In addition, supplemental research was also conducted in October 2016 in person at the Oxnard Public Library and the Oxnard Planning Department, and with knowledgeable MGS employees, as well as remotely with the following sources:

- City of Oxnard Building and Engineering Services
- County of Ventura Building and Safety Department
- County of Ventura Assessor's Office
- Historical Society of Southern California
- Huntington Library, SCE Records
- SCE Archives
- Ventura County Library
- NRG records available with MGS personnel

In addition to the aforementioned sources, a review of historic maps and aerial photographs provided in Appendix D of the 2015 Historic Architectural Resources Technical Report was also conducted.

Please refer to the 2015 Historic Architectural Resources Technical Report for a complete discussion of the archaeological research methods.

3.2.1 Historic Architecture Property Types

Anticipated property types in the supplemental PAA include those described in Table 4 of the 2015 Historic Architectural Resources Technical Report, including agricultural outbuildings and landscapes, mining and refinement, roads, water features, and recreational features.

3.3 AGENCY CONTACT

The 2015 Historic Architectural Resources Technical Report lists main points of contact for informational letters sent in February 2015. No additional informational letters have been sent to groups and organizations that may be interested in cultural resources; and no new responses to the informational letters have been received since the Historic Architectural Resources Technical Report was submitted in April 2015. A copy of the correspondence and responses received were included in Appendix E of the 2015 Historic Architectural Resources Technical Report.

SECTION 4
REPORT OF FINDINGS

As a result of this supplemental analysis, the AECOM team identified one historic architectural resource in the original and supplemental PAA during background research and field survey of the project area that was not previously evaluated in the 2015 Historic Architectural Resources Technical Report and CEC PSA: the MGS Outfall, which is a related feature associated with the MGS. A revised Department of Parks and Recreation (DPR) 523 series form that incorporates an evaluation of the MGS Outfall into the MGS analysis is included in Appendix C. This section provides a summary of the findings for historic architectural resources.

4.1 FIELD METHODOLOGY

On October 18, 2016, AECOM Architectural Historian Monica Mello conducted a historic architectural survey of the supplemental PAA, and the unevaluated parts of the original PAA (which included the MGS Outfall). Ms. Mello meets the *Secretary of the Interior's Professional Qualification Standards* (36 CFR Part 61) in the disciplines of Architectural History and History.

During the field efforts, DPR 523 series forms were used to record built environment features identified in the field. Recorded features were also photographed and mapped at this time. Based on the results of the background investigation and the field survey, AECOM conducted research at the facilities and sources identified earlier in Section 3 of this supplemental report to verify the age and possible historic associations of the properties.

4.2 HISTORIC ARCHITECTURAL RESOURCE FINDINGS

As part of the field and background research, one historic architectural resource was identified in the original and supplemental PAA that was not previously recorded or evaluated as part of the 2015 Historic Architectural Resources Technical Report and CEC PSA: the MGS Outfall. The following subsections provide an architectural description, historical evaluation, and integrity analysis for the MGS Outfall. Maps depicting the resource in relation to the project and the other resources identified in the 2015 Historic Architectural Resources Technical Report are included in Appendix A.

4.2.1 MGS Outfall

In accordance with the direction of CEC Staff Data Request 90, the MGS Outfall has been identified as a related feature associated with the MGS, part of a larger interrelated historic architectural resource. The MGS was previously found ineligible for listing in the CRHR and not considered a historical resource for purposes of CEQA in the 2015 Historic Architectural Resources Technical Report and CEC PSA. The following paragraphs provide additional information on and an evaluation of the MGS Outfall as an individual resource and component of the MGS. Additional information regarding the MGS is included in Appendix F of the 2015 Historic Architectural Resources Technical Report.

The MGS Outfall is a reinforced-board–formed concrete segmental box culvert with a rock revetment designed to discharge effluent from the plant to the ocean. The outfall structure consists of three

rectangular concrete barrels and two concrete wing walls. The areas beneath the top plate, outside the wing walls, are filled with riprap. The original concrete platform observation deck was removed during the 1980s, and replaced with a smaller deck constructed of fiberglass grating, per information provided by MGS personnel. The discharge from the outfall conceals the structure's bottom plate, which could not be viewed. Associated elements include a mixing vault immediately east of the outfall, and a partial perimeter fence. The outfall's beach location is characterized by sandy shore and an abundance of *Carpobrotus edulis* (ice plant), with the MGS plant to the immediate east.

A concrete-plank boardwalk connected by nylon ropes leads from the MGS cooling ponds to the plant's perimeter chain-link metal fence topped with barbed wire. A short section of beach lies between the plant's perimeter fence and the outfall gate, which includes an unpaved vehicle path running generally north-south. The mixing vault lies about 30 feet from the outfall's top plate.

The MGS outfall is surrounded on its northern, eastern, and southern sides by a chain-link metal fence with metal posts. The posts are secured to the riprap that lines the eastern side of an approximately 130-foot-wide and 17-foot-deep ditch that carries effluent deposited by the outfall from the beach to the ocean. The fence's northern and southern sections parallel the channel. A gate is centered at the fence's eastern side. The original perimeter fence consisted of wood posts. The current posts and fencing are metal.

Several warning signs are posted on the outfall's metal fence, including a "DANGER – TURBULENT WATER" sign, with warnings against swimming and trespassing, which is posted on the fence's eastern side. The gate also displays a sign prohibiting admittance without permission, and an adjacent sign notifies of video surveillance on the premises.

From the plant, effluent flows from the mixing vault, through the outfall barrels, and then to the beach and ocean. The mixing vault, measuring about 20 feet deep, lies immediately west of the plant's perimeter fence. Two horizontal concrete bulkheads span the mixing vault. The mixing-vault area is surrounded by its own metal chain-link fence. From the mixing vault, the effluent flows below ground to the outfall structure.

The source of the MGS cooling water is ocean water that is conveyed to the plant via the Edison Canal. The Edison Canal originally originated from Port Hueneme Harbor. Since 1960, the canal has begun at Channel Islands Harbor, after the original canal between the Channel Islands Harbor and Port Hueneme Harbor was filled with excavated material from the Channel Islands Harbor.

After running through steam condensers, the cooling water is discharged into a pipe measuring 108 inches in diameter (Oxnard Press-Courier, 1958). MGS currently operates one cooling-water intake structure to provide condenser cooling water to areas of the plant. Once-through cooling water combines with low-volume wastes generated by MGS, and discharges the effluent through the shoreline outfall and into the Pacific Ocean. Surface water withdrawal and discharges are regulated by National Pollutant Discharge Eliminations System Permit CA0001180, as implemented by Los Angeles Regional Water Quality Control Board Order 01-057 (Tetra Tech, 2008: H-4).

4.2.2 Evaluation

Under CRHR Criterion 1, the MGS Outfall, a feature associated with the MGS, has no significant association with the broad patterns of local or regional history, or the cultural heritage of California or the United States. The outfall and associated power station are related to the construction of the largest single generating unit in the Edison system in the 1950s and 1960s, as well as first in the world to use selective catalytic reduction technology to minimize emissions. However, the outfall is not a distinct example of a power station outfall. At the time of its construction, the plant was one of several being built of similar—often nearly identical—design by SCE after WWII to supply the growing post-war demand for electricity in southern California, including San Bernardino County. In 1952, the company began work on Redondo No. 2, which was adjacent to an earlier plant at Redondo Beach. In 1953, the Etiwanda plant went online, followed in 1955 by El Segundo, Alamitos in 1956, and Huntington Beach in 1958. In addition to SCE, other companies throughout California, including Pacific Gas & Electric, San Diego Gas & Electric, and California Electric, were also building similar steam-generating plants at this time to meet energy demands. These plants and associated substations generated the power needed to answer the demands of its customers. Because the MGS and its associated outfall have no significant association with the broad patterns of local or regional history, or the cultural heritage of California or the United States, the MGS Outfall is not eligible for listing in the CRHR under Criterion 1 as an individual resource, or as a related feature to the MGS.

Under CRHR Criterion 2, the MGS Outfall has no significant association with the lives of persons important to local, California, or national history as an individual resource, or as a contributing feature to a larger resource. Research conducted of people important in electric history included a careful evaluation as to whether the MGS station or outfall under investigation is the property that best represents that association. In California, notable names for which there might be associations with steam-generating plant planning, construction, or engineering include: Pacific Gas and Electric Company Chief Engineer I.C. Steele; Bechtel Engineer Walter Dickey; Henry E. Huntington and hydraulic engineer John S. Eastwood of SCE. Research on the property did not reveal that the MGS is associated with any of these notable persons or their work. Because the MGS Outfall and the MGS plant have no significant association with the lives of persons important to local, California, or national history, the MGS Outfall is therefore not eligible for the CRHR under Criterion 2 as an individual resource, or as a related feature to the MGS.

Under CRHR Criterion 3, the MGS Outfall and the larger MGS plant do not embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possess high artistic values. The MGS (including Units 1 and 2, contained in the power plant building, Unit 3 as it stands, as well as the maintenance and administrative buildings) was constructed as a steam-generating power plant, a design that was standard, and common for the period, and was built for expansion. The MGS is representative of the cost-efficient work required for a steam-generating station, and was designed to be expanded if market conditions warranted. It was built economically by minimizing the structural material, including not enclosing the turbo-generator units in a building (Dickey, 1956). The MGS Outfall also has a nondistinctive engineering design, comprising a board-formed–concrete segmental box culvert with a rock revetment designed to discharge effluent from the plant and into the ocean. The outfall's box culvert possesses a common, utilitarian design and typical construction materials, which exhibit priority of function over style and lack architectural distinction.

Because the MGS Outfall does not embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possess high artistic values, the MGS Outfall is not eligible for the CRHR under Criterion 3 as an individual resource, or as a related feature to the MGS.

Under CRHR Criterion 4, the MGS and its outfall have not yielded, nor appear to have the potential to yield information important to the prehistory or history of the local area, California, or the United States. Research has indicated that no known events of importance occurred in relation to the MGS or its outfall feature. The resources are not likely to yield information important to the prehistory or history of the local area, California, or the United States. Because the evaluated portion of the MGS and outfall feature has not yielded, nor appears to have the potential to yield information important to the prehistory or history of the local area, California, or the United States, the MGS Outfall is therefore not eligible for the CRHR under Criterion 4 as an individual resource, or as a related feature to the MGS.

In summary, the MGS Outfall does not meet any of the criteria for listing in the CRHR as an individual resource, or as a contributing or related feature to a larger significant resource, like the MGS (which was determined ineligible for listing in the CRHR, and is not considered a historical resource for purposes of CEQA in the 2015 Historic Architectural Resources Technical Report and CEC PSA).

4.2.3 Integrity Analysis

In addition, for a property to be eligible for listing in the CRHR, besides meeting one of the above criteria, a property must also retain its historic integrity. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Location

Location is the place where the historic property was constructed or the place where the historic event took place. The original location of the MGS Outfall remained the same; and although no historic events have occurred at this location, the integrity of the property's location remains intact.

Design

Design is the combination of elements that create the form, plan, space, structure, and style of a property. The MGS Outfall has a utilitarian design and has generally retained its overall style, space, form, and plan.

Setting

Setting is the physical environment of a historic property. The historic setting of the MGS Outfall is the rural and suburban underdeveloped character of the agricultural region in Ventura County. The outfall is on the beach near the main areas of Mandalay County Park and McGrath State Park. Since its construction, the physical environment of the MGS Outfall has not changed substantially, and the historic setting of the feature remains evident today.

Materials

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form a historic property. The MGS Outfall was constructed in 1958, and its physical elements represent design materials common during mid-twentieth century construction, such as board-formed concrete. The MGS Outfall has retained many of its original construction elements, fabric, and materials; however, spalling is apparent on sections of the concrete structure.

Workmanship

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. The outfall retains its integrity of workmanship, because the station feature is recognizable as an industrial outfall. The MGS Outfall displays characteristics seen in mid-twentieth–century engineering, and the workmanship is based on common traditions seen during that period.

Feeling

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. In its current state, the MGS Outfall has generally retained its property's location, design, setting, and workmanship; therefore, the feature conveys its character and historic integrity of feeling as station from the mid-twentieth century.

Association

Association is the direct link between an important historic event or person and a historic property. Although it was built as a feature of the MGS, which provided electricity to the region, the MGS Outfall is not directly associated with any important historic event or person, or conveys a direct or distinctive link with any larger trend.

In conclusion, while the MGS Outfall appears to retain its historic integrity, it does not appear to be eligible for listing to the CRHR, or considered a historical resource for purposes of CEQA as an individual resource or as a contributing or related feature to a larger significant resource, like the MGS (which was determined ineligible for listing in the CRHR, and is not considered a historical resource for purposes of CEQA in the 2015 Historic Architectural Resources Technical Report and CEC PSA).

SECTION 5
MANAGEMENT CONSIDERATIONS

As a result of this supplemental report, no historic architectural resources were identified or evaluated as eligible for listing in the CRHR, or as a historical resource for purposes of CEQA in the original and supplemental PAA. Therefore, significant impacts are not expected to occur to historic architectural resources, and no mitigation measures are proposed for historic architectural resources.

SECTION 6
REFERENCES

AECOM, 2015. Historic Architectural Resources Technical Report for the Puente Power Project, Ventura County, California. Prepared for NRG Energy Center Oxnard LLC. April.

California State Park System, 2009/2010. Statistical Report. Statewide Planning Unit, Planning Division, California State Parks.

CEC (California Energy Commission), 1992. "Instructions to the California Energy Commission Staff for the Review of and Information Requirements for an Application for Certification."

CEC (California Energy Commission), 1997. "Rules of Practice and Procedure and Power Plant Site Regulations."

CEC (California Energy Commission), 2006. "Rules of Practice and Procedure and Power Plant Site Certification Regulations Revisions, 04-SIT-2." December 14.

CEC (California Energy Commission), 2008. California Code of Regulations, Title 20. Public Utilities and Energy Division 2. State Energy Resources Conservation and Development Commission.

CEC (California Energy Commission), 2016. Revised Preliminary Staff Assessment, Part 1. June 20.

Dickey, Walter L., 1956. "The Design of Two Steam Electric Plants." ASCE Transactions.

Lyttle, Richard, 1957. "City, County Agree on Beach Park Area, From McGrath Lake South to Fifth Street." December 21,

Oxnard Press-Courier, 1957. "City Planners Oppose Ditch Across Beach." December 20,

Oxnard Press-Courier, 1958. "Steely Skeleton Taking Shape on $75 Million Job." January 8,

Personal interview with George Placer by Monica Mello, October 18, 2016.

Tetra Tech, 2008. California's Coastal Power Plants: Alternative Cooling System Analysis.

