Sylmar Ground Return System Replacement Project

DRAFT ENVIRONMENTAL IMPACT REPORT

Volume 1

SCH #2010091044 | March 2016

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Draft
Environmental Impact Report

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PREFACE

The following Draft Environmental Impact Report (EIR) for the Sylmar Ground Return System (SGRS) Replacement Project (hereinafter often referred to as the "Project" or the "proposed Project") is a revised Draft EIR for the Project that was previously addressed in a Draft EIR that was released for agency and public review. This revised Draft EIR is being recirculated in its entirety because the proposed Project, while focused on the same basic objectives, has changed substantially in its scope and location compared to the Project addressed in the previously released Draft EIR (hereinafter referred to as the "previous Draft EIR"). In order to better explain the changes in the Project, this preface provides background information regarding the nature and scope of the Project and the environmental analysis for the Project reflected in the previous Draft EIR, as well as an overview of the purpose, basis, and general scope and nature of the modified Project as reflected in this revised Draft EIR. The detailed description and environmental analysis for the modified Project is contained in the body of this revised Draft EIR.

P.1 INTRODUCTION

The SGRS Replacement Project was previously considered in a Draft EIR that was released by the Los Angeles Department of Water and Power (LADWP) for public review on May 15, 2014. The initial closing date for receipt of comments regarding the analysis and findings in this Draft EIR was June 30, 2014 (47 days of review, consistent with the California Environmental Quality Act [CEQA] Guidelines). Subsequent to the release of the Draft EIR, the public review period was extended to September 2, 2014 (an additional 64 days), at the request of certain State agencies, the Los Angeles City Council district within which portions of the proposed Project would be located, and members of the public. Written comments on this previous Draft EIR were received from a number of agencies, organizations, and individuals during the review period. However, a Final EIR, which would have included formal written responses to the comments received as well as other necessary information, was never prepared, and the EIR was not considered for certification by the City of Los Angeles Board of Water and Power Commissioners (Board), nor was the Project, as described in the previous Draft EIR, considered for approval by the Board.

After circulation of the previous Draft EIR, LADWP conducted refined studies that would have been completed during the normal course of Project design after Board approval. The purpose of these studies was to determine if the assumptions related to the conceptual design for the Project as reflected in the previous Draft EIR were overly conservative. Based on the results of these studies, the scope of the Project has been substantially modified, reducing the physical area of effect, the magnitude of construction, and level of environmental impacts.

The SGRS is an integral component of the Pacific Direct Current Intertie (PDCI) transmission system, which transmits bulk electrical power between Southern California and the Pacific Northwest. The PDCI is a bipolar direct current (DC) transmission line, and it cannot operate reliably without a functioning ground return system. The SGRS functions as a safeguard to allow the PDCI to remain operational for a period of time when a fault occurs on the transmission line, thus preventing a complete outage of the line. The existing SGRS runs from the Sylmar Converter Station in the San Fernando Valley in Los Angeles, California, into the Santa Monica Bay and terminates on the ocean floor approximately one mile offshore from the Pacific Palisades community of Los Angeles.

The proposed Project as described in the previous Draft EIR entailed the replacement of the existing underground and marine segments of the SGRS because of the deterioration of the facilities. It included the replacement and realignment of the underground cable segment of the SGRS, to be routed between the Kenter Canyon Terminal Tower (in the Brentwood neighborhood of Los Angeles) and Santa Monica Canyon (Pacific Coast Highway [PCH] and West Channel Road), and the replacement and realignment of the existing SGRS marine facility (including both the buried cables and the electrode array) within Santa Monica Bay from Santa Monica Canyon to a location 3.1 miles offshore of PCH and Sunset Boulevard.

The underground segment replacement is no longer a component of the modified Project considered in this revised Draft EIR. Furthermore, the length of the marine cables and scale of the electrode array have been substantially reduced under the modified Project. These changes in the Project are further discussed below by first summarizing the Project as it was presented and analyzed in the previous Draft EIR (Section P.2) and then summarizing the basis and nature of the modifications to the Project as presented in this revised Draft EIR (Section P.3).

Because the Project has been modified in a substantial manner, a revised Draft EIR has been prepared by LADWP to consider the potential impacts of the modified Project. This revised Draft EIR is being recirculated to provide a meaningful opportunity for public and agency review and comment on the modified Project. This is consistent with Section 15088.5(a) of the CEQA Guidelines regarding the recirculation of EIRs prior to their certification:

> A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review under Section 15087 but before certification. As used in this section, the term ‘information’ can include changes in the Project or environmental setting as well as additional data or other information.

P.2 SUMMARY OF THE PREVIOUS DRAFT EIR

P.2.1 Description of the Original Project Evaluated in Previous Draft EIR

Underground Segment

The replacement of the underground segment of the proposed Project as originally described in the previous Draft EIR extended about five miles, southward from the Kenter Canyon Terminal Tower along Homewood Road and Gretna Green Way, turning westward along San Vicente Boulevard and eventually through Santa Monica Canyon along West Channel Road to Will Rogers State Beach. Approximately two-thirds of this alignment was located within the City of Los Angeles and approximately one-third was located within the City of Santa Monica (primarily along San Vicente Boulevard).

Construction of this underground segment would entail trenching within existing roadways along the entire length of the proposed alignment. This activity would involve pavement breaking, excavation, and shoring for trenches approximately three feet wide and seven feet deep. Conduits for the new ground return system cables would be placed in the trench within a concrete-encased duct bank. The trenching and conduit installation would require the use of heavy equipment such as backhoes, compactors, concrete trucks, and generators, as well as dump trucks to haul away excavated material and flatbed trucks to deliver conduit and other construction materials.

The trenching and conduit installation, including pavement breaking, excavation, shoring, duct bank installation, backfilling, and repaving, would proceed simultaneously in several sections along the five-mile alignment, with approximately 40 to 70 feet of in-road installation completed in each section in a given day, depending on limitations created by site conditions, traffic, existing underground utilities, and other factors. This activity would generally require the closure of a single traffic lane along the trenching sites.

In addition to the conduit duct bank installation, approximately 20 underground vault structures would be installed along the alignment to accommodate the installation of the actual cables within the conduit and the splicing of cable sections, as well as provide access to the system for future operations, maintenance, and repair activity. A single vault installation would take about five days to complete, during which one to two traffic lanes would closed.

Traditional open-trench construction methods would not be possible in locations where the proposed alignment would cross certain underground structures (such as storm drainage channels or large sewer lines) that would physically conflict with the duct bank. In these instances, horizontal boring would be employed to install the conduit beneath the conflicting structures. Horizontal boring would require the excavation of pits at both the launching and receiving ends of the boring span. For the proposed Project underground alignment discussed in the previous Draft EIR, two horizontal boring sites were identified as necessary to clear existing storm drainage channels, both located along West Channel Road.

At the terminus of the underground duct bank installation on West Channel Road, horizontal directional drilling would be employed to install the conduits beneath PCH, Will Rogers State Beach, and under the ocean floor to a location approximately 1,000 feet offshore, to establish a location in soft-bottom material beyond nearshore rock outcroppings where the marine cable laying would be initiated. This directional drilling activity would require a construction zone and some excavation within West Channel Road.

After the installation of the underground duct bank and vaults, the actual ground return system cables would be pulled through the conduits in sections between the vaults, and spliced together. This would require the use of trucks stationed at the each vault location and the closure of a single traffic lane at the vault sites for less than one day.

The total construction period for the underground segment installation would be about 18 months, but given the progressive linear nature of the installation process, construction activity would occur in any given area along the alignment for a much shorter duration, with approximately 200 to 350 feet of installation completed in a week in a single section.

Marine Facility

The marine facility component of the proposed Project as originally described in the previous Draft EIR included about five miles of cables and an electrode array consisting of 88 concrete box structures. The marine cables would originate about 1,000 feet offshore at the termination point of the directional drilling installation at West Channel Road. From this point, the cables would be installed several feet beneath the ocean floor by means of a water-jet plow, which would fluidize the sand in a narrow column, within which the cable would sink. This method would limit the actual displacement of sandy bottom material. Because of the weak structural capacity and saturation of the soft bottom material, sediment would essentially resettle over the furrow behind the plow, burying the cables and generally restoring the surface of the ocean floor to preconstruction levels. The cables would be fed continuously from a cable-laying vessel on the surface as the plow proceeds along the floor. This procedure would be conducted twice because two separate parallel bundles of cables, each encased within a high-density polyethylene jacket, would be installed along the same alignment, spaced about 20 feet apart. It was anticipated in the previous Draft EIR it would take about two weeks to install the cables beneath the ocean floor to the offshore electrode array site.

Although the marine cables would be approximately five miles in length to reach the electrode array site, the electrode array itself would be located approximately 3.1 miles (2.7 nautical miles) offshore. This distance from shore was selected to avoid the corrosive effects to existing onshore pipelines and other underground metallic structures associated with the release of electric current during operational events of the SGRS.

As described in the previous Draft EIR, the electrode array would consist of 88, 25-foot diameter cylindrical precast concrete boxes set directly on the ocean floor and arranged in an approximately 0.25-mile diameter circular pattern. The number, spacing, and pattern of the concrete boxes as described in the previous Draft EIR was required, based on the assumptions in effect at the time, to dissipate the electric current to a safe level at any given point in the electrode array during an operational event.

The concrete boxes of the electrode array would be loaded onto a feeding barge in the Port of Los Angeles. The feeding barge would transport the boxes to a laying barge anchored at the proposed location of the electrode facility. Each box would be connected to a separate electrical cable on the deck of the barge and then lowered by a winch or crane mounted to the laying barge. The boxes would be set directly on the ocean floor with no requirement for foundations or excavation. An average of one box per day would be lowered by the laying barge. Divers would then be utilized to finalize the installation of the boxes. The entire marine facility installation, as described in the previous Draft EIR, would take approximately nine months.

As described in the previous Draft EIR, once the replacement SGRS was commissioned and operating, the existing SGRS marine facility would be abandoned in place or removed as necessary and feasible.

P.2.2 Summary of Impacts of the Project from Previous Draft EIR

As discussed in the previous Draft EIR, several temporary but significant and unavoidable environmental impacts would result from construction activity for the SGRS replacement. These would include impacts to air quality related to maximum daily regional emissions of nitrogen oxides (NOx) from construction equipment and vehicles (including marine vessels) and localized emissions impacts related to particulate matter, primarily from the underground segment excavation activities. Construction activity related to the underground duct bank installation would also create noise levels in excess of local standards for nearby receptors. In addition, levels of service on numerous road segments within the underground segment alignment would deteriorate below acceptable traffic standards due to the lane closures required for installation of the duct bank and vaults. All these impacts would be short term in that they would be associated with only the construction phase of the Project and would generally be experienced within more localized areas as the construction activity proceeded along the alignment. However, certain activities, such as the horizontal boring and directional drilling along West Channel Road, would be longer in duration. After construction was completed, the proposed Project would create no long-term impacts related to the operation of the underground cables.

As discussed in the previous Draft EIR, construction activities would contribute to significant impacts in the marine environment related to potential collisions with marine mammals and sea turtles and to water quality from potential spills or discharges from construction equipment and vessels. However, according to the analysis in the previous Draft EIR, based on the implementation of mitigation measures, these impacts would be reduced to a less than significant level. After construction was completed, the proposed Project would create no long-term significant impacts in the marine environment related to the operation of the ground return system.

P.2.3 Summary of Agency and Public Comments Received from Previous Draft EIR

During the public review period for the previous Draft EIR, numerous comments were received from agencies and members of the public regarding the analysis and findings in relation to the potential environmental impacts of the Project. Among the comments from several State agencies with jurisdiction in the marine and/or coastal environment was that there was a lack of substantial evidence (or an insufficient expression of substantial evidence) in the Draft EIR to support the conclusions of a less than significant environmental impact to the marine environment.

In addition, the agencies expressed the opinion that the Draft EIR did not adequately explore alternatives to the marine facility of the SGRS that would reduce the footprint of the facility, especially since the only marine alternative provided was tied to landside alternatives that established the same point of origin for the marine cable segment (i.e., PCH and West Channel Road/Chautauqua Boulevard). Suggested alternatives included an exploration of options for the electrode array location, altering the length and route of the buried cables by considering alternative origination points, considering routes that did not pass between the existing reefs (the Topanga Artificial Reef and the Santa Monica Reef/Santa Monica Artificial Reef) offshore of Pacific Palisades, and the possibility of refurbishing or retrofitting the existing SGRS marine facility. In comparison to the proposed Project, the agencies expressed a general preference for a shorter, more direct cable route to the electrode array site that would originate at PCH and Sunset Boulevard rather than at PCH and West Channel Road/Chautauqua Boulevard.

The agencies also indicated that there was insufficient analysis associated with the decommissioning of the existing SGRS marine facility (including a clear recommendation regarding the approach to abandonment in place and/or removal of facility components) to make a valid determination about potential environmental impacts related to the decommissioning.

Most of the comments relative to the replacement of the underground segment cables were in relation to the impacts of construction activity that would be experienced in Santa Monica Canyon, either along Entrada Drive/West Channel Road or Chautauqua Boulevard. These comments focused primarily on the impacts to traffic from lane closures along two-lane residential streets that already experience significant traffic constraints, which have been and will continue to be exacerbated by other roadway construction projects in the vicinity. Suggested alternatives to reduce these impacts were avoidance of Santa Monica Canyon by routing the cables along Sunset Boulevard to Temescal Canyon Road (approximately one mile west of Santa Monica Canyon) or to consider the construction of a new entirely land-based electrode system that could be sited remotely from urban areas, thereby avoiding the direct construction-related impacts associated with the underground segment of the Project as described in the previous Draft EIR.

P.3 MODIFICATIONS TO PROJECT IN THE REVISED DRAFT EIR

P.3.1 Goals of Modified Project

As mentioned above, after the circulation of the previous Draft EIR and receipt of agency and public comments, LADWP reevaluated the Project based on a refined analysis. This included a reevaluation of the original electrode replacement conceptual design and performing more comprehensive studies that would normally have been conducted after Project approval. This approach is consistent with the intent of CEQA to utilize the public disclosure and participation process as one factor in defining the Project and preventing or reducing, where possible, environmental impacts associated with Project implementation. The primary goals of the modified Project related to this reevaluation were to:

- Reduce the costs, scope, jurisdictional coordination, and environmental impacts associated with construction activity for the proposed underground segment.
- Reduce the costs, scope, and environmental impacts associated with the construction and operation of the proposed marine facility and the future status of the existing marine facility.
- Reduce the length of the construction schedule, thereby limiting effects on Pacific Direct Current Intertie (PDCI) transmission system operations and reducing the duration of the construction-related impacts.

To achieve these goals, LADWP explored feasible options that would enable an origination point for the marine cables at PCH and Sunset Boulevard, where the existing underground cables terminate and the existing marine cables originate at the Gladstone Vault. This approach would both shorten the length of the marine cables and avoid passing the cables in the vicinity of the Topanga Artificial Reef and the Santa Monica Reef/Santa Monica Artificial Reef structures, as would be required with an origination point at PCH and West Channel Road (as described in the previous Draft EIR). However, extending the previously proposed Project underground alignment northwestward along PCH from West Channel Road for about 2.5 miles to achieve this option would not accomplish the goal of reducing the costs, scope, schedule, and impacts associated with the underground segment cable installation.

Therefore, to enable an origination point for the marine cables at PCH and Sunset Boulevard, LADWP reconsidered the underground segment routing alternative involving replacement of the cables within the existing SGRS alignment. This alternative had been dismissed as infeasible in the previous Draft EIR because of the lack of available spare conduits, space constraints, and a requirement for the existing system to remain fully operational until the replacement system was commissioned. However, based on refined studies that considered revised design parameters for the SGRS, LADWP has determined that an alternative involving the replacement of cables within the existing alignment is achievable, as discussed below. In addition, this replacement could be accomplished in a considerably shorter timeframe than the previously identified underground cable replacement (six versus 18 months), thereby facilitating the use of the other generation sources to temporarily offset any reductions in power on the PDCI during the replacement activities.

P.3.2 PDCI and SGRS Operational Parameters

The PDCI is a direct current bipolar transmission system that allows electrical current to travel southward along one set of lines and northward along another set of lines, both suspended from the same transmission towers between the Sylmar Converter Station in the San Fernando Valley of Los Angeles and the Celilo Converter Station near The Dalles, Oregon. It conducts an electrical current of 3,100 amps at maximum charge. When operating normally, a bipolar transmission system completes the circuit necessary for electrical energy to continue to be transmitted in the system. However, if this bipolar circuit is broken, by, for example, physical damage to the one pole of the transmission circuit, the current will follow an alternate path of least resistance (such as a nearby pipeline) in order to close the circuit. This stray current can have a corrosive effect on underground infrastructure. The purpose of the SGRS is to direct the current during an anomaly in the PDCI operation in a controlled manner to an offshore location distant from underground infrastructure, where the ocean and the earth can serve as the return path to complete the circuit and allow for continued short-term operations on the PDCI until the anomaly can be resolved or alternative sources of energy can be provided to temporarily meet demand.

Rather than accommodating all the current in a single cable, the existing SGRS system consists of two separate cables, which provide redundancy and greater efficiency of operation. In the underground segment between Kenter Canyon and the Gladstone Vault, these cables are installed within separate conduits. Under existing conditions, if both these cables are functioning during an operational event of the SGRS, they can carry 3,100 amps of current (the full charge of the PDCI) for 20 minutes and then ramp down to 1,460 amps for up to an additional two hours of operation if necessary. The initial 20 minutes of full current provides time to either resolve the issue on the PDCI that triggered the electrode event or to reduce the current on the line to allow for extended operations of the PDCI at lower amperage and power while the issue is resolved or alternative energy sources are provided to temporarily meet demand, if necessary.

If only one return system cable is operating, it can carry 1,550 amps for 20 minutes and then ramp down to 730 amps for up to two additional hours. However, to accommodate the latter scenario in which the maximum amperage is half the amperage if both electrode lines were operating, the power on the PDCI must also be reduced to half capacity (i.e., from 3,100 megawatts [MW] to 1,550 MW).

P.3.3 SGRS Underground Segment Retrofit

LADWP has determined that temporarily operating the PDCI at half current during the replacement of the existing underground cables is feasible, even though this would also limit the amount of power available from the system during the replacement and temporarily place greater dependence on other generation and transmission sources to meet the energy demand in the region. This approach would therefore allow LADWP to retrofit the existing landside underground portion of the SGRS within the existing conduits because one of the two electrode lines could remain operational while the other was being replaced.

This retrofit installation would take substantially less time than the proposed Project as described in the previous Draft EIR because it would eliminate the requirement for in-road trenching and other major construction activities. Therefore, it would help limit the costs, schedule, and potential impacts associated with construction. This approach would also enable an origination point for the new replacement marine cables at the existing Gladstone Vault (Sunset Boulevard and PCH), where the existing SGRS underground segment terminates.

To replace the underground cables within the existing conduit, one of the two existing lines would be de-energized, but the other would remain energized and connected to the existing marine facility to maintain the reduced operating capacity of the SGRS and PDCI (i.e., 1,550 amps and 1,550 MW, respectively). Along the de-energized line, the existing cables would be removed from the conduit. This would entail severing the lines at vault locations and pulling the lines from the conduit onto a reel truck parked at a manhole location. This activity would take about half a day at each vault site.

Replacement cable would then be pulled into the existing conduit. This cable pulling activity would take place between every other existing vault, or at about 23 locations between the Kenter Canyon Terminal Tower and the Gladstone Vault. A feeding truck and a pulling truck would be located at opposite ends of the cable span. As the cables were pulled between the vault sites, they would be spliced to the adjacent cable span. The cable pulling and splicing activity would take one to two days at each vault site. This type of cable pulling and splicing activity is a standard maintenance procedure that occurs throughout the City on a continuing basis when existing cables require replacement due to deterioration.

When the installation of cable in the first de-energized line was complete, it would be connected to the marine facility and energized. After the first replacement cable was energized, the other existing line of the SGRS would be de-energized, and the removal of the existing cables and installation of the new replacement cables would be repeated along the alignment similar to the replacement of the first cable. Therefore, work would be conducted at the same vault sites twice on widely separated days during the course of the cable replacement. Once the second underground replacement cable installation was complete, it would be connected to the marine facility and energized, and the SGRS would be fully operational. The total construction period for the retrofitting of the entire underground portion of the system would be about six months.

P.3.4 Modifications to SGRS Marine Facility

As mentioned above, the utilization of the existing SGRS underground alignment by retrofitting the system with replacement cables within the existing conduits provides the opportunity to substantially reduce the length of marine cabling required to connect to the new electrode array and locate the cable a greater distance from the Topanga Artificial Reef and the Santa Monica Reef/Santa Monica Artificial Reef structures when compared to the Project as it was described in the previous Draft EIR. However, beyond the relocation of the origination point of the marine cable from West Channel Road/Chautauqua Boulevard and PCH to Sunset Boulevard and PCH, which is enabled by the retrofit of the existing underground segment, LADWP has also reevaluated the preliminary electrode siting and configuration criteria in a manner that would substantially reduce the footprint of the proposed marine electrode array and help limit the costs, schedule, and potential impacts associated with construction.

As discussed above, the offshore location of the proposed Project electrode array was selected to minimize the corrosive effects to existing onshore pipelines and other underground metallic structures associated with the long-term repeated release of electric current into the earth during operational events of the SGRS. This location at three miles offshore (as reflected in the previous Draft EIR) was originally established based on a maximum operating current of 3,650 amps, which at the time of the analysis, was the projected potential capacity of the PDCI. However, more recent evaluations have established that the maximum operating capacity of the PDCI is 3,100 amps because of certain limiting factors within the system. Based on this lower current, LADWP undertook studies to determine if the electrode array itself could be located closer to shore than previously established and still minimize corrosive effects to onshore infrastructure. As a result of these studies, the array is now proposed to be located about two miles (1.7 nautical miles) offshore from the Gladstone Vault. This location further reduces the length of the cable from the 3.1 miles required to connect from the Gladstone Vault to the electrode array based on its location as described in the previous Draft EIR.

The reduced amperage of the electrode (i.e., from 3,650 amps to 3,100 amps) would also require fewer individual vaults to dissipate the electric current to a safe level at any given point in the electrode array during an operational event. Furthermore, as part of the reevaluation of the Project involving detailed design studies, the electrode array has been reconfigured and substantially reduced in size from that described in the previous Draft EIR.

LADWP has also determined that it is possible to utilize the conduit from the existing SGRS to provide a pathway for the replacement marine cables from the Gladstone Vault to a location beyond nearshore rock outcroppings to soft-bottom conditions. In so doing, not only would the landside impacts be avoided related to horizontal directional drilling (as was required under the Project as described in the previous Draft EIR), but also the potential impacts to the marine environment from the inadvertent escape of bentonite drilling fluid, a concern related to directional drilling expressed by State agencies. Table P-1 illustrates key differences between the marine facility as described in the previous Draft EIR and as described in this revised Draft EIR.

TABLE P-1 COMPARISON OF MARINE FACILITY FROM PREVIOUS DRAFT EIR AND REVISED DRAFT EIR

	CABLE ORIGINATION LOCATION	NEAR SHORE CONDUIT	CABLE LENGTH	DISTANCE OF ARRAY FROM SHORE	NUMBER OF ELECTRODE VAULTS	DIMENSION OF ARRAY	AREA OF EACH VAULT	WEIGHT OF EACH VAULT	AREA COVERED BY VAULTS
Previous Draft EIR	New vault at Channel Rd. & PCH	New conduit via directional drilling	5 miles	3.1 miles	88	0.25-mile diameter circle	490 square feet (SF)	100 tons	43,120 SF
Revised Draft EIR	Existing Gladstone Vault at Sunset & PCH	Utilize existing conduit	2 miles	2 miles	36	650 feet x 70 feet	160 SF	20 tons	5,760 SF

In other respects, the installation of the marine components of the proposed Project would remain the same as described in the previous Draft EIR. That is, from the termination point of the conduit offshore of the Gladstone Vault, the cables would be installed several feet beneath the ocean floor by means of a jet plow. This installation would occur only in soft bottom areas and would avoid hard substrate areas (i.e., rock outcroppings). The cable installation process is anticipated to take about one month to complete. The cables would be connected to the individual electrode vaults on the deck of a barge, and the vaults would be lowered to the ocean floor with no requirement for foundations or excavation. An average of one vault per day would be lowered by the laying barge. The entire marine installation, including the cable installation and the vault installation, would take approximately four to five months.

Under the modified Project, once the replacement SGRS was commissioned and operating, the existing SGRS marine facility (including the cables and the electrode array) would be abandoned in place. This differs from the Project in the previous Draft EIR, under which the final disposition of the marine facility was indefinite, described as either abandoned in place or potentially recovered as necessary and feasible.

This modified Project would achieve the goals outlined above in that it would substantially reduce the costs, schedule, scope, and impacts of the proposed Project as it was described in the previous Draft EIR.

P.4 REVISED DRAFT EIR

The replacement of the proposed marine cables in the alignment indicated in the previous Draft EIR was established based on a landside origination point related to the proposed realignment of the SGRS underground segment with a termination point at West Channel Road and PCH, a location approximately two miles south-southwest of the origination point of the existing marine cables at the Gladstone Vault, located at Sunset Boulevard and PCH. Because the underground segment will now be retrofit within the existing SGRS conduits that terminate at the Gladstone Vault, the origination point of the proposed marine cables under the modified Project would remain at the Gladstone Vault, where they would connect to the underground segment. Under the modified Project, the replacement and location of the SGRS marine facility is not driven by relocation of the SGRS underground segment but solely by the deteriorating condition of the existing marine cables and electrode array. The retrofit of the SGRS underground segment does not influence the need for replacement of the marine facility.

Furthermore, the retrofit activity would consist of standard maintenance procedures that occur throughout the City on a continuing basis when existing cables require replacement. This type of maintenance activity requires the use of little equipment and few personnel and results in only minor, short-term traffic lane closures. It would result in no reasonably foreseeable significant environmental impacts within the existing setting of the underground segment of the SGRS. Therefore, the underground segment retrofit has been addressed as an action separate from the construction of the marine facility. As a separate action, the underground retrofit is a categorical exemption from CEQA under Section 15302 (Replacement or Reconstruction) of the State CEQA Guidelines. This class of exemption includes the replacement of existing utilities systems in the same location involving no expansion of capacity. The exemption for the underground cable retrofit was filed on February 25, 2015, and the retrofit work was begun in the fall of 2015.

Conversely, because the replacement of the marine cables and electrode array as described in the revised Draft EIR represents new construction in a different location than the existing SGRS marine facility, it would not be exempt from CEQA. In addition, because the marine facility replacement may potentially result in significant environmental impacts, an EIR remains the appropriate approach to analyze the Project under CEQA. However, the alignment of the marine cables and the location and size of the electrode array as reflected in this revised Draft EIR is substantially different than described in the previous Draft EIR. In addition, in the previous Draft EIR, the final status of the existing marine facility was indefinite, but under the modified Project as reflected in this revised Draft EIR, it would be abandoned in place.

Because no analyses of potential environmental impacts related to this modified marine facility or the abandonment of the existing marine facility were presented in the previous Draft EIR and no public review of this modified Project was conducted, LADWP, as the lead CEQA agency, has decided to recirculate a revised Draft EIR for the SGRS Replacement Project focused on the modified marine facility and the abandonment in place of the existing facility.

This revised Draft EIR for the SRGS Replacement Project includes a new Project description that defines the proposed Project as the installation of the marine cables and the construction of an electrode array in a location other than was described in the previous Draft EIR. It also includes the abandonment in place of the existing marine facility. An analysis of the existing setting and potential environmental impacts of this modified Project is provided, and because the proposed Project in this revised Draft EIR is substantially different than the proposed Project as described in the previous Draft EIR, the alternatives discussion has also been reframed.

The revised Draft EIR is being circulated to local, state, and federal agencies and interested individuals for review and comment for 45 days. Written comments may be submitted to LADWP during this period. As provided by Section 15088.5(f)(1) of the CEQA Guidelines:

> When an EIR is substantially revised and the entire document is recirculated, the lead agency may require reviewers to submit new comments, and in such cases, need not respond to those comments received during the earlier circulation period. The lead agency shall advise reviewers, either in the text of the revised EIR or by an attachment to the revised EIR, that although part of the administrative record, the previous comments do not require a written response in the final EIR, and that new comments must be submitted for the revised EIR. The lead agency need only respond to those comments submitted in response to the recirculated revised EIR.

It is anticipated that based on the nature of the changes to the Project, many comments received in response to the previous Draft EIR will no longer be applicable. In accordance with CEQA, these previous comments will remain part of the administrative record for the Project, but because the entire Draft EIR is being recirculated, written responses to these comments will not be provided. The Final EIR will provide written responses to comments on this revised Draft EIR that are submitted during the public review period, as provided by CEQA Guidelines section 15088.5(f). This process is further discussed in the Introduction (Chapter 1) of this revised Draft EIR.

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This Draft Environmental Impact Report (EIR) has been prepared to evaluate the potential effects on the environment associated with the Sylmar Ground Return System (SGRS) Replacement Project (Project or proposed Project). The Los Angeles Department of Water and Power (LADWP) is the public agency with the principal responsibility for carrying out and approving the proposed Project and is the lead agency under the California Environmental Quality Act of 1970 (CEQA) responsible for preparing the EIR.

ES.2 PURPOSE OF THE EIR

This EIR serves as an informational document for decision-makers and the public regarding potential environmental impacts of the proposed Project. It will be used by LADWP and responsible agencies with approval authority for the proposed Project in assessing such impacts and their feasible mitigation. These agencies must take into account the information in this EIR before considering approvals for the proposed Project. This EIR is not a policy document of LADWP regarding the desirability of the proposed Project or any of the potential Project alternatives discussed herein.

ES.3 OVERVIEW OF THE PROPOSED PROJECT

LADWP is proposing to replace the existing marine cables and the marine electrode portions of the SGRS. The replacement facility would be located in the vicinity of the existing SGRS marine facility in the Santa Monica Bay. The existing marine facility would be decommissioned and abandoned in place after the replacement marine facility is placed in service. While the new marine facility would be in a different alignment than the existing, it would serve the same purpose and function as the existing facility. The SGRS is an integral component of the Pacific Direct Current Intertie Transmission Line (PDCI), which transmits bulk power between Los Angeles and the Pacific Northwest. The PDCI is a 3,100 megawatt direct current system, and it cannot operate reliably without a ground return system. The SGRS functions as a safeguard to allow the PDCI to remain operational for a period of time when a fault occurs on the transmission line, thus preventing a complete outage of the line. The existing SGRS, which operates at a maximum 3,100 amps, runs from the Sylmar Converter Station in the San Fernando Valley in Los Angeles, California, into the Santa Monica Bay and terminates on the ocean floor approximately one mile offshore from the Pacific Palisades community of Los Angeles. Due to physical and operational system deficiencies with the existing marine facility of the SGRS, its replacement is proposed to increase the reliability and stability of the power generation and delivery system for Southern California; to continue to meet current and projected demand for power in the region; and to help increase the available share of renewable resource energy for the PDCI partners.

The proposed Project would be located primarily in Santa Monica Bay but would also include a small landside portion located in an existing parking lot on the south side of Pacific Coast Highway (PCH) at Sunset Boulevard, where the existing Gladstone Vault is located. The Gladstone Vault is the termination point of the existing underground segment of the SGRS. The proposed SGRS marine cables would extend from the Gladstone Vault beneath Will Rogers State Beach and under the ocean floor to the proposed electrode array located in the Santa Monica Bay approximately two miles offshore. Figure ES-1 illustrates the proposed Project.

ES.4 PROJECT OBJECTIVES

The purpose of the proposed Project is to replace the existing SGRS marine facility to ensure the continued reliable operation of the PDCI. The Project objectives related to this purpose are to:

- increase the reliability and stability of the power generation and delivery system for Southern California;
- continue to meet current and projected demand for power in the region; and
- help increase the available share of renewable resource energy for the PDCI partners.

ES.5 PROJECT COMPONENTS

The proposed marine facility would originate at the existing Gladstone Vault. As state above, the existing Gladstone Vault is the termination point of the existing underground segment of the SGRS. Utilizing existing conduit, the marine cables would extend from the vault under the parking lot and Will Rodgers State Beach and continue under the ocean floor to a location approximately 1,200 feet offshore in Santa Monica Bay. From there, the marine cables would be installed within plowed furrows several feet below the ocean floor, extending to the proposed electrode array, which would be located approximately two miles south-southwest from shore on the surface of the ocean floor at a depth of about 100 feet below mean sea level.

Gladstone Vault

The existing Gladstone Vault is located under the valet-only parking lot serving Gladstones Malibu Restaurant and Will Rodgers State Beach, along the south side of PCH near its intersection with Sunset Boulevard. The vault is 20 feet long, nine feet wide, and eight feet tall and is accessed by a manhole within an unpaved area between the parking lot and PCH. The surface elevation above the vault is about 25 feet above mean sea level, and the vault is installed about five feet below grade. The vault would serve as the transition between the existing SGRS underground segment and proposed marine facility and would provide access for maintenance, repair, and testing of the ground return system. The proposed marine cables would be pulled directly into the vault through existing conduit.

Marine Cables

From the Gladstone Vault, six marine cables would extend to a new location in the Santa Monica Bay approximately two miles offshore. As mentioned above, the conduit already in place for the existing SGRS would be utilized for the initial segment of the proposed marine cables from the Gladstone Vault to provide a pathway beneath the parking lot, the beach, and the ocean floor to a location approximately 1,200 feet offshore. Two existing conduits would be utilized. Each conduit would contain a bundled set of three cables.

From the offshore termination point of the conduit, the cables would be installed several feet beneath the ocean floor by means of a water-jet plow to the site of the proposed electrode array, approximately two miles offshore. This would entail two parallel furrows, approximately 20 feet apart, each containing a 3.2-inch diameter bundled set of three cables encased in a common HDPE jacket.

Electrode Array

The electrode array would be located about two miles offshore on the ocean floor at a depth of approximately 100 feet below mean sea level. Based on a preliminary design, the array would be composed of 36 concrete vaults, arranged in two rows of 18 vaults, with each vault and row spaced approximately 30 feet apart (see Figure 2-4 in Chapter 2, Project Description). The vaults would rest directly on the ocean floor.

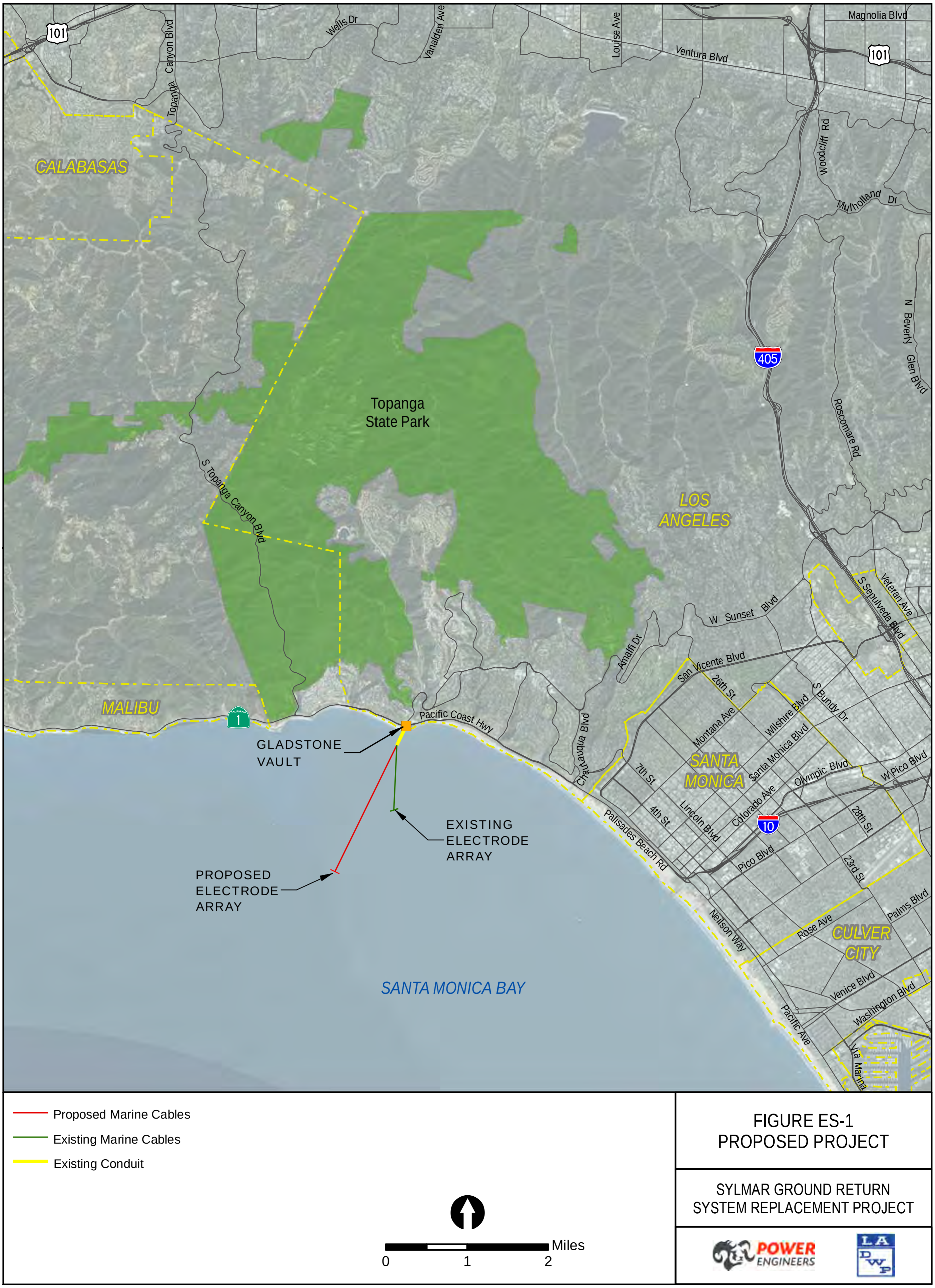

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FIGURE ES-1
PROPOSED PROJECT

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LADWP

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Each vault would be 20 feet long, eight feet wide, and four feet high and would weigh about 20 tons. The vaults would consist of a fiberglass reinforced concrete floor and ceiling. Other than concrete pillars supporting the ceiling, the sides would be open but covered with a Kevlar mesh, which would have a maximum one-inch exclusion size. Each vault would house four silicon iron electrode rod elements suspended from the ceiling with metal brackets. The outside dimensions of the array would be about 650 feet long by 70 feet wide. The actual area of the ocean floor covered by the vaults would be 5,760 square feet. At the electrode array site, the six marine cables (three from each bundled set) would each divide into six smaller cables. Each of these six smaller cables (36 total) would lead to one of the 36 vaults. Within the vaults, these cables would subsequently divide into four cables to connect to each of the electrode rods elements.

Cable Route and Electrode Array Siting

The siting of the proposed SGRS marine facility was based on several considerations, including maximizing the use of existing facilities, avoiding sensitive marine environments, minimizing the cable length, and providing a sufficient distance from shore to achieve the required system operational capability while also reducing corrosive effects to onshore infrastructure. The route of the proposed marine cables from the Gladstone Vault into Santa Monica Bay was established by the existing conduit, which, as mentioned above, would be utilized to install the initial segment of the new marine cable from the Gladstone Vault underneath nearshore rock outcroppings to reach soft-bottom conditions. Based on this alignment, a preliminary 1,400-foot wide study corridor was designated and surveyed to ascertain resource conditions and potential constructability issues.

The study corridor survey elements included bathymetric and seafloor features, side-scan sonar, and geotechnical conditions. In addition, water and sediment sampling and dive surveys were conducted to assess biological resources, water quality, and sediment quality along the proposed route. The surveys also included two passes generally along the corridor centerline by a remotely operated underwater vehicle. The results of these various surveys established that the corridor consists of a gently sloping (about one percent) sandy bottom with no significant seafloor features (other than the aforementioned nearshore rock outcroppings) or significant biological or cultural resources. It is intended that the proposed cables would generally follow the centerline of the survey corridor. However, the 1,400-foot width of the corridor would provide the necessary flexibility to align the cables to avoid any sensitive resources, such as rock outcroppings.

The electrode array was then sited within the corridor established by the cable route at the necessary distance from shore (approximately two miles) to reduce corrosive effects to onshore infrastructure. Electrical current is released from the SGRS electrode array during an operational event related to a fault on one pole of the PDCI. This release can result in electrochemical corrosion of buried metallic objects, especially pipelines, if an appropriate separation distance is not provided between the ground electrode and the objects. Based on the surveys of the proposed corridor, a site approximately two miles offshore also consists of sandy bottom with no significant seafloor features or significant biological or cultural resources.

ES.6 PROJECT CONSTRUCTION

ES.6.1 Installation of the Proposed Marine Facility

Cable Pulling

As mentioned above, LADWP would install the initial segment of the new marine cables within existing conduits that initiate at the Gladstone Vault and continue under nearshore rock outcroppings to soft-bottom conditions, approximately 1,200 feet offshore. Two cable bundles consisting of a set of three cables in a common HDPE jacket, would be pulled through two separate conduits and into the vault by a cable pulling rig, which would be parked near the vault. The cable would be fed from a barge stationed in the bay.

The new cables would not be spliced to the existing underground cables until the proposed marine facility was entirely constructed and tested. The cable pulling activity would involve minimal personnel and equipment at the Gladstone Vault site and would take approximately one week to complete. It would require no ground disturbing activity.

Marine Plowing

Once the cables had been installed in the conduit to reach soft-bottom conditions, the marine cable installation would proceed by means of a water-jet plow, which would bury the cables several feet below the ocean floor to the site of the electrode array, about two miles offshore. The cables would be installed in two separate bundled sets, each consisting of three cables encased in a common HDPE jacket. A cable-laying vessel would provide a continuous feed of the bundled cable sets from an onboard reel to the jet plow as it proceeds along the floor. The two bundled sets would be installed in separate furrows spaced about 20 feet apart. This may be accomplished by utilizing two plows simultaneously (if available and economically feasible) working in parallel in a single pass, or it may require the use of a single plow making two passes.

The jet plow is a remotely operated apparatus that moves across the ocean floor on skids or tracks and is controlled via a cable connected to the cable-laying vessel on the surface. It utilizes a plowshare that contains water jets along the leading edge. As the plowshare moves through the sandy bottom, water pumped through the jets fluidizes the sand, which reduces the force required to move the plow forward and minimizes the width of the furrow to just slightly larger than the cable bundle itself (3.2 inches in diameter). The cable, which is fed from the cable-laying vessel on the surface, is guided through the plow and sinks into the fluidized sand as the plow passes. This method was selected to bury the cables because for an equivalent depth of installation, a jet plow, when compared to a mechanical plow, results in a far narrower cross section of disturbance, minimizes the actual displacement of sandy bottom material, reduces turbidity, and leaves areas adjacent to the furrow essentially undisturbed.

Because of the narrow width of the furrow created by the jet plow and the weak structural capacity and saturation of the soft bottom material, sediment would essentially resettle over the furrow behind the plow, burying the cables and generally restoring the surface of the ocean floor to preconstruction levels. This plowing process would create some turbidity because it would directly disturb the bottom sediment. However, this turbidity would be localized and temporary, and suspended sediment is anticipated to settle relatively rapidly, generally during the ebb and flow of a single tidal cycle. It is anticipated it would take about one month to install the cables via plowing to the offshore electrode array site.

Electrode Array Installation

The concrete vaults for the electrode array would be manufactured at a facility in the City of Fontana permitted for such activity and under contract to LADPW. The vaults would be precast in one piece. Each vault would be eight feet wide, 20 feet long, and four feet high and would weigh about 20 tons. The vaults would consist of a fiberglass reinforced concrete floor and ceiling, with open sides except for concrete pillars supporting the ceiling. Each of the 36 vaults would be transported separately via truck to Marina del Rey.

At Marina del Rey, the vaults, along with the electrode rod components, would be loaded onto a barge. Depending on the pace of manufacture of the vaults and/or the availability of staging areas at the manufacturing site or at Marina del Rey, all 36 vaults may be loaded onto the barge before the barge is transported to the proposed electrode array site in the bay. However, because the pace of manufacture and the availability of staging areas cannot be entirely predicted at this time, in order to advance the construction process, it is anticipated that only 12 vaults would be loaded before the barge was transported to electrode site. This scenario would entail three separate barge trips to and from the electrode site during the installation process.

The barge would require two tug boats to maneuver out of the marina channel and one tug boat to traverse the bay to the array location, a distance of approximately seven miles once the marina breakwater is cleared. The trip would take about three hours one way. Once the barge was anchored at the site, the tug would return to Marina del Rey. All activities related to the installation of the vaults would occur on or from the barge. Four electrode rods would be installed within each vault. A length of each of the six individual cables contained in the two bundled sets that were buried by the plow would be brought up to the barge. On the barge, each cable would be divided and spliced into six smaller cables (one per vault). Each of these smaller cables would in turn be divided and spliced into four cables, each of which would be attached to one of the four electrode rods contained in each vault. The sides of the vault would be securely covered with a Kevlar mesh, which would have a maximum one-inch exclusion size. The vault would then be lowered to the ocean floor by a 30-ton crane mounted on the barge.

An average of one vault per day would be assembled and lowered. Divers would be present as the vaults were lowered to guide and monitor the installation. It is anticipated that a set of six adjacent vaults could be lowered by the barge anchored in the same position. Once the six vaults were placed, the tug would come from Marina del Rey to reposition the barge and then return to the marina. After two sets of six vaults (12 total) were installed, the tug would return and transport the barge back to the marina, where 12 more vaults would be loaded. This process would be repeated until all 36 vaults were installed.

The vault installation would require 12 personnel on the barge or in the water. The personnel would be transported on a daily basis to and from the barge by a water taxi out of Marina del Rey. Except when being transported to or from the marina to receive or deliver more vaults, the barge would remain anchored at the electrode site. The barge would contain all the required equipment to assemble and lower the vaults, including a 30-ton crane. A 500-kilowatt diesel generator would provide the necessary power for all construction activity. Assuming a six-day work week, with one vault lowered each day, the installation of the vaults would take about six weeks to complete. However, allowing for loading and transport time and unforeseen delays or stoppages related to product manufacture, weather or wave conditions, mammal migration or activity in the vicinity of the electrode site, or other issues, the process could take two to three months. During this time, the barge may be stationed at the marina or anchored at the electrode site, with no construction activity occurring.

ES.6.2 Proposed Facility Commissioning

After completion of construction, divers would complete a visual inspection and video recording of the facility. The facility would be tested from the Gladstone Vault, including running current through the cables and measuring the resistance of the system. This would be accomplished from the vault using small-scale equipment and meters in the vault. The commissioning process would require several days. Once all components of the proposed marine facility had been commissioned, the existing marine cables would be disconnected at the Gladstone Vault. The new cables, which would run from the Gladstone Vault the new electrode array, would be spliced to the existing underground cables, and the system would be activated.

ES.6.3 Abandonment of the Existing Marine Facility

Once the proposed marine facility was fully commissioned, the existing marine facility would be decommissioned. The existing warning signs regarding potential electrical discharges at the vaults would be removed, and the facility (including the cables and the electrode array) would be abandoned in place.

ES.6.4 Construction Schedule

Project construction is anticipated to be initiated in fall 2016 at the Gladstone Vault and would take approximately four to five months to complete, including proposed facility commissioning and existing facility decommissioning. Construction of the Project would proceed sequentially from cable pulling to cable laying via jet plow, electrode array installation, commissioning, and existing facility decommissioning.

Work at the Gladstone Vault site would occur Monday through Friday between the hours of 7 a.m. and 5 p.m. To ensure a shorter duration construction time, work in the ocean would occur six days per week, Monday through Saturday, up to 10 hours per day. No nighttime work would occur.

ES.7 PROJECT OPERATIONS AND MAINTENANCE

Once the proposed marine facility was completed, the SGRS, in the event of a fault on the PDCI, would have the capability of operating at up to 3,100 amps for up to 30 minutes. If the issue on the PDCI that triggered the event could not be resolved during this time, the power on the PDCI would be ramped down to no greater than 2,000 MW and could continue to operate at up to 2,000 amps for up to two more hours to provide operators additional time to resolve the issue or provide alternative sources of energy to temporarily meet demand. Therefore, any individual event operating at the highest potential amperages as described above would have a total maximum duration of about 2.5 hours.

However, based on historical operating data since 2008, most events last considerably less time than this maximum allowable duration. Based on the historical data, it is anticipated that the electrode would be operational an average of about 5.25 hours per year. This would represent the combined time of numerous discrete events in a given year. The combined operating time of all events in a given year between 2008 and 2014 ranged from 40 minutes to about 10.5 hours. The number of discrete events per year ranged from three to eleven, and the average duration per event during a given year ranged from under 15 minutes to about 1.5 hours. The maximum duration time of a single event was 2.5 hours. The overall average between 2008 and 2014 was about seven discrete events per year, lasting about 45 minutes each. Therefore, it is anticipated that the SGRS would be operational for relatively very few hours in any one year and for only relatively brief periods at any given time.

Nonetheless, the system would be designed to limit the impacts associated with the release of electrical current at the electrode array during an event triggered by a fault on the PDCI. The specific number of electrode vaults (36), the size of the vaults, the open-walled design of the vaults, the spacing between the vaults, the number of rods within each vault (4), and the arrangement of the rods are intended to maintain an electric field at the exterior of the vaults of no greater than about 1.15 volts per meter (V/m) when the SGRS is operating at maximum amperage (3,100 amps). The strength of the field decreases rapidly with distance from the electrode array, and would be about 0.34 V/m at a distance of three feet from the exterior of the vault and about 0.15 V/m at six feet from the vault. This maximum electric field strength of 1.15 V/m is below the threshold of 1.25 V/m adopted by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and established by the International Electrochemical Commission (IEC) in the *Design of Earth Electrode Stations for High-Voltage Direct Current (HVDC) Links* (IEC Technical Standard 62344:2013).

Because the electric current in the DC electrode would flow in one direction, the magnetic field would be static; that is, it would have no frequency oscillation, unlike the extremely low frequency magnetic fields created by alternating current (AC) electrical lines, which have a frequency oscillation of 60 times per second. There are no known harmful effects related to static magnetic fields except primarily temporary effects noted in occupational environments involving field strengths substantially greater than that which would be generated by the SGRS. Since the electrode would typically operate for relatively few hours per year and for only relatively brief periods at a time, during the vast majority of the time, there would be no electric or magnetic fields generated because no electrical current would be flowing in the facility.

The position of the electrode array would be marked on the surface using buoys, and the U.S. Coast Guard and other responsible entities would be notified of the position and as-built characteristics of the array and any underwater cable. Although the facility, located at about a 100-foot depth, would be less accessible to divers than the existing electrode array (which is located at about a 50-foot depth), the vaults would nonetheless be marked with signs indicating the potential for electrical discharges.

Routine replacement of components of the proposed marine facility is not anticipated. However, routine inspection and testing of the facility and early identification of items needing maintenance or repair are critical for the continued reliable operation of the PDCI. The submarine cables would be tested monthly by measuring the loop resistance of the conductors. A visual inspection of the facility by divers would occur twice annually, unless circumstances arise indicating the need for more frequent inspections.

ES.8 MITIGATION MEASURES AND ENVIRONMENTAL IMPACTS

Based on the Initial Study and issues raised during the Notice of Preparation (NOP) and previous Draft EIR review, the following environmental issues related to potentially significant impacts related to the proposed Project are analyzed in this revised Draft EIR.

- Air Quality and Greenhouse Gas Emissions
- Biological Resources
- Cultural Resources
- Noise
- Recreation and Fishing
- Traffic and Transportation
- Water Quality

ES.8.1 Mitigation Measures

The following mitigation measures are proposed, for the respective resource topics, in this revised Draft EIR to avoid or minimize potentially significant impacts associated with the proposed Project.

Air Quality and Greenhouse Gas Emissions

AIR-1 Equipment Maintenance – All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

AIR-2 Equipment Operation – The contractor shall maintain and operate construction equipment to minimize exhaust emissions. During construction, trucks and vehicles will minimize idling when not in use to the extent feasible.

AIR-3 Catalytic Converters – Catalytic converters shall be installed on all heavy construction equipment, where feasible.

Biological Resources

BIO-1 Marine Mammal and Sea Turtle Avoidance Practices

1. A biological monitor will be required on vessels and, when appropriate, in the water during construction activities within Santa Monica Bay and will have the authority in coordination with LADWP to halt and redirect construction activities to avoid adverse impacts to marine wildlife. If a sea turtle or marine mammal is identified within 100 meters of the construction work zone, construction activity shall be temporarily halted until the sea turtle or marine mammal moves safely beyond this distance.
2. Construction and vessel crews will be trained to recognize and avoid marine mammals and sea turtles prior to initiation of Project construction activities.
3. Vessels involved in construction activities will maintain a steady course and slow speed.
4. Any collisions with marine wildlife will be reported promptly to state and federal resource agencies.

ES.8.2 Significant and Unavoidable Impacts of the Proposed Project

An analysis of environmental impacts caused by the proposed Project has been conducted and is contained in Chapter 3 of this revised Draft EIR. According to the environmental impact analysis, the proposed Project would result in significant unavoidable adverse impacts during construction related to air quality. Implementation of mitigation measures AIR-1 through AIR-3 would reduce air pollutant emissions during Project construction. However, ROG and NOx emissions reductions that can be achieved with these measures are not quantifiable and would not reduce emissions below the level of significance. The main source of ROG and NOx emissions is marine vessels. Use of heavy construction equipment, marine vessels, and vehicles is required in order to implement the proposed Project. Therefore, there are no feasible mitigation measures that would reduce ROG or NOx impacts to below a level of significance. While temporary and short-term, maximum daily ROG and NOx emissions associated with construction for the proposed Project would remain significant and unavoidable, even with implementation of feasible mitigation measures. Please refer to Chapter 3, Section 3.2, Air Quality, for a detailed discussion. No permanent significant impacts to air quality would result from Project operation.

Table ES-1 presents a brief summary of Project impacts, proposed Best Management Practices (BMPs) included as part of the proposed Project, Mitigation Measures (MMs) recommended to ensure that Project impacts are mitigated to the extent feasible, and the expected status of the potential environmental effects following implementation of the mitigation measures. The BMPs and mitigation measures serve to preclude, reduce, and/or fully mitigate potential environmental impacts. The more detailed evaluation of these issues is presented in Chapter 3 of the revised Draft EIR.

TABLE ES-1 SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACT	SIGNIFICANCE DETERMINATION	BEST MANAGEMENT PRACTICES/MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Air Quality/Greenhouse Gas Emissions			
Would the Project conflict with or obstruct implementation of the applicable air quality plan?	Less than significant	No mitigation is required.	N/A
Would the Project violate an air quality standard or contribute substantially to an existing or projected air quality violation?	Construction: Significant temporary and short-term ROG and NOx emissions Operation: Less than significant	<u>Best Management Practices</u>: BMP-1 Fugitive Dust Control Plan Construction of the Project would be subject to the South Coast Air Quality Management District's (SCAQMD) Rule 403, Fugitive Dust. In compliance with this rule, a dust control supervisor shall be identified for the Project and shall supervise implementation of the SCAQMD-approved dust control plan. The plan will itemize measures related to vehicle trackout, stabilizing soils, water application, and maintenance of soil moisture content. <u>Mitigation Measures:</u> AIR-1 Equipment Maintenance – All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications. AIR-2 Equipment Operation – The contractor shall maintain and operate construction equipment to minimize exhaust emissions. During construction, trucks and vehicles will minimize idling when not in use to the extent feasible. AIR-3 Catalytic Converters – Catalytic converters shall be installed on all heavy construction equipment, where feasible.	Construction: Significant and unavoidable Impacts Operation: N/A
Would the Project result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including release emissions which exceed quantitative thresholds for ozone precursors)?	Less than significant	No mitigation is required.	N/A
Would the Project expose sensitive receptors to substantial pollutant concentrations including air toxics such as diesel particulates?	Less than significant	No mitigation is required.	N/A

POTENTIAL IMPACT	SIGNIFICANCE DETERMINATION	BEST MANAGEMENT PRACTICES/MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Would the Project create odors affecting a substantial number of people?	Less than significant	No mitigation is required.	N/A
Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Less than significant	No mitigation is required.	N/A
Biological Resources			
Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?	Construction: Significant impact related to potential for collision with marine mammals or sea turtles during construction Operation: Less than significant	<u>Mitigation Measure:</u> BIO-1 Marine Mammal and Sea Turtle Avoidance Practices 1. A biological monitor will be required on vessels and, when appropriate, in the water during construction activities within Santa Monica Bay and will have the authority in coordination with LADWP to halt and redirect construction activities to avoid adverse impacts to marine wildlife. If a sea turtle or marine mammal is identified within 100 meters of the construction work zone, construction activity shall be temporarily halted until the sea turtle or marine mammal moves safely beyond this distance. 2. Construction and vessel crews will be trained to recognize and avoid marine mammals and sea turtles prior to initiation of Project construction activities. 3. Vessels involved in construction activities will maintain a steady course and slow speed. 4. Any collisions with marine wildlife will be reported promptly to state and federal resource agencies.	Construction: Less than significant Operation: N/A
Would the Project have a substantial adverse effect on habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS, or NOAA/NMFS?	Less than significant	No mitigation is required.	N/A
Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	No impact	No mitigation is required.	N/A

POTENTIAL IMPACT	SIGNIFICANCE DETERMINATION	BEST MANAGEMENT PRACTICES/MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Construction: Significant impact related to potential for collision with marine mammals or sea turtles during construction Operation: Less than significant	<u>Mitigation Measure:</u> BIO-1 Marine Mammal and Sea Turtle Avoidance Practices 1. A biological monitor will be required on vessels and, when appropriate, in the water during construction activities within Santa Monica Bay and will have the authority in coordination with LADWP to halt and redirect construction activities to avoid adverse impacts to marine wildlife. If a sea turtle or marine mammal is identified within 100 meters of the construction work zone, construction activity shall be temporarily halted until the sea turtle or marine mammal moves safely beyond this distance. 2. Construction and vessel crews will be trained to recognize and avoid marine mammals and sea turtles prior to initiation of Project construction activities. 3. Vessels involved in construction activities will maintain a steady course and slow speed. 4. Any collisions with marine wildlife will be reported promptly to state and federal resource agencies.	Construction: Less than significant Operation: N/A
Would the Project conflict with any local policies or ordinances protecting biological resources, such as tree preservation or ordinance?	No impact	No mitigation is required.	N/A
Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	No impact	No mitigation is required.	N/A
Would noise associated with the Project substantially impact marine biological resources?	Less than significant	No mitigation is required.	N/A
Cultural Resources			
Would the Project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines; cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5; either directly or indirectly destroy a unique paleontological	No Impact	<u>Best Management Practices:</u> BMP-2 Archaeological Resources Should previously unknown archaeological resources be found during project construction activities, all activities shall cease in the immediate area of the discovered resource. A project archaeologist shall be retained to first determine whether the resource discovered is a unique archaeological resource pursuant to Section 21083.2(g) of the PRC or a historical resource pursuant to Section 15064.5(a) of the CEQA Guidelines. If the archaeological resource is	N/A

POTENTIAL IMPACT	SIGNIFICANCE DETERMINATION	BEST MANAGEMENT PRACTICES/MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
resource or site or unique geologic feature; disturb any human remains, including those interred outside of formal cemeteries?		determined to be a unique archaeological resource or a historical resource, the archaeologist shall recommend disposition of the site and formulate a mitigation plan in consultation with LADWP that satisfies the requirements of Section 21083.2 of the PRC and/or Section 15064.5 of the CEQA Guidelines. If the archaeologist determines that the archaeological resource is not a unique archaeological resource or historical resource, the site will be recorded and the site form submitted to the California Historical Resource Information System (CHRIS) at the South Central Coastal Information Center (SCCIC). The archaeologist shall prepare a report of the results of any study prepared following accepted professional practice and guidelines of the California Office of Historic Preservation. Copies of the report shall be submitted to the CHRIS at the SCCIC. BMP-3 Human Remains In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be notified within 24 hours of the discovery. No further disturbance of the site or any nearby area reasonably suspected to overlie other remains shall occur until the Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the Coroner determines that the remains are or are believed to be Native American, the Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 48 hours. In accordance with PRC Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descended from the deceased Native American. The descendants shall complete an inspection of the site within 48 hours of being granted access. The designated Native American representative shall then determine, in consultation with LADWP, the disposition of the human remains.0	
Noise			
Would the Project result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Construction: Less than significant construction-related noise impacts Operation: No impact	No mitigation is required.	N/A

POTENTIAL IMPACT	SIGNIFICANCE DETERMINATION	BEST MANAGEMENT PRACTICES/MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Would the Project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	Construction: Less than significant construction-related vibration impacts Operation: No impact	No mitigation is required.	N/A
Would the Project result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?	No impact	No mitigation is required.	N/A
Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?	Less than significant	No mitigation is required.	N/A
Would the Project expose people residing or working in the Project area to excessive noise levels related to a public airport or public use airport?	No impact	No mitigation is required.	N/A
Would the Project expose people residing or working in the Project area to excessive noise levels related to a private airstrip?	No impact	No mitigation is required.	N/A
Recreation and Fishing			
Would Project construction and operation activities result in a significant impact to recreational fishing and other water related recreational activities?	Less than significant	Best Management Practices: BMP-4 Marine Location Markings The position of the electrode array will be marked using surface buoys, and the United States Coast Guard (USCG) and other responsible entities will be notified of the position and as-built characteristics of the electrode array and underwater cables. BMP-5 Issuance of Notices Advance notice of construction activities shall be provided to local recreational and commercial boaters and fisherman through the USCG Notice to Mariners regarding the restrictions in the use of the Project area with sufficient lead-time for affected persons to plan for alternate times and places to perform offshore activities. In addition, LADWP shall post notices in the harbor master's offices at least 15 days in advance of in-water construction activities.	N/A

POTENTIAL IMPACT	SIGNIFICANCE DETERMINATION	BEST MANAGEMENT PRACTICES/MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Traffic and Transportation			
Would the Project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit; conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	No impact	No mitigation is required.	N/A
Would the Project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	No impact	No mitigation is required.	N/A
Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	No impact	No mitigation is required.	N/A
Would the Project result in inadequate emergency access or impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	No impact	No mitigation is required.	N/A
Would the Project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	No impact	No mitigation is required.	N/A

POTENTIAL IMPACT	SIGNIFICANCE DETERMINATION	BEST MANAGEMENT PRACTICES/MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Water Quality			
Would the Project violate any water quality standards or waste discharge requirements; the Project would not otherwise substantially degrade water quality?	Construction: Less than significant Operation: Less than significant	<u>Best Management Practices:</u> BMP-6 Hazardous Materials As required by the Clean Air Act, Section 401 of the Clean Water Act, the Toxic Substance Control Act, and the Hazardous Materials Transportation Act, all vehicles, vessels, and equipment must be in proper working condition to avoid fugitive emissions or accidental release of motor oil, fuel, antifreeze, hydraulic fluid, grease, or other hazardous materials. To reduce potential for accidental spills and discharges that could impact water and sediment quality during construction, the following are recommended: • Discharge of hazardous materials during construction activities into the Project area shall be prohibited. • A comprehensive spill prevention control and countermeasure plan shall be developed that documents management practices that will be enacted to limit the potential for accidental spills. • An environmental protection plan shall be developed that addresses issues related to storage and handling of fuel, waste disposal, equipment and vessel operation, and field policies. • All debris and trash shall be disposed of in appropriate trash containers on land or on construction barges by the end of each construction day.	Construction: N/A Operation: N/A

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ES.9 PROJECT ALTERNATIVES

In accordance with CEQA Guidelines, alternatives to the proposed Project have been considered to foster informed decision-making and public participation. A range of alternatives were evaluated to identify means by which environmental impacts could be lessened to the extent practicable. Alternatives in this revised Draft EIR include:

- No Project Alternative
- Energy Conservation
- Replacement of PDCI with an Alternating Current Transmission Line
- Land-Based Electrode System
- Retrofit of Existing Electrode Array
- Long-Distance Directional Drilling
- Resiting of the Electrode Array and/or Marine Cable Route
- Removal of Existing SGRS Marine Facility

The evaluation of Project alternatives found that the No Project Alternative was technically feasible but it would not meet any of the objectives identified for the proposed Project related to increasing the reliability and stability of the power generation and delivery system for Southern California; continuing to meet current and projected demand for power; and helping increase the available share of renewable resource energy. Therefore, this Alternative was found to be effectively infeasible due to the consequences to the regional power generation and transmission system.