APPENDIX A
PROJECT MAPS

U:\GIS\NRG_Ventura\Projects\HistArch_Tech_Report\Fig1_Vicinity.mxd 3/13/2015 3:16:44 PM

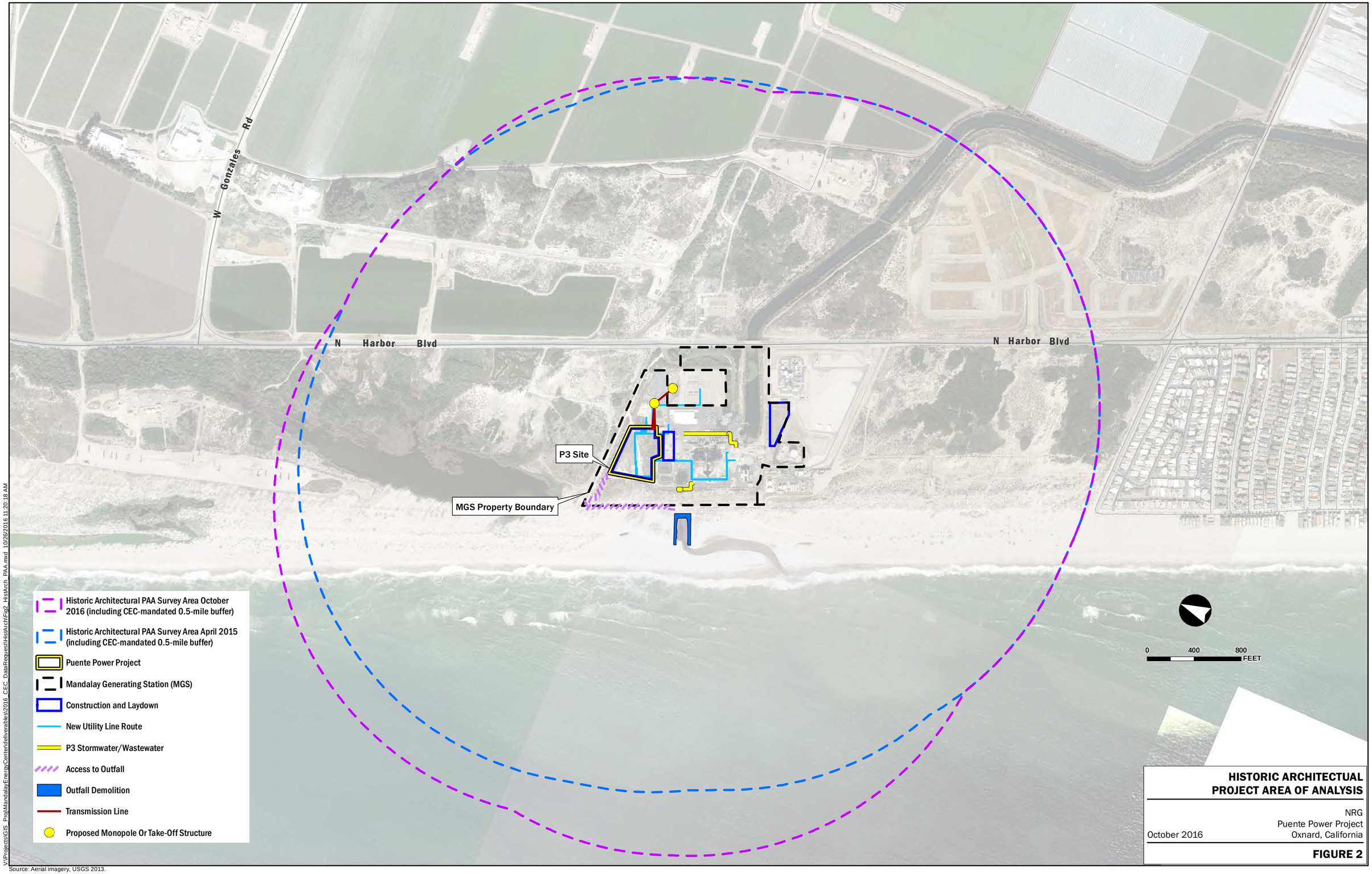
Source: ESRI Basemap

PROJECT SITE VICINITY MAP

■ Puente Power Project Site

NRG
Puente Power Project
March 2016 Oxnard, California

FIGURE 1



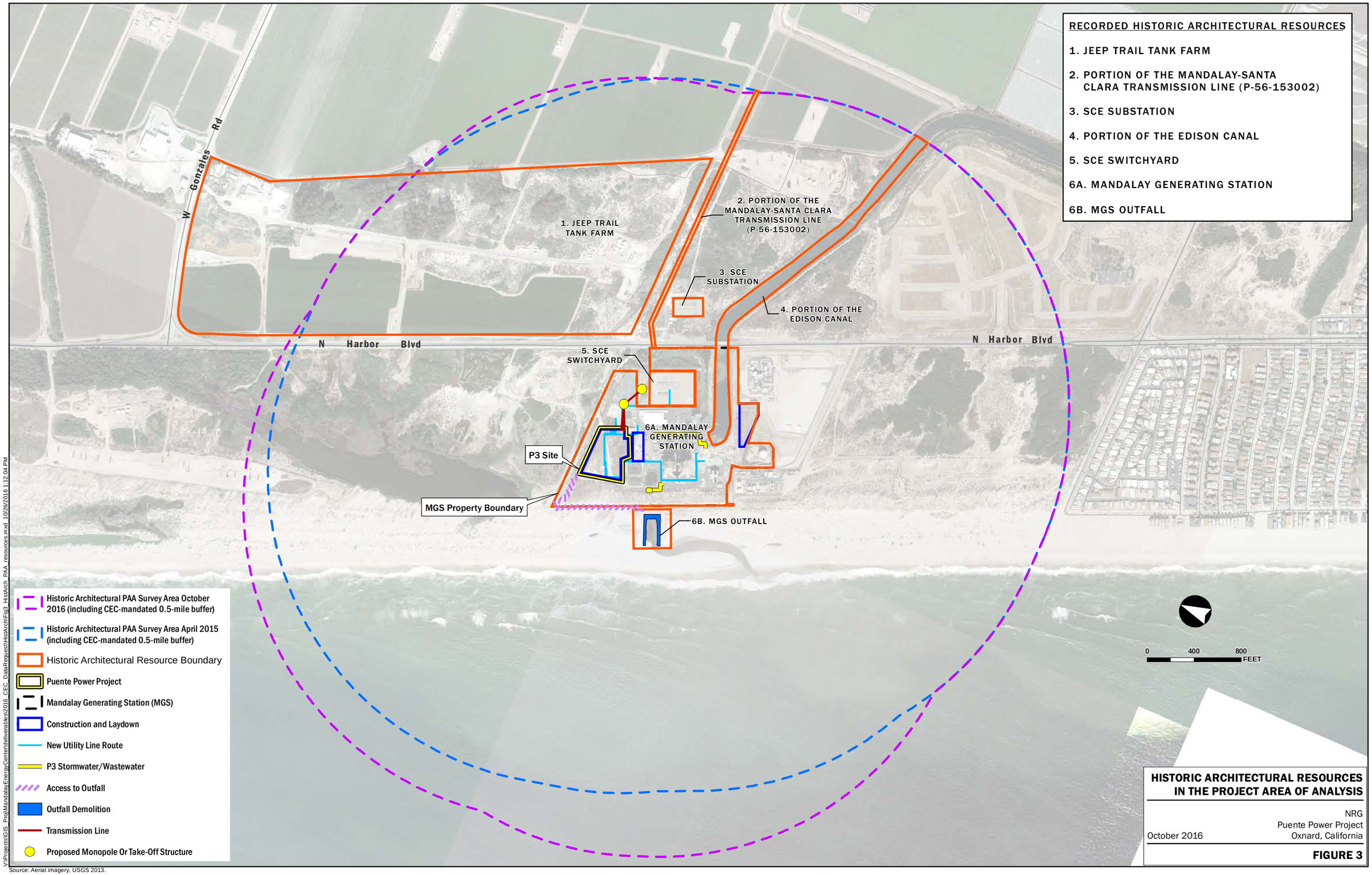
Source: Aerial imagery, USGS 2013.

HISTORIC ARCHITECTUAL PROJECT AREA OF ANALYSIS

NRG
Puente Power Project
October 2016 Oxnard, California

FIGURE 2

V:\Projects\GIS_Prog\MandalayEnergyCenter\deliverables\2016_CEC_DataRequest\HisArch\Fig2_HisArch_PAA.mxd 10/26/2016 11:20:18 AM



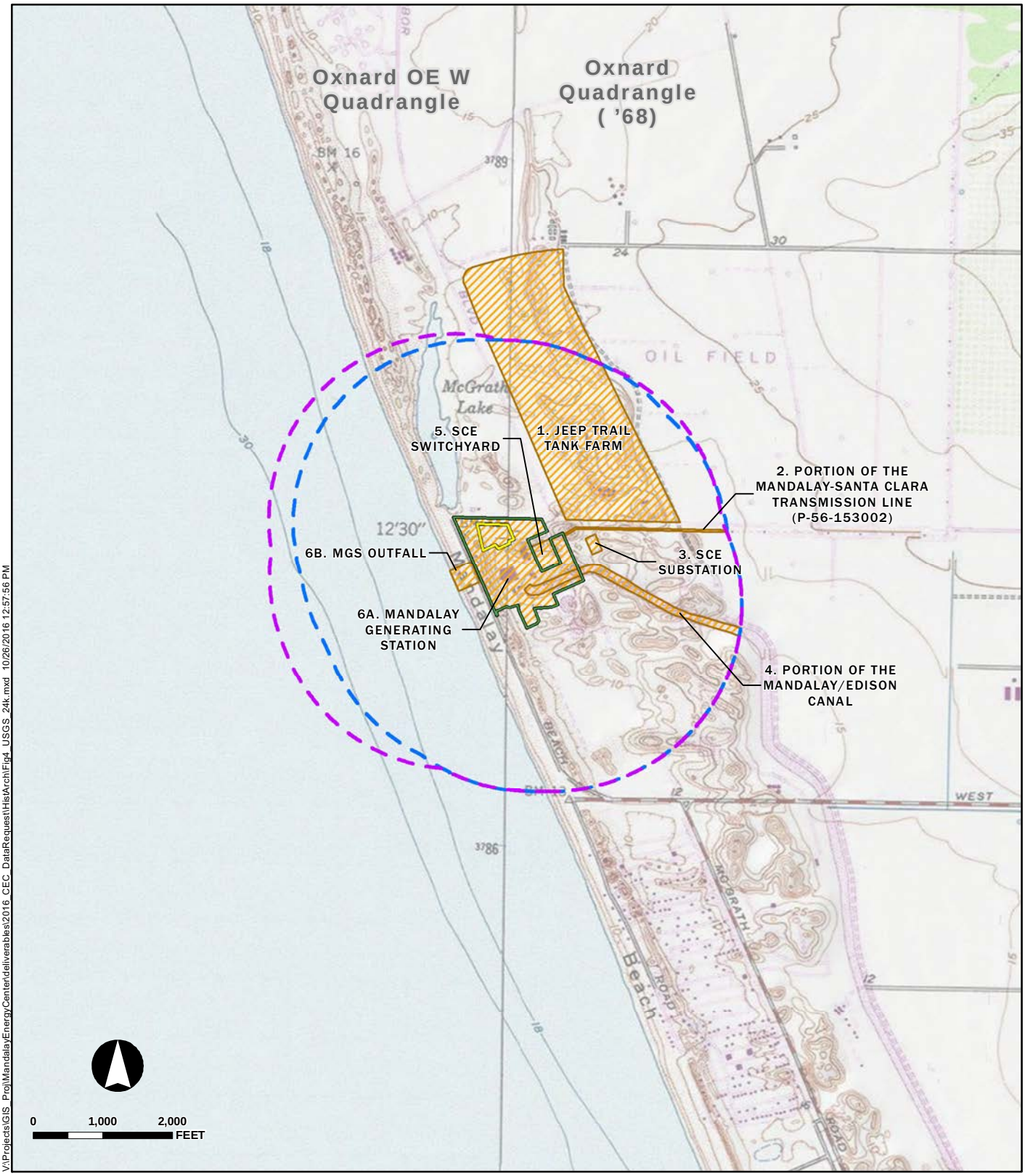
V:\Projects\GIS_Proj\MandalayEnergyCenter\deliverables\2016_CEC_DataRequest\HistArch\Fig3_HistArch_PAA_resources.mxd 10/26/2016 1:12:04 PM

Source: Aerial imagery, USGS 2013.

HISTORIC ARCHITECTURAL RESOURCES IN THE PROJECT AREA OF ANALYSIS

NRG
Puente Power Project
October 2016 Oxnard, California

FIGURE 3



V:\Projects\GIS_Proj\MandalayEnergyCenter\deliverables\2016_CEC_DataRequest\HistArch\Fig4_USGS_24k.mxd 10/26/2016 12:57:56 PM

Source: Seamless, scanned images of United States Geological Survey (USGS) paper topographic 1:24,000-scale maps: Oxnard ('68) & Oxnard OE W Copyright:© 2013 National Geographic Society, i-cubed.

Historic Architectural PAA Survey Area October 2016 (including CEC-mandated 0.5-mile buffer)

Historic Architectural PAA Survey Area April 2015 (including CEC-mandated 0.5-mile buffer)

Historic Architectural Resource

Puente Power Project

Mandalay Generating Station

SURVEY AREA AND RESOURCE LOCATIONS

NRG
Puente Power Project
October 2016 Oxnard, California

FIGURE 4

APPENDIX B
OVERVIEW PHOTOGRAPHS OF PROJECT

Figure 1: Mandalay Generating Station (MGS) Outfall (foreground) and the MGS (background), view to the east.

Figure 2. MGS Outfall, view to the northeast.

Figure 3. Access to MGS Outfall west of MGS property boundary, view to the south.

Figure 4. Proposed Take-Off Structure area south of Existing Construction Craft Parking, view to the east.

Figure 5. Proposed stormwater and wastewater utility area, view to the northwest

APPENDIX C
DPR 523 SERIES FORMS

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary#_____
HRI#_____
Trinomial_____
NRHP Status Code_____
Other Listings _____
Review Code Reviewer Date _____

Page 1 **of** 20 ***Resource Name or #:** (Assigned by recorder) Mandalay Generating Station
P1. Other Identifier:
***P2. Location:** ¨ **Not for Publication** x **Unrestricted**
***a. County:** Ventura **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Oxnard **Date** 1967 **T** N/A**; R** N/A**;** N/A **¼ of** N/A **¼ of Sec** N/A**;** N/A **B.M.;** Rio De Santa Clara Land Grant
c. Address 393 Harbor Boulevard City Oxnard Zip 93036
d. UTM: (Give more than one for large and/or linear resources) Zone 11, 292663 mE/ 3787394 mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Assessor's Parcel Number (APN) 183-002-202. The Mandalay Generating Station (MGS) is bordered to the west by the Pacific Ocean; to the south is the McGrath Peaker Plant and undeveloped land, primarily sandy dune in composition; to the north is more undeveloped land, primarily sandy dune in composition; and to the east is an Southern California Edison (SCE) Substation and an SCE Switchyard, as well as agricultural land.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The following form was revised in October 2016 to include an analysis of the MGS Outfall, which is a related feature to the MGS. Italicized text has been used to indicate the changes to the form since it was last recorded in February 2015.

The station consists of three units and has a combined rated capacity of 577 megawatts (MW). Two of the facility's units (Unit 1 and Unit 2) use cooling water from the Pacific Ocean, via the Channel Island Harbor and the Edison Canal, in excess of 50 million gallons per day (MGD) (ENSR Corporation, 2006). Unit 1 and Unit 2 are steam-electric–generating units, each rated at 215 MW, and one gas turbine unit (Unit 3) rated at 147 MW. Steam is supplied to the two steam-electric units by two oil- or gas-fired boilers, each rated at 707,600 kilograms (kg) of steam/hr. A take occurs when a pinniped enters the Edison Canal from the Channel Islands Harbor, 4.8 kilometers (km) down coast of the generating station. The MGS draws ocean water from the Channel Islands Harbor via the Edison Canal to provide cooling for the plant's condensers and other necessary components.

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

SEE CONTINUATION SHEET

***P3b. Resource Attributes:** (List attributes and codes); Industrial Building – HP8

***P4. Resources Present:** x Building x Structure o Object o Site o District o Element of District o Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) Photographer looking southwest; February 2015

***P6. Date Constructed/Age and Source:** x Historic o Prehistoric _____ o Both
1959 per Ventura Star Free Press

***P7. Owner and Address:**
NRG Energy Inc.

***P8. Recorded by:** (Name, affiliation, and address)
AECOM
4225 Executive Square, Suite 1600
La Jolla, CA 92037

***P9. Date Recorded:** February 2015*; Updated October 2016*

***P10. Survey Type:** (Describe) Reconnaissance Survey

***P11. Report Citation**: (Cite survey report and other sources, or enter "none.") *Puente Power Plant* 2015 Application for Certification

***Attachments:** o NONE ¨ Location Map x Continuation Sheet x Building, Structure, and Object Record o Archaeological Record o District Record o Linear Feature Record o Milling Station Record o Rock Art Record o Artifact Record o Photograph Record o Other (List):

The MGS is the NRG-owned power-generating facility currently composed of three power-generating units, supported by tanks, a maintenance building, an administration building, and other ancillary features originally constructed by SCE between 1957 and 1959 (per information provided by SCE). The MGS is located in the Project Area of Analysis (PAA) at 393 N. Harbor Boulevard, Oxnard, California. The generating station is bordered to the west by the Pacific Ocean; to the south by the McGrath Peaker Plant and undeveloped land; to the north by undeveloped land, primarily sandy dune in composition; and to the east by the SCE Substation and the SCE Switchyard (both described below), as well as agricultural land.

The majority of the buildings and structures associated with power generation are arranged along the western portion of the property, and the administrative and maintenance buildings are on the eastern portion of the parcel. The buildings and structures do not appear to be arranged in a visual hierarchy or have a specific datum; rather, buildings and structures were sited near one another based primarily on their functions. This causes the scale of the parcel to waver between human and monumental, because buildings and structures of different massing, forms, and size are located near one another.

The generating-station portion consists of three units and has a combined rated capacity of 577 MW. Unit 1 and Unit 2 are both steam-electric–generating units, each capable of providing 215 MW of power. Steam is supplied to the two steam-electric units by two oil- or gas-fired boilers, each rated at 707,600 kg of steam/hr. Unit 3 is a gas turbine unit rated at 147 MW. The MGS draws water via the aforementioned Edison Canal to provide cooling for the plant's condensers and other necessary components. There are corresponding boilers, turbo-generators, cranes, feedwater tanks, and fuel storage tanks adjacent to the facility's units.

Aside from the large MGS structures, and in addition to small-scale storage and garage units, the property features two larger buildings: one for administration needs, and the other for maintenance operations. The administration building is a rectangular, contemporary-style building with a flat roof and concrete-block walls. There is a flat, unadorned, metal cornice that wraps around the majority of the building and projects outward at the entrance to create a covered entry porch. The main entry is comprised of double doors made of fixed-glass commercial window panes with metal trim. The maintenance building is to the north of the administration building across an asphalt-paved parking lot. The maintenance building was constructed in a utilitarian style, has an irregular rectangular form, and is much larger than the administration building. It has a flat roof, concrete-block walls, and features the same metal cornice and exterior paint color as the administration building.

The MGS Outfall has been identified as a related feature associated with the MGS, part of a larger, interrelated historic architectural resource. The MGS Outfall is a reinforced-board–formed concrete segmental box culvert with a rock revetment designed to discharge effluent from the plant directly to the ocean. The effluent then travels via an unlined ditch into the Pacific Ocean. The outfall structure consists of three rectangular concrete barrels and two concrete wing walls. The areas beneath the top plate, outside the wing walls, are filled with riprap. The original concrete platform observation deck was removed during the 1980s, and replaced with a smaller deck constructed of fiberglass grating, per information provided by MGS personnel. The discharge from the outfall conceals the structure's bottom plate, which could not be viewed. Associated elements include a mixing vault immediately east of the outfall, and a partial perimeter fence. The outfall's beach location is characterized by sandy shore and an abundance of Carpobrotus edulis (ice plant), with the MGS plant to the immediate east.

A concrete plank boardwalk connected by nylon ropes leads from the MGS cooling ponds to the plant's perimeter chain-link metal fence topped with barbed wire. A short section of beach lies between the plant's perimeter fence and the outfall gate, which includes an unpaved vehicle path running generally north-south. The mixing vault lies about 30 feet from the outfall's top plate.

The MGS outfall is surrounded on its northern, eastern, and southern sides by a chain-link metal fence with metal posts. The posts are secured to the riprap that lines the eastern side of an approximately 130-foot-wide and 17-foot-deep ditch that carries effluent deposited by the outfall from the beach to the ocean. The fence's northern and southern sections parallel the channel. A gate is centered at the fence's eastern side. The original perimeter fence consisted of wood posts. The posts and fencing are metal.

Several warning signs are posted on the outfall's metal fence, including a "DANGER – TURBULENT WATER" sign with warnings against swimming and trespassing is posted on the fence's eastern side. The gate also displays a sign prohibiting admittance without permission, and an adjacent sign notifies of video surveillance on the premises.

From the plant, effluent flows from the mixing vault, through the outfall barrels, and then to the beach and ocean. The mixing vault, measuring about 20 feet deep, lies immediately west of the plant's perimeter fence. Two horizontal concrete bulkheads span the mixing vault. The mixing vault area is surrounded by its own metal chain-link fence. From the mixing vault, the effluent flows below ground to the outfall structure.

The source of the MGS cooling water is ocean water that is conveyed to the plant via the Edison Canal. The Edison Canal originally originated from Port Hueneme Harbor. Since 1960, the canal has begun at Channel Islands Harbor, after the original canal between the Channel Islands Harbor and Port Hueneme Harbor was filled with excavated material from the Channel Islands Harbor.

After running through steam condensers, the cooling water discharged into a pipe measuring 108 inches in diameter (Oxnard Press-Courier, 1958). MGS currently operates one cooling-water intake structure to provide condenser cooling water to areas of the plant. Once-through cooling water combines with low-volume wastes generated by MGS, and discharges the effluent through the shoreline outfall and into the Pacific Ocean. Surface water withdrawal and discharges are regulated by National Pollutant Discharge Eliminations System Permit CA0001180, as implemented by Los Angeles Regional Water Quality Control Board Order 01-057 (Tetra Tech, 2008: H-4).

State of California - The Resources Agency Primary #_____
DEPARTMENT OF PARKS AND RECREATION HRI #_____

BUILDING, STRUCTURE, AND OBJECT RECORD

B1. Historic Name: *N/A*
B2. Common Name: Mandalay Generating Station
B3. Original Use: Electric Steam Generating Station
B4. Present Use: Electric Steam Generating Station
***B5. Architectural Style:** Engineering Structure
***B6. Construction History:** (Construction date, alterations, and date of alterations)
Constructed in 1959, the MGS has had an addition of an enclosed Unit 3, as well as other garage and storage units. Aside from maintenance upgrades, the initial design and construction remains the same.

***B7. Moved?** _X_ **No** _____ **Yes** _____ **Unknown Date:** _____ **Original Location:** _____
***B8. Related Features:**
The MGS Outfall is a related feature to the MGS, and is discussed in fields P3 and B10.

B9a. Architect: N/A b. Builder: N/A
***B10. Significance: Theme** N/A **Area** Oxnard, Ventura County, CA
Period of Significance N/A **Property Type** Engineering Structure, Industrial Building
Applicable Criteria N/A (Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
The significance of the MGS was determined by applying the procedures and criteria for *California Register of Historical Resources* (CRHR) eligibility and the definition of a historical resource for purposes of the California Environmental Quality Act (CEQA). Based on site investigations and historic research, the MGS is ineligible for listing in the CRHR, and as a historical resource for purposes of CEQA.

Additionally, the MGS Outfall was evaluated as an individual resource, as well as a contributing resource to the MGS, and was found ineligible for listing on the CRHR, and as a historical resource for purposes of CEQA.

(See Continuation Sheet)

B11. Additional Resource Attributes: (List attributes and codes)
***B12. References:**

"1928 Steam Plants Account for 45 Percent of New Generating Capacity," *Electrical West.* February 2, 1929.

"Haynes Steam Plant Will Grow With Demand." *Southwest Builder and Contractor.* October 12, 1962.

Dickey, Walter L. "The Design of Two Steam Electric Plants." *ASCE Transactions*. 1956.

ENSR Corporation. Revised Proposal for Information Collection for Mandalay Generating Facility, Document Number 10267-022-100. Report prepared for Reliant Energy, Inc., Oxnard. 2006.

(See Continuation Sheet)

B13. Remarks: None
***B14. Evaluator:** AECOM
***Date of Evaluation:** February 2015*; Updated October 2016*

Sketch Map – Refer to form 523J

(This space reserved for official comments.)

In the early twentieth century, hydro-generated power was preferred over steam, as companies constructed larger hydroelectric plants on many suitable sites throughout the State of California. By 1920, hydroelectric power accounted for 69 percent of all electrical power generated in the state. In 1930, that figure had risen to 76 percent, and to 89 percent in 1940 (Williams, 1997). However, companies such as Pacific Gas & Electric (PG&E) and SCE began seeking to construct steam plants based on several converging trends in the mid- to late-1920s. For example, a drought in California caused the major utilities to question the reliability of systems depending so heavily on hydroelectricity. This drought began in 1924 and continued for roughly a decade. Around this same time, new power plants on the East Coast (where steam had always played a more important role) were achieving greater efficiencies than had previously been possible. Between 1900 and 1930, the fuel efficiency of steam plants, measured in kilowatts per barrel of oil, was increasing drastically (JRP, 2014; Williams, 1997). Additionally, in 1924, the State Water and Power Act was passed in the general election as Proposition 16. This act was a constitutional amendment that allowed the State of California to enter into the water and power business. This act, along with the systematic development of irrigation distribution in Oxnard that resulted in unprecedented agricultural gains in 1925, provided a great need for the construction and operation of a plant in the area where present-day MGS is located.

These factors encouraged PG&E, SCE, and other utilities to begin construction of large steam plants during the late 1920s and early 1930s. In 1929, the Great Western Power Company (which would be acquired by PG&E in 1930) built a large steam plant on San Francisco Bay, complete with two 55-MW generators. PG&E built a steam plant in Oakland in 1928. SCE had been operating its large facility at Long Beach on Terminal Island throughout most of the twentieth century; and by World War II, the Long Beach plant was massive, with eleven units that were constructed in various stages beginning in 1911. In Southern California, the Los Angeles Department of Water and Power (LADWP) constructed a steam station at Seal Beach, composed of two units, installed in 1925 and 1928. These steam plants proved to be both profitable and reliable for the various utilities. In 1930, a PG&E vice-president for engineering wrote: "Under the circumstances which now prevail, it is natural to question the future of hydro in California" (Electrical West, 1929; JRP, 2014; Spencer, 1961; Williams, 1997). By 1941, steam-generating plants accounted for most of the new power capacity in the state. Technology and improvements for steam-turbine power plants continued to advance, leading power companies to retire or replace many of the older steam-electric plant generating units with more efficient units in the 1950s and 1960s (JRP, 2014; Termuehlen, 2001; Williams, 1997).

Coinciding with the advancements in power-generating technology was an increase in demand for electricity in Southern California. After World War II, the population grew and the defense industry expanded throughout the region, contributing to an increased demand from residential and commercial customers. The need to generate power was imperative, and companies such as PG&E, SCE, LADWP, and San Diego Gas & Electric (SDG&E) expanded their systems. Because most of the more favorable hydroelectric sites in California had already been developed, and the cost of steam-generating facilities had been reduced by technological advancements in design and abundant natural gas resources, steam plants became the preferred option. Steam-turbine power plants were more cost efficient and faster to build than hydroelectric plants, and utilities companies began to move away from hydroelectricity, establishing steam turbines as the generator of choice. The efficiency of steam plants also kept costs down for the consumer. California energy historian James Williams observed, "[T]he momentum for steam had been established by war, by drought, and by a positive history of increased thermal power plant development" (JRP, 2014; Myers, 1983; Williams, 1997).

Dozens of new steam generation plants were constructed throughout California, primarily by PG&E and SCE, although LADWP and SDG&E built a few, as well. The plants relied on the new technologies and were assembled quickly and inexpensively, comparative to earlier electric plants. In 1950, an article in *Civil Engineering,* written by PG&E Chief Engineer I.C. Steele, summarized the design criteria that went into construction of four major steam plants the company had under construction at that time at Moss Landing, Contra Costa, Kern, and Hunters Point in San Francisco. These plants had much in common, he argued, and with other steam plants under construction in the state. The criteria were the same in all cases: to build the facility close to load centers to reduce transmission expenses; to be close to fuel supplies; to be near a water supply; and to be on a site where land was cheap and could support a good foundation. In another article in *Transactions of the ASCE,* Walter Dickey, an engineer from Bechtel, detailed the economics of steam plant design from this era. Virtually all of these plants were designed to be expanded if market conditions warranted—and most of them ultimately were. These plants, he argued, could be built economically by minimizing the structural material, including not enclosing the turbo-generator units in a building (as seen on the MGS). Many plants in Southern California are of this "outdoor" variety; but some, such as the Encina Power Plant, were enclosed in curtain walls (Dickey, 1956; Garbarini, 1953; JRP, 2014; Steele, 1950).

The decades between 1950 and 1970 were the years of peak expansion of steam-generating capacity for both the SCE and PG&E, as well as for smaller utility companies. During this period, SCE built a series of very similar steam plants in the Los Angeles Basin and in San Bernardino County. In 1952, the company began work on Redondo No. 2, which was adjacent to an earlier plant at Redondo Beach. In 1953, the Etiwanda plant went online, followed in 1955 by El Segundo, Alamitos in 1956, and Huntington Beach in 1958. Due to the population and subsequent building boom in Oxnard and Ventura County in the early 1950s, SCE announced plans to construct "a multimillion-dollar steam-electric generating plant near Mandalay Beach, west of Oxnard." The MGS station, designed to meet the growing electrical needs of Ventura and Santa Barbara counties, was to be situated in unincorporated Ventura County. The MGS was constructed by Bechtel Corporation from 1956 through 1959 as part of SCE's 10-year work program to double its power output to keep up with the growing power needs of the rapidly expanding community. The 100-acre site for MGS was situated on the location of the old Patterson Ranch subdivision. The first unit of the new generating station, to be built at a cost of $35,000,000, was estimated to have a generating capacity of 200,000 kilowatts (kW), and was the largest single generating unit in the

Edison system. By 1960, all SCE plants either had multiple units, or had additional units in the planning stages. Many other utility companies began expanding during this period as well.

By the late 1970s, there were more than 20 fossil fuel thermal plants in California, clustered around San Francisco Bay, Santa Monica Bay, and in San Diego County, along with a few interior plants in San Bernardino County and Riverside and Imperial counties, as well as a few plants on the Central Coast (Spencer, 1961; Steele, 1950; Dickey, 1956; SBC, 1962; Williams, 1997; JRP, 2014). Most of the oil- or gas-fired steam plants currently in use in California were built in the period from about 1950 through 1970, and all of these used virtually the same technology and design. After 1970, the major utilities began to look for alternative energy sources, ranging from nuclear power to wind, geothermal, and other "green" energy sources, other than hydroelectric (Termuehlen, 2001; JRP, 2014).

The MGS lacks a distinctive or distinguishing design, and it does not appear to have an important association with a specific significant event or pattern of events. It is an example of the most common type of steam-generating plant in California built in the late 1950s—with non-enclosed turbo-generator units along a large body of water (Dickey, 1956; JRP, 2014; Steele, 1950). Additionally, the MGS does not convey an important association with any local agency. Rather, the MGS is representative of the cost-efficient work required for a steam-generating station, and was designed to be expanded if market conditions warranted (Dickey, 1956). Therefore, the portion of the MGS does not appear to possess the requisite significance to be individually eligible for listing on the CRHR or be considered a historical resource for purposes of CEQA.