The Energy Conservation Alternative was found to be technically infeasible because the additional energy conservation at a level necessary to offset the capacity of the PDCI (and, therefore, the need for the proposed Project) is infeasible.

The Replacement of PDCI with an Alternating Current Transmission Line Alternative and the Land-Based Electrode System Alternative were found to be technically achievable but due to cost associated with each, these Alternatives were found to be economically infeasible.

The Retrofit of Existing Electrode Array Alternative was found to be technically feasible in terms of constructability; however, it would be effectively infeasible due to risks associated with corrosive effects to underground infrastructure.

The Long-Distance Directional Drilling Alternative was found to be technically infeasible for several reasons outlined in Chapter 4, Alternatives, but mainly due to the operational conflicts created by the use of steel casing required for the long-distance horizontal drilling operation.

In accordance with Section 15126.6(e)(2) of the CEQA Guidelines, an EIR shall identify an environmentally superior alternative among the alternatives, including the proposed Project. Among the alternatives considered, only Resiting of the Electrode Array and/or Marine Cable Route and Removing the Existing SGSR Marine Facility were deemed feasible. These alternatives would also meet all the proposed Project objectives. However, they would not eliminate or reduce impacts that would be caused by the proposed Project. Furthermore, the Resiting the Electrode Array and/or Marine Cable Route may result in increased impacts related to longer marine and landside cable installations, and the Removing the Existing SGSR Marine Facility Alternative would result in increased permanent and significant impacts to marine habitat and biota not created by the proposed Project. Therefore, the proposed Project is considered the environmentally superior alternative.

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

In compliance with the California Environmental Quality Act (CEQA), the Los Angeles Department of Water and Power (LADWP) is the lead agency responsible for preparation of this revised Draft Environmental Impact Report (EIR) for the Sylmar Ground Return System (SGRS) Replacement Project (Project or proposed Project). This EIR will inform the public and decision-makers at local, State, and federal permitting agencies of potentially significant environmental impacts associated with the Project and identify means of reducing or eliminating those impacts.

The SGRS Replacement Project was previously considered in a Draft EIR that was released by LADWP for public review on May 15, 2014. Since that time, LADWP has reevaluated the Project based on more refined studies. Based on this reevaluation, the Project has been modified in a substantial manner such that a revised Draft EIR has been prepared by LADWP to consider the potential impacts of the modified Project. This revised Draft EIR is being recirculated to provide a meaningful opportunity for public and agency review and comment on the modified Project. Only comments submitted in response to this revised Draft EIR will be responded to by LADWP.

LADWP is proposing to replace the marine facility of the SGRS with new cables and a new electrode array in a new location in the vicinity of the existing SGRS marine facility in Santa Monica Bay. The existing marine facility would be decommissioned and abandoned in place after the new marine facility is in service. The existing SGRS is the ground return system for the Pacific Direct Current Intertie Transmission Line (PDCI), which transmits bulk direct current (DC) power between Southern California and the Pacific Northwest; the PDCI cannot operate without a functioning ground return system. Due to system deficiencies associated with the marine facility of the existing SGRS (that portion of the electrode system located in Santa Monica Bay), its replacement as described herein is proposed to increase the reliability and stability of the power generation and delivery system for Southern California; to continue to meet current and projected demand for power in the region; and to help increase the available share of renewable resource energy for the PDCI Partners.

1.2 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Under CEQA, as amended (Public Resources Code [PRC] Section 21080(a)), an environmental review document must be prepared, reviewed, and certified by a decision-making body before action is taken on any non-exempt discretionary project proposed to be carried out or approved by a state or local public agency in the state of California.

1.2.1 Purpose of the EIR

This EIR is an informational disclosure document for LADWP, responsible agencies, and other interested parties. The following are included among the stated purposes of an EIR in the CEQA Guidelines:

- Disclose significant environmental impacts that are expected to result from the construction, operation, and maintenance of the proposed Project.
- Indicate ways in which significant impacts can be avoided or mitigated.
- Identify any unavoidable adverse impacts that cannot be mitigated.
- Identify feasible alternatives to the Project that would substantially lessen or eliminate significant adverse impacts.

This revised Draft EIR has been distributed for review by responsible agencies, trustee agencies with resources affected by the Project, and other interested agencies, organizations, and individuals. The City of Los Angeles Board of Water and Power Commissioners (LADWP Board or Board) must consider the conclusions of the Final EIR, which will include this Draft EIR, comments received on this Draft EIR, LADWP responses to those comments, and any changes to this Draft EIR, before certifying the Final EIR and taking action on the proposed Project.

In accordance with CEQA, reviews of the revised Draft EIR should focus on the adequacy of the document in identifying and analyzing the potential environmental impacts, the determination of significance of those impacts, and the effectiveness of mitigation measures.

1.2.2 Terminology Used in this Document

CEQA documents include the use of specific terminology. The following will aid the reader in understanding terminology and language used in this document.

Project: The whole of an action that has the potential to result in a direct or indirect physical change in the environment.

Environment: The baseline physical conditions that exist in the area before commencement of the proposed Project and that would be potentially affected or altered by the proposed Project. The environment is where significant direct or indirect impacts could occur as a result of Project implementation, and it includes such elements as air, biological resources (i.e., flora and fauna), land, ambient noise, water, and objects of aesthetic or cultural significance.

Direct impacts: Impacts that would result in a direct physical change in the environment as a result of Project implementation. Direct impacts would occur at the same time and place as the Project.

Indirect or secondary impacts: Impacts that would result from proposed Project implementation but that may occur later in time or farther removed in distance. For example, population growth or future development that would be induced by the Project and that might in turn create environmental impacts may be considered indirect or secondary impacts of the Project.

Significant impact on the environment: A substantial, or potentially substantial, adverse change in any of the physical conditions in the proposed Project area that is the result of proposed Project implementation. The level of significance of an impact (i.e., significant or less than significant) is determined by measuring the impact in relation to thresholds that have been established under CEQA, other laws or codes, or in accordance with accepted profession standards and practice. An economic or social change may only be considered a significant impact on the environment if it results in a physical change.

Terms used in this document to describe the level of significance of adverse impacts are defined as follows:

- No Impact: An impact to a specific environmental resource would not occur.
- Less than significant: An impact that is adverse but that falls below the defined thresholds of significance and does not require mitigation.
- Significant: An impact that exceeds the defined thresholds of significance. A significant impact would or could potentially cause a substantial adverse change in the environment and would require incorporation of feasible mitigation measures to eliminate the impact or reduce it to less than significant.
- Significant and unavoidable: An impact that cannot be eliminated or lessened to a less-than-significant level even through incorporation of mitigation measures.

Mitigation measures: Project-specific actions that, if adopted, avoid or substantially reduce any of the proposed Project's significant environmental effects. Mitigation measures may:

- avoid an impact altogether;
- minimize an impact by reducing the degree or magnitude of the action and its implications;
- rectify an impact by repairing, rehabilitating, or restoring the affected environment;
- reduce or eliminate an impact over time by preservation and maintenance operations during the life of the Project; or
- compensate for an impact by replacing or providing substitute resources or environments.

Best Management Practices (BMPs): Measures that avoid, minimize, or reduce/eliminate potential impacts. BMPs are distinguished from mitigation measures because they are: 1) existing practices or measures required by law, regulation, or policy; 2) ongoing, regularly occurring practices; and 3) not unique to the proposed Project.

Cumulative impacts: A potential environmental impact from the Project that might be limited and less than significant when viewed individually but may be determined to make a cumulatively considerable contribution to a potentially significant impact that results from the combined effects of the Project and other closely related past, present, and probable future projects.

1.3 PUBLIC REVIEW AND DECISION-MAKING PROCESS

CEQA requires lead agencies to solicit, record, and evaluate feedback from other agencies and the interested public to aid decision-making. Additionally, CEQA requires the Project to be monitored after it has been permitted to ensure that mitigation measures are implemented, as appropriate.

Public and agency participation in the CEQA process for the proposed Project has and will continue to occur through the steps described below.

1.3.1 Notice of Preparation/Initial Study (SCH ID # 2010091044)

In compliance with Section 15082 of the CEQA Guidelines, a Notice of Preparation (NOP) for the Project was issued on September 24, 2010. The notice briefly described the proposed Project, Project location, environmental review process, potential environmental impacts, and opportunities for public involvement.

Copies of the NOP were mailed to the Office of Planning and Research (State Clearinghouse) for issuance to state agencies. It was also mailed to approximately 100 agencies, organizations, local governments, and other parties with potential interest in the Project. The NOP solicited input regarding the scope and content of the environmental issues to be addressed in the Draft EIR.

The public comment period for the NOP began on September 24, 2010, and ended on October 25, 2010. Refer to Chapter 6 for a summary of public meetings that were conducted and scoping comment issues that were raised during the comment period.

1.3.2 Previous Draft EIR Preparation

A previous Draft EIR for the SGRS Replacement Project was released by LADWP for public review on May 15, 2014. The initial closing date for receipt of comments regarding the analysis and findings in the Draft EIR was June 30, 2014 (47 days of review, consistent with the CEQA Guidelines). Subsequent to the release of the Draft EIR, the public review period was extended to September 2, 2014 (an additional 64 days), at the request of certain State agencies, the Los Angeles City Council district within which portions of the proposed Project would be located, and members of the public. Written comments on the Draft EIR were received from a number of agencies, organizations, and individuals during the review period. However, a Final EIR, which would have included formal written responses to the comments received as well as other necessary information, was never produced, and the EIR was not considered for certification by the LADWP Board, nor was the Project, as described in the previous Draft EIR, considered for approval by the Board. Comments received during the review of the previous Draft EIR, although part of the administrative record, do not require a written response in the Final EIR, and new comments must be submitted for this revised Draft EIR.

1.3.3 Revised Draft EIR Preparation/Notice of Completion

A Notice of Completion (NOC) was filed with the State Clearinghouse to initiate the public review period for the revised Draft EIR pursuant to PRC Section 21161.

This revised Draft EIR was distributed directly to agencies and organizations, and made publicly available for review and comment in accordance with Section 15087 and 15088 of the CEQA Guidelines and PRC Section 21092(b)(3). The revised Draft EIR and appendices are available for review at the locations shown in Table 1-1 and online (www.ladwp.com/envnotices).

TABLE 1-1 DOCUMENT REPOSITORY SITES

REPOSITORY SITE	ADDRESS
Los Angeles Department of Water and Power	111 North Hope Street, Room 1044 Los Angeles, CA 90012
Palisades Branch Library	861 Alma Real Drive Pacific Palisades, CA 90272

Interested members of the public are invited to comment on the information presented in this Draft EIR during the 45-day review period. LADWP will only respond to comments submitted in response to this revised Draft EIR.

1.3.4 Preparation and Certification of Final EIR and Mitigation Monitoring and Reporting Program

The Final EIR will include comments received on this revised Draft EIR and responses to those comments raising issues related to the adequacy of the analysis in the Draft EIR, along with any necessary corrections to the Draft EIR. In addition, Section 15097 of the CEQA Guidelines requires that public agencies adopt a program for monitoring mitigation measures that would reduce or eliminate significant impacts on the environment. Accordingly, a Mitigation Monitoring and Reporting Program (MMRP) will be prepared for the proposed Project.

The LADWP Board will consider all comments on the revised Draft EIR and certify the Final EIR before deciding whether or not to approve the Project.

1.4 EIR FORMAT AND CONTENT

1.4.1 Scope of this EIR

The analysis contained in the CEQA Initial Study that accompanied the NOP helped to establish specific issues to be addressed in this Draft EIR. That evaluation focused on the potentially significant impacts involved with the construction and operation of the proposed Project. Based on this evaluation, it was determined that potentially significant effects may occur relative to several environmental factors. The following topics are addressed in detail in Chapter 3 of this Draft EIR:

- Air Quality and Greenhouse Gas Emissions
- Biological Resources
- Cultural Resources
- Noise
- Recreation and Fishing
- Transportation and Traffic
- Water Quality

1.4.2 Required Contents and Organization

CEQA Guidelines require that an EIR contain certain elements of discussion. Table 1-2 identifies each element that must be included in this EIR along with a reference to the corresponding section where the elements are discussed.

TABLE 1-2 REQUIRED EIR DISCUSSION ELEMENTS

SECTION/CHAPTER OF EIR	CEQA REQUIRED ELEMENT (CEQA GUIDELINES SECTION)
Preface	Summary of revisions made to the previously circulated Draft EIR (Section 15088.5(g))
Table of Contents	Table of Contents (Section 15122)
Executive Summary	Summary (Section 15123)
Chapter 1	Advisement that new comments must be submitted for the Revised EIR (15088.5(f)(1)) List of agencies expected to use the EIR List of related review and consultation requirements List of required permits and approvals
Chapter 2	Project Description (Section 15124) Regional map Project objectives Precise location and boundaries of the Project Project's characteristics
Chapter 3	Environmental setting and impacts (Section 15125) Effects found not to be significant (Section 15128) Environmental impact analysis (Section 15126) • Significant environmental effects • Mitigation measures Cumulative Impacts (Section 15130)
Chapter 4	Alternatives to the Proposed Project (Section 15126)
Chapter 5	Other CEQA considerations (Section 15126.2) • Significant environmental effects that cannot be avoided • Growth-inducing impacts
Chapter 6	Coordination and Consultation, List of Preparers (Section 15129)
Chapter 7	Acronyms
Chapter 8	References (Section 15129)

The contents of this Draft EIR are organized in the following manner.

Preface: The Preface to the Draft EIR provides a summary of the previous Draft EIR, a description of the modifications to the proposed Project (as included in the revised Draft EIR), and the purpose of the revised Draft EIR.

Executive Summary: The Executive Summary of the Draft EIR provides the reader a summary of the Project and its implications. The Executive Summary includes a brief description of the Project, a summary of environmental impacts and mitigation measures that would reduce those impacts, and a summary comparison of the Project alternatives.

Chapter 1. Introduction: The Introduction describes the purpose of CEQA and the Draft EIR, common terminology that is used in the Draft EIR, the public review and the decision-making process, and the format and content of the Draft EIR. The introduction also identifies the lead and responsible agencies, discretionary actions required for the Project, and contact persons for the Draft EIR.

Chapter 2. Project Description: This chapter describes location and characteristics of the Project. The objectives to be achieved by the proposed Project are discussed. Construction and operational aspects of the Project and relevant background information are also included.

Chapter 3. Environmental Setting and Impacts: This chapter of the Draft EIR describes the existing environmental conditions in the area that may be affected by construction and operation of the proposed Project. This chapter also includes a discussion of the regulatory framework for each of the environmental resource topics addressed in the EIR. The environmental consequences that would result from the development of the proposed Project are assessed, including short-term impacts during construction and long-term impacts during operations. Any recommended measures to reduce or avoid significant impacts are also presented in this chapter.

Chapter 4. Alternatives: This chapter describes a reasonable range of alternatives to the proposed Project intended to reduce or eliminate identified impacts, including a required No Project Alternative.

Chapter 5. Other CEQA Considerations: This chapter describes the long-term implications of the proposed Project, including significant and unavoidable environmental impacts and growth-inducing impacts of the Project.

Chapter 6. Coordination and Consultation: This chapter summarizes the public and agency outreach efforts related to the CEQA process. It includes lists of organizations, agencies, and persons consulted, as well as a list of preparers of the EIR.

Chapter 7. Acronyms: This chapter lists the acronyms used throughout the Draft EIR.

Chapter 8. References: This chapter lists reference materials used to compile the Draft EIR.

Appendices: The NOP, technical reports and studies, and other relevant information are included as appendices. The appendices are contained in Volumes 2 and 3 of the Draft EIR.

1.5 AUTHORIZATIONS, PERMITS AND APPROVALS

The LADWP Board has the primary governmental authority for the approval of the proposed Project. As such, LADWP is the lead agency responsible for preparation of the EIR to assess and disclose the environmental consequences associated with Project implementation. Additional discretionary actions will also be required and are listed in Table 1-3 below.

The proposed Project is located in the community of Pacific Palisades within the City of Los Angeles. The onshore facilities would be located within the Coastal Zone, under shared permitting jurisdiction between the California Coastal Commission and the City of Los Angeles. The electrode cables would be installed within existing conduit under Will Rogers State Beach, which is under jurisdiction of the California Department of Parks and Recreation and managed by the County of Los Angeles Department of Beaches and Harbor. In addition, construction and operation of the marine portion of the Project is subject to the jurisdiction of the California Coastal Commission; California State Lands Commission; Los Angeles Regional Water Quality Control Board (which also has jurisdiction over land-side portions of the Project); and the U.S. Army Corps of Engineers.

Table 1-3 provides a list of the anticipated federal, State, and local permits and approvals that would be required for the proposed Project, and the agencies that are anticipated to rely on the EIR. Other relevant laws, regulations, plans, and policies applicable to the proposed Project are summarized in the resource- and issue-specific sections in Chapter 3.

TABLE 1-3 AUTHORIZATIONS, PERMITS, AND APPROVALS

ACCEPTING AUTHORITY/ APPROVING AGENCY	PERMIT/APPROVAL	TRIGGERING ACTION	STATUTORY REFERENCE
Federal			
U.S. Army Corps of Engineers	Department of the Army Permit	Discharge of dredge or fill materials into Waters of the United States	Federal Clean Water Act, Section 404, and Rivers and Harbors Act of 1899, Section 10
State of California			
State Lands Commission	Application to Amend Existing Lease/New Lease Agreement	Proposed construction, operation, and maintenance of facilities on submerged lands within Santa Monica Bay	California Public Resources Code Section 6301
California Coastal Commission	Coastal Development Permit	Proposed development (Project facilities) within the Coastal Zone	California Coastal Act of 1976
State Water Resources Control Board – Los Angeles Regional Water Quality Control Board	Water Quality Certification	Application for a federal permit (Department of the Army Permit) that may result in discharge into jurisdictional waters	Federal Clean Water Act, Section 401
Other			
Various Local Jurisdictions	Oversized load permit authorizations	Transport of oversized roads on public streets	N/A

1.6 CONTACT PERSON

The primary contact person for this Draft EIR is Nancy Chung. Ms. Chung can be reached at:

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LADWP, Environmental Services
111 North Hope Street, Room 1044
Los Angeles, California 90012
SylmarGround ReturnProject@ladwp.com

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CHAPTER 2: PROJECT DESCRIPTION

2.1 INTRODUCTION

The Los Angeles Department of Water and Power (LADWP) is proposing to replace the existing cables and electrode array of the marine facility of the Sylmar Ground Return System (SGRS). The replacement facility will be located in the vicinity of the existing SGRS marine facility in Santa Monica Bay. The existing marine facility would be decommissioned and abandoned in place after the replacement marine facility was placed in service. The Project is known as the Sylmar Ground Return System Replacement Project (Project or proposed Project). Refer to Figure 2-1 for the regional location of the Project.

The SGRS is an integral component of the Pacific Direct Current Intertie (PDCI) transmission system, which transmits bulk electrical power between Southern California and the Pacific Northwest. The PDCI is a bipolar direct current (DC) transmission line, and it cannot operate reliably without a functioning ground return system. The SGRS functions as a safeguard to allow the PDCI to remain operational for a period of time when a fault occurs on the transmission line, thus preventing a complete outage of the line. The existing SGRS runs from the Sylmar Converter Station in the San Fernando Valley in Los Angeles, California, into the Santa Monica Bay and terminates on the ocean floor approximately one mile offshore from the Pacific Palisades community of Los Angeles.

The existing SGRS consists of an overhead segment, an underground segment, and the marine facility. The existing overhead segment, which travels from the Sylmar Converter Station to the Kenter Canyon Terminal Tower in the Los Angeles community of Brentwood, has been determined to be adequate to support the continued reliable operation of the PDCI. With a maintenance retrofit consisting of the installation of new cable spans within existing conduits, the underground segment, which travels from the Kenter Canyon Terminal Tower (in the Brentwood Community of Los Angeles) to the Gladstone Vault in Pacific Palisades (at Pacific Coast Highway [PCH] and Sunset Boulevard), has also been determined to be adequate to support the continued operation of the PDCI.

However, the marine facility, which consists of buried cables and an electrode array located on the ocean floor in Santa Monica Bay, requires replacement because of physical and operational deficiencies. The SGRS was placed into service in 1970, and the marine facility, which had a projected life of approximately 40 years, has deteriorated due to the long-term corrosive effects related to system operation and the ocean environment. The existing facility also limits the flexibility of system operators to respond to and resolve disruptions on the PDCI. Replacing the existing SGRS marine facility is required to provide for the continued reliable operation of the PDCI.

The existing SGRS marine facility includes two bundled cable sets extending southerly about one mile offshore from the Gladstone Vault and connecting to 24 concrete vaults set on the ocean floor. At completion of the proposed Project, the existing facility would be decommissioned and abandoned in place, including the cables and the electrode vaults.

The proposed marine facility, as evaluated herein, would begin at the existing Gladstone Vault, which is located in a parking lot along the south side of Pacific Coast Highway (PCH) near its intersection with Sunset Boulevard. From there, two bundled cables sets would extend under the ocean floor for approximately two miles, south-southwest from the Gladstone Vault. The electrode array would be located at the termini of the bundled cables. It would consist of 36 concrete vaults (approximately 20 feet long by eight feet wide by four feet high) arranged in two rows of 18 vaults set directly on the ocean floor. The cables would divide and be connected to silicon iron alloy electrode rods inside the vaults.

2.2 DESCRIPTION OF THE EXISTING FACILITIES

2.2.1 Pacific Direct Current Intertie Transmission Line

The PDCI is a high voltage bipolar DC transmission line that extends approximately 850 miles from the Celilo Converter Station near The Dalles, Oregon, to the Sylmar Converter Station in the San Fernando Valley in Los Angeles, California. The PDCI is used to transfer large amounts of electrical energy generated primarily from hydroelectric facilities and wind energy facilities in the Northwest to the grid in the Southern California region. It has a capacity of 3,100 megawatts (MW), which is enough power to serve about three million households. The PDCI also transmits energy from south to north during seasonal variations in load and resource conditions, but energy primarily flows from north to south.

The line's capacity is shared among the PDCI partners, which, in addition to LADWP, include Southern California Edison (SCE), and the cities of Burbank, Glendale, and Pasadena. LADWP owns a 40 percent share of the PDCI, or about 1,240 MW, which represents approximately 20 percent of the peak demand for electrical energy in the LADWP service area. SCE owns a 50 percent share, or about 1,550 MW, which represents approximately 6.5 percent of peak demand in the SCE service area (which is substantially larger than LADWP's service area). Burbank, Glendale, and Pasadena share the remaining 10 percent (about 310 MW). LADWP operates the portion of the PDCI that is located south of the Oregon border, and the Bonneville Power Administration owns and operates the system in Oregon.

The PDCI was originally energized in 1970 at a voltage of 400 kilovolts (kV) with a capacity of 1,440 MW. Numerous upgrades were completed in the subsequent two decades to allow for additional capacity on the line. These upgrades increased the voltage to 500 kV and the capacity to 3,100 MW, which is the current rating of the PDCI.

2.2.2 Existing Sylmar Ground Return System

SGRS Segments

The existing SGRS is approximately 31 miles long and is made up of three segments: a 22.5-mile overhead segment, a 7.5-mile underground segment, and a one-mile marine segment terminating at an electrode array in Santa Monica Bay. Figure 2-2 illustrates the location of the existing SGRS.

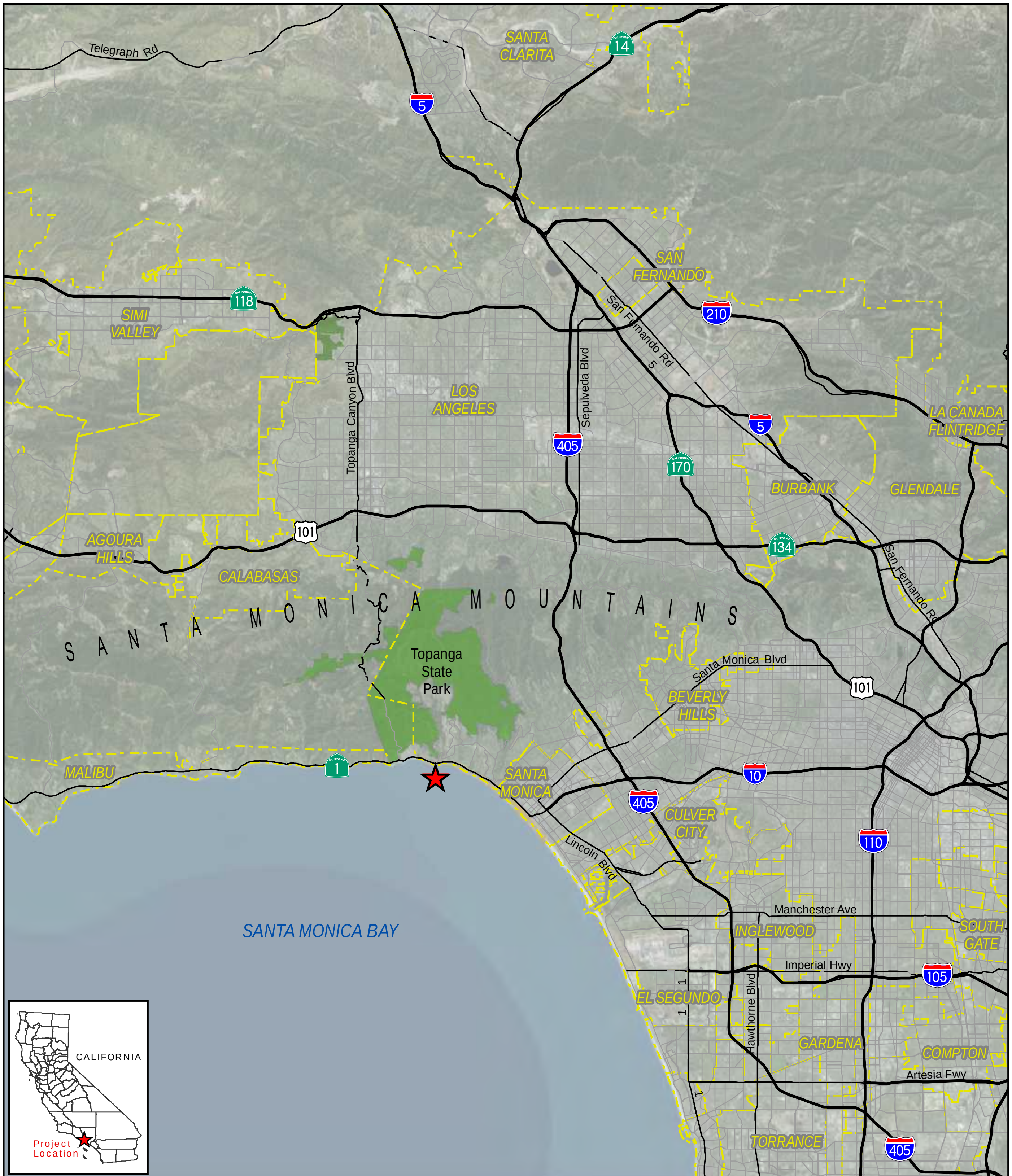
Existing Overhead Segment

The overhead segment of the existing SGRS is composed of two single-conductor wires that connect the Sylmar Converter Station to the Kenter Canyon Terminal Tower in the Brentwood community of Los Angeles. It is strung on the steel lattice towers of various existing high-voltage transmission lines and traverses the Los Angeles communities of Sylmar, Granada Hills, Northridge, Reseda, Tarzana, Encino, and Brentwood, as well as lands administered by the Santa Monica Mountains Conservancy.

The overhead segment of the SGRS would not be replaced as part of the proposed Project because it has been determined that it is adequate to support the continued reliable operation of the PDCI. (This represents a reduction in scope for the proposed Project as previously described in the Notice of Preparation [NOP] for the Environmental Impact Report [EIR] for the Project.)

Existing Underground Segment

The underground segment of the existing SGRS is made up of two single-conductor cables installed below streets and other property in the communities of Brentwood and Pacific Palisades of Los Angeles, from the Kenter Canyon Terminal Tower to the Gladstone Vault. The cables are installed in concrete-encased conduits, with subsurface vaults located in city streets along the alignment. The vaults are accessed via surface manholes for cable maintenance and repair.



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★ Project Location

0 1 2 3 4 5 Miles

FIGURE 2-1
REGIONAL LOCATION

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LA DWP

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Existing Overhead Alignment
Existing Underground Alignment
Existing Marine Alignment

Miles
0 1 2 3

FIGURE 2-2
EXISTING SYLMAR GROUND RETURN SYSTEM

SYLMAR GROUND RETURN SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS
LA DWP

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The underground segment of the SGRS would not be replaced as part of the proposed Project because it has been determined that, with maintenance improvements, it is adequate to support the continued reliable operation of the PDCI. (This represents a reduction in scope for the proposed Project as described in the NOP and in the previously circulated Draft EIR for the Project.)

Existing Marine Facility

The marine facility of the existing SGRS starts at the Gladstone Vault, located in a parking lot along the south side of PCH near its intersection with Sunset Boulevard. This vault is approximately 20 feet by 10 feet by eight feet high. The surface elevation above the vault is about 25 feet above mean sea level, and the vault is installed five feet below grade. From this vault, two submarine cables, referred to as the Santa Monica and Malibu cables, extend underground and under the ocean floor to connect to the electrode array, which is located about one mile offshore, south of the vault. The marine facility is operated under a lease permit from the California State Lands Commission, which has jurisdiction over the tidelands and submerged lands of Santa Monica Bay.

From the Gladstone Vault to a point approximately 1,200 feet offshore, the SGRS cables are installed in two separate bundles in separate four-inch underground conduits. A third conduit is also present, but it remains vacant as a potential spare for future use. Each cable bundle within the conduits consists of three-conductor cables, which are insulated with polyethylene and encased in a common polyvinyl chloride jacket.

From the end of the conduit to approximately one mile offshore, the two cable bundles each consist of three conductor cables that are insulated with high-density polyethylene (HDPE) and encased in a common HDPE jacket. The Santa Monica cable was buried approximately three feet below the ocean floor during installation. The Malibu cable was laid on the ocean floor, although it is now essentially buried below the surface as a result of currents and shifting sediments.

At the termini of the bundled cable sets, approximately one mile offshore, each of the six conductors (three from each cable bundle) divides into four conductors for a total of 24 conductors, which connect to the same number of concrete vaults, each of which contains two silicon iron alloy electrode rods. Each vault is seven feet wide, 11 feet long, and six feet high; the vaults are placed from about 10 to 23 feet apart. The total length of the electrode array, including the spacing between vaults, is approximately 550 feet. The array is located directly on the ocean floor, approximately 50 feet below mean sea level.

System Function

The purpose of the SGRS is to carry electrical current away from the Sylmar Converter Station during a disruption on the PDCI that prevents the normal transmission of the energy on one pole of the bipolar DC system. Because such events are generally rare, the vast majority of the time, there is little or no electrical current being transmitted on the SGRS. Utilization of the SGRS allows for the continued operation of the PDCI during short-term system anomalies, allowing time to resolve issues or provide alternative generation sources to temporarily meet demand, if necessary.

In the SGRS, the sea and earth are used as the return path for electrical current that under normal conditions would be carried on the overhead transmission conductors of the PDCI system between Sylmar and Celilo. Because of the low resistivity of the ocean and earth, the current released from the SGSR electrode array during an operational event follows the path of least resistance through the water and the earth, returning back to its source, the Celilo Converter Station in Oregon.

However, the electrical current released to the earth from high-voltage DC ground return systems can result in electrochemical corrosion of buried metallic objects, especially pipelines (such as water, petroleum, or gas transmission lines), if an appropriate separation distance is not provided between the ground electrode and the objects. This corrosion can damage infrastructure, which can be costly, disruptive to services, and may result in environmental impacts. The location of the existing electrode array at one mile offshore was based on the distance required to minimize such corrosive effects to onshore underground infrastructure caused by operational events at the maximum 1,800-amp electrical current of the SGRS when it was placed into service in 1970.

Based on this location and electrical current, the SGRS, when initially installed, was able to operate at maximum current (1,800 amps) for 30 minutes to provide operators time to resolve disruptions that might occur on the PDCI. However, increases in capacity of the PDCI during its first two decades of operation resulted in a modification to the operational parameters for the SGRS based on the rating of the equipment. To compensate for the increase in power and amperage that occurred on the PDCI since it was first placed into service, the operating time at maximum current (now 3,100 amps) was decreased to 20 minutes, followed by a 10 minute ramp down to 1,460 amps, and operation at 1,460 amps for up to an additional two hours. This reduction in the operating time of the SGRS also served to minimize the corrosive effects associated with the electrode operation even though its maximum amperage had increased from 1,800 amps to 3,100 amps.

To support the operation of the PDCI by responding to line faults, the existing SGRS is typically operated less than a total of five hours per year, consisting of a number of shorter discrete events. Between 2008 and 2014, the system operated an average of about 5.25 hours per year, with total operating time ranging between 40 minutes and 10.5 hours annually during this time. The number of discrete events each year ranged from a low of three and to a high of eleven, with the average length of an event within a given year ranging from about 13 minutes to over 1.5 hours.

System Deficiencies

In order to maintain the reliability of the SGRS, the overhead, underground, and marine segments were reviewed to determine system adequacy. As discussed above, the overhead segment was found to be adequate to support the continued reliable operation of the PDCI, and with a maintenance retrofit consisting of the installation of new cables within existing conduit, the underground segment is also adequate to support the continued reliable operation of the PDCI.

Several visual inspections of the marine facility were conducted by divers since 2005 to evaluate the physical condition of the system, and it was found to have substantial physical deficiencies. Seawater has penetrated the conductors, leading to deterioration of the cables. Wave action over time has caused metal fatigue of the connecting wires on the electrode elements, resulting in breaks at the point of attachment between the marine electrode cables and the electrode array vaults. In addition, the silicon iron alloy electrode rods located in the vaults have significantly corroded from the cumulative effect of electrical discharges over the operating life of the electrode.

Furthermore, as noted above, the operational parameters of the SGRS have been modified over time related to past increases in the capacity of the PDCI; this has substantially limited the flexibility of operators to respond when a fault occurs on the PDCI. As such, there is a need to restore the SGRS operational parameters, which would allow for longer operation at maximum current (30 minutes versus the existing 20 minutes) and for higher current levels after the initial ramp down from maximum current. Based on the physical deterioration of the existing system and the need to restore operational capability, it was determined that the marine facility of the existing SGRS required replacement to avoid failures of the system in the future and to provide operational flexibility.

2.3 PROJECT OBJECTIVES

As discussed above, the purpose of the proposed Project is to replace the existing SGRS marine facility to ensure the continued reliable operation of the PDCI. The Project objectives related to this purpose are to:

- increase the reliability and stability of the power generation and delivery system for Southern California;
- continue to meet current and projected demand for power in the region; and
- help increase the available share of renewable resource energy for the PDCI partners.

2.3.1 Increase Reliability and Stability

As described above, the PDCI has a capacity of 3,100 MW, which is enough power to serve about three million Southern California households. Based on their allocation of the line's capacity, the PDCI provides approximately 20 percent of LADWP's peak demand for electrical energy, approximately 6.5 percent of SCE's peak demand, and a major portion of peak demand for the cities of Glendale, Burbank, and Pasadena. Because the PDCI provides for a very large proportion of the demand for electricity in Southern California, its continued dependable operation is critical to the reliability and stability of the entire regional power generation and delivery system. The replacement of the SGRS marine facility is necessary to maintain and improve the dependable operation of the PDCI, and as such, increase the reliability and stability of the power generation and delivery system for Southern California.

Because existing technologies do not allow for mass storage of electrical energy, a primary characteristic of the electrical power system is that the total aggregate demand for power and the amount of power supplied within an area of control must be equalized on an instantaneous and continuous basis. Potential unplanned outages on the PDCI, if not properly managed, could result in large rapid shifts in energy supply. Such outages have the potential to create disruptions in the form of localized brownouts or blackouts or widespread power system failures. The SGRS plays a critical role in the reliability and functionality of the PDCI by allowing for the dispersion of electrical current during disturbances or faults on a single pole of the bipolar transmission line and maintaining a return path for the current. Use of the SGRS prevents damage to the PDCI system by carrying power away from the system during such incidents. This allows for continued operation of the PDCI at full capacity during short-term disruptions, providing time to resolve system issues or provide alternative energy sources to temporarily meet demand, if necessary.

Without the proposed Project, the ability to continue operation of the PDCI during short-term disruptions would be severely reduced or infeasible, increasing the likelihood of a complete outage and system-wide failures. Therefore, replacement of the SGRS marine facility is essential for maintaining and improving the dependable operation of the PDCI, which is critical to increasing the reliability and stability of the power generation and delivery system in Southern California.

2.3.2 Continue to Meet Current and Projected Demand for Power

As municipal utilities, LADWP and the water and power departments of the Cities of Glendale, Burbank, and Pasadena are obligated to provide a reliable supply of power to meet the current and projected energy needs of their respective cities. Under the regulatory authority of the California Public Utilities Commission, SCE is obligated to provide power to a service area that includes parts of 11 counties, 180 cities, and a population of 14 million.

In spite of a significant increase in new accounts, overall electrical energy consumption in the LADWP service area has remained relatively stable during the first decade of the twenty-first century, due primarily to aggressive energy conservation programs. With the continuation of planned conservation programs, this general pattern of energy use in Los Angeles is projected to remain relatively constant over the next two decades. This generally flat projection in consumption reflects what is expected to be a relatively stable population base as well as substantial increases in energy efficiency programs.

However, relatively small increases in consumption are nonetheless expected in spite of energy conservation efforts because of an anticipated increase in the electrification of numerous functions that currently utilize a power source other than electricity. Electrification, whether prompted by legislative mandates, incentive programs, or voluntary efforts, is intended to reduce the production of greenhouse gases and air pollutant emissions, primarily by modifying various forms of transportation, including the greater use of electric vehicles, the expansion of light rail systems, and the electrification of the Port of Los Angeles.

Similar patterns of energy use (i.e., relatively stable but somewhat increased demand generated by increased electrification and new development, offset by increased conservation and energy efficiency) are anticipated in the SCE, Burbank, Glendale, and Pasadena service areas. By supplying 3,100 MW of capacity, the PDCI plays a critical role in the provision of energy to the areas of Southern California served by the PDCI partner utilities.

The loss of the PDCI cannot feasibly be compensated for through additional conservation or through other sources of generation, especially given the legislatively mandated elimination of coal-fired power generation for California utilities over the next decade and the unexpected retirement of the San Onofre Nuclear Generating Station, which provided approximately 2,200 MW of capacity for Southern California. Because the replacement of the marine facility of the SGRS is essential to maintain and improve the continued dependable operation of the PDCI, the Project is critical to meeting the current and projected demand for power in the Southern California region.

2.3.3 Help Increase the Available Share of Renewable Resource Energy

Senate Bill (SB) X1-2 was signed into law in April 2011, establishing a minimum level of 33 percent of annual electrical energy retail sales by California utilities that must be generated from eligible renewable resources by the end of 2020. SB X1-2 also requires that utilities maintain 20 percent of sales from renewable resources through the year 2013 and established an interim goal of 25 percent of sales from renewable resources by the end of 2016. The bill also requires that once utilities achieve 33 percent of energy sales generated from renewable resources in 2020, that level must be maintained in succeeding years, taking into account such factors as growth in demand for energy and replacement of existing renewable energy generation that is lost as the production capacity of aging facilities diminishes. In late 2015, California enacted SB 350, which established an increased goal of 50 percent of electrical energy retail sales from renewable resources by 2030. In accordance with State law, eligible renewable resource energy includes, but is not limited to, that generated from wind, solar, small hydroelectric (30 MW or less), geothermal, and biomass sources.

The PDCI provides Southern California access to energy generated in the Pacific Northwest. While a majority of the energy historically supplied by the PDCI to Southern California has been generated by hydroelectric facilities on the Columbia River, the Columbia River Gorge is also recognized as a world class wind resource. The development of numerous wind generation projects is ongoing in the region, and it is anticipated that wind-generated energy carried on the PDCI will play an increasingly important role in fulfilling the requirement for renewable energy in the Southern California region. The replacement of the marine facility of the SGRS is essential to maintaining and improving the continued dependable operation of the PDCI and ensuring access to the available share of renewable energy resources from the Pacific Northwest.

2.4 DESCRIPTION OF THE PROPOSED PROJECT

2.4.1 Project Location

The proposed Project, consisting of replacement of the marine facility of the existing SGRS, would be located primarily in Santa Monica Bay but would also include a small landside portion located in an existing parking lot on the south side of PCH at Sunset Boulevard, where the existing Gladstone Vault is located. The Gladstone Vault is the termination point of the existing underground segment of the SGRS. The proposed SGRS marine cables would extend from the Gladstone Vault beneath Will Rogers State Beach and under the ocean floor to the proposed electrode array located in the Santa Monica Bay approximately two miles offshore. As mentioned above, the marine facility is operated under a lease permit from the California State Lands Commission, which has jurisdiction over the tidelands and submerged lands of Santa Monica Bay.

2.4.2 Existing Setting

Santa Monica Bay is a bight of the Pacific Ocean that is bordered on the north by rocky headlands at Point Dume and on the south by the headlands on the Palos Verdes Peninsula. A land area of over 400 square miles drains naturally into the bay. The bay extends seaward a distance of approximately 11 miles from the Santa Monica shoreline. Water depths within the Bay range up to approximately 300 feet along the nearshore continental shelf that extends from the shoreline to an offshore distance of approximately four miles. As the continental shelf ends and becomes the continental slope and eventually the Santa Monica Basin, water depths within the Bay increase to over 2,500 feet.

Sandy beaches are the predominant habitat along the shoreline of the bay, but rocky intertidal areas exist along about 30 percent of the shoreline, concentrated mainly in the Malibu and Palos Verdes area. The seafloor of the bay is predominantly unconsolidated, soft sediment consisting of sand, silt, and clay. Kelp forests, which are associated with hard substrate habitats, are relatively scarce, again located primarily in the Malibu and Palos Verdes areas. Several artificial reefs, including one offshore of Marina del Rey and two offshore of Pacific Palisades, about 1.5 miles southwest of the Gladstone Vault, are also present in the bay. Open water forms the pelagic habitat, which is the largest habitat in the bay and supports nearly all of its marine life.

Santa Monica Bay is surrounded by the Los Angeles-Long Beach-Anaheim Metropolitan Statistical Area (MSA), which is the second largest MSA by population in the United States, with a population of over 13 million. While other coastal areas within the MSA also provide recreation access, Santa Monica Bay, with over 50 miles of coastline, is a major destination for recreation activities. The various beaches surrounding the Bay fall under the jurisdiction of numerous cities as well as the County of Los Angeles and the State of California. The beach in the vicinity of the proposed Project (Will Rogers State Beach) is owned by the State but operated by the Los Angeles County Department of Beaches and Harbors.

Numerous piers, including Malibu Pier, Santa Monica Pier, Venice Pier, Manhattan Beach Pier, Hermosa Beach Pier, and Redondo Beach Pier, are located on Santa Monica Bay and provide for fishing, dining, shopping, and amusement activities. Two major marinas, Marina del Rey and King Harbor, provide slips for approximately 7,000 small craft.

Recreation activities in the bay include beach-going, biking, swimming, surfing, scuba diving, kayaking, recreational boating, and sport fishing (most commercial fishing activities are banned in Santa Monica Bay). Similar recreation activities are pursued in the general vicinity surrounding the Project site. However, the closest pier (Santa Monica Pier) is about four miles south, and the closest marina (Marina del Rey) is about seven miles south. There is no bike path provided along the beach adjacent to the Project site, and no striped bike lane is provided on PCH.

A large public parking lot extending about 1.25 miles along the south (seaward) side of PCH begins about 0.5 mile east of the Project site. At the Project site, a smaller paved parking lot for about 200 vehicles is located on the south side of PCH. This lot provides parking for the beach and the adjacent Gladstones Restaurant. Although the lot includes approximately 200 marked stalls, since it is accessible by means of paid valet service only, it can accommodate additional vehicles if stack parking is utilized. Some public parking is also available along the south side of PCH to the east of Sunset Boulevard, and limited additional off-highway parking is located to the west of Sunset.

The parking lot is the location for the Gladstone Vault, where the proposed Project cable installation would commence on land. The site was an open sandy beach until the late 1950s or early 1960s, when the parking lot was built. To broaden the site seaward to provide a larger area for parking and to protect the parking lot from the surf, a rock revetment was constructed extending into the surf zone. The area behind the revetment was backfilled with structural material to provide a stable base for the parking lot. Although the rock revetment and the parking lot removed much of the former beach, a narrow strip of sand below the revetment is revealed at low tide. This narrow beachfront condition extends about 0.3 mile along the coast east of the parking lot. The beach in front of Gladstones Restaurant, to the west of the parking lot, widens considerably (to over 100 feet).

PCH in the vicinity of the Project site is a heavily traveled four-lane highway that also includes turning and acceleration lanes at its intersection with Sunset Boulevard, a heavily traveled arterial roadway that terminates at PCH. Sunset Boulevard consists of four lanes leading to and from PCH, but also includes additional right- and left-turn lanes at the intersection. There are marked pedestrian crosswalks on the west side of the intersection across PCH and on the north side of the intersection across Sunset Boulevard. Sunset Boulevard has sidewalks on both sides; PCH has sidewalks on the northern (landward) side only. There is, however, a pedestrian walkway along the ocean edge of the Gladstones parking lot, at the top of the rock revetment.

On the northern side of PCH, the area surrounding the intersection consists of commercial development, including office and retail space and two gas stations. On the bluffs behind the commercial development are single-family detached residences and high-rise condominiums. The nearest residences are located about 500 feet from the Gladstone Vault.

In the bay, the area surrounding the proposed marine cable alignment consists primarily of a gently sloping (about one percent) sandy bottom with no significant seafloor features with the notable exception of rock outcroppings along the shoreline extending as far as about 3,000 feet in some locations offshore of the Gladstone Vault. The existing marine facility cabling proceeds from the Gladstone Vault through existing conduit, which is installed beneath the rock outcroppings and the ocean floor to a location about 1,200 feet offshore south-southwest of the vault. From this point, the cable is buried beneath the sandy bottom to the existing electrode array, which is located about one mile south offshore of the Gladstone Vault.

2.4.3 Project Components

As mentioned above, the proposed marine facility would originate at the existing Gladstone Vault. Utilizing the existing conduit, the marine cables would extend from the vault under the parking lot and Will Rodgers State Beach and continue under the ocean floor to a location approximately 1,200 feet offshore in Santa Monica Bay. From there, the marine cables would be installed within plowed furrows several feet below the ocean floor, extending to the proposed electrode array, which would be located approximately two miles south-southwest from shore on the surface of the ocean floor at a depth of about 100 feet below mean sea level (see Figure 2-3, Proposed and Existing Marine Facility Location).

Proposed Marine Cables
Existing Marine Cables
Existing Conduit

Feet
0 2,500

FIGURE 2-3
PROPOSED AND EXISTING
MARINE FACILITY LOCATION

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LA DWP

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Gladstone Vault

The existing Gladstone Vault is located under the valet-only parking lot serving Gladstones Malibu Restaurant and Will Rodgers State Beach, along the south side of PCH near its intersection with Sunset Boulevard. The vault is 20 feet long, nine feet wide, and eight feet tall and is accessed by a manhole within an unpaved area between the parking lot and PCH. The surface elevation above the vault is about 25 feet above mean sea level, and the vault is installed about five feet below grade. The vault would serve as the transition between the existing SGRS underground segment and proposed marine facility and would provide access for maintenance, repair, and testing of the ground return system. The proposed marine cables would be pulled directly into the vault through the existing conduit.

Marine Cables

From the Gladstone Vault, six marine cables would extend to a new location in the Santa Monica Bay approximately two miles offshore. As mentioned above, the conduit already in place for the existing SGRS would be utilized for the initial segment of the proposed marine cables from the Gladstone Vault to provide a pathway beneath the parking lot, the beach, and the ocean floor to a location approximately 1,200 feet offshore. Two of the three existing conduits (an existing spare conduit and one of the conduits currently housing the existing marine cables) would be utilized. Each conduit would contain a bundled set of three cables.

From the offshore termination point of the conduit, the cables would be installed several feet beneath the ocean floor by means of a water-jet plow to the site of the proposed electrode array, approximately two miles offshore. This would entail two parallel furrows, approximately 20 feet apart, each containing a 3.2-inch diameter bundled set of three cables encased in a common HDPE jacket.

Electrode Array

The electrode array would be located about two miles offshore on the ocean floor at a depth of approximately 100 feet below mean sea level. Based on a preliminary design, the array would be composed of 36 concrete vaults, arranged in two rows of 18 vaults, with each vault and row spaced approximately 30 feet apart (see Figure 2-4). The vaults would rest directly on the ocean floor.

Each vault would be 20 feet long, eight feet wide, and four feet high and would weigh about 20 tons. The vaults would consist of a fiberglass reinforced concrete floor and ceiling. Other than concrete pillars supporting the ceiling, the sides would be open but covered with a Kevlar mesh, which would have a maximum one-inch exclusion size. Each vault would house four silicon iron electrode rod elements suspended from the ceiling with metal brackets. Assuming the vaults were oriented perpendicular to the rows (as configured in the preliminary design), the outside dimensions of the array would be about 650 feet long by 70 feet wide. The actual area of the ocean floor covered by the vaults would be 5,760 square feet. At the electrode array site, the six marine cables (three from each bundled set) would each divide into six smaller cables. Each of these six smaller cables (36 total) would lead to one of the 36 vaults. Within the vaults, these cables would subsequently divide into four cables to connect to each of the electrode rods elements.

2.4.4 Project Siting

The siting of the proposed SGRS marine facility was based on several considerations, including maximizing the use of existing facilities, avoiding sensitive marine environments, and providing a sufficient distance from shore to achieve the required system operational capability while also reducing corrosive effects to onshore infrastructure (see Figure 2-5). Based on the proposed cable alignment, a preliminary 1,400-foot wide study corridor was designated and surveyed to ascertain resource conditions and potential constructability issues.

As discussed above, the Gladstone Vault is the terminus of the existing underground segment of the SGRS and the origination point of the existing marine cables. Because the proposed marine cables would connect to the existing underground segment, the Gladstone Vault would also be the landside origination point for the proposed cables. The route of the proposed cables from the vault into Santa Monica Bay was determined by several factors. The route proceeds south-southwest from the Gladstone Vault, following the direction established by the existing conduit as it exits the vault and continues approximately 1,200 feet offshore. This existing conduit would be utilized to install the initial segment of the new marine cable from the Gladstone Vault underneath nearshore rock outcroppings to reach soft-bottom conditions.

In addition, based on bathymetric and sea floor feature surveys conducted of the Project route, the preliminary centerline of the proposed cable corridor (as established by the direction of the existing conduit) passes just north of a relatively large rock outcropping, which is located about 1,800 feet offshore of the Gladstone Vault. The avoidance of such hard substrate areas was a siting criteria for the Project facilities based on minimizing impacts to potentially sensitive marine habitat and on facilitating the installation of the buried cables, which generally requires a soft-bottom condition. The width (approximately 1,400 feet) and bearing (south-southwest) of the survey corridor for the Project provides sufficient flexibility to route the proposed cables within soft-bottom areas and completely avoid this rock outcropping. A more southerly bearing for the corridor may not provide similar flexibility.

The study corridor survey elements included bathymetric and seafloor features, side-scan sonar, and geotechnical conditions. In addition, water and sediment sampling and dive surveys were conducted to assess biological resources, water quality, and sediment quality along the proposed route, including at a location approximately two miles offshore, in the vicinity of the proposed electrode array. The surveys also included two passes generally along the corridor centerline by a remotely operated underwater vehicle. The results of these various surveys established that the corridor consists of a gently sloping (about one percent) sandy bottom with no significant seafloor features (other than the aforementioned rock outcroppings) or significant biological or cultural resources. It is intended that the proposed cables would generally follow the centerline of the survey corridor. However, the 1,400-foot width of the corridor would provide the necessary flexibility to align the cables to avoid any sensitive resources, such as the offshore rock outcropping mentioned above.

The electrode array was then sited within the corridor established by the cable route at the necessary distance from shore to restore the operational capability of the SGRS and reduce corrosive effects to onshore infrastructure. As mentioned above in the description of the existing facility, the electrode array was placed into service in 1970. At that time, the PDCI had a transmission rating of 1,440 MW, with a voltage of 400 kV and a maximum current of 1,800 amps. In the first two decades of operation, the PDCI was upgraded several times. In 1982, the capacity was raised to 1,600 MW. In 1984, the voltage was increased to 500 kV, and the capacity was increased to 2,000 MW. In 1989, the capacity was again increased to 3,100 MW, which is the existing capacity, with a maximum current of 3,100 amps.

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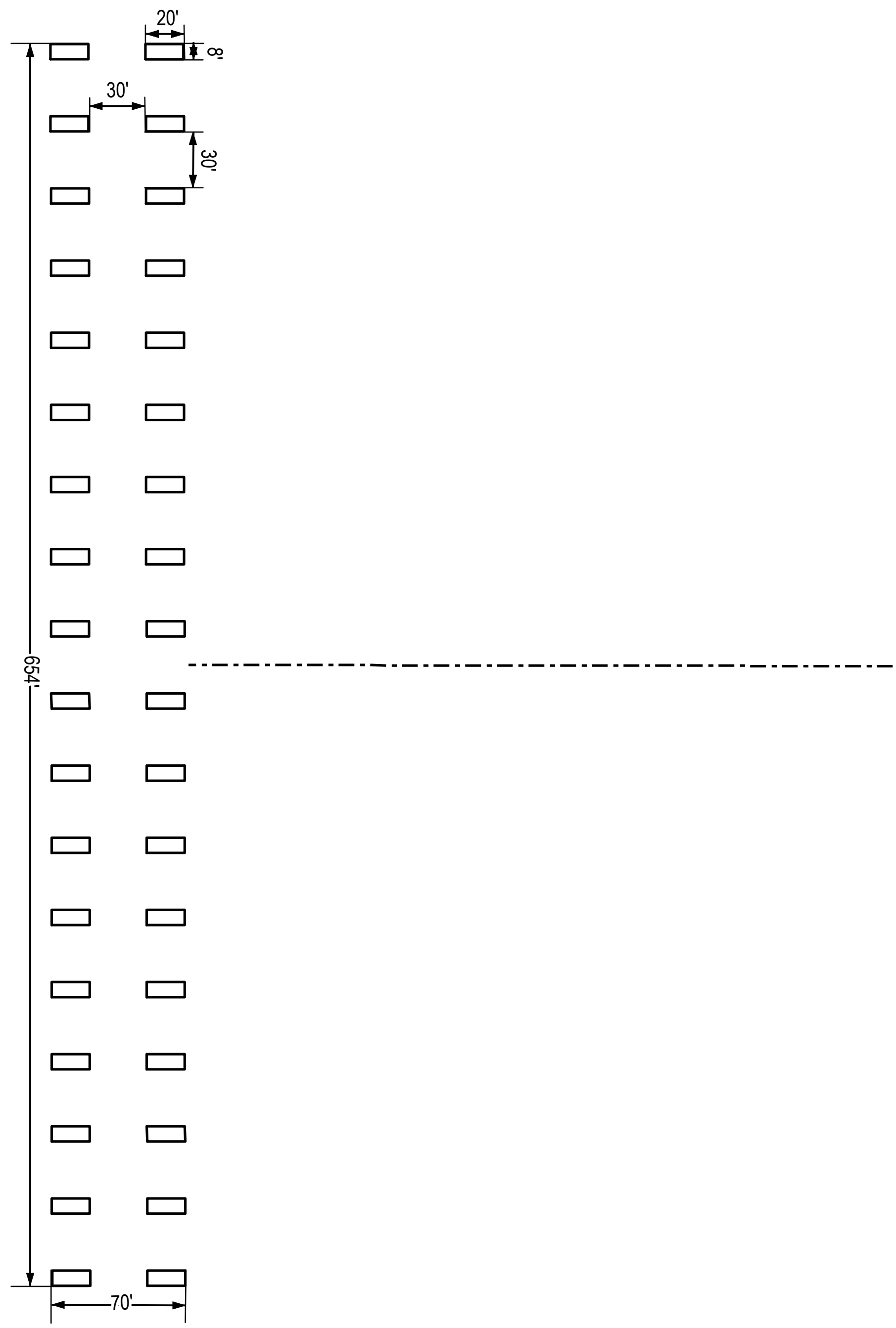

Centerline of Proposed Marine Cable Corridor

Vault

FIGURE 2-4
PROPOSED ELECTRODE ARRAY
CONCEPTUAL LAYOUT

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LA DWP

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Proposed Marine Cables

Existing Conduit

Area of Rock Outcropping

Canopy Kelp

2-Mile Radius of Electrode Array

Feet

0 3,000

FIGURE 2-5
PROJECT SITING

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LA DWP

Source: NOAA, "Areas Designated as Habitat Areas of Particular Concern (HAPC) for Amendment 19 (Essential Fish Habitat) to the Pacific Coast Groundfish Fishery Management Plan," 2005.
Fugro, Geophysical Suvey Report, LADWP CAT2010, 2012.

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As discussed above, electrical current is released from the SGRS electrode array during an operational event related to a fault on one pole of the PDCI. This release can result in electrochemical corrosion of buried metallic objects, especially pipelines, if an appropriate separation distance is not provided between the ground electrode and the objects. To minimize these corrosive effects, the existing electrode array was sited one mile offshore based on the then maximum 1,800-amp electrical current for the SGRS when it was placed into service in 1970. Based on this location and electrical current, the SGRS was able to operate at maximum amperage for 30 minutes to provide operators time to resolve disruptions that might occur on the PDCI. However, to compensate for the increase in power and amperage that occurred on the PDCI since it was first placed into service, the operating time at maximum current (which is now 3,100 amps) was decreased to 20 minutes, followed by a 10 minute ramp down to 1,460 amps, and operation at 1,460 amps for up to an additional two hours. These modified operational parameters have acted to minimize the corrosive effects associated with the electrode operation, but they have also substantially reduced the flexibility of operators to respond when a fault occurs on the PDCI.

Consistent with the Project objective of increasing the reliability and stability of the power generation and delivery system for Southern California, the proposed Project would restore the capability of the SGRS to be operated at maximum amperage for 30 minutes (rather than the present 20 minutes), as was the case when the SGRS was originally placed into service. This maximum operating period at 3,100 amps would be followed by a 10 minute ramp down to 2,000 amps (rather than the current 1,460 amps) and operation at 2,000 amps for up to an additional two hours. These parameters would provide operators with substantially greater flexibility to resolve a potential problem on the PDCI that would trigger an event of the SGRS. However, because the PDCI operates at a maximum 3,100 amps rather than 1,800 amps (as it did when it was sited in its present location), the electrode must now be sited at approximately two miles (rather than one mile) offshore of the Gladstone Vault to achieve the proposed operational parameters and still minimize the corrosive effects to onshore infrastructure. Based on the surveys of the proposed corridor, a site approximately two miles offshore also consists of sandy bottom with no significant seafloor features or significant biological or cultural resources.

Furthermore, the two-mile buffer zone between the electrode array and landside infrastructure applies not just to the Gladstone Vault but to the entire length of coastline in the vicinity of the array. Because of the curvature of the coastline at the Gladstone Vault (i.e., turning from a northwesterly to a westerly direction), shifting the electrode array northwesterly along an arc describing a two-mile offset from the vault (and thereby also shifting the bearing of the proposed marine cables) would place the array less than two miles from the shore west of the vault. Relocating the electrode array such that it would maintain a two-mile offset from the shore west of the Gladstone Vault would also increase the length of the cable run from the vault while providing no operational or environmental advantages over the proposed Project site. Likewise, shifting the electrode array easterly along an arc describing a two-mile offset from the Gladstone Vault would tend to lengthen the cable run from the vault (because it would need to follow an indirect course in order to bypass the nearshore rock outcropping) but provide no operational or environmental advantages. Therefore, the siting of the electrode array and cable was determined by a combination of factors affecting their location, including utilizing existing facilities to the extent possible, avoiding potentially sensitive marine habitat areas, minimizing the cable length, and maintaining an appropriate distance from landside infrastructure.

2.5 PROJECT CONSTRUCTION

2.5.1 Installation of the Proposed Marine Facility

Cable Pulling

As mentioned above, LADWP would install the initial segment of the new marine cables within existing conduits that initiate at the Gladstone Vault and continue under nearshore rock outcroppings to soft-bottom conditions, approximately 1,200 feet offshore. New cable, consisting of a bundled set of three cables in a common HDPE jacket, would first be pulled through the currently vacant spare conduit and into the vault by a cable pulling rig, which would be parked near the vault. The cable would be fed from a barge stationed in the bay. After the cable was pulled through the previously vacant conduit, the existing cables in one of the remaining existing conduits would be severed where they exit the conduit in the ocean and would be pulled back through the vault and placed onto a reel on the cable pulling rig for appropriate recycling. A bundled set of the new cable would then be pulled through the conduit and into the vault.

In this manner, one half of the existing SGRS would remain operational because only the vacant conduit and one of the currently occupied conduits would be utilized in the cable pulling for the proposed Project. The cables in the other existing conduit would remain energized and connected to the existing electrode. This would allow for the PDCI to continue to be operated at half capacity (1,550 MW) during the construction of the proposed marine facility and the SGRS to likewise be operated at 1,550 amps for 20 minutes and then ramp down to 730 amps for up to an additional two hours.

The new cables would not be spliced to the existing underground cables (half of which would still be connected to the existing electrode) until the proposed marine facility was entirely constructed and tested. The cable pulling activity would involve minimal personnel and equipment at the Gladstone Vault site and would take approximately one week to complete. It would require no ground disturbing activity. As mentioned above, it would also involve the use of a barge stationed in the bay to feed the new cables.

Marine Plowing

Once the cables had been installed in the conduit to reach soft-bottom conditions, the marine cable installation would proceed by means of a water-jet plow, which would bury the cables several feet below the ocean floor to the site of the electrode array, about two miles offshore. The cables would be installed in two separate bundled sets, each consisting of three cables encased in a common HDPE jacket. These cables would be spliced to the cable spans that were previously installed in the conduit leading from the Gladstone Vault. A cable-laying vessel would provide a continuous feed of the bundled cable sets from an onboard reel to the jet plow as it proceeds along the floor. The two bundled sets would be installed in separate furrows spaced about 20 feet apart. This may be accomplished by utilizing two plows simultaneously (if available and economically feasible) working in parallel in a single pass, or it may require the use of a single plow making two passes.

The jet plow is a remotely operated apparatus that moves across the ocean floor on skids or tracks and is controlled via a cable connected to the cable-laying vessel on the surface. It utilizes a plowshare that contains water jets along the leading edge. As the plowshare moves through the sandy bottom, water pumped through the jets fluidizes the sand, which reduces the force required to move the plow forward and minimizes the width of the furrow to just slightly larger than the cable bundle itself, which would be 3.2 inches in diameter. The cable, which is fed from the cable-laying vessel on the surface, is guided through the plow and sinks into the fluidized sand as the plow passes. This method was selected to bury the cables because for an equivalent depth of installation, a jet plow, when compared to a mechanical plow, results in a far narrower cross section of disturbance, minimizes the actual displacement of sandy bottom material, reduces turbidity, and leaves areas adjacent to the furrow essentially undisturbed.

Because of the narrow width of the furrow created by the jet plow and the weak structural capacity and saturation of the soft bottom material, sediment would essentially resettle over the furrow behind the plow, burying the cables and generally restoring the surface of the ocean floor to preconstruction levels. This plowing process would create some turbidity because it would directly disturb the bottom sediment. However, this turbidity would be localized and temporary, and suspended sediment is anticipated to settle relatively rapidly, generally during the ebb and flow of a single tidal cycle. It is anticipated it would take about one month to install the cables via plowing to the offshore electrode array site.

Electrode Array Installation

The concrete vaults for the electrode array would be manufactured at a facility in the City of Fontana permitted for such activity and under contract to LADPW. The vaults would be precast in one piece. Each vault would be eight feet wide, 20 feet long, and four feet high and would weigh about 20 tons. The vaults would consist of a fiberglass reinforced concrete floor and ceiling, with open sides except for concrete pillars supporting the ceiling. Each of the 36 vaults would be transported separately via truck to Marina del Rey.