Evaluation and Significance:
The significance of the MGS was determined by applying the procedures and criteria for CRHR eligibility and as a historical resource for purposes of CEQA. Based on site investigations and historic research, the MGS does not appear to be eligible for listing on the CRHR, or as a historical resource for purposes of CEQA, as an individual resource or as a contributor to a larger historic property, if it is ever determined that such a resource exists.

Criterion 1 (Event):
Under CRHR Criterion 1, the MGS has no significant association with the broad patterns of local or regional history, or the cultural heritage of California or the United States. Although the power station is associated with the construction of the largest single generating unit in the Edison system in the 1950s and 1960s, as well as first in the world to use selective catalytic reduction technology to minimize emissions, the generating plant is just one example among many similar examples of the popularity of constructing steam-generating power plants by electric companies in the Los Angeles Basin. At the time of its construction, the plant was one of several being built of similar—often nearly identical—design by SCE after World War II to supply the growing post-war demand for electricity in southern California, including San Bernardino County. In 1952, the company began work on Redondo No. 2, which was adjacent to an earlier plant at Redondo Beach. In 1953, the Etiwanda plant went online, followed in 1955 by El Segundo, Alamitos in 1956, and Huntington Beach in 1958. In addition to SCE, other companies throughout California, including PG&E, SDG&E, and California Electric, were also building similar steam-generating plants at this time to meet energy demands. These plants and associated substations generated the power needed to answer the demands of its customers. Because the MGS has no significant association with the broad patterns of local or regional history, or the cultural heritage of California or the United States, it is therefore not eligible for the CRHR under Criterion 1.

Criterion 2 (Person):
Under CRHR Criterion 2, the MGS has no significant association with the lives of persons important to local, California, or national history. For example, the office in which a prominent engineer prepared his/her most important designs could be eligible under Criterion 2, and would be more closely associated with his/her work than would the place where that person was born. However, a property such as a dam that represents the work of a master engineer would be eligible under Criterion 3, as the work of a master, rather than 2, as representing an important person. Research conducted of people important in electric history included a careful evaluation as to whether the MGS station under investigation is the property that best represents that association. In California, notable names for which there might be associations with steam-generating plant planning, construction, or engineering include: PG&E Chief Engineer I.C. Steele; Bechtel Engineer Walter Dickey; Henry E. Huntington, and hydraulic engineer John S. Eastwood of SCE. Research on the property did not reveal that the MGS is associated with any of these notable persons or their work. Because the MGS has no significant association with the lives of persons important to local, California, or national history, it is therefore not eligible for the CRHR under Criterion 2.

Criterion 3 (Design/Construction):
Under CRHR Criterion 3, the MGS does not embody the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values. This facility (including Units 1 and 2, contained in the power plant building; Unit 3 as it stands; as well as the maintenance and administrative buildings) was constructed as a steam-generating power plant, a design that was standard and common for the period, and was built for expansion. The MGS is representative of the cost-efficient work required for a steam-generating station, and was designed to be expanded if market conditions warranted. It was built economically by minimizing the structural material, including not enclosing the turbo-generator units in a building (Dickey, 1956). In addition, all of the associated structures such as tanks, substations, and equipment installed at the plant, were also typical for this type of facility. Nothing about the design or construction of the MGS was unique, or

required groundbreaking or innovative features to surmount engineering or design challenges. Additionally, the buildings on the property are generally common, utilitarian types built of concrete or prefabricated metal exhibiting priority of function over style, and lack architectural distinction. Because the MGS does not embody the distinctive characteristics of a type, period, region, or method or construction, or represent the work of a master, or possess high artistic values, it is therefore not eligible for the CRHR under Criterion 3.

Criterion 4 (Information Potential):
Under CRHR Criterion 4, the MGS has not yielded, nor appears to have the potential to yield information important to the prehistory or history of the local area, California, or the United States. Research has indicated that no known events of importance occurred in relation to the MGS. The resource is not likely to yield information important to the prehistory or history of the local area, California, or the United States. Because the evaluated portion of the MGS has not yielded, nor appears to have the potential to yield information important to the prehistory or history of the local area, California, or the United States, it is therefore not eligible for the CRHR under Criterion 4.

Integrity Analysis:
In addition, for a property to be eligible for listing in the CRHR, in addition to meeting one of the above criteria, a property must also retain its historic integrity. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Location
Location is the place where the historic property was constructed or the place where the historic event took place. The original location of the MGS remained the same, and while no historic events have occurred at this location, the integrity of the property's location remains intact.

Design
Design is the combination of elements that create the form, plan, space, structure, and style of a property. The MGS has a utilitarian design; however, this has been partly impacted by some additions to the station, as seen with Unit 3 and other garage stand-alone units. However, these combined elements (e.g., form, space, style) reflect the property's integrity of design, and even though some major changes have occurred to original elements and spaces, the property has generally retained its overall style, space, form, and plan.

Setting
Setting is the physical environment of a historic property. The historic setting of the MGS is the rural and suburban underdeveloped character of the agricultural region in Ventura County. Since its construction, the physical environment of the MGS has not changed substantially, and the historic setting of the station remains evident today. However, around the station, other industrial properties have been constructed that slightly disrupt some of the original setting and visual narrative.

Materials
Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form a historic property. The MGS is 55 years old, and its physical elements represent design materials common during mid-twentieth century construction. The MGS has retained many of its original building elements, fabric, and materials. However, some of the original materials have been upgraded to ensure the integrity of the station.

Workmanship
Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. Although the station has had maintenance upgrades, the property retains its integrity of workmanship, because the station is recognizable as an industrial generating station. Overall, several methods of construction and evidence of crafts are still apparent, seen in its general form. The MGS displays characteristics seen in mid-twentieth century engineering, and the workmanship is based on common traditions seen during that period.

Feeling
Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. In its present state, the MGS has generally retained its property's location, design, setting, and workmanship; therefore, the property conveys its character and historic integrity of feeling as station from the mid-twentieth century.

Association
Association is the direct link between an important historic event or person and a historic property. Although it was built to provide electricity to the region, the MGS is not directly associated with any important historic event or person, nor does it convey a direct or distinctive link with any larger trend.

In conclusion, the portion of the MGS in the PAA does appear to retain its historic integrity, but it does not appear to be eligible for listing to the CRHR or as a historical resource for purposes of CEQA.

MGS Outfall Historic Context

SCE originally planned for plant discharge to be through underground tube extending 0.5 mile out to sea. SCE engineers, however, revised the plan based on the shifting ocean floor and silting conditions. The revised proposal planned for the outfall to consist of a box culvert and rock-rimmed open ditch.

Locally, however, the outfall design caused controversy (Oxnard Press-Courier, 1957). In December 1957, planners from the City of Oxnard and County of Ventura issued a resolution urging SCE to revise its canal alignment to prevent the outfall from bisecting the beach, interfering with recreational activities, and posing a hazard (Lyttle, 1957; Oxnard Press-Courier, 1957). City and county officials argued that oil firms were prohibited from constructing surface installations within 500 feet of the shoreline, and that this restriction should apply to all industries, including utility firms. As a result, SCE implemented another revised plan for the box culvert and open-ditch outfall, to shorten the canal and ditch (Lyttle, 1957; Oxnard Press-Courier, 1957). Construction of the MGS Outfall was underway by 1958.

The revised ditch was designed to be 130 feet wide and 17 feet deep, with water depth varying from 4 feet at low tide to 12 feet at high tide. After running through the plant's steam condensers, the cooling water was discharged into a pipe measuring 108 inches in diameter. The ditch for the pipe was excavated in January 1958.

The outfall is located between McGrath State Park, established between 1962 and 1964, and Mandalay County Park, established as a State Beach in 1985 (California State Park System, 2009/2010), immediately west of the MGS property boundary. The outfall on the beach attracts beachgoers collecting sea glass and, due to the higher water temperatures that may attract fish, the area is also frequented by fisherman.

MGS Outfall Evaluation

Under CRHR Criterion 1, the MGS Outfall, a feature associated with the MGS, has no significant association with the broad patterns of local or regional history, or the cultural heritage of California or the United States. The outfall and associated power station are related to the construction of the largest single generating unit in the Edison system in the 1950s and 1960s, as well as the first in the world to use selective catalytic reduction technology to minimize emissions. However, the outfall is not a distinct example of a power station outfall. At the time of its construction, the plant (of which the outfall is a feature)—was one of several being built of similar—often nearly identical—design by SCE after World War II to supply the growing post-war demand for electricity in southern California, including San Bernardino County. In 1952, the company began work on Redondo No. 2, which was adjacent to an earlier plant at Redondo Beach. In 1953, the Etiwanda plant went online, followed in 1955 by El Segundo, Alamitos in 1956, and Huntington Beach in 1958. In addition to SCE, other companies throughout California, including PG&E, SDG&E, and California Electric, were also building similar steam-generating plants at this time to meet energy demands. These plants and associated substations generated the power needed to answer the demands of its customers. Because the MGS and its associated outfall have no significant association with the broad patterns of local or regional history, or the cultural heritage of California or the United States, the MGS Outfall is not eligible for listing in the CRHR under Criterion 1 as an individual resource, or as a related feature to the MGS.

Under CRHR Criterion 2, the MGS Outfall has no significant association with the lives of persons important to local, California, or national history as an individual resource, or as a contributing feature to a larger resource. Research conducted of people important in electric history included a careful evaluation as to whether the MGS station or outfall under investigation is the property that best represents that association. In California, notable names for which there might be associations with steam-generating plant planning, construction, or engineering include: PG&E Chief Engineer I.C. Steele; Bechtel Engineer Walter Dickey; and Henry E. Huntington and hydraulic engineer John S. Eastwood of SCE. Research on the property did not reveal that the MGS is associated with any of these notable persons or their work. Because the MGS Outfall and the MGS plant have no significant association with the lives of persons important to local, California, or national history, the MGS Outfall is therefore not eligible for the CRHR under Criterion 2 as an individual resource, or as a related feature to the MGS.

Under CRHR Criterion 3, the MGS Outfall and the larger MGS plant do not embody the distinctive characteristics of a type, period, region, or method or construction, or represents the work of a master, or possesses high artistic values. The MGS (including Units 1 and 2, contained in the power plant building, Unit 3 as it stands, as well as the maintenance and administrative buildings) was constructed as a steam-generating power plant, a design that was standard and common for the period, and was built for expansion. The MGS is representative of the cost-efficient work required for a steam-generating station, and was designed to be expanded if market conditions warranted. It was built economically by minimizing the structural material, including not enclosing the turbo-generator units in a building (Dickey, 1956). The MGS Outfall also has a non-distinctive engineering design, composed of a board-formed–concrete segmental box culvert with a rock revetment designed to discharge effluent from the plant to the ocean. The outfall's box culvert possesses a common, utilitarian design and typical construction materials, which exhibit priority of function over style, and lack architectural distinction. Because the MGS Outfall does not embody the distinctive characteristics of a type, period, region, or method or construction, or represent the work of a master, or possess high artistic values, the MGS Outfall is therefore not eligible for the CRHR under Criterion 3 as an individual resource, or as a related feature to the MGS.

Under CRHR Criterion 4, the MGS and its outfall have not yielded, nor appear to have the potential to yield information important to the prehistory or history of the local area, California, or the United States. Research has indicated that no known events of importance occurred in relation to the

MGS or its outfall feature. The resources are not likely to yield information important to the prehistory or history of the local area, California, or the United States. Because the evaluated portion of the MGS and outfall feature has not yielded, nor appears to have the potential to yield information important to the prehistory or history of the local area, California, or the United States, the MGS Outfall is therefore not eligible for the CRHR under Criterion 4 as an individual resource, or as a related feature to the MGS.

In summary, the MGS Outfall does not meet any of the criteria for listing in the CRHR as an individual resource or as a contributing or related feature to a larger, significant resource, like the MGS.

Integrity Analysis
In addition, for a property to be eligible for listing in the CRHR, in addition to meeting one of the above criteria, a property must also retain its historic integrity. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Location
Location is the place where the historic property was constructed or the place where the historic event took place. The original location of the MGS Outfall remained the same; and although no historic events have occurred at this location, the integrity of the property's location remains intact.

Design
Design is the combination of elements that create the form, plan, space, structure, and style of a property. The MGS Outfall has a utilitarian design, and has generally retained its overall style, space, form, and plan.

Setting
Setting is the physical environment of a historic property. The historic setting of the MGS Outfall is the rural and suburban underdeveloped character of the agricultural region in Ventura County. The outfall is on the beach near the main areas of Mandalay County Park and McGrath State Park. Since its construction, the physical environment of the MGS Outfall has not changed substantially, and the historic setting of the feature remains evident today.

Materials
Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form a historic property. The MGS Outfall was constructed in 1958, and its physical elements represent design materials common during mid-twentieth-century construction, such as board-formed concrete. The MGS Outfall has retained many of its original construction elements, fabric, and materials; however, spalling is apparent on sections of the concrete structure.

Workmanship
Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. The outfall retains its integrity of workmanship because the station feature is recognizable as an industrial outfall. The MGS Outfall displays characteristics seen in mid-twentieth-century engineering, and the workmanship is based on common traditions seen during that period.

Feeling
Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. In its current state, the MGS Outfall has generally retained its property's location, design, setting, and workmanship; therefore, the feature conveys its character and historic integrity of feeling as a generating station from the mid-twentieth century.

Association
Association is the direct link between an important historic event or person and a historic property. Although it was built as a feature of the MGS, which provided electricity to the region, the MGS Outfall is not directly associated with any important historic event or person, nor does it convey a direct or distinctive link with any larger trend.

In conclusion, although the MGS Outfall appears to retain its historic integrity, it does not appear to be eligible for listing to the CRHR, or as a historical resource for purposes of CEQA as an individual resource, or as a contributing or related feature to a larger significant resource, like the MGS (which was determined ineligible for listing in the CRHR, and is not considered a historical resource for purposes of CEQA in the 2015 Historic Architectural Resources Technical Report and CEC Preliminary Site Assessment).

Garbarini, Edgar J., 1953. "Design Saves Construction Dollars on Contra Costa Power Plant." *Civil Engineering*. May.

JRP, 2014. Historical Resources Inventory and Evaluation Update Report for the Carlsbad Energy Center Project, Encina Power Plant. Carlsbad, California.

Meyers, William A., 1983. *Iron Men and Copper Wires: A Centennial History of the Southern California Edison Company*. Glendale, California: Trans-Anglo Books.

Spencer, R.W., 1931. "Cooling Water For Steam Electric Stations in Tidewater," *Transactions of the American Society of Civil Engineers* 126.

Steele, I.C., 1950. "Steam Power Gains on Hydro in California." *Civil Engineering 20*, no. 1. January.

Termuehlen, Heinz, 2001. *100 Years of Power Plant Development: Focus on Steam and Gas Turbines as Prime Movers.* New York: ASME Press.

Williams, James C., 1997. *Energy and the Making of Modern California*. Akron, Ohio: University of Akron Press.

MGS Outfall References

AECOM, 2015a. Historic Architectural Resources Technical Report for the Puente Power Project, Ventura County, California. Prepared for NRG Energy Center Oxnard LLC. April.

California State Park System, 2009/2010. Statistical Report. Statewide Planning Unit, Planning Division, California State Parks.

Lyttle, Richard, 1957. "City, County Agree on Beach Park Area, From McGrath Lake South to Fifth Street." December 21.

Oxnard Press-Courier, 1957. "City Planners Oppose Ditch Across Beach." December 20.

Oxnard Press-Courier, 1958. "Steely Skeleton Taking Shape on $75 Million Job." January 8.

Placer, George, 2016. Personal communication between George Placer and Monica Mello, October 18.

Tetra Tech, 2008. California's Coastal Power Plants: Alternative Cooling System Analysis.

View of northern and eastern elevations facing southwest, displaying non-enclosed Units 1 and 2.

View of eastern and southern elevations facing northwest, displaying Units 1 and 2, de-aerator system.

View of western elevation facing east, displaying Units 1 and 2 and steam plant stack.

View of western and southern elevations facing northeast, displaying Units 1 and 2, and de-aerator system.

View of southern elevation of Unit 3 and storage tanks (foreground), with Units 1 and 2 and steam stack in the distance, facing north.

View of southern elevation of Unit 3 and connecting electrical lines, facing north.

View of western and northern elevations of Unit 3, facing southeast.

View of Unit 3 northern elevation and garage storage units, facing south.

Bird's eye view of the MGS.

View of the maintenance building and garages, facing south.

View of the administrative building, facing west.

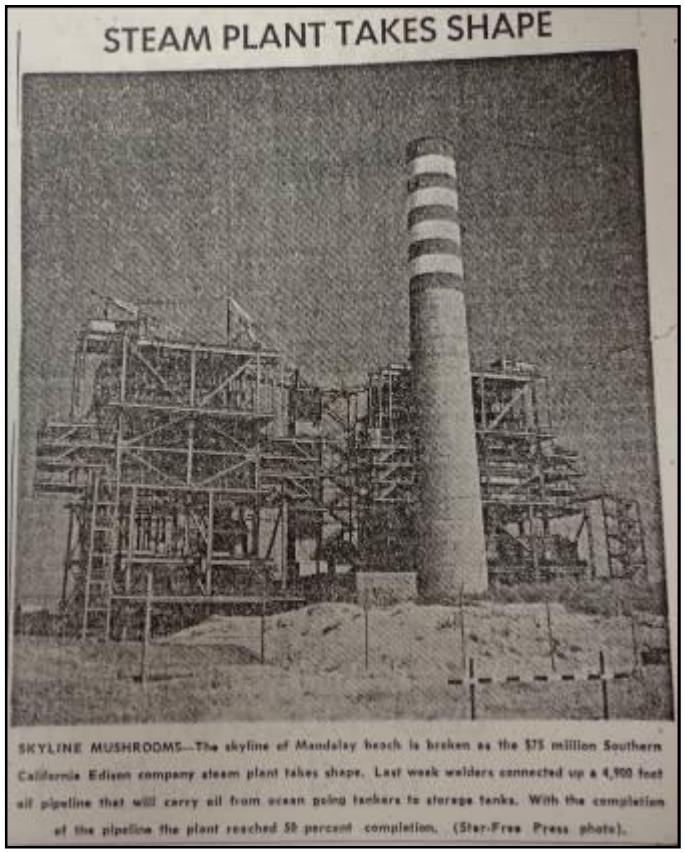


Photo from the Ventura Star Free Press, September 2, 1958.
Caption discusses the construction of the MGS reaching 50 percent completion.
(Source: Oxnard Public Library, Local History Room).

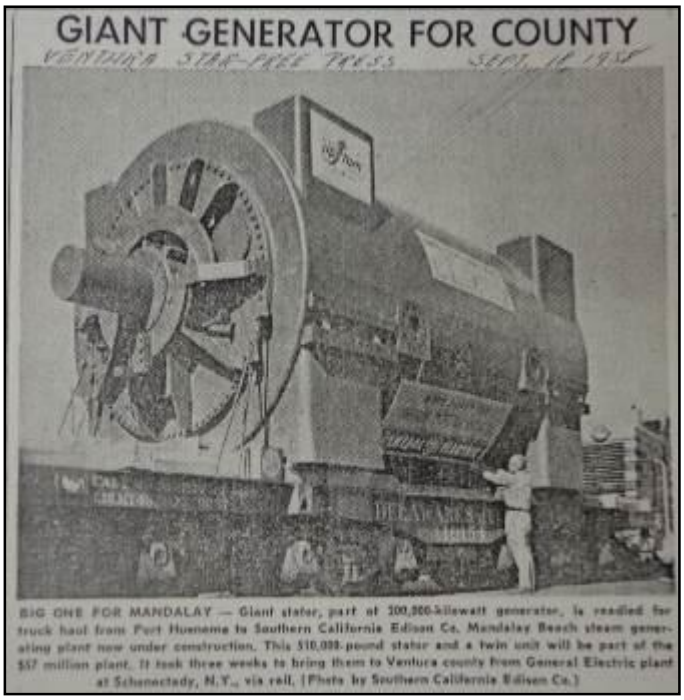


Photo from the Ventura Star Free Press, September 18, 1958.
Caption discusses the construction of the MGS generator, which will be installed with the twin-unit plant.
(Source: Oxnard Public Library, Local History Room).

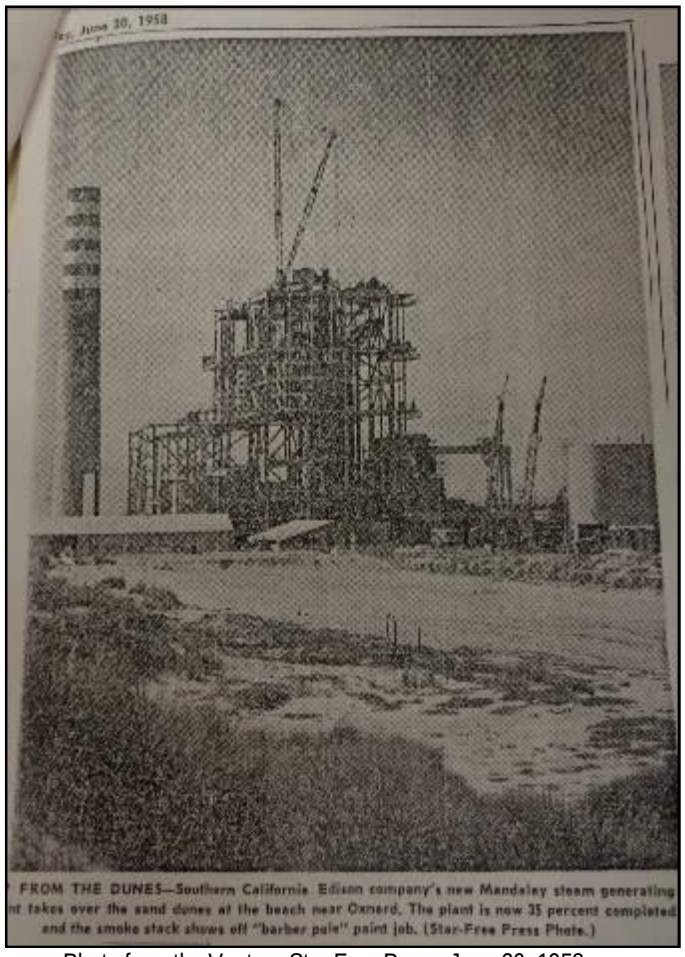


Photo from the Ventura Star Free Press, June 20, 1958.
Caption discusses the construction of the MGS reaching 35 percent completion.
(Source: Oxnard Public Library, Local History Room).

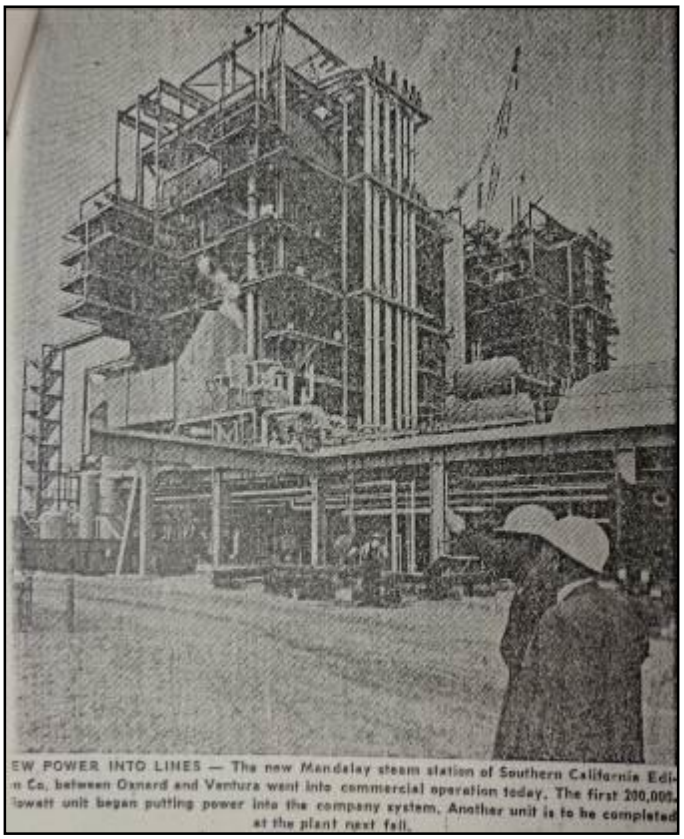


Photo from the Ventura Star Free Press, May 15, 1959.
Caption discusses the MGS officially going into commercial operation.
(Source: Oxnard Public Library, Local History Room).

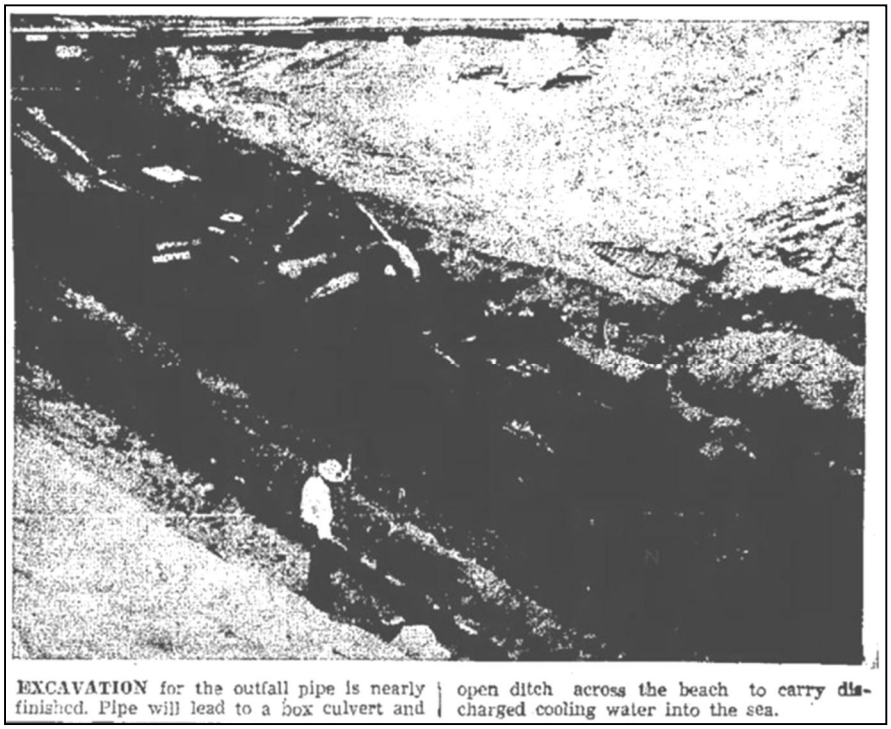
MGS Outfall; view facing northeast.

MGS Outfall mixing vault; view facing south.

MGS Outfall platform; view facing north.

MGS Outfall; view facing southeast.

Display at MGS. Photograph of MGS Outfall construction in 1958.



EXCAVATION for the outfall pipe is nearly finished. Pipe will lead to a box culvert and open ditch across the beach to carry discharged cooling water into the sea.

Oxnard Press-Courier, January 8, 1958. "Steely Skeleton Taking Shape on $75 Million Job."

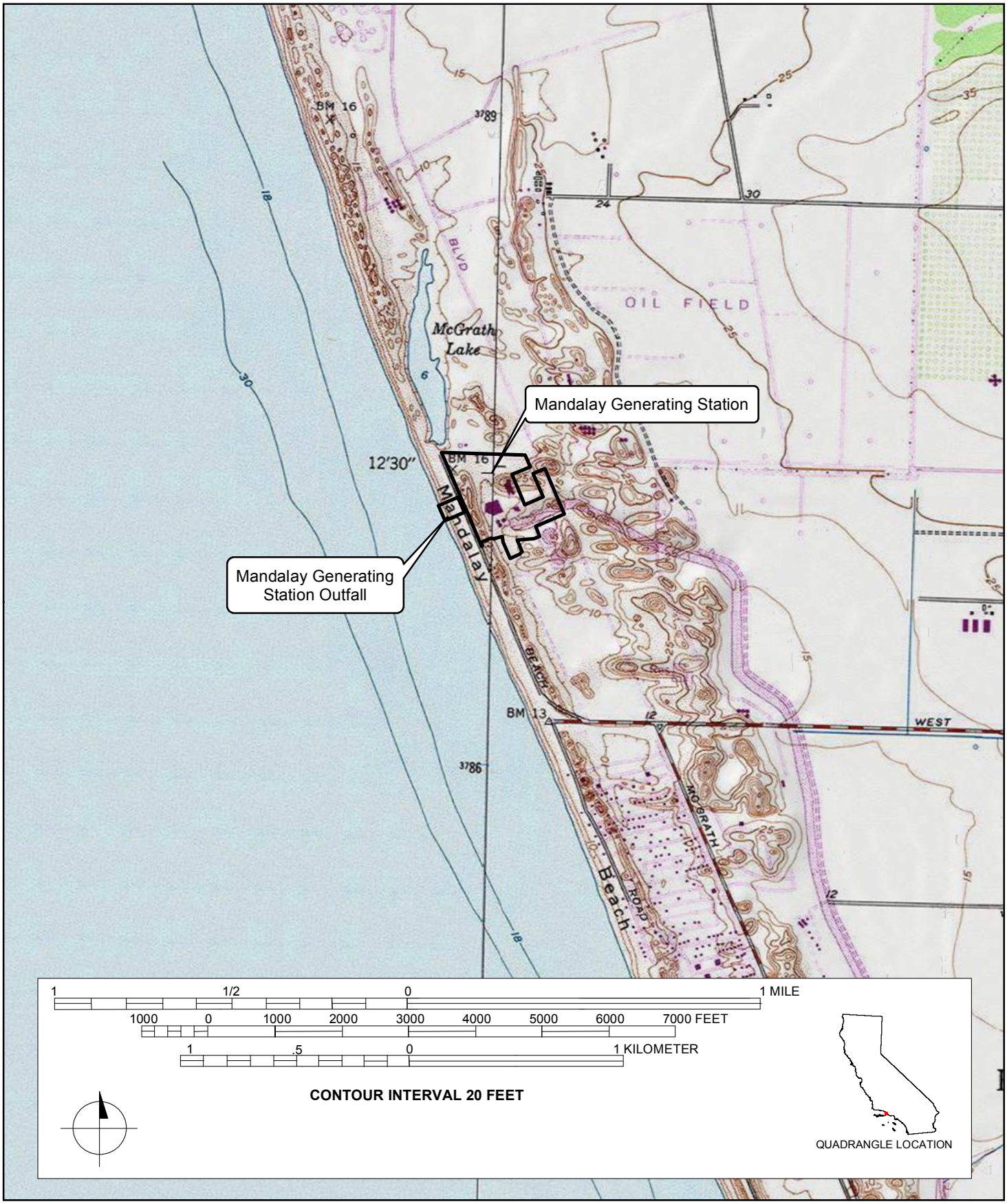
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI #
Trinomial

*** Resource Name or #** (Assigned by recorder) Mandalay Generating Station

*** Map Name:** Oxnard OE W and Oxnard, Calif. 7.5' Quadrangles *** Scale:** 1:24,000 *** Date of Map:** 1967



*Required Information

APPENDIX D
RÉSUMÉS

Jeremy Hollins, MA
Senior Architectural Historian/Architectural History Team Lead

Areas of Expertise

Vernacular Architecture
19th – 20th century California Architecture
Historic Preservation Treatments and Law
Secretary of Interior Professional Qualification Standards Architectural History and History (36 CFR Part 61)

Years of Experience

With AECOM: 9
With Other Firms: 2

Education

MA, University of San Diego, Public History, 2005
BA, University of Rhode Island, History [Environmental], 2003

Continuing Education

SRIF "Section 106: Principles and Practice," 2006
FEMA Institute Independent Study Course IS-00253 "Coordinating Environmental & Historic Preservation Compliance," 2006
FEMA Institute Independent Study Course IS-00650 "Building Partnerships in Tribal Communities," 2006
Certificate Program, Urban Planning, UC San Diego Extension; In Completion
Association of Environmental Professionals "Introductory and Advanced CEQA Workshop Series," 2005
California Preservation Foundation Annual Conference, 2005

Jeremy Hollins is a Secretary of Interior qualified Architectural Historian and Historian for AECOM. He is also a certified Project Manager. Since 2003, Mr. Hollins has performed numerous historic evaluations, context studies, and determinations of eligibility and effect for a range of resources based on local, state, and National Register criteria and through technical reports, DPR 523 series forms, HABS reports, cultural landscape reports, historic structures reports, and resolution documents. He has a detailed knowledge of the laws and ordinances which affect historic properties, such as Section 106 of the NHPA, CEQA, NEPA, Section 4(f), California Public Resources Code, State Historic Building Code, and the Secretary of Interior Standards for the Treatment of Historic Properties. Additionally, two academic journals have published Mr. Hollins' work, and he was an adjunct instructor in 'World Architectural History' at the New School of Architecture before coming to AECOM and its legacy companies in 2006.