At Marina del Rey, the vaults, along with the electrode rod components, would be loaded onto a barge. Depending on the pace of manufacture of the vaults and/or the availability of staging areas at the manufacturing site or at Marina del Rey, all 36 vaults may be loaded onto the barge before the barge is transported to the proposed electrode array site. However, because the pace of manufacture and the availability of staging areas cannot be entirely predicted at this time, in order to advance the construction process, it is anticipated that only 12 vaults would be loaded before the barge was transported to electrode site. This scenario would entail three separate barge trips to and from the electrode site during the installation process.

The barge would require two tug boats to maneuver out of the marina channel and one tug boat to traverse the bay to the array location, a distance of approximately seven miles once the marina breakwater is cleared. The trip would take about three hours one way. Once the barge was anchored at the site, the tug would return to Marina del Rey. All activities related to the installation of the vaults would occur on or from the barge. Four electrode rods would be installed within each vault. A length of each of the six individual cables contained in the two bundled sets that were buried by the plow would be brought up to the barge. On the barge, each cable would be divided and spliced into six smaller cables (one per vault). Each of these smaller cables would in turn be divided and spliced into four cables, each of which would be attached to one of the four electrode rods contained in each vault. The sides of the vault would be securely covered with a Kevlar mesh, which would have a maximum one-inch exclusion size. The vault would then be lowered to the ocean floor by a 30-ton crane mounted on the barge.

An average of one vault per day would be assembled and lowered. Divers would be present as the vaults were lowered to guide and monitor the installation. It is anticipated that a set of six adjacent vaults could be lowered by the barge anchored in the same position. Once the six vaults were placed, the tug would come from Marina del Rey to reposition the barge and then return to the marina. After two sets of six vaults (12 total) were installed, the tug would return and transport the barge back to the marina, where 12 more vaults would be loaded. This process would be repeated until all 36 vaults were installed.

The vault installation would require 12 personnel on the barge or in the water. The personnel would be transported on a daily basis to and from the barge by a water taxi out of Marina del Rey. Except when being transported to or from the marina to receive or deliver more vaults, the barge would remain anchored at the electrode site. The barge would contain all the required equipment to assemble and lower the vaults, including a 30-ton crane. A 500-kilowatt diesel generator would provide the necessary power for all construction activity. Assuming a six-day work week, with one vault lowered each day, the installation of the vaults would take about six weeks to complete. However, allowing for loading and transport time and unforeseen delays or stoppages related to product manufacture, weather or wave conditions, mammal migration or activity in the vicinity of the electrode site, or other issues, the process could take two to three months. During this time, the barge may be stationed at the marina or anchored at the electrode site, with no construction activity occurring.

2.5.2 Proposed Facility Commissioning

After completion of construction, divers would complete a visual inspection and video recording of the facility. The facility would be tested from the Gladstone Vault, including running current through the cables and measuring the resistance of the system. This would be accomplished from the vault using small-scale equipment and meters in the vault. The commissioning process would require several days. Once all components of the proposed marine facility had been commissioned, the existing marine cables would be disconnected at the Gladstone Vault. The new cables, which would run from the Gladstone Vault the new electrode array, would be spliced to the existing underground cables, and the system would be activated.

2.5.3 Abandonment of the Existing Marine Facility

Once the proposed marine facility was fully commissioned, the existing marine facility would be decommissioned. The existing warning signs regarding potential electrical discharges at the vaults would be removed, and the facility (including the cables and the electrode array) would be abandoned in place.

2.5.4 Schedule and Equipment

Construction Schedule

Construction of the Project would proceed sequentially from cable pulling to cable laying via jet plow, electrode array installation, commissioning, and existing facility decommissioning. Project construction is anticipated to be initiated in fall 2016 at the Gladstone Vault and would take approximately four to five months to complete, including proposed facility commissioning and existing facility decommissioning. Work at the Gladstone Vault site would occur Monday through Friday and would not commence before 7 a.m. or continue beyond 5 p.m. To ensure a shorter duration construction time, work in the ocean would occur six days per week, Monday through Saturday, up to 10 hours per day. No nighttime work would occur.

Construction Equipment

The type of equipment used for Project construction is summarized in Table 2-1.

TABLE 2-1 PRIMARY EQUIPMENT REQUIRED FOR CONSTRUCTION ACTIVITIES

EQUIPMENT	CABLE PULLING	MARINE CABLE LAYING	ELECTRODE ARRAY INSTALLATION	COMMISSIONING	ABANDONMENT OF EXISTING FACILITY
Cable Pulling Rig	x				
Barge	x		x		
Tug Boats	x		x		
Small Water Crafts	x	x	x	x	x
Cable-Laying Vessel		x			
Jet Plow		x			
30-Ton Crane			x		
500 kW Generator			x		

In addition to the above equipment, some truck trips would be required to deliver equipment and materials to the Gladstone Vault site during cable pulling and to Marina del Rey related to the electrode vault installation. The marine cable itself would be manufactured in Asia and loaded aboard the cable-laying vessel for transport to the Project site.

2.5.5 Best Management Practices

The following Best Management Practices (BMPs) listed in Table 2-2 would be implemented as a part of Project construction and operation based on standard practice and/or regulatory requirements. The BMPs would be reflected in the Mitigation Monitoring and Reporting Plan of the Final EIR.

TABLE 2-2 BEST MANAGEMENT PRACTICES

BMP	DESCRIPTION
BMP-1	Fugitive Dust Control Plan Construction of the Project would be subject to the South Coast Air Quality Management District's (SCAQMD) Rule 403, Fugitive Dust. In compliance with this rule, a dust control supervisor shall be identified for the Project and shall supervise implementation of the SCAQMD-approved dust control plan. The plan will itemize measures related to vehicle trackout, stabilizing soils, water application, and maintenance of soil moisture content.
BMP-2	Archaeological Resources Should previously unknown archaeological resources be found during Project construction activities, all activities shall cease in the immediate area of the discovered resource. A Project archaeologist shall be retained to first determine whether the resource discovered is a unique archaeological resource pursuant to Section 21083.2(g) of the PRC or a historical resource pursuant to Section 15064.5(a) of the CEQA Guidelines. If the archaeological resource is determined to be a unique archaeological resource or a historical resource, the archaeologist shall recommend disposition of the site and formulate a mitigation plan in consultation with LADWP that satisfies the requirements of Section 21083.2 of the PRC and/or Section 15064.5 of the CEQA Guidelines. If the archaeologist determines that the archaeological resource is not a unique archaeological resource or historical resource, the site will be recorded and the site form submitted to the California Historical Resource Information System (CHRIS) at the South Central Coastal Information Center (SCCIC). The archaeologist shall prepare a report of the results of any study prepared following accepted professional practice and guidelines of the California Office of Historic Preservation. Copies of the report shall be submitted to the CHRIS at the SCCIC.
BMP-3	Human Remains In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be notified within 24 hours of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie other remains shall occur until the Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the Coroner determines that the remains are or are believed to be Native American, the Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 48 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descended from the deceased Native American. The descendants shall complete an inspection of the site within 48 hours of being granted access. The designated Native American representative shall then determine, in consultation with LADWP, the disposition of the human remains.
BMP-4	Marine Location Markings The position of the electrode array will be marked using surface buoys, and the United States Coast Guard (USCG) and other responsible entities will be notified of the position and as-built characteristics of the electrode array and underwater cables.
BMP-5	Issuance of Notices Advance notice of construction activities shall be provided to local recreational and commercial boaters and fisherman through the USCG Notice to Mariners regarding the restrictions in the use of the Project area with sufficient lead-time for affected persons to plan for alternate times and places to perform offshore activities. In addition, LADWP shall post notices in the harbor master's offices at least 15 days in advance of in-water construction activities.
BMP-6	Hazardous Materials As required by the Clean Air Act, Section 401 of the Clean Water Act, the Toxic Substance Control Act, and the Hazardous Materials Transportation Act, all vehicles, vessels, and equipment must be in proper working condition to avoid fugitive emissions or accidental release of motor oil, fuel, antifreeze, hydraulic fluid, grease, or other hazardous materials. To reduce potential for accidental spills and discharges that could impact water and sediment quality during construction, the following are recommended: • Discharge of hazardous materials during construction activities into the Project area shall be prohibited. • A comprehensive spill prevention control and countermeasure plan shall be developed that documents management practices that will be enacted to limit the potential for accidental spills. • An environmental protection plan shall be developed that addresses issues related to storage and handling of fuel, waste disposal, equipment and vessel operation, and field policies. • All debris and trash shall be disposed of in appropriate trash containers on land or on construction barges by the end of each construction day.

2.6 PROJECT OPERATION AND MAINTENANCE

As discussed above, once the proposed marine facility was completed, the SGRS, in the event of a fault on the PDCI, would have the capability of operating at up to 3,100 amps for up to 30 minutes. If the issue on the PDCI that triggered the event could not be resolved during this time, the power on the PDCI would be ramped down to no greater than 2,000 MW. This ramp down would take approximately 10 minutes, after which the SGRS could continue to operate at up to 2,000 amps for up to two more hours to provide operators additional time to resolve the issue or provide alternative sources of energy to temporarily meet demand. Therefore, any individual event operating at the highest potential amperages as described above would have a total maximum duration of about 160 minutes.

However, based on historical operating data since 2008, most events last considerably less time than this maximum allowable duration. Based on the historical data, it is anticipated that the electrode would be operational an average of about 5.25 hours per year. This would represent the combined time of numerous discrete events in a given year. The combined operating time of all events in a given year between 2008 and 2014 ranged from 40 minutes to about 10.5 hours. The number of discrete events per year ranged from three to eleven, and the average duration per event during a given year ranged from under 15 minutes to about 1.5 hours. The maximum duration time of a single event was 2.5 hours. The overall average between 2008 and 2014 was about seven discrete events per year, lasting about 45 minutes each. Therefore, it is anticipated that the SGRS would be operational for relatively very few hours in any one year and for only relatively brief periods at any given time (see Table 2-3).

TABLE 2-3 SGRS OPERATIONAL HISTORY

TABLE	TOTAL ANNUAL OPERATING TIME (HOURS:MINUTES)	NUMBER OF DISCRETE EVENTS	AVERAGE EVENT DURATION (HOURS:MINUTES)
2008	1:34	6	0:16
2009	0:40	3	0:13
2010	4:19	8	0:32
2011	3:12	4	0:48
2012	10:24	10	1:02
2013	10:37	7	1:31
2014	5:55	11	0:32
Average	5:14	7	0:45

Source: LADWP

Nonetheless, the system would be designed to limit the impacts associated with the release of electrical current at the electrode array during an event triggered by a fault on the PDCI. The specific number of electrode vaults (36), the size of the vaults, the open-walled design of the vaults, the spacing between the vaults, the number of rods within each vault (4), and the arrangement of the rods (which would be suspended from the ceiling of the vault and appropriately spaced from each other) reflected in the preliminary design for the facility, are intended to maintain an electric field at the exterior of the vaults of no greater than about 1.15 volts per meter (V/m) when the SGRS is operating at maximum amperage (3,100 amps). The strength of the field decreases rapidly with distance from the electrode array, and would be about 0.34 V/m at a distance of three feet from the exterior of the vault and about 0.15 V/m at six feet from the vault.

This maximum electric field strength of 1.15 V/m is below the threshold of 1.25 V/m adopted by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and established by the International Electrochemical Commission (IEC) in the *Design of Earth Electrode Stations for High-Voltage Direct Current (HVDC) Links* (IEC Technical Standard 62344:2013). The 1.25 V/m field strength has been designated as a safe level for humans and large fish in sea water (which has a low resistivity to electrical current) in a number of studies, which have indicated that fish might be attracted at a field strength of 5.0 V/m and suffer convulsions at 20 V/m and that humans may sense discomfort at 2.5 V/m (Nalcor 2011).

Because the electric current in the DC electrode would flow in one direction, the magnetic field would be static; that is, it would have no frequency oscillation, unlike the extremely low frequency magnetic fields created by alternating current (AC) electrical lines, which have a frequency oscillation of 60 times per second. There are no known harmful effects related to static magnetic fields except primarily temporary effects noted in occupational environments involving field strengths substantially greater than that which would be generated by the SGRS. To avoid effects related to vertigo and nausea, the ICNIRP has recommended a limit of 2,000 gauss (G) time-weighted average per working day for occupational exposures, with a maximum occupational exposure of 20,000 G. For the general public, a continuous exposure limit of 400 G has been established by the ICNIRP. Some marine species may be particularly sensitive to magnetic fields, but no adverse effects to such species from the fields created by high-voltage DC cables have been determined (see Section 3.3 of the Draft EIR for further discussion of this issue).

During the peak level of the operational cycle on the electrode (3,100 amps), a maximum magnetic field of about 245 G would be present (at a distance of one inch) if all the system cables were immediately adjacent to each other where the conduits from Gladstone Vault enter the ocean (about 1,200 feet offshore). The strength of the field would decrease substantially with distance from the cables, and would be about 4 G at a distance of five feet and 1 G at a distance of 20 feet. The field strength would also decrease substantially (from about 245 G to 122 G) when the cables are placed in the parallel furrows 20 feet apart in two separate bundles of three cables each. Furthermore, the magnetic fields created during the operation of the proposed marine facility would be no greater than those associated with the operation of the existing marine facility. Since the electrode would typically operate for relatively few hours per year and for only relatively brief periods at a time, during the vast majority of the time, there would be no electric or magnetic fields generated because no electrical current would be flowing in the facility.

The position of the electrode array would be marked on the surface using buoys, and the U.S. Coast Guard and other responsible entities would be notified of the position and as-built characteristics of the array and any underwater cable. Although the facility, located at about a 100-foot depth, would be less accessible to divers than the existing electrode array (which is located at about a 50-foot depth), the vaults would nonetheless be marked with signs indicating the potential for electrical discharges.

Routine replacement of components of the proposed marine facility is not anticipated. However, routine inspection and testing of the facility and early identification of items needing maintenance or repair are critical for the continued reliable operation of the PDCI. The submarine cables would be tested monthly by measuring the loop resistance of the conductors. A visual inspection of the facility by divers would occur twice annually, unless circumstances arise indicating the need for more frequent inspections.

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CHAPTER 3: ENVIRONMENTAL SETTING AND IMPACTS

3.1 INTRODUCTION

Based on the Initial Study and issues raised during the Notice of Preparation (NOP) and previous Draft Environmental Impact Report (EIR) review, the following environmental issues related to potentially significant impacts from the proposed Sylmar Ground Return System (SGRS) Replacement Project (Project or proposed Project) are addressed in this section of this revised Draft EIR.

- Air Quality and Greenhouse Gas Emissions
- Biological Resources
- Cultural Resources
- Noise
- Recreation and Fishing
- Traffic and Transportation
- Water Quality

3.1.1 Methods of Analysis

The impact analysis for each of the resource areas is structured as follows:

Existing Conditions

The *Existing Conditions* section consists of the *Environmental Setting* and *Regulatory Framework* subsections. The *Environmental Setting* subsection describes the existing environmental conditions or baseline conditions in the area affected by construction and operation of the proposed Project. The baseline conditions are used for comparison to establish the type and extent of the potential environmental impacts. The environmental setting is described within the Project vicinity and in a regional context, as appropriate, with a focus on the particular environmental impacts being discussed. The *Regulatory Framework* section presents applicable regulations, plans, goals, policies, and standards associated with each topic.

Methodology and Threshold of Significance

The *Methodology and Threshold of Significance* section describes the context and approach for the environmental impact analyses. The thresholds describe the criteria used to determine which impacts would be potentially significant. Significance thresholds are based on criteria identified in Appendix G of the California Environmental Quality Act (CEQA) Guidelines and/or other federal, State, or local standards that have been established relative to particular environmental resource areas.

Impact Analysis

The *Impact Analysis* section evaluates how construction and operation of the proposed Project would change existing conditions, potentially resulting in significant impacts on the environment, including direct or reasonably foreseeable indirect effects.

Cumulative Impacts

The *Cumulative Impacts* section describes effects that may be individually limited but cumulatively considerable when measured along with other approved, proposed, or reasonably foreseeable future projects.

Mitigation Measures and Level of Significance After Mitigation

The *Mitigation Measures and Level of Significance After Mitigation* section identifies actions to eliminate or reduce potentially significant impacts of the proposed Project and whether impacts would remain significant even after the application of those proposed mitigation measures. In determining additional Project-specific mitigation measures, existing regulations and other public agency requirements and best management practices (BMPs) are already taken under consideration. Any impacts that cannot be eliminated or reduced to a level of less than significant are considered unavoidable significant impacts of the proposed Project.

3.1.2 Effects Found Not to be Significant

Based on the Initial Study analysis for the proposed Project, certain environmental impacts were determined not to be significant. Environmental issues that were determined to have no impact or a less than significant impact during the Project's scoping period do not require further analysis under CEQA (Section 15128 of the CEQA Guidelines). Reasoning for why these impacts were found not to be significant is provided below, and more detailed discussions may be found in the Initial Study included in Appendix A of this Draft EIR.

Aesthetics

Because the Project facilities will not be visible (i.e., they would be located either underground or on the seafloor), they would not have a substantial adverse effect on a scenic vista, substantially damage scenic resources, substantially degrade the existing visual character of the site or surroundings, or create a new source of light or glare.

Agricultural and Forestry Resources

The proposed Project area is not designated as, nor is any land located close to the Project designated as, Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. No agricultural lands would be converted to a non-agricultural use and no portion of the Project is subject to a Williamson Act contract; therefore no impact would occur and no further study is required.

The Project area does not support native tree cover or timber resources, and is not considered forest land, timberland, or a timberland production zone. The Project would not convert forest land to non-forest use, nor would it conflict with existing zoning for, or cause rezoning of, forest land.

Hazards and Hazardous Materials

During construction of the proposed Project, quantities of fuel used to operate construction vehicles and equipment would be stored safely, and substantial quantities would not be stored in staging areas (see BMP-6). There are no hazardous materials sites that would be encountered during Project construction. No airport is located in the vicinity of the Project and thus the Project would not create a hazard related to flight operations. There is no risk of wildland fires within close proximity of the Project, and thus no people or structures would be exposed to a significant loss, injury or death involving wildland fires. Operation of the proposed Project would not require the use, storage or disposal of hazardous substances.

A potentially significant impact during Project construction related to an adopted emergency response plan or a local, State, or federal agency's emergency evacuation plan due to roadway traffic lane reductions and restrictions during Project construction was identified in the Initial Study. Further analysis and discussion regarding emergency response routes and traffic is presented in Section 3.7.

Geology and Soils

According to the Department of Conservation California Geological Survey, the Project site is not located within the area identified as the Alquist-Priolo Earthquake Zone. As with most of Southern California, the proposed Project is located in a seismically active area and therefore would be subject to ground shaking and potential damage during an earthquake. However, the Project is the replacement of an existing electrode system; no habitable structures are proposed to be constructed. Submarine cables would be buried and the electrode array would be placed on the ocean floor. The proposed Project would be constructed to meet all applicable electrical code and seismic safety standards. Landside construction would be limited to an existing facility within an existing parking lot, and as such, no substantial erosion or loss of topsoil would result. Therefore, seismic hazards, erosion or loss of topsoil, and effects from unstable soils (landslides, lateral spreading, subsidence, liquefaction, expansive soils or collapse) would be less than significant. The proposed Project would not involve the construction or use of septic tanks or alternative wastewater disposal systems; therefore, there would be no associated impact.

Hydrology and Water Quality

The landside portion of the proposed Project does not overlie a groundwater basin. The Project would not require dewatering activities. Therefore, no impact to groundwater supplies or groundwater recharge would result during Project construction. No water supplies would be required during Project operation. Accordingly, operation-related impacts would have no impact on groundwater. The landside portion of construction would not be located near any existing drainage channels. Therefore, there would be no impact on flooding, drainage patterns or erosion in these watercourses; no water bodies would be altered by the Project. Landside activities at the Gladstone Vault would not permanently change runoff characteristics or alter drainage patterns, or result in substantial erosion, siltation, or flooding.

The Gladstone Vault is located within a 100-year flood hazard area and the Los Angeles County Tsunami Inundation Zone. However, the proposed Project would not involve the construction of any new structures (aboveground or underground) nor would it modify the characteristics of a floodplain. The Project is not located within the vicinity of any levees or dams, nor does it involve the development of levees, dams, or water storage facilities. The Project would not be impacted by seiches or mudflows. While the Project would have a less than significant impact for freshwater and groundwater in regards to water quality standards and waste discharge requirements, potentially significant impacts would occur for marine waters, which are addressed in more detail in Section 3.8 of the Draft EIR.

Land Use and Planning

The Project would not cause the physical division of an established community or neighborhood. No permanent physical barriers between existing land uses are proposed; therefore, impacts would be less than significant. No changes to existing land use plans or zoning ordinances are proposed. The Project would not conflict with adopted land use plans, policies, or regulations. The Project does not fall within the boundaries of an adopted Habitat Conservation Plan or Natural Community Conservation Plan; thus, there would be no impact.

Mineral Resources

The MRZ-2 classification includes those areas where adequate information indicates that significant mineral deposits are present or there is a high likelihood for their presence. Based on the map of Areas Containing Significant Mineral Deposits prepared by the City of Los Angeles, the proposed Project, as well as the immediate surrounding area, is not identified as important (MRZ-2) mineral resource areas. Therefore, proposed Project construction and operational activities would not result in the loss of availability of a known mineral resource, and no impact would occur.

Population and Housing

No housing or persons would be displaced by Project construction or operation, and thus, construction of replacement housing elsewhere would not be necessary. The proposed Project is a replacement of a portion of an existing electrode system. No habitable structures would be constructed, and, as such, the Project is neither growth-inducing nor growth-accommodating, and there would be no impact on population and housing.

Public Services

Since the proposed Project contains no habitable structures and is not considered growth inducing, there is no need for additional fire protection, police protection, schools, parks, or other public facilities. Therefore, impacts to public services would be less than significant.

Recreation

The proposed Project does not involve the construction of recreational facilities, nor would it require the construction or expansion of such facilities. However, potentially significant impacts to recreation activities related to the marine environment (including fishing) could occur and are addressed in Section 3.6 of the Draft EIR.

Utilities and Service Systems

As the proposed Project is the replacement of an existing electrode system, there would be no increase in wastewater treatment demand. As such, the Project would not require connections to an existing sewer system, and there would be no exceedance of wastewater treatment requirements, and no additional wastewater treatment beyond existing conditions would be required. No new or expanded water supply entitlements would be necessary, as limited quantities of water would be utilized during Project construction, and no water would be needed during Project operation. The proposed Project would not permanently alter drainage patterns or require new or expanded storm water drainage facilities. Solid waste generation would be minimized by recycling and re-use of materials, which are anticipated to be minimal. The Project would not affect the operations or capacity for any landfill facility. LADWP would comply with all applicable laws and regulations related to solid waste generation, collection, and disposal. As the proposed Project would be an unmanned electrode system, operation of the proposed Project would not generate any waste. Therefore, impacts to utilities and service systems would be less than significant.

3.1.3 CEQA Requirements for Cumulative Impacts

According to Section 15355 of the CEQA Guidelines, cumulative impacts refer to:

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

Within the context of determining the significance of a project’s cumulative impact, the incremental effects of the individual project must make a considerable contribution to the combined effects of other past, present, and reasonably foreseeable future projects.

Cumulative Projects

Table 3.1-1 provides a list of potential projects that could produce related impacts by being located in the same geographic area as the proposed Project. On the landside, this generally includes the area within two miles of the Gladstone Vault, which is a reasonable distance in relation to the potential for the Project to create cumulative impacts from construction or operation when considered alongside other projects. Within the ocean, it included the extent of the Santa Monica Bay, which provides a considerably larger radius than two miles from the Project but encompasses other projects within the bay’s marine environment. Figure 3.1-1 illustrates the projects’ locations. The closest landside project, PP632 Sunset Generator Replacement, would be located approximately one third of a mile from the proposed Project.

The closest marine project, Southern California Wetlands Recovery Project, Topanga Creek and Lagoon, is located approximately one and a half miles from the proposed Project.

Past projects are considered in the cumulative analysis as part of the existing environmental setting. Present and reasonably foreseeable future projects considered for this analysis are those projects that are not yet fully implemented but are currently under construction or whose future implementation can be realistically predicted. It should be noted that not all the projects listed may be constructed for various reasons, such as permitting issues or lack of funding. Also, not all projects would result in cumulatively considerable impacts for all technical issues addressed in the Draft EIR.

TABLE 3.1-1 CUMULATIVE PROJECTS

ID	PROJECT NAME	PROJECT DESCRIPTION	LOCATION	TYPE	SIZE	STATUS
City of Los Angeles						
1	Pacific Palisades Village	Redevelopment of properties in the Pacific Palisades Commercial Village including nine new buildings comprised of retail and restaurant uses, a theater, eight apartments, a grocery market, offices, storage and parking	1012-1051 N Swarthmore Ave.; 15239-15281 W. Sunset Blvd.; 1023-1055 Monument St.	Mixed Use	116,215 square feet of floor area	Construction scheduled to begin upon City approval. Planned opening is fall 2017.
2	PCH Safety Project Near Bel-Air Club	Shoulder widening and road improvements for safer bike travel	Pacific Coast Highway near Temescal Canyon	Roadway	Unknown	65% design, project documents under development
3	Pedestrian Bowl Crosswalk Improvement	Install a Pedestrian Hybrid Beacon, curb ramps, striping and signing	Pacific Coast Highway between Temescal Canyon Rd and Bay Club Drive	Roadway	Unknown	Unknown
Santa Monica Bay						
4	Kelp Forest Restoration	Marine restoration project	Off Palo Verdes Peninsula	N/A	150 acres	Ongoing
5	Ballona Wetlands Restoration Project	Coastal wetlands restoration project	Ballona Wetlands Ecological Reserve - adjacent to Marina del Rey	Wetlands	600 acres	EIR under development
6	Southern California Wetlands Recovery Project	Coastal wetlands restoration projects	Various: Topanga Creek and Lagoon, Solstice Creek, Malibu Creek, Marina del Rey	Wetlands	Unknown total	Specific projects in various stages of development.

Source: City of Los Angeles 2015; LA City Planning 2015; PCH Partners 2015; The Bay Foundation 2015; Californian Coastal Conservancy; 2015.

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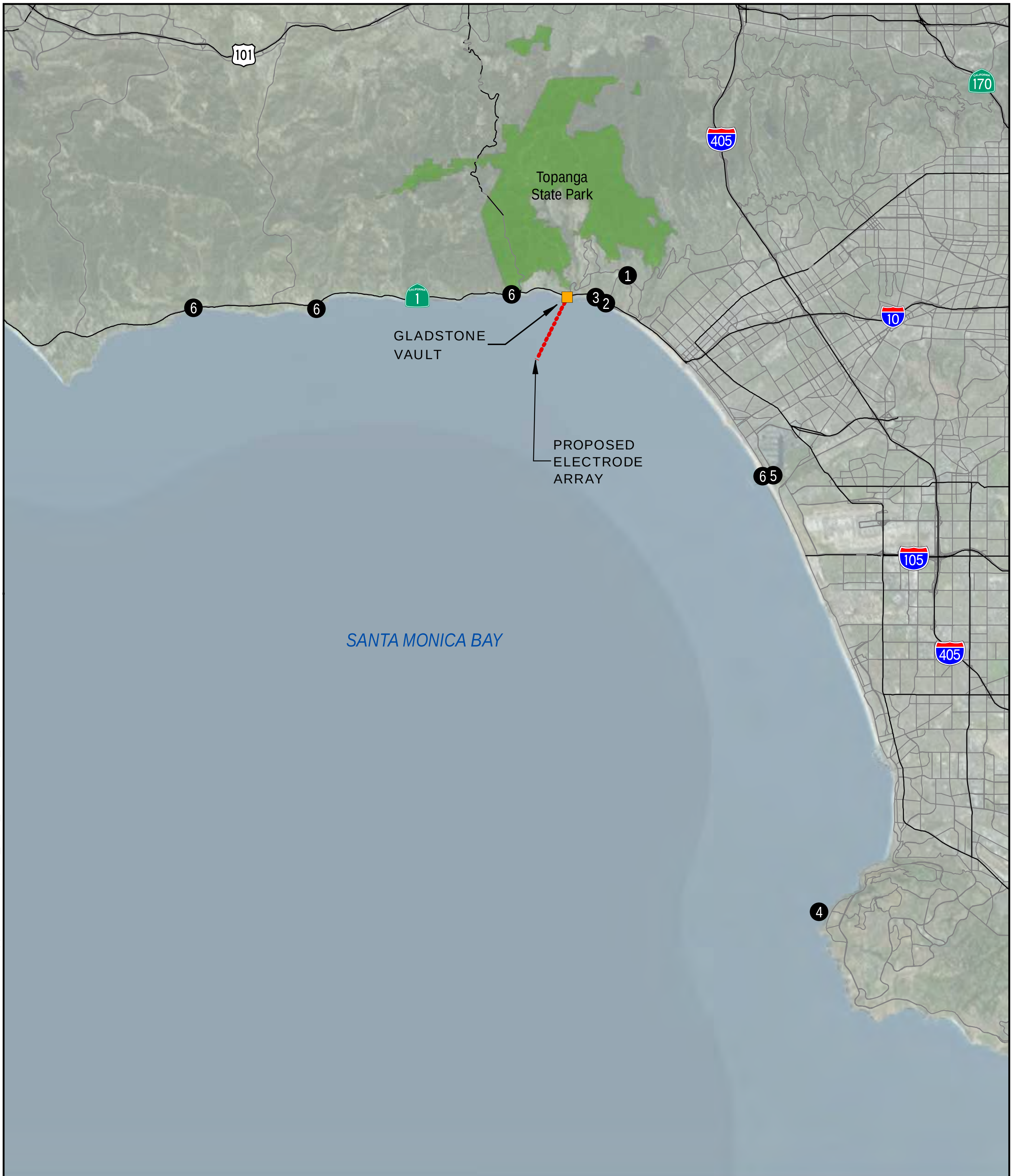

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PROJECT NAME
1 - PACIFIC PALISADES VILLAGE
2 - PCH SAFETY PROJECT NEAR BEL-AIR CLUB
3 - PEDESTRIAN BOWL CROSSWALK IMPROVEMENT
4 - KELP FOREST RESTORATION
5 - BALLONA WETLANDS RESTORATION PROJECT
6 - SOUTHERN CALIFORNIA WETLANDS RECOVERY PROJECT

0 4 Miles

FIGURE 3.1-1
CUMULATIVE PROJECTS

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS
LA DWP

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3.2 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

This section presents an evaluation of the impact of the proposed Project related to air quality and greenhouse gas emissions.

3.2.1 Resource Overview

Air quality is defined by ambient air concentrations of specific pollutants determined by the United States Environmental Protection Agency (USEPA) to be of concern with respect to the health and welfare of the general public. Seven major pollutants of concern, called “criteria pollutants,” are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). The USEPA has established National Ambient Air Quality Standards (NAAQS) for these pollutants. Areas that violate a federal air quality standard are designated as nonattainment areas.

Ambient air quality refers to the atmospheric concentration of a specific compound (amount of pollutants in a specified volume of air) that occurs at a particular geographic location. The ambient air quality levels measured at a particular location are determined by the interactions of emissions, meteorology, and chemistry. Emission considerations include the types, amounts, and locations of pollutants emitted into the atmosphere. Meteorological considerations include wind and precipitation patterns affecting the distribution, dilution, and removal of pollutant emissions. Chemical reactions can transform pollutant emissions into other chemical substances. Ambient air quality data are generally reported as a mass per unit volume (e.g., micrograms per cubic meter of air) or as a volume fraction (e.g., parts per million [ppm] by volume).

Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO_2, Pb, and some particulates, are emitted directly into the atmosphere from emission sources.

Secondary pollutants, such as O_3, NO_2, and some particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. PM_{10} and $PM_{2.5}$ are generated as primary pollutants by various mechanical processes (for example, abrasion, erosion, mixing, or atomization) or combustion processes. However, PM_{10} and $PM_{2.5}$ can also be formed as secondary pollutants through chemical reactions or by gaseous pollutants condensing into fine aerosols. In general, emissions that are considered “precursors” to secondary pollutants in the atmosphere (such as reactive organic gases [ROG] and oxides of nitrogen [NOx], which are considered precursors for O_3), are the pollutants for which emissions are evaluated to control the level of the secondary pollutant in the ambient air.