Throughout his career, Mr. Hollins has provided overall program guidance and third party reviews for a range of local, state, federal, and private clients, frequently attending Council/Commission meetings as an expert regarding historic preservation issues. He has made informational presentations to the Santa Ana City Council, San Bernardino County Commissioner, and San Diego Unified Port District regarding complex historic preservation topics, including assessment of landscapes, unique and significant resources, and overall policies and best management practices for the stewardship of resources. He has also made presentations to numerous non-profits and community groups, including the La Jolla Historical Society, Del Mar Historical Society, Uptown San Diego Planning Group, University of California Riverside to discuss participation and benefit of the Mills Act program, Historic Tax Credits, Application of the Secretary of Interior Standards, and Adaptive Uses of historic properties. He has provided case studies used in training materials for agencies like FEMA, the US Navy, and Amtrak.

Project Specific Experience
Santa Ana Fixed Guideway, Santa Ana, CA
Cultural Resources Task Manager. Oversaw determination of eligibility, analysis of integrity, and application of criteria for adverse effect for approximately 100 cultural resources in accordance with the NHPA, NEPA, CEQA, and FTA guidelines. Led consultation efforts with SHPO and authored the project MOA. Also, oversaw APE map delineation, stakeholder consultation, historic context development, primary and secondary source research, field map and field form creation, and impact analysis. (Cost: $60,000)

Verizon Wireless, Telecommunication Projects – CA and NV.:
Architectural History Task Manager on over 95 intensive architectural history field surveys in California and Nevada for telecommunication projects' direct Areas of Potential Effect (APE) and viewshed (indirect APE). Projects completed as part of Section 106 of the NHPA and the FCC Programmatic Agreement with the California Office of Historic Preservation

(OHP). Conducted and oversaw archival research, evaluated the projects' APE for eligibility for listing in the NRHP and California Register of Historic Resources (CRHR), identified effects, completed appropriate DPR 523 forms, drafted the reports for submission to OHP, and provided technical editing expertise. Resources identified and evaluated have dated from the late nineteenth century to the recent past, were located in various settings (dense urban, suburban, rural, and industrial), and have included numerous property types such as residential and commercial buildings, churches, educational institutions, hospitals, water towers, windmills, farm and ranch landscapes, an oil refinery, and irrigation canals. Responsible for scoping, budget and tasks management, client/agency interaction, and submission of compliance materials (2008-Present)

Brightsource Solar Energy, Rio Mesa Solar – Blythe, CA.:
Oversaw architectural history field survey and archival research as architectural history task manager for a large solar project in the Colorado Desert (partially within BLM land) in accordance with Section 106 of the NHPA, NEPA and, CEQA. Oversaw architectural history field survey of project footprint, transmission line and substation locations, and half-mile buffer. Oversaw historic research and community consultation, and the recordation and evaluation of approximately 30 cultural resources, including historic-age transmission lines, canals and irrigation ditches, historic roads, mines, and borrow pits. (2011)

FAA, San Francisco International Airport Runway Safety Area Program – San Francisco, CA.:
Task manager for reconnaissance survey of the historic-age runways, taxiways, canal, and approach-lighting trestles within the project APE; evaluated the airport facilities pursuant to Section 106 of the NHPA, NEPA, and CEQA; assessed effects and impacts from the proposed undertaking; completed DPR 523 forms; and authored the Historic Architecture Survey Report. (2011)

Los Angeles Unified School District, Alameda Transportation Relocation Project – Historical Architecture Assessment – Los Angeles, CA.:
Oversaw a historic architecture assessment in accordance with CEQA and according to City of Los Angeles criteria for listing as a historical or cultural monument. Managed an intensive architectural history survey, archival research, and evaluation. Authored the letter report to assess the significance of the three mid-twentieth century light industrial buildings on the site and any project impacts according to CEQA. (2011)

National Oceanic and Atmospheric Administration (NOAA), Integrated Water Resources Science and Services (IWRSS), University of Alabama Section 106 Compliance – Tuscaloosa, AL.:
Leader of project planning and photo guidance for a desktop evaluation of eligibility and effect pursuant to Section 106 of the NHPA for buildings associated with the mid-nineteenth century Bryce Hospital (Alabama State Hospital for the Insane) NRHP-eligible historic district. Task manager for resolution of adverse effects and completing SHPO consultation regarding the necessary HABS standards. (2011)

Caltrans and Alameda Corridor Transportation Authority, HAER, Level II, for the Commodore Schuyler F. Heim Bridge, Schuyler Heim Bridge Replacement and SR-47 Expansion Project – Long Beach, CA.:
Managed HAER for Commodore Schuyler F. Heim Bridge, a 1948 steel vertical lift bridge eligible for listing in the NRHP, to fulfill NHRA Section 106 mitigation requirements. The study was completed consistent to the specific guidelines and requirements of the United States Department of Interior and Library of Congress for a Level II HAER and included written historical and descriptive data, 5-by-7" large-format photographs and negatives, and 4-by-

5” large-format photographic copies of as-built drawings and negatives. Oversaw project planning (client meetings, site visits, access permits, contract and engagement with photographer), facilitated field work, archival research, report drafting and editing and archival processing. Project required extensive FHWA, Caltrans, and Port of Los Angeles-Port of Long Beach coordination and consultation. Project was nominated for a URS Pyramid Award for Technical Excellence. (2010-2011)

Caltrans and City of Santa Ana, Bristol Street HPSR and HRER, Phase 3 and Phase 4 – Santa Ana, CA. Task manager for an intensive architectural history field survey of the direct APE and a reconnaissance survey of the indirect APE in accordance with the Programmatic Agreement between the FHA, the Advisory Council on Historic Preservation, the California OHP, and Caltrans. Managed archival research, wrote a historic context, evaluated the APE for eligibility for listing in the NRHP and the CRHR (or as historical resources for purposes of CEQA), recorded 66 resources (primarily early to mid-century residences in planned subdivisions) on the appropriate DPR 523 forms, and authored the HPSR and HRER. Adapted unique approach for recordation based on historic subdivisions and property types to facilitate and streamline compliance. (2010-2011)

Caltrans and SANBAG, Lenwood Road HPSR, ASR, and HRER – Barstow, CA.
Task manager for cultural resources studies, and preparation of HPSR, ASR, and HRER. Oversaw archival research, historic context, evaluated the project APE for eligibility for listing in the NRHP and the CRHR (or as historical resources for purposes of CEQA), recorded forty-one resources (Historic Route 66-related commercial buildings and single-family residences) on the appropriate DPR 523 forms, and drafted the Historic Resources Evaluation Reports and Historic Properties Survey Reports. (2009-2011)

Pio Pico Energy Center, LLC, Pio Pico Energy Center, Otay Mesa – San Diego County, CA.:
Supervised an intensive architectural history field survey of the project survey area in accordance with CEQA and CEC guidelines. Oversaw archival research, evaluated the project APE for eligibility for listing in the CRHR or as a historical resource for purposes of CEQA, recorded two new resources (circa 1909 ranch complex and 1960 ranch-style residence) and re-recorded a third (historic road) on the appropriate DPR 523 forms, and drafted the architectural history portion of the cultural resources technical report for submission to the CEC. (2010-2011)

FEMA, Lake Valley Roof Replacement – Lake Valley Fire Protection District, CA.:
Managed and planned strategic tasks man tasks for preliminary NHPA Section 106 compliance evaluation of project involving hundreds of mid-twentieth century recreational residences and roof replacements. (2010-2011)

FEMA, Marcucci – Jackson, CA.:
Completion of Section 106 studies per the FEMA Programmatic Agreement for flood damage control (culvert replacement). Prepared Section 106 compliance materials, including findings memorandum, APE maps, DPR 523 series forms, correspondence records, and historic research (2010)

FEMA, Sutter Creek Broad Storm Drain Diversion – Sutter Creek, CA.:
Managed Programmatic Agreement between FEMA, the California OHP, the California Governor's Office of Emergency Services, and the Advisory Council on Historic Preservation for proposed flood damage control (culvert drainage system alterations near a NRHP-eligible creek wall and historic

district) tasks Prepared Section 106 compliance materials, including findings memorandum, APE maps, DPR 523 series forms, correspondence records, and historic research (2010)

FEMA, Fairfax Pavilion – Fairfax, CA.:
Completion of Section 106 studies per the FEMA Programmatic Agreement for seismic retrofit to NRHP-eligible property). Prepared Section 106 compliance materials, including findings memorandum, APE maps, DPR 523 series forms, correspondence records, and historic research (2010)

FEMA, Lake Elsinore Seismic Retrofit – Lake Elsinore, CA.:
Managed Programmatic Agreement between FEMA, the California OHP, the California Governor's Office of Emergency Services, and the Advisory Council on Historic Preservation to proposed seismic retrofit tasks for preliminary NHPA Section 106 compliance evaluation of project involving the city hall buildings. (2010)

Caltrans and Riverside County Transportation Department, Clay Street Grade Separation Project – County of Riverside, CA.:
Task manager for cultural resources studies, and preparation of HPSR, ASR, and HRER. Oversaw archival research, historic context, evaluated the project APE for eligibility for listing in the NRHP and the CRHR (or as historical resources for purposes of CEQA), recorded 5 resources on the appropriate DPR 523 forms, and drafted the Historic Resources Evaluation Report and Historic Properties Survey Reports. (2010)

United States Postal Service, USPS San Diego Midway Processing and Distribution Facility Property – San Diego, CA.:
Oversaw NRHP eligibility (including Criterion Consideration G) and effects for NHPA Section 106 compliance for the proposed disposition of the USPS San Diego Midway Processing and Distribution Facility property, which contained a large 1972 Brutalism and New Formalism-style building. Supervised a records search, Native American consultation, historic research, evaluation, integrity analysis, assessment of adverse effects, and drafting of report. (2010)

Apex Energy Group, Pio Pico Energy Center – Chula Vista, CA.:
Oversaw an intensive architectural history field survey of the project's APE in accordance with CEQA and the CEC guidelines. Supervised archival research, evaluated the project APE for eligibility for listing in the CRHR or as a historical resource for purposes of CEQA, recorded three resources (1897 reservoir and 1919 dam, late-1950s public park facilities, and early twentieth-century livestock pens) on the appropriate DPR 523 forms, and drafted the architectural history portion of the cultural resources technical report for submission to the CEC. (2009-2010)

FEMA Santa Maria Seismic Retrofit–Santa Maria, CA.:
Supervised NRHP- and CRHR-eligibility of the Cook and Miller Court Complex, a Monterey style complex constructed in 1954, in compliance with NHPA Section 106 and the Programmatic Agreement between FEMA, California OHP, California Emergency Management Agency, and the Advisory Council on Historic Preservation. Completed DPR 523 forms. (2009)

Tessera Solar, Imperial Valley Solar (formerly Solar II) – El Centro, CA.:
Supervised archival research and compiled findings regarding Juan Bautista de Anza National Historic Trail and historic gravel mines in the project APE and vicinity pursuant to Section 106 of the NHPA, NEPA, and CEQA. Input archaeological field data to DPR 523 form database. (2009)

Naval Air Facility El Centro Fire Station – El Centro, CA.:
Task manager for background research to evaluate eligibility of historic-age

utilitarian industrial buildings at Naval Air Facility El Centro. Manager and oversaw the evaluation and architectural history description for technical report for fire station project. (2011)

California High Speed Rail Authority, High Speed Train – Sylmar to Palmdale, CA.:
Task manager for field reconnaissance data analysis, records search review, and cultural resource location map revisions pursuant to Section 106 of the NHPA and CEQA. (2009)

Lost Hills Solar, Lost Hills – Kern County, CA.:
Facilitated **r**esearch and drafted the historic context pursuant to CEQA. (2009)

HUD, Highland Park Transit Village, Santa Cecilia Housing Development, and Brooklyn Heights Housing Development Section 106 Compliance Study – Los Angeles County, CA. Project Manager for 3 different HUD projects in Los Angeles County. Projects were for mixed-use developments consisting of multi-family residential dwelling units and public parking areas. Tabulated records search results, reviewed records search results maps, requested NAHC Sacred Lands File search, followed up with Native American tribal contacts, and completed Section 106 compliance reports. Project involved extensive coordination with HUD Regional and Washington DC personnel, Non-Government Agency Project Proponents, and SHPO HIUD reviewers. All three project received concurrence in under 30 days. (2011-2012)

NHPA Section 106 Compliance and Design Guidelines for Projects Undertaken by National Railroad Passenger Corporation (Amtrak). CA, WA, NM. West Coast lead for California, Oregon, Washington, and New Mexico National Historic Preservation Act Section 106 consultation and State Historic Preservation Office (SHPO) coordination regarding Amtrak's receipt of $1.3 billion in American Recovery and Reinvestment Act (ARRA) funds under an expedited timeline to receive ARRA funding. Responsibilities included field assessments/built environment surveys with engineering teams; development of design guidelines per project based on the Secretary of the Interior's Standards for Rehabilitation; and completion of Section 106 compliance materials (letter reports). Project required extensive coordination with SHPOs (e.g., CA, WA, and NM). SHPOs) to ensure Section 106 concurrence (No Adverse Effect to Historic Properties) was received in less than 30 days for each project. In total, project involved alterations and additions to nearly 7 NRHP-eligible and -listed properties (e.g., Los Angeles Union Station, Fullerton Station). Project was nominated for a URS Pyramid Award for Innovation. (2009-ongoing)

Caltrans and Alameda Corridor Transportation Authority, HAER, Level II, for the Commodore Schuyler F. Heim Bridge, Schuyler Heim Bridge Replacement and SR-47 Expansion Project – Long Beach, CA.
Managed HAER for Commodore Schuyler F. Heim Bridge, a 1948 steel vertical lift bridge eligible for listing in the NRHP, to fulfill NHRA Section 106 mitigation requirements. The study was completed consistent to the specific guidelines and requirements of the United States Department of Interior and Library of Congress for a Level II HAER and included written historical and descriptive data, 5-by-7" large-format photographs and negatives, and 4-by-5" large-format photographic copies of as-built drawings and negatives.

Oversaw project planning (client meetings, site visits, access permits, contract and engagement with photographer), facilitated field work, archival research, report drafting and editing and archival processing. Project required extensive FHWA, Caltrans, and Port of Los Angeles-Port of Long Beach coordination and consultation. Project was nominated for a URS Pyramid Award for Technical Excellence. (2010-2012)

Desert Installation Appearance Plan and Airfield Security Study for NAF El Centro, NAS Fallon, NWS Seal Beach, NAS Lemoore, and NAWS China Lake. Responsible for developing cultural resources considerations, base-wide historic contexts, design guidelines for historic structures and districts, and base-wide visual themes for numerous military bases.

Alamo Solar Project IS/MND, EoN Solar, Oro Grande, San Bernardino County, CA. Led cultural resources studies on controversial IS/MND project that analyzed the impacts from construction of a solar site located along a rural desert segment of historic Route 66 and the Santa Fe Railroad in San Bernardino County. Developed extensive historic context and property type analysis to comparatively study these linear segments with other designated segments of the road and railroad.. Presented the project results to the County Commissioners and answered questions regarding potential impacts. Project was certified by the County Commissioners without issue.

Contact Information

Jeremy Hollins
AECOM
401 West A Street, Suite 1200
San Diego, California, 92101
Phone: (619) 610-7795
Fax: (619) 610-7601
Jeremy.Hollins@aecom.com

Lauren W. Downs, RPA
Archaeologist

Education
M.A. Anthropology with concentration on Archaeology,
University of Missouri, 2015
B.A. Sociocultural Anthropology, University of California San Diego, 2012

Affiliations
Member, Register of Professional Archaeologists (RPA)
Member, Society for American Archaeology
Member, San Diego History Center

Presentations
Lauren Downs, "Ceramic Vessels and Squatting Facets: Posture in the Medio Period Casas Grandes Culture." Presented by Downs at the San Diego County Archaeological Society Monthly Speaker Series, San Diego, April 2016

Lauren Downs, "Habitual Postures of the Medio Period Casas Grandes People." Invited presentation by Downs at the Society for American Archaeology 81st Annual Meeting, Orlando, April 2016

Todd L. VanPool, Christine I. VanPool, and *Lauren Downs*, "Dressing the Casas Grandes Person: Medio Period Clothing and Ritual." Poster presented by T. VanPool, C. VanPool, and Downs at the Society for American Archaeology 81st Annual Meeting, Orlando, April 2016

Shilo Bender, *Lauren Trimble*, Todd L. VanPool, and Christine I. VanPool, "Provenance Analysis of Obsidian Artifacts from 76 Draw, New Mexico." Poster presented by S. Bender and L. Trimble at the Society for American Archaeology 80th Annual Meeting, San Francisco, April 2015

Christine I. VanPool, Todd L. VanPool, and *Lauren Downs*, "Fashion and Meaning in Medio Period Human Effigies". Presented by C. VanPool at the Society for American Archaeology 79th Annual Meeting, Austin, April 2014

Patricia M. Clay, Lisa Colburn, and *Lauren Downs,* "Understanding Impacts on Fishermen and their Families from New England Catch Shares". Presented by Clay at National Working Waterways & Waterfronts Symposium, Tacoma, March 2013

Lectures + Instruction
Teaching Assistant, Anthropology, 2013-2015

Professional History
Sept 2015–present
May 2013–Aug 2013
Sept 2012– Jan 2013
Design + Planning at AECOM
Archaeologist

Jan 2013–April2013
National Oceanic and Atmospheric Administration (NOAA)/
National Marine Fisheries Service (NMFS)
Social Scientist

Ms. Lauren Downs has 3 years of experience in the fields of archaeology and cultural anthropology. She has served on a variety prehistoric and historic projects throughout Southern California and the Southwest. She serves as both a field and lab archaeologist for surveying, testing, data recovery, monitoring, and site recording. Her duties also include report writing and ethnohistorical research. Ms. Lauren Downs also has experience with Native American consultation and ethnographic research. Outside of her archaeological and cultural work, she is experienced in architectural historic research and historical archive research. She is also proficient in creating and managing databases in Paradox and Excel.

Project Experience

Addendum to Report No. HRB-16-026 with Supplemental Information Regarding the Painted Wall Signs at the California Theatre, 1122 4th Avenue, San Diego, CA
Historical research team member and contributing author for the addendum to the Historical Resources Technical Report (HRTR) for the redevelopment of the California Theater and its related features. The project involved writing an exhaustive historic context for a non-traditional resource from the recent past (the Caliente painted wall advertisement). The project also involved planning and conducting archival research at a number of historic repositories, and required coordination with multiple agencies and the public. [2016]

Archaeological Evaluation and Data Recovery of Discovery Site P-1045-Site 12 (CA-SDI-21240), Basewide Water Infrastructure Project, MCB Camp Pendleton, CA
Field archaeologist and lab technician for data recovery on an NRHP-eligible prehistoric site and rock shelter. The evaluation consisted of the hand-excavation of contiguous units and other means of subsurface testing (ABs, STPs, and column samples), dry screening, wet screening, and flotations. Detailed artifact analysis, such as shell speciation, debitage analysis, and groundstone analysis, was also conducted. [2015-2016]

Palmdale Energy Project (08-AFC-9C), Los Angeles County, CA
Conducted the records search and authored the Class I Report for the Palmdale Energy Project (PEP). Field archaeologist for the testing of sites identified in the Class I report as being within the PEP area of direct impact. Contributing author to the significance evaluation and California Register of Historic Resources (CRHR) eligibility report for the tested sites. [2015-2016]

Chevron Pre-Permitting Cultural Resources Analyses for Multiple Oil Fields, Kern County, CA
Conducted in-house cultural resource records searches for Chevron oil well packages on a rolling basis. Each package also required a Sacred Lands File search and Native American Contacts List request through the Native American Heritage Commission (NAHC). [2016-present]

Salt Creek Substation Project Western Burrowing Owl Passive Relocation, San Diego Gas & Electric (SDG&E), San Diego County, CA
Field member for the passive relocation effort of western burrowing owls (*Athene cunicularia*). The field effort involved using an EMS2012 Gopher Tortoise Camera System with an LCD screen to ensure the burrow was clear, then removing the previously placed irrigation pipes and one-way doors and collapsing the burrows. [2016]

Storm Water Monitoring in Support of the Tijuana River Valley Water Quality Improvement Plan (WQIP), City of Imperial Beach, San Diego County, CA
Field member in the effort to collect storm water run-off during a storm at set time intervals at multiple monitoring stations. The project required extreme flexibility as it was based on where and when storms were taking place. [2016]

Cultural Resource Surveying and Monitoring for San Diego Gas & Electric (SDG&E) Fire Resource Mitigation Project (FiRM), San Diego County, CA
Field archaeologist for SDG&E's initiative to install, change out, or remove from service existing wood poles and replace with new steel poles. Existing poles, proposed pole locations, proposed anchor locations, and stringing sites were surveyed. Construction activities in sensitive areas were monitored. [2015-present]

San Dieguito Lagoon W-19 Restoration Project, Dokken Engineering, San Diego County, CA
Archaeologist and technician for restoration of tidal wetlands in the San Dieguito Lagoon. The project involved contacting Native American groups with interests in the project area based on Native American Heritage Commission (NAHC) recommendations, as well as a Class III intensive field survey and subsurface testing. [2015-2016]

Pre-Planning Phase for Southern California Edison's (SCE) Transmission Line Rating Remediation Program (TLRR) Licensing Efforts, Inyo, Kern, Mono, San Bernardino, and Los Angeles Counties, CA and Esmeralda County, NV
Member of a team conducting a records search for six linear corridors totaling 493 miles and one-mile buffer. Involved conducting record searches by hand-transferring resource and report locations from hard copy maps at the following California Historical Resources Information System (CHRIS) information centers: Eastern Information Center (EIC), Southern San Joaquin Valley Information Center (SSJVIC), and South Central Coastal Information Center (SCCIC). [2015]

MCB Camp Pendleton Traditional Cultural Property (TCP) Inventory and Evaluation, Marine Corps Base Camp Pendleton, San Diego County, CA
Ethnographic team member for an assessment of Traditional Cultural Properties on MCB Camp Pendleton. The project involved a Native American outreach program, a CHRIS records search, and archival research of possible traditional sites within the project area. Contributed to the work plan and authored the extensive prehistoric context section for the final evaluation report. [2015]

San Diego Gas & Electric (SDG&E), On-Call Archaeological Services, San Diego County, CA
On-call archaeologist for SDG&E infrastructure operations and transmission line maintenance activities. Participated in archaeological documentation and investigations for the expansion of Interstate 15. [2013]

County of San Diego, Army Corps of Engineers, and California Department of Parks, EIR/EIS for the San Elijo Lagoon Restoration Project, San Diego County, CA
Cultural resource team member for preparation of an environmental impact report (EIR) environmental impact statement (EIS) in support of proposed dredging to restore wetland habitat and function within the lagoon. [2013]

NextEra Energy Resources, McCoy Solar Project Ethnographic Assessment and Traditional Cultural Properties (TCP) Evaluation, Riverside County, CA
Ethnographic team member for an ethnographic assessment related to a proposed solar energy power plant. The project also involved documentation of concerns from each participating tribe and analysis of archaeological sites in the project area from site visits. The document was used to inform property evaluations and nomination recommendations to the National Register of Historic Places and California Register of Historic Resources. [2012]

Silver Strand Training Complex, Naval Special Warfare Command, Coronado, San Diego County, CA
Field archaeologist and lab technician during testing and excavation of two sites at the Naval Special Warfare Command. One of the two sites was a designated NAGPRA site. [2012]

NAVFAC Southwest and MCB Camp Pendleton, BEQ Package 7 Project, Marine Corps Base Camp Pendleton, San Diego County, CA
Lab Technician for the documentation and evaluation of portions of previously recorded prehistoric site CA-SDI-1313/14791 discovered during monitoring of Upgrades to Sewage Treatment Plant 12 on the San Mateo floodplain. [2012]

Patience Stuart

Architectural Historian

Education

MS/Historic Preservation/2010/ University of Oregon
BA/Cultural Anthropology/ 2004/Linfield College

Years of Experience

With AECOM/URS*	4
With Other Firms	4

Professional Associations

Restore Oregon: Easement Committee Chair and Advocacy Committee member
DoCoMoMo-US Oregon: Treasurer
Society for Architectural History, Marion Dean Ross PNW Chapter: 2010/2013 conference speaker

Training and Certifications

AECOM Project Manager Certification
Oregon Department of Transportation Qualified Cultural Resources Consultant Training
Idaho Transportation Department: Cultural Resources Consultant Workshop
Washington Department of Archaeology and Historic Preservation: Consultant Training
ACHP's Section 106 Webinar Series: Cultural Landscapes: Identification and Effects
The Recent Past: Identification and Evaluation of Mid-20th Century Resources, National Preservation Institute
Section 106: Agreement Documents, National Preservation Institute

* URS became a part of the AECOM family of companies in October 2014.

Patience has 8 years of experience in cultural resource management and historic preservation planning for the private, public, and non-profit sectors. Her experience includes architectural survey, historic research and context development, Section 106 compliance, National Register nominations, HABS/HAER documentation, and developing preservation planning strategies for various entities and projects. Patience is an AECOM Certified Project Manager and has served as a project lead and technical specialist meeting the Secretary of the Interior's Professional Qualifications Standards for Architectural History.

Patience has presented academic papers for the Society of Architectural Historians Marion Dean Ross chapter and for the National Trust for Historic Preservation.

Experience

Historic Survey / Nominations/Historic Building Recordation / Historic Research

Environmental Protection Agency, Argonaut Dam Historic American Engineering Record (Architectural Historian). Preparing Historic American Engineering Record documentation of former mine tailing dam to be submitted to the Library to Congress.

PacifiCorp, Last Chance Diversion Dam Historic American Engineering Record, Grace, Idaho (Architectural Historian, Project Lead). Prepared state-level Historic American Engineering Record (HAER) documentation for the Last Chance Diversion Dam, significant for its timber crib construction and for its impact on agricultural development in the Gem Valley. Documentation served as mitigation for the dam's removal.

Portland Water Bureau, Washington Park Reservoirs, Historic American Engineering Record, Portland, Oregon. Preparing HAER documentation, including measured drawings of the Washington Park Reservoir structures and buildings within the National Register-listed historic district. Built in 1894, the resources are signification as part of an early design for a municipal water system, for the design's association with the City Beautiful Movement, and for embodying distinctive characteristics of an important engineered water system. The documentation will fulfill mitigation requirements for the Washington Park Reservoirs Improvement Project, which will cause adverse effects to historic resources within the district.

Clark County, Cedar Creek Bridge/Bridge No. 65 Mitigation Documentation, Clark County, Washington. Preparing state-level historic documentation of the reinforced concrete box girder bridge using the Historic

American Engineering Record format. Constructed in 1946, the Cedar Creek Bridge is historically significant for its association with a period of bridge building in Washington that reflected the continuity of post-WWII box girder bridge designs with pre-war designs. The bridge is an early example of a construction technique that would become one of the most ubiquitous bridge types in the United States. Documentation will serve as mitigation for the bridge's replacement.

Oregon Department of Transportation (ODOT), US 101 Oregon Coast Highway Historic Context, Oregon Coast, Oregon, (Architectural Historian). Prepared historic context of U.S. Highway 101 throughout Oregon, identifying key historic themes, property types, and registration requirements for a potential Multiple Property Document (MPD). Developed research base of relevant literature, agency files, newspapers, photographs, field notes and local outreach to libraries and historical societies. Historic Context will be used as a planning and management tool for historic features, structures, road segments, and cultural landscapes along the Oregon Coast Highway.

San Francisco Public Utility Commission, Bay Division Pipelines No. 1 and 2 HAER Documentation, San Francisco, California, (Architectural Historian). Prepared Historic American Engineering Record (HAER) documentation for the Bay Crossing Reach of the San Francisco Bay Division Pipelines No. 1 and 2 and designed interpretive panel on the region's water pipeline history. The SFPUC's Water System Improvement Program involves decommissioning this segment of the Hetch Hetchy Aqueduct, and the HAER documentation fulfills mitigation requirements for the project's adverse impacts on historical resources.

Portland General Electric (PGE), Due Diligence, Portland Harbor Superfund Project, Portland, Oregon, (Historian). Researched historic industrial use of Portland's Willamette Riverfront; Searched historic newspapers and government agency documents to identify potential environmental contamination activities and support Portland General Electric's Due Diligence for the Portland Harbor Superfund Project.

Section 106 Compliance/CEQA

California Department of Transportation (CalTrans), US 101/Hearn Avenue Interchange, Santa Rosa, California (Architectural Historian). Developed documentation and evaluation of historic-period properties within project Area of Potential Effect for compliance with Section 106 as it pertains to the Administration of the Federal Aid Highway Program in California and with CEQA

Federal Emergency Management Agency (FEMA), Sonoma County Elevation Project (Architectural Historian). Prepared architectural descriptions and evaluations of integrity for residential properties that have applied for FEMA assistance to elevate buildings and structures within the Russian River flood plain.

PacifiCorp, Last Chance Diversion Dam Project Cultural Resources Survey, Grace, Idaho (Architectural Historian). Provided historic documentation of Last Chance Diversion Dam and Canal for FERC compliance with Section 106, including cultural resources report and Idaho Historic Sites Inventory site forms.

Reeder Gulch Dam/Hosler Dam Section 106 Documentation, Ashland, Oregon (Architectural Historian, Project Lead) Prepared Section 106 Documentation form for radial arch dam constructed in 1928 for the City of Ashland as part of Section 106 compliance.