Existing air quality at a given location can be described by the concentrations of various pollutants in the atmosphere. Pollutants are defined as two general types: (1) “criteria” pollutants and (2) toxic compounds. Criteria pollutants have national and/or state ambient air quality standards. The USEPA establishes the NAAQS, while the California Air Resources Board (CARB) establishes the state standards, termed the California Ambient Air Quality Standards (CAAQS). The NAAQS represent maximum acceptable concentrations that generally may not be exceeded more than once per year, except the annual standards, which may never be exceeded. The CAAQS represent maximum acceptable pollutant concentrations that are not to be equaled or exceeded.

Toxic Air Contaminants

Toxic air contaminants (TACs) are substances with the potential to be emitted into the ambient air that have been determined to present some level of acute or chronic health risk (cancer or non-cancer) to the general public. These pollutants may be emitted in trace amounts from various types of sources, including combustion.

Greenhouse Gas Emissions

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions occur from natural processes as well as human activities. The accumulation of GHGs in the atmosphere regulates the earth's temperature. Scientific evidence indicates a trend of increasing global temperature over the past century, which a number of scientists attribute to an increase in GHG emissions from human activities. The climate change associated with this global warming is predicted to produce negative economic and social consequences across the globe.

Recent observed changes due to global warming include shrinking glaciers, thawing permafrost, a lengthened growing season, and shifts in plant and animal ranges (Intergovernmental Panel on Climate Change [IPCC] 2007). Generally accepted predictions of long-term environmental impacts due to global warming include sea level rise; changing weather patterns, with increases in the severity of storms and droughts; changes to local and regional ecosystems, including the potential loss of species; and a significant reduction in winter snow pack.

The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydrofluorocarbons and perfluorocarbons) and sulfur hexafluoride. Each GHG is assigned a global warming potential. The global warming potential is the ability of a gas or aerosol to trap heat in the atmosphere. The global warming potential rating system is standardized to CO_2, which has a value of one. For example, based on the latest IPCC report, CH_4 has a global warming potential of 28, which means that it has a global warming effect 28 times greater than CO_2 on an equal-mass basis. Total GHG emissions from a source are often reported as a CO_2 equivalent (CO_2e). The CO_2e is calculated by multiplying the emission of each GHG by its global warming potential and adding the results together to produce a single, combined emission rate representing all GHGs. On a national scale, federal agencies are addressing emissions of GHGs by reductions mandated in federal laws and Executive Orders. Most recently, Executive Order 13693, Planning for Federal Sustainability in the Next Decade (March 19, 2015) was enacted.

Several states have promulgated laws as a means to reduce statewide levels of GHG emissions. In particular, the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) directs the State of California to reduce statewide GHG emissions to 1990 levels by the year 2020. The potential effects of proposed GHG emissions are by nature global and have cumulative impacts. GHG emissions from individual sources are not large enough to have an appreciable effect on climate change. Therefore, the impact of proposed GHG emissions to climate change is discussed in the context of cumulative impacts.

For the proposed Project, GHG emissions would result from vehicle and equipment use for construction of the proposed facilities. Since the Project would be a replacement of existing facilities, operational GHG emissions would not be expected to increase.

Federal Regulations

The Federal Clean Air Act (CAA) and its subsequent amendments establish air quality regulations and the NAAQS, and delegate the enforcement of these standards to the states. In California, the CARB is responsible for enforcing air pollution regulations. The CARB is responsible for enforcing both the federal and state air pollution standards. The CARB has in turn delegated the responsibility of regulating stationary emission sources to regional air agencies. In the South Coast Air Basin (SCAB), the South Coast Air Quality Management District (SCAQMD) has this responsibility. The national and state ambient air quality standards are shown in Table 3.2-1.

TABLE 3.2-1 NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS	NATIONAL STANDARDS [a]	
			Primary [b,c]	Secondary [b,d]
Ozone (O_3)	8-hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	Same as primary
	1-hour	0.09 ppm (180 µg/m^3)	—	—
Carbon monoxide (CO)	8-hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	—
Nitrogen dioxide (NO_2)	Annual	0.030 ppm (56 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as primary
	1-hour	0.18 ppm (338 µg/m^3)	0.100 ppm (188 µg/m^3)	Same as primary
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m^3)	—	—
	3-hour	—	—	0.5 ppm (1,300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	—
PM_{10}	Annual	20 µg/m^3	—	—
	24-hour	50 µg/m^3	150 µg/m^3	Same as primary
$PM_{2.5}$	Annual	12 µg/m^3	12.0 µg/m^3	15 µg/m^3
	24-hour	—	35 µg/m^3	Same as primary
Lead (Pb)	Rolling 3-month period	—	0.15 µg/m^3	Same as primary
	Calendar Quarter	—	1.5 µg/m^3	Same as primary
	30-day average	1.5 µg/m^3	—	—
Hydrogen Sulfide (H_2S)	1-hour	0.03 ppm (42 µg/m^3)	—	—

Source: CARB 2015.

Notes: ppm = parts per million; µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter.

[a] Standards other than the 1-hour ozone, 24-hour PM_{10}, 24-hour $PM_{2.5}$, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

[b] Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

[c] Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the USEPA.

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

The 1977 CAA Amendments required each state to develop and maintain a State Implementation Plan (SIP) for each criteria pollutant that exceeds the NAAQS. The SIP serves as a tool to develop strategies to reduce emissions of pollutants that cause exceedances of the NAAQS, and to achieve compliance with the NAAQS. The SIP outlines federally enforceable rules, regulations, and programs designed to reduce emissions and bring the area into attainment of the NAAQS. In 1990, The CAA was amended to strengthen regulation of both stationary and mobile sources of criteria pollutants, and also to implement regulations to control emissions of hazardous air pollutants and ozone-depleting substances.

As indicated in Federal Register Volume 75, No. 11, Page 2938, the USEPA is considering lowering the 8-hour O_3 standard from 0.075 ppm, which is its current level, to a lower level within the range of 0.060 and 0.070 ppm. The lower level is proposed to provide increased protection for children and other "at risk" populations against O_3 health effects.

USEPA GHG Findings. On April 17, 2009, USEPA issued its proposed endangerment finding for GHG emissions. On December 7, 2009, the USEPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

> **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases - CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) - in the atmosphere threaten the public health and welfare of current and future generations.
>
> **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

The endangerment findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the USEPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by USEPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.

Mandatory GHG Reporting Rule. On March 10, 2009, in response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), USEPA proposed a rule that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of Greenhouse Gases Rule was signed, and was published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. The rule will collect accurate and comprehensive emissions data to inform future policy decisions.

USEPA is requiring suppliers of fossil fuels or industrial GHG, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG to submit annual reports to USEPA. The gases covered by the proposed rule are CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, and other fluorinated gases including nitrogen trifluoride (NF_3) and hydrofluorinated ethers (HFE).

Corporate Average Fuel Economy Standards. The federal Corporate Average Fuel Economy (CAFE) standard determines the fuel efficiency of certain vehicle classes in the United States. In 2007, as part of the Energy and Security Act of 2007, CAFE standards were increased for new light-duty vehicles to 35 miles per gallon by 2020. In May 2009, President Obama announced plans to increase CAFE standards to require light-duty vehicles to meet an average fuel economy of 35.5 miles per gallon by 2016. On April 1, 2010, the U.S. Department of Transportation and the USEPA established historic new federal rules that set the first-ever national GHG emissions standards and will significantly increase the fuel economy of all new passenger cars and light trucks sold in the United States. The standards set a requirement to meet an average fuel economy of 34.1 miles per gallon by 2016.

State Regulations

The CARB has oversight over air quality in the state of California. Regulation of individual stationary sources has been delegated to local air pollution control agencies. The CARB is responsible for developing programs designed to reduce emissions from non-stationary sources, including motor vehicles and off-road equipment.

The CARB and the California Office of Environmental Health Hazard Assessment (OEHHA) are also responsible for developing regulations governing TACs. TACs include air pollutants that can cause serious illnesses or increased mortality, even in low concentrations. The CARB and OEHHA identify specific air pollutants as TACs, develop health thresholds for exposure to TACs, and develop guidelines for conducting health risk assessments for sources of TAC emissions.

Signed into law in 2006, AB 32 directed CARB to do the following:

- Make publicly available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the statewide GHG limit and the measures required to achieve compliance with the statewide limit.
- Make publicly available a GHG inventory for the year 1990 and determine target levels for 2020.
- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures.
- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and non-monetary incentives that reduce GHG emissions from any sources or categories of sources that ARB finds necessary to achieve the statewide GHG emissions limit.
- Monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

AB 32 required that by January 1, 2008, CARB determine what the statewide GHG emissions level was in 1990, and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. CARB adopted its Climate Change Scoping Plan in December 2008, and re-approved it on August 24, 2011. The Plan provides estimates of the 1990 GHG emissions level and indicates how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms, and other actions. The CARB has estimated that the 1990 GHG emissions level was 427 million metric tons (MMT) net CO2e (CARB 2007b). The CARB estimates that a reduction of 173 MMT net CO2e emissions below business-as-usual would be required by 2020 to meet the 1990 levels (CARB 2007b). This amounts to a 15-percent reduction from today’s levels, and a 30-percent reduction from projected business-as-usual levels in 2020 (CARB 2008).

Senate Bill 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directed The Governor’s Office of Planning and Research (OPR) to develop draft CEQA guidelines “for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions” by July 1, 2009, and directed the Resources Agency to certify and adopt the CEQA guidelines by January 1, 2010.

OPR published a technical advisory on CEQA and Climate Change on June 19, 2008. The guidance did not include a suggested threshold, but stated that the OPR has asked CARB to “recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of greenhouse gas emissions throughout the state.” OPR does recommend that CEQA analyses include the following components:

- Identify greenhouse gas emissions
- Determine significance
- Mitigate impacts

In April 2009, OPR published its proposed revisions to CEQA to address GHG emissions. The amendments to CEQA indicate the following:

- Climate action plans and other GHG reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the GHG emissions of proposed projects, noting that they have the freedom to select the quantitative and qualitative models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of GHG emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- EIRs must specifically consider a project's energy use and energy efficiency potential.

On July 3, 2009, the California Natural Resources Agency published proposed amendment of regulations based on OPR's proposed revisions to CEQA to address GHG emissions. On that date, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Having reviewed and considered all comments received, the Natural Resources Agency revised the CEQA regulation. The new regulations became effective on March 18, 2010.

Executive Order B-30-15 was enacted by the Governor on April 29, 2015. Executive Order B-30-15 establishes an interim GHG emission reduction goal for the state of California to reduce GHG emissions to 40 percent below 1990 levels by the year 2030. This Executive Order directs all state agencies with jurisdiction over GHG-emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in Executive Order S-3-05 to reduce GHG emissions to 80 percent below 1990 levels by the year 2050. The Executive Order directs CARB to update its Scoping Plan to address the 2030 goal. It is anticipated that CARB will develop statewide inventory projection data for 2030 and commence efforts to identify reduction strategies capable of securing emission reductions that allow for achievement of the new interim goal for 2030.

Local Regulations

The air districts in California are responsible for regulating stationary sources within their jurisdictions and for preparing air quality plans required under the CAA and the California Clean Air Act (CCAA). The SCAQMD is the local agency responsible for planning, implementing, and enforcing state and federal ambient air quality standards within the SCAB, which includes Los Angeles, Orange, portions of

Riverside, and portions of San Bernardino Counties. The SCAQMD has developed its Air Quality Management Plan (AQMP), which provides a summary of the measures and regulations that have been or will be implemented to govern air quality in the SCAB and meet the ambient air quality standards. The AQMP includes strategies for meeting the 8-hour O_3 standard and the particulate standards, and includes a maintenance plan for the CO standard.

Emission limitations are imposed upon sources of air pollutants operating in the SCAB by the SCAQMD's Rules and Regulations and statewide by CARB. Operation of emission sources during the construction of the proposed Project will not interfere with progress toward attainment of the federal and State standards, provided they are compliant with applicable regulations. The following SCAQMD rules apply to the proposed Project:

- SCAQMD Rule 401 – Visible Emissions: This rule prohibits any activity that will create air contaminant emissions darker than No. 1 on the Ringlemann Chart for more than an aggregate of three minutes in any consecutive 60-minute period.
- SCAQMD Rule 402 – Nuisance: This rule prohibits the discharge of such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or injury or damage to property.
- SCAQMD Rule 403 – Fugitive Dust: This rule sets forth the requirements to include fugitive dust control measures for all construction activities. Rule 403 also requires a fugitive dust control plan to be implemented and requires implementation of Best Available Control Measures to reduce emissions of fugitive dust.

In accordance with the City of Los Angeles General Plan's Air Quality Element (City of Los Angeles, 1992), the Project must also (a) minimize particulate emissions from construction sites, and (b) minimize particulate emissions from unpaved roads and parking lots which are associated with vehicular traffic.

3.2.2 Existing Conditions

Regional Climate

Meteorological data from the Western Regional Climate Center ([WRCC] 2015) are available for Santa Monica, California, for the period from 1937 through present. Data from this location are representative of conditions at the Project site. The Santa Monica monitoring station measured temperature, precipitation, heating degree days, and cooling degree days. Monthly average temperatures and precipitation for Santa Monica are summarized in Table 3.2-2.

TABLE 3.2-2 MONTHLY AVERAGE TEMPERATURES AND PRECIPITATION – SANTA MONICA METEOROLOGICAL STATION

MONTH	TEMPERATURE, (FAHRENHEIT)		PRECIPITATION (INCHES)
	MINIMUM	MAXIMUM	
January	49.2	64.1	2.69
February	49.9	63.7	3.01
March	50.9	63.4	2.03
April	52.9	64.5	0.73
May	55.6	65.4	0.17
June	58.4	68.1	0.03
July	61.2	71.0	0.02
August	62.2	72.1	0.08
September	61.4	72.1	0.15
October	58.2	70.4	0.33
November	53.6	68.0	1.36
December	49.7	64.8	2.04
Annual	55.3	67.3	12.62

Source: WRCC 2015.

SCAQMD operates a series of ambient air quality monitoring stations throughout the SCAB. The closest monitoring site to the Project is located in Los Angeles on Westchester Avenue. The closest monitoring site to the Project that measures $PM_{2.5}$ is located in downtown Los Angeles. Table 3.2-3 provides a summary of background air quality representative of the Project area.

TABLE 3.2-3 REPRESENTATIVE AIR QUALITY DATA FOR THE PROJECT AREA (2010-2014)(1)

AIR QUALITY INDICATOR	2010	2011	2012	2011	2012
Ozone (O_3)					
Peak 1-hour value (ppm)	0.089	0.078	0.106	0.105	0.114
Days above state standard (0.09 ppm)	0	0	1	1	1
Peak 8-hour value (ppm)	0.070	0.067	0.075	0.081	0.080
Days above state standard (0.070 ppm)	0	0	1	1	6
Days above federal standard (0.075 ppm)	0	0	0	1	3
PM_{10}					
Peak 24-hour value ($\mu g/m^3$)	37	41	31	38	46
Days above state standard (50 $\mu g/m^3$)	0	0	0	0	0
Days above federal standard (150 $\mu g/m^3$)	0	0	0	0	0
Annual Average value ($\mu g/m^3$))	20.6	21.7	19.8	20.8	22.1
$PM_{2.5}$					
Peak 24-hour value ($\mu g/m^3$)	48.6	69.2	58.7	43.1	59.9
Days above federal standard (35 $\mu g/m^3$)	5	7	4	1	6
Annual Average value ($\mu g/m^3$)	12.6	13.3	12.5	12.0	12.3
CO					
Peak 8-hour value (ppm)	2.19	2.08	1.99	NA	NA
Days above state standard (9.0 ppm)	0	0	0	NA	NA

AIR QUALITY INDICATOR	2010	2011	2012	2011	2012
Days above federal standard (9 ppm)	0	0	0	NA	NA
NO_2					
Peak 1-hour value (ppm)	0.076	0.098	0.077	0.078	0.087
Days above state standard (0.18 ppm)	0	0	0	0	0
Days above federal standard (0.100 ppm) (2)	0	0	0	0	0
Annual Average value (ppm)	0.012	0.013	NA	0.013	0.012
SO_2					
Peak 24-hour value (ppm)	0.004	0.002	0.002	0.002	NA
Days above state standard (0.04 ppm)	0	0	0	0	NA

Notes: (1) Data from the Los Angeles - Westchester monitoring station, except $PM_{2.5}$, which is from the Los Angeles – Main Street monitoring station.
(2) The federal 1-hour NO_2 standard is defined by the 3-year average of the annual 98th percentile of the maximum daily 1-hour concentrations.
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; NA = data not available
Source: CARB 2015.

Compliance with Air Quality Standards

CARB designates portions of the State where federal or State ambient air quality standards are not met as nonattainment areas. Table 3.2-4, SCAB Attainment Classification for Criteria Pollutants, summarizes the air quality attainment status for the SCAB. Where a pollutant exceeds standards, the federal and State CAAs require air quality management plans that demonstrate how the standards will be achieved. These plans provide the basis for the implementing agencies to develop regulations governing air quality and to develop mobile and stationary source standards.

TABLE 3.2-4 SOUTH COAST AIR BASIN ATTAINMENT CLASSIFICATION FOR CRITERIA POLLUTANTS

POLLUTANT	CAAQS ATTAINMENT CLASSIFICATION	NAAQS ATTAINMENT CLASSIFICATION
Ozone	Nonattainment	Extreme nonattainment
Carbon monoxide	Attainment	Maintenance
Nitrogen dioxide	Attainment	Maintenance
Sulfur dioxide	Attainment	Attainment
Particulate matter less than 10 microns in diameter	Nonattainment	Maintenance
Particulate matter less than 2.5 microns in diameter	Nonattainment	Nonattainment
Lead	Attainment	Nonattainment (Los Angeles County)
Sulfates	Attainment	Not applicable
Hydrogen sulfide	Unclassified	Not applicable
Vinyl chloride	Unclassified	Not applicable

3.2.3 Methodology and Thresholds of Significance

The SCAQMD has adopted significance thresholds in its SCAQMD CEQA Air Quality Handbook (SCAQMD 1993). These thresholds are arranged in three parts starting with the broadest and narrowing to the most specific. The general thresholds are derived from Appendix G of the State CEQA Guidelines, and indicate that a project could have potentially significant impacts if it could:

a) Conflict with or obstruct implementation of the applicable air quality plan,
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation,
c) Result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including release emissions which exceed quantitative thresholds for ozone precursors); or
d) Expose sensitive receptors to substantial pollutant concentrations including air toxics such as diesel particulates.
e) Create odors affecting a substantial number of people.

The second level of significance set forth in the SCAQMD's significance thresholds presents quantitative emissions thresholds by which to evaluate whether a project's impacts could have a significant impact on air quality. The quantitative emission thresholds are included in Table 3.2-5, Air Quality Significance Thresholds.

TABLE 3.2-5 SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS

<table>
<tr><th>POLLUTANT</th><th>CONSTRUCTION</th><th>OPERATION</th></tr>
<tr><td colspan="3">Criteria Pollutants Mass Daily Thresholds</td></tr>
<tr><td>NO_x</td><td>100 lbs/day</td><td>55 lbs/day</td></tr>
<tr><td>ROG</td><td>75 lbs/day</td><td>55 lbs/day</td></tr>
<tr><td>PM_{10}</td><td>150 lbs/day</td><td>150 lbs/day</td></tr>
<tr><td>$PM_{2.5}$</td><td>55 lbs/day</td><td>55 lbs/day</td></tr>
<tr><td>SO_x</td><td>150 lbs/day</td><td>150 lbs/day</td></tr>
<tr><td>CO</td><td>550 lbs/day</td><td>550 lbs/day</td></tr>
<tr><td>Lead</td><td>3 lbs/day</td><td>3 lbs/day</td></tr>
<tr><td colspan="3">TAC, AHM, and Odor Thresholds</td></tr>
<tr><td>Toxic Air Contaminants
(TACs)</td><td colspan="2">Maximum Incremental Cancer Risk $\geq$ 10 in 1 million
Cancer Burden $\geq$ 0.5 (in areas $\geq$ 1 in 1 million)
Chronic & Acute Hazard Index $\geq$ 1.0 (project increment)</td></tr>
<tr><td>Odor</td><td colspan="2">Project creates an odor nuisance pursuant to SCAQMD Rule 402</td></tr>
<tr><td>GHG</td><td colspan="2">10,000 MT/yr CO_2e for industrial facilities</td></tr>
<tr><td colspan="3">Ambient Air Quality for Criteria Pollutants</td></tr>
<tr><td>NO_2</td><td colspan="2">SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:
0.18 ppm (state)
0.03 (state) and 0.0534 (federal)</td></tr>
<tr><td>PM_{10}
24-hour average
annual average</td><td colspan="2">10.4 $\mu g/m^3$ construction and 2.5 $\mu g/m^3$ operation
1.0 $\mu g/m^3$</td></tr>
<tr><td>$PM_{2.5}$
24-hour average</td><td colspan="2">10.4 $\mu g/m^3$ construction and 2.5 $\mu g/m^3$ operation</td></tr>
<tr><td>SO_2
1-hour average
24-hour average</td><td colspan="2">0.25 ppm (state) and 0.075 ppm (federal – 99^{th} percentile)
0.04 ppm (state)</td></tr>
</table>

POLLUTANT	CONSTRUCTION	OPERATION
Sulfate 24-hour average	25 μg/m³ (state)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 0.0 (state/federal)	
Lead 30-day average Rolling 3-month average Quarterly average	1.5 μg/m³ (state) 0.15 μg/m³ (federal) 1.5 μg/m³ (federal)	

Notes:
lbs/day = pounds per day; μg/m³ = microgram per cubic meter; pphm = parts per hundred million; mg/m³ = milligram per cubic meter; ppm = parts per million; TAC = toxic air contaminant; AHM = Acutely Hazardous Material; MT/ry = metric tons per year

Source: SCAQMD 2015.

To further evaluate the potential for significant impacts associated with the construction phase of the proposed Project, the SCAQMD's *Final Localized Significance Threshold Methodology* was considered (SCAQMD 2008a). The Localized Significance Threshold (LST) Methodology provides a look-up table for construction and operational emissions based on the emission rate, location, and distance from receptors, and provides a methodology for air dispersion modeling to evaluate whether construction or operation could cause an exceedance of an ambient air quality standard. The LST Methodology only applies to impacts to NO_2, CO, PM_{10}, and $PM_{2.5}$ concentrations.

Because the majority of the construction activities occur offshore, the only portion of the construction activity for which the LSTs would be applicable would be the activities that could occur onshore (i.e., cable pulling). The emissions from the onshore activities were therefore evaluated based on the LST look-up tables.

According to the LST Methodology, the proposed Project is located in Source Receptor Area Zone 2, the Northwest Coastal Los Angeles Zone. The LSTs for the Northwest Coastal Los Angeles are shown in Table 3.2-6, based on the distance to the nearest receptor.

TABLE 3.2-6 LOCALIZED SIGNIFICANCE THRESHOLDS, LBS/DAY

DISTANCE TO NEAREST RECEPTOR, METERS[1]	POLLUTANT					
	NOx	CO	PM_{10} - Construction	PM_{10} – Operation	$PM_{2.5}$ - Construction	$PM_{2.5}$ - Operation
1 acre						
25	103	562	4	1	3	1
50	104	833	12	3	4	1
100	121	1233	27	7	8	2
200	156	2367	57	14	18	5
500	245	7724	146	36	77	19
2 acres						
25	147	827	6	2	4	1

DISTANCE TO NEAREST RECEPTOR, METERS[1]	POLLUTANT					
	NOx	CO	PM_{10} - Construction	PM_{10} – Operation	$PM_{2.5}$ - Construction	$PM_{2.5}$ - Operation
50	143	1213	19	5	5	2
100	156	1695	34	9	10	3
200	186	2961	64	16	21	6
500	262	8446	154	37	82	20
5 acres						
25	221	1531	13	3	6	2
50	212	1985	40	10	8	2
100	226	2762	55	13	14	4
200	250	4383	84	21	29	7
500	312	10666	174	42	95	23

Notes:
[1]25 meters = 82 feet; 50 meters = 164 feet; 100 meters = 328 feet; 200 meters = 656 feet; 500 meters = 1,640 feet.
Source: South Coast Air Quality Management District Final Localized Significance Threshold Lookup Tables (SCAQMD 2009).

For the purpose of evaluating potential impacts, it was assumed the active site would be 1 acre or less, and the closest receptor would be 25 meters (82 feet) from construction activities.

Project-related GHG emissions are considered to be significant if they:

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG.

SCAQMD's threshold of significance for GHG for industrial projects is 10,000 metric tons CO_2e emissions per year (adopted December 5, 2008; includes construction emissions amortized over 30 years and added to operational GHG emissions). The impacts associated with the proposed Project were evaluated based on these significance criteria.

3.2.4 Best Management Practices

The following BMP would minimize the environmental impacts associated with the proposed Project for air quality.

BMP-1 Fugitive Dust Control Plan

Construction of the Project would be subject to SCAQMD Rule 403, Fugitive Dust. In compliance with this rule, a dust control supervisor shall be identified for the Project and shall supervise implementation of the SCAQMD-approved dust control plan. The plan will itemize measures related to vehicle trackout, stabilizing soils, water application, and maintenance of soil moisture content.

3.2.5 Impact Analysis

a) Would the Project conflict with or obstruct implementation of the applicable air quality plan?

The Project would comply with applicable federal, State, and local laws. The most recent air quality management plan adopted by the SCAQMD for the SCAB is the 2012 AQMP (SCAQMD 2012). The control strategies proposed in the 2012 AQMP focus on emissions of $PM_{2.5}$ and ozone precursors, and identify precursor emissions as the key source of $PM_{2.5}$ in the atmosphere, as opposed to directly emitted $PM_{2.5}$.

The proposed Project would not conflict with or obstruct implementation of the AQMP, as it would be in compliance with applicable rules and regulations adopted by the SCAQMD for the purpose of attaining and maintaining the air quality standards. The AQMP anticipates construction activities in its emissions budget and assumes that projects would comply with requirements for construction equipment and control of fugitive dust emissions, thereby reducing emissions of $PM_{2.5}$ and ozone precursors to the extent feasible. By virtue of its compliance with applicable rules and regulations, the proposed Project would not conflict with or obstruct implementation of the AQMP, and impacts would be less than significant.

For operations, the Project would comply with applicable federal, State, and local laws. Operation and maintenance emissions would be less than emissions associated with construction, and would include minor use of off-road equipment and on-road vehicles, essentially the same as under existing conditions. The AQMP anticipates off-road equipment and vehicle emissions in its emissions budget and assumes that projects would comply with requirements for equipment and motor vehicles. By virtue of its compliance with applicable rules and regulations, the proposed Project would not conflict with or obstruct implementation of the AQMP, and impacts would be less than significant.

b) Would the Project violate an air quality standard or contribute substantially to an existing or projected air quality violation?

Emissions during Project construction activities would result from the operation of heavy equipment both onshore and on marine vessels (cable pulling rig, crane, generator, etc.), vehicles (including truck traffic and worker vehicles), marine vessels involved in the offshore portion of installation of the cable, and from fugitive dust generated by construction vehicles. Emissions from heavy equipment used in construction for the Project, on-road vehicles (including truck traffic and worker vehicles), and fugitive dust were estimated using the California Emissions Estimation Model (CalEEMod).

Marine vessels that would assist in construction of the offshore portion of the Project would come from Marina del Rey. Emissions from marine vessels that will be used in the offshore portion of the construction were calculated based on information provided in the Port of Los Angeles' 2011 Air Emissions Inventory (POLA 2012) and CARB's *Emissions Estimation Methodology for Commercial Harbor Craft Operating in California* (CARB 2012). It was assumed that the vessels that would assist in the construction of the offshore portion would be ocean tugs.

Table 3.2-7 presents the equipment assumptions used in the emission calculations. The information in Table 3.2-7 is based on input from LADWP on the estimated construction schedule and equipment requirements for the Project.

TABLE 3.2-7 ESTIMATED EQUIPMENT AND VEHICLES FOR PROJECT CONSTRUCTION

EQUIPMENT	CABLE PULLING	MARINE CABLE LAYING	ELECTRODE ARRAY INSTALLATION	COMMISSIONING	ABANDONMENT OF EXISTING FACILITY
Cable Pulling Rig	x				
Barge			x		
Tug Boats			x		
Small Water Crafts		x	x	x	x
Cable-Laying Vessel		x			
Jet Plow		x			
30-Ton Crane			x		
500 Kilowatt (kW) Generator			x		

Table 3.2-8 presents the worst-case, peak day emission estimates for the construction activity. The maximum simultaneous emissions occur during marine cable laying due to the emissions from the cable laying vessel. This assumption results in the highest estimate of simultaneous daily construction emissions.

As described in BMP-1, construction of the Project would be subject to SCAQMD Rule 403, Fugitive Dust, which is applicable to any activity capable of generating fugitive dust, including construction. Compliance with Rule 403 requires implementation of best available control measures (BACM) to minimize fugitive dust emissions (Tables 1, 2, and 3 of the Rule, included in Appendix C). In compliance with this rule, a dust control supervisor shall be identified for the Project and shall supervise implementation of the SCAQMD-approved dust control plan. The plan will itemize measures related to vehicle trackout, stabilizing soils, water application, and maintenance of soil moisture content. Implementation of BMP-1 during construction would reduce fugitive dust by 61 to 85 percent, depending on the activity. These measures were included in the calculation of PM_{10} and $PM_{2.5}$ emissions. Project-related emissions of PM_{10} and $PM_{2.5}$ would remain above the localized significance thresholds. Project-related emissions of NOx would remain above the significance threshold.

TABLE 3.2-8 ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS

SOURCE	ROG LBS/DAY	CO LBS/DAY	NO_X LBS/DAY	SO_X LBS/DAY	PM_{10} LBS/DAY	$PM_{2.5}$ LBS/DAY
Cable Pulling						
Heavy Construction Equipment	0.52	2.90	4.69	0.00	0.37	0.34
Construction Trucks	0.02	0.20	0.17	0.00	0.02	0.01
Worker Vehicles	0.02	0.26	0.02	0.00	0.05	0.01

SOURCE	ROG LBS/DAY	CO LBS/DAY	NO_X LBS/DAY	SO_X LBS/DAY	PM_{10} LBS/DAY	$PM_{2.5}$ LBS/DAY
Total Daily Emissions	0.56	3.36	4.88	0.00	0.44	0.36
SCAQMD Regional Significance Threshold	*75*	*550*	*100*	*150*	*150*	*55*
Above Threshold?	No	No	No	No	No	No
Localized Significance Threshold	*NA*	*562*	*103*	*NA*	*4*	*3*
Above Threshold?	NA	No	No	NA	No	No
Marine Segment Construction – Marine Cable Laying						
Marine Vessels	115.41	307.79	1,036.26	1.09	58.16	52.34
Total Daily Emissions	115.41	307.79	1,036.26	1.09	58.16	52.34
SCAQMD Regional Significance Threshold	*75*	*550*	*100*	*150*	*150*	*55*
Above Threshold?	Yes	No	Yes	No	No	No
Marine Segment Construction – Electrode Array Installation						
Heavy Construction Equipment	3.79	18.77	42.35	0.05	1.89	1.79
Construction Trucks	0.02	0.20	0.17	0.00	0.02	0.01
Worker Vehicles	0.02	0.26	0.02	0.00	0.05	0.01
Marine Vessels	15.55	41.71	142.34	0.15	7.72	6.95
Total Daily Emissions	19.38	60.94	184.88	0.20	9.68	8.76
SCAQMD Regional Significance Threshold	*75*	*550*	*100*	*150*	*150*	*55*
Above Threshold?	No	No	Yes	No	No	No
Commissioning						
Worker Vehicles	0.02	0.26	0.02	0.00	0.05	0.01
Marine Vessels	1.33	12.25	3.57	0.01	0.66	0.59
Total Daily Emissions	1.35	12.51	3.59	0.01	0.71	0.60
SCAQMD Regional Significance Threshold	*75*	*550*	*100*	*150*	*150*	*55*
Above Threshold?	No	No	No	No	No	No
Abandonment of Existing Facility						
Worker Vehicles	0.02	0.26	0.02	0.00	0.05	0.01
Marine Vessels	1.33	12.25	3.57	0.01	0.66	0.59
Total Daily Emissions	1.35	12.51	3.59	0.01	0.71	0.60
SCAQMD Regional Significance Threshold	*75*	*550*	*100*	*150*	*150*	*55*
Above Threshold?	No	No	No	No	No	No
Maximum Simultaneous Emissions						
Maximum Total Daily Emissions	115.41	307.79	1,036.26	1.09	58.16	52.34
SCAQMD Regional Significance Threshold	75	550	100	150	150	55
Above Threshold?	Yes	No	Yes	No	No	No

As shown in Table 3.2-8, maximum daily emissions would be above the regional significance thresholds for ROG and NOx. Impacts would be above the regional significance thresholds during cable laying activities and during electrode array installation due to emissions from marine vessels. Impacts associated with construction activities would therefore result in significant, but temporary, impacts on air quality.

Therefore, the implementation of Mitigation Measures AIR-1, AIR-2, and AIR-3 is required. Localized impacts from cable pulling activities that would occur on shore would be less than significant.

d) Would the Project expose sensitive receptors to substantial pollutant concentrations including air toxics such as diesel particulates?

Construction activities would result in emissions of diesel particulate matter from heavy construction equipment used on site and truck traffic to and from the site, as well as minor amounts of TAC emissions from motor vehicles (such as benzene, 1,3-butadiene, toluene, and xylenes). The main TAC associated with the Project is diesel particulate matter from truck traffic along the haul routes and the operation of heavy equipment at construction sites. Health effects attributable to exposure to diesel particulate matter are long-term effects based on chronic (i.e., long-term) exposure to emissions. Health effects are generally evaluated based on a lifetime (70 years) of exposure.

Because the majority of Project construction activity would occur offshore, pollutants would be dispersed by the time they would reach any location where sensitive receptors could be present. Due to the temporary, short-term nature of the construction activities, and the distance from offshore activities to sensitive receptors onshore, impacts would be less than significant.

e) Would the Project create odors affecting a substantial number of people?

Construction of the Project would involve the use of heavy equipment, including diesel-powered equipment, which would generate fumes and may create nuisance odors. The majority of these sources would be used in the offshore construction activities, and, therefore, would not impact a substantial number of people. Odor impacts during Project construction would be less than significant.

Air Pollutant Emissions During Project Operation

Under existing conditions, maintenance workers periodically commute to and from the Project site to conduct inspection, test, and maintenance activities. Air pollutant emissions related to marine vessels, equipment, and vehicle use during Project operations will be similar with the Project as under existing conditions. No new workers are anticipated to be required, and no substantial increase in the frequency of maintenance activities is anticipated. Therefore, impacts on air quality during Project operation will be less than significant.

3.2.6 Cumulative Impacts

c) Would the Project result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including release emissions which exceed quantitative thresholds for ozone precursors)?

Cumulative Impact of Nonattainment Pollutants

Related projects that could contribute to a cumulatively considerable net increase of nonattainment pollutants would be projects in the vicinity of the SGRS Project that are under construction at the same time as the Project.

As discussed in Section 3.2.5.2, and shown previously in Table 3.2-8, maximum daily construction emissions would exceed the regional significance thresholds for ROG and NOx. These emissions would therefore result in a cumulatively considerable, but temporary, impact on ambient air quality during construction activities.

Global Climate Change

According to the California Energy Commission (CEC 2006), CO_2 (fossil fuel combustion CO_2 and non-fossil fuel combustion CO_2) accounts for approximately 84 percent of statewide GHG emissions, with methane accounting for approximately six percent and nitrous oxide accounting for another seven percent. Other pollutants account for approximately three percent of GHG emissions in California. The transportation sector is the single largest category of California's GHG emissions, accounting for 41 percent of emissions statewide. In 2010, California produced 452 MMT of total CO_2e emissions.

The main source of GHG emissions associated with the Project would be combustion of fossil fuels during construction activities. Emissions of GHG have been calculated using the same approach as emissions for overall construction discussed above. Estimated emissions of GHG related to construction of the Project are summarized in Table 3.2-9. Emission calculations are provided in Appendix C.

The SCAQMD recommends that construction emissions be amortized over a 30-year period to account for the Project's contribution to overall GHG emissions. If amortized over a 30-year period, construction would contribute 66 metric tons per year of CO_2e emissions.

SCAQMD's threshold of significance for GHG for industrial projects is 10,000 metric tons CO_2e emissions per year (adopted December 5, 2008; includes construction emissions amortized over 30 years and added to operational GHG emissions). Annual CO_2e emissions are less than the SCAQMD's significance threshold.

TABLE 3.2-9 ESTIMATED ANNUAL GHG EMISSIONS FROM CONSTRUCTION

SOURCE	CO_2 METRIC TONS (TOTAL)	CH_4 METRIC TONS (TOTAL)	N_2O METRIC TONS (TOTAL)
Cable Pulling	18.68	0.01	0.00
Marine Cable Laying	1365.03	0.19	0.02
Electrode Array Installation	415.47	0.05	0.00
Commissioning	37.82	0.01	0.00
Abandonment of Existing Facility	37.82	0.01	0.00
Total	1,874.82	0.27	0.02
Total CO_2-Equivalent Construction-related Emissions (metric tons)	1,888		
Amortized Construction-related Emissions (metric tons)	63		

The total amortized CO2e emissions associated with construction would remain below the thresholds proposed by the SCAQMD and CARB. Impacts to global climate change would therefore be less than significant.

3.2.7 Mitigation Measures and Level of Significance After Mitigation

Mitigation Measures

As discussed above, maximum daily air pollutant emissions would be above the regional significance thresholds for NOx and ROG. To reduce emissions from heavy equipment, construction equipment will meet USEPA Tier 2 or Tier 3 emission standards. To reduce air quality impacts to the extent possible, the following air emission control measures shall be implemented.

AIR-1 Equipment Maintenance – All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

AIR-2 Equipment Operation – The contractor shall maintain and operate construction equipment to minimize exhaust emissions. During construction, trucks and vehicles will minimize idling when not in use to the extent feasible.

AIR-3 Catalytic Converters – Catalytic converters shall be installed on all heavy construction equipment, where feasible.

Level of Significance After Mitigation

Implementation of mitigation measures AIR-1 through AIR-3 would reduce air pollutant emissions during Project construction. However, ROG and NOx emissions reductions that can be achieved with these measures are not quantifiable and would not reduce emissions below the level of significance. The main source of ROG and NOx emissions is marine vessels. Use of heavy construction equipment, marine vessels, and vehicles is required in order to implement the Project. Therefore, there are no feasible mitigation measures that would reduce ROG or NOx impacts to below a level of significance.

Maximum daily ROG and NOx emissions associated with construction for the Project would remain significant and unavoidable, even with implementation of feasible mitigation measures.

3.3 BIOLOGICAL RESOURCES

This section discusses the potential impacts to biological resources associated with the Project. Because landside construction activity would occur within a parking lot at the existing Gladstone Vault and would entail only cable pulling through existing conduit, which would not require any excavation or ground disturbance and would take approximately one week to complete, there would be no impacts to terrestrial biological resources. Therefore, this section focuses on impacts to biological resources in the marine environment related to Project construction and operations.

3.3.1 Existing Conditions

Extensive studies and surveys have been conducted in Santa Monica Bay as part of the Project to assess potential impacts to biological resources. Three studies have been conducted since 2012:

1. *Geophysical Survey Report* (Fugro 2012; presented in Appendix D1 of this EIR).
2. *Assessment of Marine Resources in the Vicinity of the Sylmar Ground Return System Undersea Electrode* (hereafter referred to as the Marine Resources Assessment) (Weston 2012a; presented in Appendix D2). A companion Literature Review was also prepared as part of the Marine Resources Assessment (Weston 2012b; presented in Appendix D3).
3. *Assessment of the Existing SGRS Marine Electrode in Santa Monica Bay* (hereafter referred to as the Existing Electrode Study) (Burns & McDonnell 2015; presented in Appendix D4).

These three studies, which form the basis of the impact assessment for the Project, are summarized in the following subsections.

Geophysical Survey Report

Fugro Consultants, Inc. (Fugro) conducted shallow hazards geophysical and geotechnical surveys for the submarine segment of the electrode system (see the full report in Appendix D1). The purpose of the geophysical survey was to acquire multibeam bathymetry, side-scan-sonar imaging, marine magnetics, and shallow seismic data to document the seafloor and sub seafloor conditions within the proposed Project area and adjacent surroundings. These surveys identified submerged structures and exposed rock reefs to be avoided during Project routing and construction. The surveys were conducted when a larger electrode array located farther offshore than under the proposed Project as described in this Draft EIR was under consideration. However, the survey area completely encompasses the currently proposed cable route and electrode array site.

Geophysical surveys were performed along a 1,440-foot wide corridor encompassing the proposed subsea cable route and electrode array. The proposed cable would extend from nearshore portions of the Project area (minimum depth of 20 feet) to approximately two miles (approximately 1.7 nautical miles) south-southwest from shore at a maximum depth of about 100 feet. Side-scan sonar and sub-bottom surveys were conducted along eight lines parallel to, and one line centered on, the proposed subsea cable route and along nine tie lines oriented perpendicular to the route and spaced 5,000 feet apart. Magnetometer data were acquired on every other line and tie lines. Multibeam bathymetric surveys were conducted to provide 100 percent seafloor coverage. Fugro researched regional geology, tectonic development and history, seismology, and recorded tsunami source events. Fugro also collected seabed sediment grab samples for assisting in the interpretation of the geophysical survey findings.

Throughout the survey area, seabed sediments were comprised of sand, sandy clay, sandy silt, and silty sand with occasional outcroppings of bedrock nearshore. Three magnetic anomalies and seven side-scan sonar targets were identified from the data sets within the proposed Project corridor. In all cases, no side-scan sonar feature is seen in the proximity of the magnetic anomaly. These anomalies were determined to have been caused by small iron objects. Of the seven side-scan-sonar targets, two were identified as a possible abandoned crab pot and its detached buoy line, while the others were categorized as unidentifiable targets. The largest of these unidentified objects was about 10 feet by 2 feet by 1 foot high.

Sandy seabed characterizes the inner shelf near the Project’s landfall location and along the proposed cable route for the Project. Isolated bedrock is exposed in the side-scan-sonar records where the sediment cover layer thins nearshore to the east of the centerline of the proposed cable route. No bedrock was detected along the proposed cable centerline itself.

2012 Marine Resources Assessment

In 2012, Weston Solutions (Weston) conducted a multiple lines of evidence study that consisted of both field surveys and existing literature and data reviews to assess potential Project impacts within the marine environment of Santa Monica Bay (see the full report in Appendix D2). To accomplish this, existing biological resources and activities within the Project area were assessed through video surveillance using a submersible remotely operated vehicle (ROV), extensive biological surveys, and evaluations of sediment and water chemistry, sediment toxicity, and water quality throughout the water column. These surveys were also conducted when a larger electrode array located farther offshore was under consideration, but the survey area assessed in the 2012 Marine Resources Assessment completely encompasses the currently proposed cable route and electrode array site for the Project. An extensive Literature Review was also conducted in support of the Marine Resources Assessment (Appendix D3).

Surveys conducted as part of the assessment included two cable route options (1 and 2) as they were originally proposed. Cable Route Option 1 assessed in the Marine Resources Assessment in 2012 is identical to the proposed cable route for the Project, except that Cable Route Option 1 extended three miles from shore and the proposed Project cable route extends two miles from shore, terminating in the proposed marine electrode. In the Weston (2012a) assessment, environmental samples (seawater and sediment), were collected along a series of transects positioned along the cable route. A graphic showing Cable Route Option 1 in the Weston (2012a) assessment and the proposed cable route and electrode location for the Project is presented on Figure 3.3-1. The currently proposed location for the electrode array generally coincides with Transect 4 of the Weston (2012a) study. Cable Route Option 2 addressed an alignment with a landside origination point at West Channel Road and Pacific Coast Highway. However, as discussed in the Preface to the Draft EIR, this route is no longer under consideration for the proposed Project.

Survey results were compared with nearby, similar sites from the Southern California Bight[1] 2008 Regional Monitoring Program (Southern California Coastal Water Research Project [SCCWRP] 2008), a

[1] The Southern California Bight is a coastal region of unique oceanographic conditions, marine ecosystems and biodiversity.

large-scale regional assessment for identifying water and sediment contaminant issues throughout Southern California embayments, harbors, and nearshore and offshore ocean environments throughout the Southern California Bight, including Santa Monica Bay (Schiff et al. 2011). The following sections present an overview of the methods and results of the Weston (2012a) assessment. The full report is presented in Appendix D2 and the Literature Review is presented in Appendix D3.

Methods

Sampling and observational methods were used to assess the existing conditions within the proposed cable route and electrode array footprints. These assessments included the following:

- Water chemistry samples were collected along the proposed cable route and adjacent reference area to determine chemical constituents in the water column prior to electrode operation. Water chemistry samples were tested for trace metals, chlorine, and halogenated organic compounds (volatile and semi-volatile).
- Water quality measurements were collected to assess baseline water column conditions and physical factors that can affect the size and strength of the electric field. Water quality measurements included temperature, salinity, hydrogen ion concentration (pH), dissolved oxygen (DO), chlorophyll a, conductivity, density, and transmissivity.
- Sediment chemistry and grain size samples were collected at all transects to assess the potential release of chemicals of concern into the water column during construction activities. Sediment chemistry samples were analyzed for metals, organochlorine pesticides, polycyclic aromatic hydrocarbon (PAHs), and polychlorinated biphenyl (PCB) congeners. Physical measurements were conducted for total organic carbon content, percent solids, and grain size.
- Sediment samples for benthic infauna (animals that live in the sediment) were collected at all transects and were analyzed for toxicity at a subset of transects. Benthic infauna was assessed to determine the anticipated level of impact to the soft bottom community associated with cable installation and construction of the electrode array. Benthic measures assessed include total abundance, number of species, dominance index (number of species comprising 70 percent of the total number of species at a transect), evenness (proportion of abundance of different species), Shannon-Wiener Diversity Index, and the benthic response index (BRI). Toxicity measures included a 10-day solid phase bioassay test in accordance with procedures outlined in the amphipod testing manual (USEPA 1994) and American Society for Testing and Materials (ASTM) Method E1367-03 (ASTM 2010).
- Video and still footage from ROV surveys and diver surveys were analyzed to assess local fish and invertebrate species, algae, and habitat within the Project area.

Water Quality Results

Water quality parameters were consistent with the conditions of the majority of Santa Monica Bay and were comparable to sites at similar depths monitored in the Bight 2008 Regional Monitoring Program (SCCWRP 2008). Results of water chemistry analyses revealed that there were no detectable concentrations of residual chlorine or halogenated organic compounds (volatile and semi-volatile) in any of the samples. Concentrations of trace metals were detected across all samples; however, all trace metal concentrations were substantially below the most conservative water quality objectives for the protection of marine life listed in the California Ocean Plan (COP), and were consistent with those of the majority of Santa Monica Bay, based on comparisons to the Bight 2008 Regional Monitoring Program (SCCWRP 2008).

- Existing Marine Cables
- Proposed Marine Cables
- Existing Conduit
- Original Route Option 1
- Transect Locations

Feet
0 2,500

FIGURE 3.3-1
AERIAL IMAGE OF CABLE ROUTE OPTION 1 ASSESSED BY WESTON (2012a) AND THE PROPOSED CABLE ROUTE FOR THE PROJECT

SYLMAR GROUND RETURN SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS
LA DWP

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Sediment Quality Results

Sediment quality was assessed using three lines of evidence — chemistry, toxicity, and benthic infaunal community health. Sediment concentrations of contaminants of concern measured within the Project area were compared to the Effects Range-Low (ER-L) and Effects Range-Median (ER-M) benthic organism toxicity threshold developed by Long et al. (1995). Sediment contaminant concentrations less than the ER-M values are considered below the thresholds likely for toxicity. Concentrations of all contaminants of concern measured within the Project area were below ER-Ms in the 2012 Marine Resources Assessment. There were a limited number of contaminants, such as dichlorodiphenyltrichloroethane (DDT), mercury, and total PCBs that were found at concentrations above ER-Ls (i.e., chemical concentrations that may have some potential for biological effects based on prior laboratory studies); however, bioassay tests of the sediments collected within the Project area during this assessment did not show evidence of toxicity.

Given that Santa Monica Bay is located at the terminus of a highly urbanized watershed, the bay has been subjected to point and non-point inputs of pollutants, resulting in detectable levels of contaminants of concern within the sediments throughout the bay. It has been estimated from large-scale regional studies that 90 percent of the surface sediments of the Bay are contaminated (Schiff 2000), largely due to legacy inputs of pollutants.

The benthic infaunal community condition was indicative of reference conditions or low levels of disturbance, similar to what has been found throughout other areas of the bay.

Visual Habitat and Biota Survey Results

The Project area contained predominantly soft bottom habitat with a relatively minor amount of rocky reef habitat to the east of the centerline of the proposed cable route for the Project. Habitat within the Project area was observed to support a benthic and demersal (i.e., on or near the bottom) community that was consistent with soft bottom habitats within the larger bay. The water column and surface waters within the Project area provide similar foraging, migratory, and overall habitat characteristics as that of the majority of Santa Monica Bay. Based on these findings, the Weston (2012a) study concluded that the Project area includes similar habitats to other areas of Santa Monica Bay and supports marine species that occur throughout the bay.

2015 Existing Electrode Study

In January 2015, the Existing Electrode Study was conducted to assess water chemistry, sediment quality parameters (i.e., chemistry, toxicity, and benthic infaunal community health), and biological community health at the existing SGRS cables and electrode array, as well as at reference sites (presented in Appendix D4). Comparisons between the existing SGRS system and reference conditions were made to determine if SGRS operation since 1970 had measurable impacts on water quality, sediment quality, and the associated biological community.

Methods

The study was conducted in January 2015 at five sites along the existing cable route, five sites at the existing electrode vaults, and five sites along a reference cable route that paralleled the existing cable route. Divers collected samples and made observations at each site for analysis of sediment chemistry and toxicity, water chemistry, and sediment biology (i.e., infauna). Biological surveys of fish, invertebrates, and marine vegetation were also performed at all 15 sites. The specific methods for each component of the study were the same as for the 2012 survey described above.

Water Quality Results

Seawater was analyzed for metals, chlorinated compounds, and halogenated organics. Concentrations of contaminants of concern collected in the vicinity of the existing SGRS electrode vaults and cables were less than the most conservative COP Water Quality Objectives (Daily Maximum). Additionally, water chemistry concentrations were similar between SGRS and reference sites, as well as open water conditions in Santa Monica Bay, indicating that the existing electrode was not having a lasting, measurable effect on water quality.

Sediment Quality Results

Sediment quality was assessed using three lines of evidence — chemistry, toxicity, and benthic infaunal community health. Sediment concentrations of metals and total DDT were less than the ER-M thresholds for likely toxicity at all existing electrode vault, cable, and reference sites. Total PCB congener concentrations did exceed the ER-M at one of the five vault sites and at three of the five reference sites. Total DDT concentrations were just above the ER-L at all five vault sites, but did not exceed the ER-M at any site. Concentrations of PCBs and DDT were similar to those found elsewhere in Santa Monica Bay, based on large-scale, regional studies (i.e., Bight 2008, Regional Monitoring Program). Although there were a limited number of exceedances of chemical thresholds, bioassay tests of the sediments collected from all existing cable and existing electrode sites did not show any evidence of toxicity. Additionally, the benthic infaunal communities collected in the sediments at the vaults and along the cable route were indicative of a low disturbance environment, similar to other locations in Santa Monica Bay. Sediment quality parameters did not indicate that the existing SGRS operation was having an adverse effect on the surrounding environment.

Existing Vault Biological Community Results

Biological surveys of the existing electrode vaults indicate that a rich biological community (fish, invertebrates, and marine algae) currently inhabits the concrete vaults. Diver surveys documented that the biological conditions at the existing electrode vaults were similar to those found at other natural and man-made reefs throughout the region (Santa Monica Bay and other areas in the Southern California Bight). Thus, the existing electrode vaults provide valuable hard bottom habitat that supports a thriving biological community.

Water quality, sediment quality, and biological community assessments all indicate that conditions at the existing SGRS electrode and cable routes are supportive of healthy biological communities. This is evidenced by water and sediment quality measures at the existing electrode and cable routes that are largely below thresholds for adverse effects to biota and are consistent with the reference sites, as well as similar areas of Santa Monica Bay. The concrete electrode vaults and sediments along the cable routes both support biological communities that are similar to other hard and soft bottom habitats, respectively, in the bay, even after the existing electrode has been in operation for 45 years.

Existing Habitat Types

Santa Monica Bay is a large, open-water embayment of the Pacific Ocean that is bordered on the north by rocky headlands at Point Dume and is bordered on the south by the headlands on the Palos Verdes Peninsula. Santa Monica Bay extends seaward a distance of approximately 11 miles from the City of Santa Monica shoreline. The nearshore continental shelf extends from the shoreline to an offshore distance of approximately four miles, where water depths reach a maximum of approximately 300 feet. As the continental shelf ends and becomes the continental slope and eventually the Santa Monica Basin, water depths within the bay increase to more than 2,500 feet.

Nearshore habitats within the Project area range from sandy beach and rocky intertidal areas along the shoreline to soft-bottom habitat interspersed with seagrass beds and small rocky reefs in the nearshore subtidal zone (Appendix D2). Further offshore, soft-bottom and open ocean habitats predominate, with only a small percentage of rocky reef. Kelp forest habitat within Santa Monica Bay is primarily located in the shallow subtidal zone around Malibu and Palos Verdes. Based on a review of kelp maps, large kelp beds are not found within the Project area; although small kelp stands may be present, they are not located within the proposed Project footprint. The pelagic (i.e., open water) habitat, which is the largest habitat within the bay, is a highly productive offshore region of open ocean that supports nearly all of the bay's marine life. The vast majority of the phytoplankton, which is the basis for the bay's marine food web, is primarily grown in the pelagic habitat. As a result of the bay's diverse bathymetry, abundant nutrients, and wide range of habitats, it is considered a highly productive biological environment used by both migratory and resident species of marine mammals, fish, birds, and invertebrates.

Sandy Shoreline

Sandy shorelines in the Southern California Bight typically consist of exposed medium- to coarse-grain sand beaches. Santa Monica Bay has approximately 26 miles of sandy shoreline, extending from Malibu Point to Flat Rock Point, located near the Palos Verdes Peninsula. Sandy shoreline can be relatively dynamic in nature since it is subjected to tidal extremes, nearshore currents, storm surge, and wave activity that can move sand within the intertidal zone and re-contour beach profiles.

Subtidal Soft-Bottom Habitat

Muddy substrates are the predominant habitat throughout Santa Monica Bay, from the 20-meter isobath (an imaginary line or a line on a map or chart that connects all points having the same depth below a water surface) to the adjacent Santa Monica basin floor (780 meters) based upon multi-beam sonar imagery (Edwards et al. 2003). Coarser-grained sandy substrates lie predominantly along the innermost mainland shelf and a narrow outer shelf band north of Santa Monica Canyon, while cobble and gravel substrates are predominantly restricted to the innermost shelf south of El Segundo and limited parts of the shelf edge.

The soft-bottom habitat of Santa Monica Bay supports a diverse infaunal community (animals that live within the substrate). Summer and winter infaunal surveys conducted in the bay in 2002 identified 28,184 individuals in 625 taxa during National Pollutant Discharge Elimination System (NPDES) monitoring (City of Los Angeles 2003). The ten most common species inhabiting soft-bottom habitats were the polychaete worms (*Spiophanes duplex, Paraprionospio pinnata, Euclymeninae* sp., *Prionospio jubata, Paradiopatra parva*, and *Glycera nana*); the brittle star (*Amphiodia urtica*); the horseshoe worm (*Phoronis* sp.); the capitellid worm (*Mediomastus* sp.); and the amphipod (*Ampelisca brevisimulata*).

Most polychaetes feed by engulfing soft sediments and detritus and digesting the entrained microorganisms, while others filter feed on bits of organic detritus in the water, or prey on other infauna. Other common infaunal groups include crustaceans, such as amphipods, mollusks, and echinoderms. The abundance and distribution of infauna has been shown to vary both spatially and temporally (City of Los Angeles 2003).

Epibenthic invertebrates (animals that live on the surface of the substrate) of Santa Monica Bay include sea stars, sea cucumbers, sand dollars, sea urchins, crabs, shrimp, snails, tube worms, nudibranchs, and sea slugs. During quarterly trawls at nine sampling locations (referred to as stations) in Santa Monica Bay in 2001, a total of 15,820 individuals representing 53 species were captured. In 2002, the quarterly trawls yielded a total of 8,780 individuals representing 55 species (City of Los Angeles 2003). The most abundant species were echinoderms in terms of both numbers and biomass. The white urchin (*Lytechinus pictus*) and the spiny sea star (*Astropecten verrilli*) were the most abundant species throughout the Bay. The third most abundant invertebrate was the California sea cucumber (*Parastichopus californicus*) followed by the ridgeback prawn (*Sicyonia ingentis*), sea slug (*Philine auriformis*), sandstar *(Luidia foliolata*), the serpent star (*Ophiura lutkeni*), and the spiny brittle star (*Ophiothrix spiculata*).

Subtidal soft-bottom habitat is the dominant habitat type in Santa Monica Bay. It is also the major habitat type along the proposed cable route and proposed electrode location and the existing cable alignment.

Subtidal Hard-Bottom Habitat

Natural hard substrate in Santa Monica Bay occurs primarily along the bay's periphery near the headlands of Point Dume and Palos Verdes, along the edges of the three submarine canyons, and on the rocky plateau known as the Short Bank that lies between the Santa Monica Canyon and the Redondo Canyon (Terry et al. 1956). Although no large subtidal reef areas are known to occur within the Project area, shifting sediments and sand may periodically expose small patches of hard substrate or uncover marine debris.

Hard-bottom substrates provide surface area for attachment of a wide variety of plants and sessile (non-mobile) organisms, as well as shelter and a place to forage for fish and invertebrates. Sessile species that utilize hard-bottom substrates include mussels, sponges, anemones, tunicates, barnacles, rock scallops, sea fans, and a variety of tube worms. These species primarily feed by filtering plankton from the water column. Invertebrates such as shrimp, crabs, sea stars, nudibranchs, octopods, lobsters, abalone, and sea urchins forage along reefs and utilize crevices for protection against predators. Within the intertidal zone, both sessile and mobile invertebrates such as crabs and mussels are an important food source for foraging birds. In deeper water, nearshore reefs provide an anchoring point for a variety of marine algal species, such as giant kelp, bull kelp, feather boa kelp, coralline algae, oar weed, and sea palms. Larger algal species, such as the kelps and sea palms, provide a key vertical over-story component to the relatively low-relief hard-substrate habitat of Santa Monica Bay.

Information detailed in the Marine Resource Assessment conducted for the proposed Project (Appendix D2) and the Geophysical Survey Report (Appendix D1) indicate that very limited areas (< 1 percent) of subtidal hard-bottom habitat occur within the proposed cable route survey corridor.

Based on bathymetric and seafloor feature surveys conducted along the Project route (see Geophysical Survey Report in Appendix D1), the preliminary centerline of the proposed cable corridor passes just west of a relatively large rock outcropping, which is located about 1,800 feet offshore and south of the Gladstone Vault (Figure 3.3-2). The avoidance of such hard substrate areas was a siting criterion for the Project facilities based on minimizing impacts to potentially sensitive marine habitat and on facilitating the installation of the buried cables, which generally requires a soft-bottom condition. The width (approximately 1,440 feet) and bearing (south-southwest) of the survey corridor for the Project provides sufficient flexibility to route the proposed cables within soft-bottom areas and completely avoid this rock outcropping. There are also rock outcroppings located along the shoreline extending approximately 750 feet offshore at the centerline of the proposed cable alignment (see Figure 3.3-2). However, the initial segment of the proposed marine cables would be installed within existing conduits beneath these nearshore rock outcroppings to a location approximately 1,200 feet offshore in soft-bottom conditions. There are no other hard-bottom structures in the cable route survey corridor, as confirmed by bathymetric surveys conducted as part of the Geophysical Survey Report (Appendix D1) and the Marine Resources Assessment (Appendix D2).

Kelp Beds

Kelp beds occur predominantly around rocky subtidal habitat off the northern and southern headlands of Santa Monica Bay. Giant kelp (*Macrocystis pyrifera*) plays a key role in the nearshore ecosystem by providing vertical structure within the water column that is utilized by fish, invertebrates, and marine mammals as a nursery and for food and shelter from predators. Giant kelp is an exceptionally large and fast growing brown alga that commonly grows to more than 100 feet in length and provides a three-dimensional overstory to smaller algal species such as feather boa (*Egretia menziesii*) and sea palms (*Eisenia arborea*). Some of the fish species that are common to kelp forest habitat include halfmoon (*Medialuna californiensis*), sargo (*Anisotremus davidsonii*), senorita (*Oxyjulis californica*), sheephead (*Semicossyphus pulcher*), ocean sunfish (*Mola mola*), cabezon (*Scorpaenichthys marmoratus*), various rockfish (*Sebastes* spp.), blacksmith (*Chromus punctipinnus*), giant sea bass (*Sterolepis gigas*), leopard shark (*Triakis semifasciata*), horn shark (*Heterodontus franscisci*), and important sport fishing species, such as kelp bass (*Paralabrax clathratus*), white sea bass (*Atractoscion nobilis*), and yellowtail (*Seriola lalandi*).

Kelp forest is considered Essential Fish Habitat (EFH) by the Federal government. Thus, any project that may adversely impact kelp forest requires consultation with the National Marine Fisheries Service (NMFS). Information detailed in the Marine Resources Assessment conducted for the proposed Project (Appendix D2) and the Literature Review (Appendix D3) indicated that kelp forest habitat is not found in the Project area along the proposed cable route or proposed electrode location (see Figure 3.3-2).

Artificial Reefs

More than 33 artificial reefs have been constructed in the Southern California area since 1958. These reefs have been successful in attracting fish and invertebrate species. Subsequent attempts to replicate reef structures were implemented in an experimental fashion to determine the cost-effectiveness of materials and the success of different structural designs. Various materials were used to construct these reefs, such as automobiles, streetcars, scuttled ships, concrete boxes, and quarry rocks. Many of these older reefs were successful in attracting fish, but deteriorated over time due to the materials used. Reefs built in the last 20 years have used concrete and quarry rock to create reef habitats with greater longevity than their predecessors.

Artificial reefs have been constructed in Santa Monica Bay since 1960 to provide additional hard-bottom habitat for marine species, since the bay is characterized primarily by soft-bottom substrates (Santa Monica Bay Restoration Commission [SMBRC] 2010). Of the nine artificial reefs that still remain intact in the bay, two of the reefs are found in the northern part of Santa Monica Bay within about one mile of the proposed Project site: the Topanga Artificial Reef (TAR) and the Santa Monica Artificial Reef (SMAR) / Santa Monica Bay Artificial Reef (SMBAR) Complex (Figure 3.3-3). These artificial reefs are located within approximately one mile of each other. Each artificial reef varies in design, purpose, and construction materials. Built in 1961, SMAR is the oldest and smallest of the three reefs and is located approximately 60 feet below the surface. It was constructed from quarry rock, concrete shelters, car bodies, and pier pilings. Both SMBAR and TAR were constructed in 1987, using only quarry rock.TAR is located approximately 28 feet below the surface and covers an area of approximately two acres. SMBAR consists of three separate modules located at the depths of 42, 57, and 72 feet and covers 3.58 acres.

Although these artificial reefs are located in Santa Monica Bay within the general area of the Project, the proposed cable route and electrode array have been routed to completely avoid the TAR and SMAR/SMBAR Complex (Figure 3.3-3).

Special Status Species

Santa Monica Bay is home to sensitive and special status marine species ranging from marine mammals and sea turtles to seabirds, mollusks, and bony and cartilaginous fishes. Although some of these species only rarely enter Santa Monica Bay, others spend a significant portion of their lives within the bay's diverse marine habitats. For the purposes of this document, species that have been observed within Santa Monica Bay's waters in the past are assumed to have the potential to occur within the Project area. The following descriptions were derived from the Marine Resource Assessment provided in Appendix D2.