Federal Aviation Administration, Class III Cultural Resource Inventory and Architectural History for the City of Pocatello Airport Improvements, Power County, Idaho (Architectural Historian, Project Lead) Prepared cultural resources report and Idaho Historic Sites Inventory form to evaluate the Pocatello Regional Airport, the former Pocatello Army Air Base for National Register eligibility. Documentation included the recordation of 61 contributing and non-contributing resources associated with the property.

Oregon Department of Transportation, Outer Powell Transportation Safety Project, Historic Resources Technical Report, Portland, Oregon (Architectural Historian). Prepared 22 Determinations of Eligibility for the NRHP and analyzed potential project impacts for this linear safety transportation project in outer East Portland.

Oregon Department of Transportation, Historic Resources Baseline Report for 20s-30s Bikeway Project, Portland, Oregon, (Architectural Historian). Conducted survey and inventory of historic properties within proposed Bikeways corridor for Section 106 compliance; evaluated potential project effects to historic properties. Deliverables included a Baseline Study Report and Determinations of Eligibility and Finding of Effect forms for select properties.

San Francisco Public Utility Commission, Advanced Rainfall Prediction Project Initial Study/Mitigated Negative Declaration, Sonoma and San Mateo Counties, California (Architectural Historian) Assessed potential impacts of Advanced Rainfall Prediction Project on historical resources within the project's Initial Study/Mitigated Negative Declaration report for compliance with CEQA.

San Francisco Public Utility Commission, Advanced Rainfall Prediction Project Historic Resources Evaluation (Architectural Historian, Project Lead) Led survey and documentation efforts for historical resources within the ½-mile APE of potential project sites for CEQA and Section 106 compliance, resulting in the compilation of 33 individual and one district Department of Parks and Recreation (DPR) historic resource forms, as well as the preparation of a technical report. Inventory and evaluation methods for the potential rainfall prediction antennae mirrored the FCC's protocol for communication tower height and visibility standards.

The Alaska Wireless Network, LLC, Miscellaneous Cellular Communication Installations throughout Alaska, (Section 106 Reviewer, Project Lead). Assessed potential effects to historic properties for the registration, construction, and upgrades of over 120 cellular telecommunication installations at sites throughout Alaska. Work includes historic property survey and evaluation, effects analysis, tribal and local government consultation, and preparation and submittal of Section 106 documents through the FCC's Tower Construction Notification System.

US Department of the Interior, Historic Resources Evaluation Report for King Salmon, Alaska Fish and Wildlife Field Office, Alaska, (Architectural Historian). Developed historic property documentation and evaluation of the Alaska Peninsula/Becharof National Wildlife Refuge Headquarters – King Salmon Fish and Wildlife Field Office for project compliance with Section 106 regulations. Conducted research at the National Archives to determine historic significance of early Bureau of Fisheries involvement in Bristol Bay.

Environmental Impact Statements (EIS) / Environmental Assessments (EA)

Idaho Power, Architectural Historian, Gateway West Transmission Line Project, Above-Ground Historic Resource Survey / National Historic Trails Study, Southeastern Idaho, (Project Scientist). Conducted survey field work and documentation of above-ground historic properties in Idaho, evaluated Project impacts to resources, and assisted in drafting sections of Class III Cultural Resources Inventory report. Led multi-disciplinary study of impacts to Oregon National Historic Trail to comply with standards under BLM Manual 6280.

Idaho Power, Architectural Historian, Boardman to Hemingway Transmission Line, Oregon and Idaho, (Project Scientist). Conducting reconnaissance and intensive level survey of historic properties in 3,000-square mile area of potential effect for Draft/Final Environmental Impact Statement (DEIS/FEIS); Providing project assistance with fieldwork, research, site forms, report deliverables, database management, and responding to agency comments.

Bonneville Power Administration, Architectural Historian, Kalispell to Kerr Transmission Line Rebuild, Montana, (Architectural Historian). Cultural resources inventory and impacts analysis of above-ground resources within transmission line corridor; prepared Montana Cultural Resources Information System (CRIS) forms for historic properties.

Minnesota Power, Technical Writer, Thomson Forebay Remediation Project, Environmental Analysis Report, Thomson, Minnesota, (Architectural Historian). Developed project descriptions for work alternatives; analyzed effects to historic and cultural resources associated with emergency repairs to the historic St. Louis River Project hydroelectric facility in compliance with FERC regulations.

PGE, Cascade Crossing Transmission Project, Above-Ground Historic Resource Reconnaissance Level Survey, Oregon, (Architectural Historian). Finalized survey deliverables for Federal and State agencies, prepared research and survey planning for next phase of Intensive Level Survey documentation of selective resources within the project APE.

Monica Mello
Architectural Historian

Professional History

07/2015 - Present, AECOM Planner

Education

MA, Public History, California State University , Sacramento, 2015
BA, American History, California State University , Sacramento, 2012

Years of Experience

With AECOM: 1
With Other Firms: 0

Professional Affiliations

National Council on Public History
California Council for the Promotion of History

Professional History

July 2015– Present
Design + Planning at AECOM
Architectural Historian
2013–June 2015
California State Parks, Photographic Archives
Graduate Student Assistant
2012-2014
California Department of Water Resources
Digital Collections Analyst

Ms. Mello has five years of experience in the fields of history and archives. She has served on a variety of historic projects in California. Ms. Mello also has experience conducting historical research, writing reports, and conducting oral history interviews. At AECOM, Ms. Mello has completed technical reports for a variety of buildings and structures such as historical theaters, lighthouses, aircraft hangars, hotels, commercial and residential buildings, transmission lines, substations, ranches and rural properties.

Experience

San Diego Gas & Electric – Coastal Reliability Project – TL674A Del Mar Reconfigure and TL666D Removal Project. Conducted architectural field survey and generated DPR523 forms. Developed the historic context and evaluations for the Del Mar Substation and the TL666 Del Mar transmission line.

Southern California Edison Company – CWA17 Lake Success. Planner who provided research and technical assistance regarding historical analysis.

Los Angeles Bureau of Engineering Design & Construction, Western Avenue Bus Stop and Pedestrian Improvements, Los Angeles, California. Planner who conducted cultural resource investigations, architectural field surveys, and collaborated on generating technical reports including Historical Resources Evaluation Reports, Historic Property Survey Reports, and DPR523 update forms.

City of Los Angeles, LADOT Active Transportation Program - Cultural Resource Evaluation, Los Angeles, California. Co-lead author that created historic context, and documented present conditions and architectural descriptions for the Historical Resources Evaluation Report and Historic Property Survey Report.

1122 4th Avenue LLC, California Theatre HRTR and Optional Supplemental Environmental Impact Report, San Diego, California. Planner who provided research and technical assistance regarding historical analysis.

US National Railroad Passenger Corporation, Amtrak Program Management Oversight Services, Various Locations. Generated preliminary historic evaluations for Amtrak owned rail stations located throughout the United States. Reports generated include architectural descriptions, historic contexts, and eligibility evaluations.

Lowe Enterprises, Town and Country Resort and Convention Center - Master Planning, San Diego, California. Conducted historical research

using primary sources and unpublished internal documents. Conducted interviews with knowledgeable constituents and generated interview finding guide materials. Assisted staff with generating a Historical Resource Technical Report for the City of San Diego.

National Railroad Passenger Corporation, Amtrak FCC Albany, Philadelphia, Pennsylvania. Planner who conducted cultural resource investigations, on the behalf of Amtrak, for Positive Train Control (PTC) wayside poles and infrastructure in order to comply with the 2008 Rail Safety Improvement Act. The project involved research and remote surveying of fifteen PTC construction sites, generating tower construction notification filings, and other components for Section 106 compliance.

Shoshana Jones

Architectural Historian

Education

MA/History/University of San Diego
Juris Doctor/University of California, Hastings College of the Law
BA/English Literature/ University of California, Los Angeles

Years of Experience

With AECOM	2
With Other Firms	10

Professional Associations

Docomomo preservation organization, Oregon Chapter: Board Member
State Bar of California: Member
United States District Court, Southern District of California: Admittee

Training and Certifications

2016-2018/Oregon Department of Transportation (ODOT) Qualified Consultant
2016/Preservation of Midcentury Modern Building Materials Workshop, Docomomo
2015/Precision Preservation: Onsite Documentation Using New Technologies, California Preservation Foundation (CPF)
2014/Historic Register Designation and Documentation, CPF
2014/California Environmental Quality Act (CEQA) Process, Mitigation and Advocacy, CPF
2014/The Use of Easements to Save the U.S. Post Offices, CPF
2014/Survey LA, CPF

Shoshana Jones is an architectural historian with experience in cultural and historic preservation for the private and public sectors, including reconnaissance and intensive level historic survey, historic research and context development, Section 106 compliance, HABS/HAER documentation, and historic register nominations. Shoshana's expertise meets the Secretary of the Interior's Professional Qualifications Standards for History, and she has performed work for clients in Oregon, Washington, Montana, Idaho, Alaska, Hawaii, and California. She has also curated exhibits for the San Diego History Center and the Japanese American Historical Society of San Diego, and guest lectured at the University of San Diego. As a Deputy City Attorney in San Diego, California, for over seven years, Shoshana litigated criminal court cases, represented city departments in employment hearings, and defended the city in civil lawsuits.

Experience

Architectural Survey/Nominations and Historic Building Recordation/Historic Research

Oregon State Hospital, Historic American Buildings Survey (HABS), Salem, Oregon (Field Technician, Health & Safety Lead, and Architectural Historian). Prepare HABS documentation for an 1883 psychiatric hospital complex, to be submitted to the Library to Congress. Conduct field work and research for documentation package. Drafted Safe Work Plan for site visit.

Eastmoreland Neighborhood Association, National Register of Historic Places District Nomination (NRHP), Portland, Oregon (Field Technician, Architectural Historian, and Volunteer Training/ Coordination). Conduct field work for initial Reconnaissance Level Survey (RLS). Research historic context for NRHP district nomination. Volunteer recruitment, training and coordination for RLS survey.

Environmental Protection Agency (EPA), Eastwood Multiple Arch Dam – Historic American Engineering Record (HAER) Documentation, Jackson, California (Deputy Project Manager, Lead Field Technician and Architectural Historian). Prepare HAER documentation for a 1916 mine tailing dam, to be submitted to the Library to Congress. Coordinate and conduct field work and research, and organize large format photography session for documentation.

City of Portland, Washington Park Reservoirs HAER Documentation, Portland, Oregon (Field Technician and Historian). Assisted with field documentation of city water reservoirs and associated gatehouses, dams and pump houses. Co-authored HAER historical narrative report.

United States Coast Guard, Harbor Department Office Building, Determination of Eligibility, City of Morro Bay, California (Historian). Researched, evaluated and documented the city's 1964 harbor department office building. Prepared the historic context and California Department of Parks and Recreation (DPR) site form.

Shell Puget Sound Refinery, Poplar Plantation Property Wetland Mitigation, Padilla Bay, Washington (Field Technician and Historian). Conducted intensive level survey, documentation, evaluation and research for historic pump house, ditch and levee. Co-authored Cultural Resources Inventory Report and prepared site forms for submission to the Washington Department of Archaeology and Historic Preservation (DAHP) database.

City of Los Angeles, Channel 35 Studio Relocation, Los Angeles, California (Architectural Historian and Preservation Consultant). Analyzed existing condition, integrity and significance of three historic buildings within the El Pueblo de Los Angeles/Los Angeles Plaza Historic District for documentation within California Office of Historic Preservation filing system. Prepared Cultural Resources Assessment Report.

Los Angeles Department of Water and Power (LADWP), North Haiwee Dam No. 1/The First Los Angeles Aqueduct – HAER Documentation, Inyo County, California (Architectural Historian and Preservation Consultant). Prepared HAER documentation, including description and evaluation of dam and site, condition assessment, and historic context.

County of Maui Planning Department, Lahaina Reconnaissance Level Survey Report for Lahaina National Historic Landmark District, Lahaina – Maui, Hawaii (Historian). Researched and prepared historic context for survey report to update boundaries for previously established National Historic Landmark District. The survey included approximately 300 buildings and 56 sites associated with the district's historic period.

Clark County Department of Environmental Services, Cedar Creek Bridge – Determination of Eligibility (DOE), Historic Context and Multiple Property Documentation Form, Clark County, Washington (Field Technician and Historian). Researched and documented a midcentury reinforced concrete box girder bridge for National Register of Historic Places eligibility evaluation. Conducted intensive level survey, prepared HAER Level II-type documentation, and helped prepare Multiple Property Documentation Form for mitigation purposes.

United States Air Force Joint Base Elmendorf-Richardson (JBER), Quonset Hut – Determination of Eligibility (DOE), Anchorage, Alaska (Architectural Historian). Researched, evaluated, and documented World War II-era Quonset hut for Cultural Resources Survey for Watershed Enhancements at JBER. Prepared historic context, architectural description, integrity assessment, Alaska Resources Heritage Survey (AHRS) site form, and final report.

Oregon Department of Transportation (ODOT), U.S. 101 Preservation Planning, Historic Context and Multiple Property Designation Outline, Oregon Coast (Historian). Assisted with preparing a historic context of U.S. Highway 101 through Oregon, including the highway's development and alterations, and descriptions of associated resources, including state parks.

Section 106/Secretary of the Interior's Standards (SOIS)/California Environmental Quality Act (CEQA)

Federal Emergency Management Agency (FEMA), Sonoma County Flood Elevation Program – Section 106 Compliance, Sonoma County, California, (Architectural Historian and Preservation Specialist). Drafted detailed architectural descriptions and integrity analyses for FEMA work planned in the Russian River region as part of the Sonoma County Flood Elevation Program. Prepared Department of Parks and Recreation (DPR) forms to document historic residences and recreation facilities, and assisted with authoring Cultural Resources report.

San Francisco Department of Public Works, Second Street Improvements Project – Secretary of the Interior's Standards (SOIS) Compliance, San Francisco, California (Architectural Historian and Preservation Specialist). Prepared SOIS Action Plan to protect historic Auxiliary Water Supply System features during construction to transform Second Street corridor into a pedestrian and bicycle-friendly street. The action plan included application of the SOIS standards for rehabilitation and developing a task list that designated responsible parties to ensure compliance at every stage of the project.

Bay Area Rapid Transit (BART), Lake Merritt Operations Building – CEQA Compliance, Oakland, California (Architectural Historian). Per CEQA compliance requirements, prepared Cultural Resources (built environment) section of Initial Study/Mitigated Negative Declaration (ISMND) to assess impact to historic-era residences from construction of a multi-story BART operations building near Lake Merritt BART station.

San Francisco Public Utilities Commission (SFPUC) Advanced Rainfall Prediction Project – CEQA and Section 106 Compliance, Bodega Bay, Montara and Alta Vista, California (Field Technician, Architectural Historian, and Section 106 Reviewer). Conducted intensive level survey and prepared documentation for historical resources within the ½-mile area of potential effect (APE) of potential project sites for CEQA and Section 106 compliance, resulting in the compilation of 33 individual and one district Department of Parks and Recreation (DPR) historic resources forms, as well as the preparation of a technical report. Inventory and evaluation methods for the potential rainfall prediction antennae mirrored the FCC's protocol for communication tower height and visibility standards.

Oregon Department of Transportation (ODOT), Outer Powell Transportation Safety Project – Section 106 Compliance, Portland, Oregon (Field Technician and Architectural Historian). Conducted intensive level survey involving 25 residential properties. Researched, evaluated, and documented resources to assist ODOT staff with determining National Register eligibility and Section 106 effects, and prepared Determination of Eligibility (DOE) reports.