Marine Mammals

More than 40 different species of marine mammals are known to occur within the Southern California Bight (from Point Conception to the United States-Mexican border), including cetaceans (whales, dolphins, and porpoise), pinnipeds (seals and sea lions), and sea otters (Carretta et al. 2005). Special protections for each of these species fall under the Marine Mammal Protection Act (MMPA). Of these, five cetacean species that may be expected to occur within the nearshore waters of the Project area are listed as federally endangered under the MMPA. These include the blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), sei whale (*Balaenoptera borealis*), and sperm whale (*Physeter macrocephalus*) (United States Navy 2008). Stocks of all species listed as endangered under the Endangered Species Act (ESA) are automatically considered "depleted" and "strategic" under the MMPA.

Seven cetacean species are commonly observed in nearshore waters in significant numbers and are likely to occur in the Project area either seasonally or on a year-round basis. These species include bottlenose dolphin (*Tursiops truncatus*), short-beaked common dolphin (*Delphinus delphis*), Risso's dolphin (*Grampus griseus*), Dall's porpoise (*Phocoenoides dalli*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), long-beaked common dolphin (*Delphinus capensis*), and gray whale (*Eschrichtius robustus*). Each of the dolphin and porpoise species live in the region year-round, while a significant portion of the gray whale population (currently estimated to be approximately 22,000 animals) migrates through the area from December through April. Blue whales, fin whales, humpback whales, killer whales (*Orcinus orca*), and northern right whale dolphins (*Lissodelphis borealis*) have the possibility of entering the Project area. Blue whales and fin whales are typically observed farther offshore than the Project area, but are known to feed closer to shore during times when krill or bait fish are abundant. Similarly, killer whales are occasionally observed in this area during winter months as they hunt gray whale calves during the gray whale migration to and from Mexican breeding grounds. Northern right whale dolphins and humpback whales also generally prefer to frequent deeper offshore locations but are periodically observed in nearshore waters. Other cetacean species are less likely to occur within the Project area due to their limited population size in Southern California, due to their preference for deeper offshore waters, or because Santa Monica Bay is outside of their existing range.

Three species of pinnipeds are abundant in nearshore waters of Southern California and are likely to occur in the Project area. These are California sea lions (*Zalophus californianus*), northern elephant seals (*Mirounga angustirostris*), and harbor seals (*Phoca vitulina*). California sea lions, northern elephant seals, and harbor seals each maintain breeding colonies in the offshore Channel Islands. Sea lions have the ability to climb onto surface buoys, jetties, docks, and rock riprap to rest during the day when they are not actively feeding. Because harbor seals and elephant seals lack the large front flippers possessed by sea lions, they cannot climb onto structures and must haul out onto sandy beaches to seek refuge from the water. Pinnipeds frequently dive to depths greater than 300 feet in search of food. Major predators for pinnipeds in Southern California include white sharks (*Carcharodon carcharias*) and occasionally killer whales.

Sea Turtles

Four of the five species of sea turtles that have been observed along the west coast of the United States have the potential to occur within the Project area. Olive Ridley (*Lepidochelys olivacea*), green (*Chelonia mydas*), and loggerhead (*Caretta caretta*) sea turtles are listed as federally threatened species, while the leatherback sea turtle (*Dermochelys coriacea*) is listed as a federally endangered species. Each of these species has been observed along the coast of Southern California; however, there are no known nesting sites on the west coast for any of them, according to National Oceanic and Atmospheric Administration (NOAA) Fisheries (2011).

NMFS and United States Fish and Wildlife Service (USFWS) have joint jurisdiction over sea turtles within the United States. NMFS maintains jurisdiction over the aquatic marine environment while USFWS has jurisdiction over nesting beaches, which occur only on the southeastern seaboard within the United States.

Date: 11/17/2015 Path: H:\127116\DD\GIS\Apps\EIR_BM\Figure_3.3-2_Rock_Outcroppings_and_Canopy_Kelp.mxd

Proposed Marine Cables

Existing Conduit

Rock Outcropping

Canopy Kelp

0 2,500 Feet

FIGURE 3.3-2
ROCK OUTCROPPINGS
AND CANOPY KELP

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LA DWP

Source: NOAA, "Areas Designated as Habitat Areas of Particular Concern (HAPC) for Amendment 19 (Essential Fish Habitat) to the Pacific Coast Groundfish Fishery Management Plan," 2005.
Fugro, Geophysical Suvey Report, LADWP CAT2010, 2012.

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FIGURE 3.3-3
ARTIFICIAL REEFS

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LA DWP

Date: 2/26/2016 Path: H:\127116\DD\GIS\Apps\EIR_BM\Figure_3.3-3_Artificial_Reefs.mxd

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Fish

Santa Monica Bay has a rich diversity of migratory and resident species of fish. Fish are generally divided into two major groups based on whether they have a bony skeleton (Class Osteichthyes) or an internal support structure comprised of cartilage (Class Chondrichthyes). The dominant pelagic bony fish species in Santa Monica Bay are Pacific (Chub) mackerel (*Scomber japonicus*), Jack mackerel (*Trachurus symmetricus*), Northern anchovy (*Engraulis mordax*), and Pacific sardine (*Sardinops sagax caerulea*).

The dominant cartilaginous fish in Santa Monica Bay tend to be sharks. Sharks species found in the Bay and common to the region include Basking sharks (*Cetorhinus maximus*), Blue sharks (*Prionace glauca*), Gray smoothhound sharks (*Mustelus californicus*), Great white sharks, Leopard sharks (*Triakis seimfasciata*), Mako sharks (*Isurus oxyrinchus*), and Thresher sharks (*Alopias vulpinus*).

The extensive soft-bottom habitat within Santa Monica Bay supports an abundant and diverse assemblage of more than 100 species of demersal fish (fish that live and feed on or near the sea bottom). Soft-bottom species derive much of their food from benthic infauna. Flatfish, rockfish, sculpins, combfishes, and eelpouts make up the majority of the soft-bottom fish found in the bay (Marine Biological Consultants [MBC] 1993). Quarterly trawls in 2001 yielded 15,122 individuals consisting of 58 species, and quarterly trawls in 2002 yielded 13,693 individuals representing 51 species (City of Los Angeles 2003). The number of fish species, abundance, and biomass generally increase with water depth. Near shore areas usually support a high abundance of species such as flatfish, surfperch, and croakers. Middle and outer shelf species include numerous kinds of flatfish, sculpin, and rockfish.

California Department of Fish and Wildlife (CDFW) regulations prohibit the targeting, catch, or possession of several fish species. These species include the giant black sea bass (*Stereolepis gigas*), white shark, steelhead (*Oncorhynchus mykiss*), broomtail grouper (*Mycteroperca xenarcha*), garibaldi (*Hypsypops rubicundus*), silver salmon (*Oncorhynchus kisutch*), bronzespotted rockfish (*Sebastes gilli*), canary rockfish (*Sebastes pinniger*), yelloweye rockfish (*Sebastes ruberrimus*), and cowcod rockfish (*Sebastes levs).*

Two of these species (cowcod rockfish and steelhead) are also listed as species of concern by NMFS. Other species of concern that may occur in Santa Monica Bay include the basking shark (*Cetorhinus maximus*) and the bocaccio rockfish (*Sebastes paucispinis*).

Seabirds

The Southern California Bight, including Santa Monica Bay, supports an abundant and diverse population of both resident and migratory seabirds (Baird 1993). Seabirds have adapted to life within the marine environments and generally live longer, breed later, and have fewer young than other birds. Most seabird species nest in colonies and rely on habitats within the bay for nesting, foraging, and refuge.

Santa Monica Bay is located within the Pacific Flyway, a major north-south avian migratory route that extends from Alaska to South America. Every spring and fall, migratory birds travel some or all of the flyway to follow food sources, head to breeding grounds, or travel to overwintering sites. Each bird species tends to follow the same route with regard to both distance and timing. Therefore, distribution of seabird species within the bay will likely exhibit both seasonal and spatial variation to some degree (Pierson et al. 2000).

Special status seabirds that occur in Santa Monica Bay (i.e., are protected or were recently de-listed under State or Federal ESAs) are presented in Table 3.3-1.

TABLE 3.3-1 SPECIAL STATUS SEABIRDS OF THE SOUTHERN CALIFORNIA BIGHT

COMMON NAME	SPECIES	STATUS
Bald eagle	*Haliaeetus leucocephalus*	De-listed in 2007
California brown pelican	*Pelecanus occidentalis californicus*	De-listed in 2009
California least tern	*Sterna antillarum browni*	Federally listed
Western snowy plover	*Charadrius alexandrinus nivosus*	Federally listed
Marbled murrelet	*Brachyramphus marmoratus*	State Endangered
Xantus's murrelet	*Synthliboramphus hypoleucus*	State Threatened
Ashy storm petrel	*Oceanodroma homchroa*	State Species of Special Concern
Black storm petrel	*Oceanodroma melania*	State Species of Special Concern
Rhinoceros auklet	*Cerorhinca monocerata*	State Species of Special Concern

Source: Weston 2012b.

Invertebrates

Residing within sediments of the seafloor, abundance and distribution of infauna typically varies seasonally and inter-annually. However, in Santa Monica Bay, the dominant infaunal organism is polychaete worms. Polychaete worms generally feed by ingesting sediments and digesting the attached bacteria, filter feed on bits of organic detritus in the water, or prey upon other infauna. Polychaetes play an important role in the marine benthos (the community of organisms which live on, in, or near the seabed) by reworking sediments and by serving as a food source for many demersal fish.

Santa Monica Bay has diverse and abundant assemblage of epibenthic (living on top of the seafloor) invertebrates that reside on the seafloor. These species are larger than infauna and are generally less common. While single species tend to be dispersed spatially from each other, sand dollars and sea urchins tend to occur in dense, single-species patches. Epibenthic invertebrates can be motile (mobile) or sessile. Motile epibenthic invertebrates include sea stars, sea cucumbers, sand dollars, sea urchins, crabs, lobster, snails, octopods, shrimp, and sea slugs. Sessile species often inhabit hard-bottom substrate and include mussels, rock scallops, barnacles, sponges, sea anemones, sea fans, feather duster worms, worm snails, and sea squirts. Most of these sessile invertebrates feed by filtering plankton and detritus from the water column.

Abalone are large marine snails historically found in rocky intertidal and subtidal areas, clinging to rocks and feeding off kelp and other algae. Abalone species used to constitute a highly valuable fishery in Southern California; however, their numbers have greatly dropped due to factors that include overharvesting, illegal harvesting, predation, disease, and El Niño events. Of the seven abalone species historically found in the Southern California Bight and Santa Monica Bay, four are federally listed as either endangered or as a species of concern and one (flat abalone) is no longer found south of Point Conception (Table 3.3-2).

TABLE 3.3-2 ABALONE SPECIES OF THE SANTA MONICA BAY

COMMON NAME	SPECIES NAME	PROTECTED STATUS	PREFERRED DEPTH
Black abalone	*Haliotis cracheirodii*	Federal Endangered	Intertidal to 20 feet
Green abalone	*Haliotis fulgens*	Federal Species of Concern	Intertidal to > 30 feet
Pink abalone	*Haliotis corrugate*	Federal Species of Concern	20 feet to >120 feet
White abalone	*Haliotis sorenseni*	Federal Endangered	Subtidal to >200 feet
Red abalone	*Haliotis refescens*	None	Subtidal to >100 feet
Threaded abalone	*Haliotis assimilis*	None	20 feet to > 80 feet

Source: Weston 2012b.

Proposed Cable Route and Electrode Array Site

The discussion above focuses on the existing conditions with Santa Monica Bay in general. Existing conditions specifically along the proposed cable route reflect those found throughout the bay. From the Gladstone Vault, the electrode cables would pass underneath nearshore rock outcroppings within existing conduits to a distance from shore of approximately 1,200 feet. From that location, the proposed cable route would progress through subtidal soft-bottom habitat to the proposed electrode array at a distance of two miles from shore. Subtidal hard bottom habitat was found in the Marine Resources Assessment (Appendix D2) and the Geophysical Survey Report (Appendix D1) just to the east of the proposed cable route, but this habitat would be completely avoided during Project construction. Field surveys conducted during the Marine Resources Assessment showed that physical and chemical water quality parameters, concentrations of chemicals of concern in sediments, sediment toxicity, and benthic infaunal community condition in the soft-bottom habitat along the proposed cable route and electrode array are similar to soft-bottom habitat found throughout Santa Monica Bay. The cable route and electrode array do not contain kelp beds, artificial reefs, or other Habitat Areas of Particular Concern (HAPC). The water column and surface waters within the Project area provide similar foraging, migratory, and overall habitat characteristics as that of the majority of Santa Monica Bay, therefore, it is reasonable to assume that similar marine and avian species will have the potential to occur within the Project area.

Regulatory Framework

Potential impacts to biological resources as a result of the proposed Project were analyzed based upon applicable environmental policies, regulations, and standards; existing regional monitoring surveys and monitoring assessments specific to the Project (see Appendices D1, D2, and D4); and an extensive Literature Review on potential impacts to marine species from similar projects (see Appendix D3).

Applicable and/or relevant ordinances and regulations related to potential impacts of the marine portion of the Project to biological resources are summarized in Table 3.3-3.

TABLE 3.3-3 SUMMARY OF RELEVANT BIOLOGICAL RESOURCE REGULATIONS

REGULATION	SUMMARY
Federal	
Bald and Golden Eagle Protection Act	Protects bald and golden eagles by prohibiting anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs.
Coastal Zone Management Act	Administered by the National Oceanographic and Atmospheric Administration (NOAA) Office of Ocean and Coastal Resource Management, this Act provides for management of the nation's coastal resources and balances economic development with conservation.
Endangered Species Act	The Endangered Species Act (ESA) of 1973 protects and conserves threatened and endangered species of plants and animals and their ecosystems.
Marine Mammal Protection Act	Prohibits the "take" of marine mammals in the U.S. It defines "take" to mean "to hunt harass, capture, or kill" any marine mammal or attempt to do so.
Migratory Bird Treaty Act	Prohibits the "take" of migratory birds, their eggs, feathers or nests without a permit. "Take" is defined to include "by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof."
State	
California Coastal Act of 1976	Designed to guide local and State decision-makers in the management of coastal and marine resources, includes protections for environmentally sensitive habitat, water quality, and wetlands, stating that "Marine resources shall be maintained, enhanced, and, where feasible, restored." A Coastal Development Permit will be required to be obtained for the Project from the California Coastal Commission.

REGULATION	SUMMARY
California ESA	The California Endangered Species Act (CESA) provides for the protection of all native endangered or threatened species of plants and animals, and their habitats, within the State of California.
California Fish and Game Code	The California Fish and Game Code places restrictions on the take of protected species, defines sport fishing and hunting regulations and seasons, defines refuge boundaries and addresses other licensure requirements for particular varieties of fish and game.
Marine Life Protection Act of 1999	Directs the State of California to re-evaluate and redesign California's network of Marine Protected Areas (MPAs) to more effectively protect the State's biological marine resources and to improve recreational, scientific, and educational opportunities provided by minimally disturbed marine ecosystems.
California Marine Managed Areas Improvement Act of 2000	Extends the California Department of Parks and Recreation (DPR) management jurisdiction into the marine environment and gives priority to MPAs adjacent to protected terrestrial lands.
Local	
The Santa Monica Bay Restoration Plan	Set of goals, objectives, and milestones to fulfill its mission to "improve water quality, conserve and rehabilitate natural resources, and protect the bay's benefits and values."

3.3.2 Methodology and Thresholds of Significance

Methodology

This analysis is based on the known operational parameters and effects of the existing SGRS marine facility as well as on prior studies conducted for the Project: the Geophysical Survey Report (Appendix D1), the Marine Resources Assessment (Appendix D2), the Literature Review (Appendix D3), and the Existing Electrode Study (Appendix D4). Potential impacts associated with the operation of the proposed electrode and abandonment of the existing electrode cables and vaults were addressed by comparing empirical data collected from the existing SGRS cables, electrode vaults, and the proposed cable route for the Project to water quality and sediment quality objectives and standards in applicable regulatory documents (e.g., the COP). Potential impacts related to construction activities associated with the Project were assessed by comparing the cable laying activities associated with the Project to an extensive review of studies of the environmental effects of cable laying techniques conducted for the offshore wind farm industry (BERR 2008) and other pertinent studies.

Thresholds of Significance

The following significance thresholds are based on the environmental checklist presented in Section IV (Biological Resources) of Appendix G of the CEQA Guidelines. They are used to describe the potential impacts of the proposed Project on the sensitive marine biological resources that may occur in the proposed Project area. Accordingly, a project may create a significant impact if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS or NOAA/NMFS.
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.3.3 Impact Analysis

This section evaluates short- and long-term impacts to marine biological resources that could result from Project construction and ongoing operation as well as from abandonment of the existing SGRS marine facility.

a) Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

There are 42 candidate, sensitive, or special-status species that have the potential to occur within the Project area (Appendix D3). These species include five federally endangered cetaceans, seven other cetaceans protected by the MMPA, three pinnipeds, four sea turtles, ten fish, nine birds, and four abalone as detailed in Section 3.3.1. These marine mammals, sea turtles, fish, and birds all are highly motile and capable of avoiding the majority of direct impacts of Project construction, as described below. The abalone species are less motile; however, they only have the potential to occur in hard-bottom habitats, which would be completely avoided by the proposed electrode array configuration and cable route, as discussed below.

Construction Impacts

Installation of the cables in the nearshore environment (i.e., within 1,200 feet of the shoreline) would be accomplished by pulling the cables through the existing conduits under the seafloor, thus avoiding impacts to the intertidal and shallow subtidal environment and associated biota. Within deeper portions of the Project area, cables would be installed by means of a jet plow, which would bury the cables several feet below the ocean floor approximately two miles from shore to the site of the electrode array. The concrete electrode vaults would be lowered through the water column from a barge and set in place on the ocean floor. All construction would occur in areas of soft-bottom habitat. There are no kelp beds or other sensitive habitats along the proposed cable route except for a rock outcropping approximately 1,800 feet offshore of the Gladstone Vault (Figure 3.3-2).

The avoidance of hard substrate areas was a siting criterion for the Project, based on minimizing impacts to potentially sensitive marine habitat and on facilitating the installation of the buried cables, which generally requires a soft-bottom condition. The width (approximately 1,440 feet) and bearing (south-southwest) of the survey corridor for the Project provide sufficient flexibility to route the proposed cables within soft-bottom areas and completely avoid this rock outcropping.

Creating the furrows for the electrode cables and placement of the concrete vaults that comprise the electrode array would result in impacts to non-motile or slow moving benthic species, including epifauna and infauna; however, these species do not include candidate, sensitive, or special-status species.

Construction activities could temporarily impede foraging by species that have the potential to occur in the Project area. However, these effects would be temporary, extending only through the duration of the Project construction (approximately four to five months) and, therefore, are not anticipated to result in adverse population-level impacts to candidate, sensitive, or special-status species.

Special-status species observed, or that have the potential to occur, within the Project area include highly motile species that can avoid construction activities, such as pinnipeds, cetaceans, sea turtles, and birds. Given the small footprint of the Project relative to Santa Monica Bay, the construction of the Project would not interfere substantially with the movement or foraging of any native or migratory marine or avian species. However, vessels could collide with marine mammals or sea turtles, resulting in a potential "take" of special-status species. Therefore, Mitigation Measure BIO-1, Marine Mammal and Sea Turtle Avoidance Practices, will be implemented to address these impacts.

Operational Impacts

Potential impacts associated with operation of the proposed electrode on candidate, sensitive, or special-status species involve the loss of soft-bottom habitat and the generation of electric fields and magnetic fields (the two components of EMF), which could affect behaviors of species sensitive to EMFs.

Installation of the electrode vaults would result in a permanent loss of soft-bottom habitat and replacement with hard-bottom habitat. Additionally, the increase of hard-bottom habitat could attract species that could forage on soft-bottom species, potentially resulting in an indirect increase in predation levels. However, as demonstrated at the existing SGRS electrode vaults (Appendix D4), the hard substrate provided by the proposed Project electrode vaults would result in habitat heterogeneity that would likely lead to an increase in species diversity on the soft-bottom substrate of Santa Monica Bay. The low profile nature of the vaults and the depth at which they would be placed (approximately 100 feet deep) would minimize any potential impacts on candidate, sensitive, or special-status species.

Moreover, the proposed Project would not have population-level impacts on any benthic species observed within the Project area since these species consist of common species found throughout the greater Santa Monica Bay and the Southern California Bight and the electrode vaults would remove a very small area of soft-bottom habitat within the context of the bay.

Once the proposed marine facility is completed, the SGRS, in the event of the occurrence of a fault on the Pacific Direct Current Intertie (PDCI), would have the capability of operating at 3,100 amps for up to 30 minutes. If the issue on the PDCI that triggered the event could not be resolved during this time, the power on the PDCI would be ramped down to no greater than 2,000 megawatts (MW). This ramp down would take approximately 10 minutes, after which the SGRS could continue to operate at 2,000 amps for up to two more hours to provide operators additional time to resolve the issue, or provide alternative sources of energy to temporarily meet demand. Therefore, any individual event of the SGRS would have a total maximum operational time of about 160 minutes.

However, based on historical operating data of the existing electrode since 2008, most events last considerably less time than this maximum allowable duration. Based on the historical data, it is anticipated that the electrode would be operational an average of about 5.25 hours per year. This would represent the combined time of numerous discrete events in a given year. For the existing electrode, the combined operating time of all events in a given year between 2008 and 2014 ranged from 40 minutes to more than 10.5 hours. The number of discrete events per year ranged from 3 to 11, and the average operating time per event during a given year ranged from under 15 minutes to over 1.5 hours. The maximum duration time of a single event was 2.5 hours. The overall average between 2008 and 2014 was about seven discrete events per year, lasting about 45 minutes each. Therefore, it is anticipated that the SGRS would be operational for relatively few hours in any one year and for only relatively brief periods at any given time.

The electrode vaults have been designed to maintain an electric field at the exterior of the vaults of no greater than about 1.15 volts per meter (V/m) when the SGRS is operating at maximum amperage (3,100 amps). The strength of the field decreases substantially with distance from the electrode array. This maximum electric field strength of 1.15 V/m is below the threshold of 1.25 V/m adopted by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and established by the International Electrochemical Commission (IEC) in the *Design of Earth Electrode Stations for High-Voltage Direct Current (HVDC) Links* (IEC Technical Standard 62344:2013). The 1.25 V/m field strength has been designated as a safe level for humans and large fish in seawater (which has a low resistivity to electrical current) in a number of studies.

Species with electrical sensory abilities, such as elasmobranchs (sharks and rays), may be able to detect the field, since these species have been reported to detect electric fields as weak as 1 nanovolt per meter (nV/m) (Fisher and Slater, 2010, cited in Weston, 2012b, Appendix D3). While the predicted strength of the electric field is within the detection limits of select marine species, the strength is below reported thresholds for harmful effects on fish and marine mammals (see Literature Review discussion in Appendix D3).

The proposed electrode array would also produce a magnetic field when in operation. During the peak level of the operational cycle on the electrode (3,100 amps), a maximum magnetic field of about 245 Gauss (G) would be present (at a distance of one inch from the cable) if all the system cables were immediately adjacent to each other where the conduit from Gladstone Vault enters the ocean (about 1,200 feet offshore). The strength of the field would decrease substantially with distance from the cables, and would be about 4 G at a distance of five feet and 1 G at a distance of 20 feet. The field strength would also decrease substantially (from about 245 G to 122 G) when the cables are placed in the parallel furrows 20 feet apart in two separate bundles of three cables each.

Potential impacts to magnetosensitive species from the magnetic field in the vicinity of a cable would depend upon how a species uses its magnetic sense. While it has been well established that some species can detect magnetic fields, the importance of the magnetic sense for orientation or navigation is not well understood (Walker et al., 2007). The effects of magnetic fields from undersea power cables on marine species were recently reviewed by the United States Department of the Interior (USDOI 2011). The most sensitive organisms to magnetic fields include elasmobranch fishes (sharks and rays) and some teleost fishes (e.g., eels), which are able to detect magnetic fields as low 1 G. Other organisms that are sensitive to magnetic fields and may use them for navigation include sea turtles, salmonids, whales, and dolphins (reviewed by Fisher and Slater 2010, and USDOI 2011, and discussed in Appendix D3). While infrastructure-induced magnetic fields have been reported to be detectable by a number of marine species, there is no evidence in the literature that the levels anticipated to be produced by the proposed SGRS electrode would adversely affect the navigational capabilities or migration patterns of marine species that may inhabit or pass through the area, including candidate, sensitive, or special status species.

Because the electric current in the DC electrode would flow in one direction, the magnetic field would be static; that is, it would have no frequency oscillation, unlike the extremely low frequency magnetic fields created by alternating current (AC) electrical lines, which have a frequency oscillation of 60 times per second. Known harmful effects related to static magnetic fields are limited to temporary effects noted in occupational environments involving field strengths substantially greater than that which would be generated by the proposed SGRS marine facility. Some marine species may be particularly sensitive to magnetic fields, but no adverse effects to such species from the fields created by high-voltage DC cables have been documented.

In addition, there have been no documented impacts on any marine species from the existing marine electrode, which has been operating in Santa Monica Bay for more than 45 years at an operational capacity similar to that proposed for the new SGRS. To the contrary, a thorough assessment of the existing marine electrode (Appendix D4; also summarized in Section 3.3.1) indicates a very healthy biological community associated with the existing cable routes and electrode vaults that is similar to other soft bottom habitats and natural rocky reefs, respectively, in the region.

Since the electrode would typically operate for relatively few hours per year and for only relatively brief periods at a time, during the vast majority of the time, there would be no electric or magnetic fields generated because no electrical current would be flowing in the SGRS marine facility. Based on the small amount of time the SGRS marine facility would be in operation (approximately five hours per year in several shorter discrete events), the low levels of EMFs that would be generated when in operation, and the lack of impacts associated with the existing SGRS marine facility, potential impacts to candidate, sensitive, or special-status species from the operation of the proposed electrode would be less than significant.

Abandonment Impacts

The existing electrode vaults and buried cables have been in operation at their present location since 1970. In 2015, the Existing Electrode Study was conducted to assess the condition of the subsea cables and electrode vaults (see Appendix D4). The study found that the existing electrode cables were buried from the beach to the existing electrode vaults and that conditions along the cable route (chemical, toxicological, and biological) were similar to reference conditions as well as conditions at other locations in Santa Monica Bay (based on large-scale regional assessments). The study also found that the concrete vaults that comprise the electrode array support a diverse biological community that is similar to other natural rocky reefs in the area. The study identified no adverse impacts associated with operation of the electrode (which has been in operation for 45 years) and offers evidence that the three dimensional structure of the electrode vaults provides habitat that supports a rich biological community that is not found in the adjacent soft bottom habitat. In addition, there have been no recorded adverse impacts associated with the buried cables or electrode vaults on any species since the electrode was placed on the seafloor in 1969.

Over time, the existing concrete vaults may slowly deteriorate from physical, biological, and chemical reactions in the marine environment. However, concrete has proven to be a durable material for marine construction, especially when designed for use in seawater environments. The location of the vaults fully submerged in 50 feet of water, where they are not exposed to the physical forces or the continuous wetting and drying cycle of the intertidal zone, as well as the rarity of freezing temperatures in coastal Southern California, also greatly limit deterioration. Furthermore, the very gradual deterioration of the concrete vaults would not be expected to adversely affect the marine environment. Extensive surveys around the existing vaults (see Appendix D4) indicated no deleterious effects to sediment or water quality from 45 years of operation of the SGRS.

The high-density polyethylene (HDPE) material serving as insulation on the existing marine cables and as a jacket encasing the cable bundles was chosen because of its durable properties. HDPE does not corrode, is not biodegradable, has high tensile strength, and is resistant to abrasion. The general life expectancy of high-voltage cables is about 40 years. However, this is not representative of the general degradation of the HDPE insulation itself, but of the formation of small breaks or fissures that may allow moisture to reach the actual conductor, leading to corrosion of the conductor. Testing of corrugated HDPE water pipes under high pressure concluded that the pipes have a service life (as defined by the development of stress cracks) of several hundred to several thousands of years, depending on the pressures applied (Hsuan 2005). The HDPE on the existing marine cables is not subject to the same pressures and, after the existing SGRS marine facility is decommissioned, any heat within the cable associated with the occasional operation of the electrode would cease. The buried condition of the cables will help protect them from physical damage or deterioration. Extensive surveys along the existing cable route indicated no deleterious effects to sediment or water quality from 45 years of operation of the SGRS. It is expected that the conditions associated with the existing cables and electrode vaults after abandonment in place of the system would continue to have no adverse impacts on biological resources in the future.

Based on the conditions identified in the Existing Electrode Study and the lack of recorded impacts associated with the existing cables and electrode vaults, abandoning the existing cables and electrode vaults in place would not have a significant impact on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

b) Would the Project have a substantial adverse effect on habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS, or NOAA/NMFS?

Construction Impacts

Within Santa Monica Bay, sensitive natural marine communities include canopy kelp, rocky reefs, and seagrass, which are defined as HAPC. NOAA (2006) has identified HAPCs along the west coast of the United States, including Santa Monica Bay, within areas determined to be EFH (Pacific Fisheries Management Council 2012). The Project area has been sited to avoid all HAPCs in Santa Monica Bay. In addition, there are no State Marine Conservation Areas, Marine Protected Areas, or Cowcod Conservation areas of other sensitive natural communities in the vicinity of the Project area (see Figure 3.3-4; also discussed in Section 3.6.2).

Placement of the concrete electrode vaults on the seabed would be confined to areas with soft-bottom habitat, and therefore would not adversely affect HAPC, including canopy kelp, rocky reefs, and seagrass. As discussed above and illustrated in Figure 3.3-2, there is a rocky outcropping located approximately 1,800 feet south of the Gladstone Vault. The avoidance of hard substrate areas was a siting criterion for the Project, based on minimizing impacts to potentially sensitive marine habitat and on facilitating the installation of the buried cables, which generally requires a soft-bottom condition. The width (approximately 1,440 feet) and bearing (south-southwest) of the survey corridor for the Project provides sufficient flexibility to route the proposed cables within soft-bottom areas and completely avoid this rock outcropping and any other potentially sensitive habitats.

However, the Project area would be located within EFH for Pacific Coast Groundfish. The Magnuson-Stevens Fishery Conservation and Management Act (16 United States Code [U.S.C.] §1801 et seq.) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Act requires Fishery Management Councils to describe and identify EFH in fishery management plans, which are then approved by NMFS. Santa Monica Bay, along with the entirety of the offshore waters of the West Coast to a depth of 3,500 meters and associated sea mounts, is considered to be EFH for Pacific Coast Groundfish (Pacific Fishery Management Council 2012).

The placement of the 36 concrete vaults that comprise the electrode array would result in the permanent loss of soft-bottom habitat that supports benthic infaunal, epifaunal, and demersal species, including Pacific Coast Groundfish EFH. Each of the 36 vaults would be 20 feet long, 8 feet wide and 4 feet high. The surface area of the vault structures would be 5,760 square feet or 0.13 acre. As discussed above, soft-bottom habitat is the dominant marine habitat in Santa Monica Bay. The soft-bottom habitat in the bay from the shoreline to the 100-foot depth contour (the depth at which the electrode array would be placed) is estimated at 35,212 acres and is shown in (Figure 3.3-5). Thus, the permanent loss of soft-bottom habitat (estimated at 0.13 acre) resulting from the placement of the concrete vaults is a very small percentage of the overall available soft-bottom habitat in Santa Monica Bay (less than 0.0004 percent).

The concrete vaults would replace the soft-bottom habitat with hard-bottom structure, providing increased habitat heterogeneity. The concrete vaults would be analogous to the artificial reefs in Santa Monica Bay, since they would aggregate and support a more diverse assemblage of marine algae, invertebrates, and fish than soft-bottom habitat alone. The assessment of the concrete vaults comprising the existing SGRS electrode in Santa Monica Bay indicates the vaults support a rich biological community that is comparable to other natural and artificial reefs in the region (Appendix D4). It is anticipated that with time, the proposed electrode vaults would support a similarly diverse and productive community.

Given the very small footprint of the Project relative to the large amount of soft-bottom habitat in Santa Monica Bay, the loss of soft-bottom habitat resulting from construction of the Project would not have a significant impact on habitat or other sensitive natural communities identified in the Pacific Coast

Groundfish EFH or other sensitive natural community identified in local or regional plans, policies, or regulations.

Operational Impacts

The proposed SGRS marine facility is expected to be operational on average for a period of approximately five hours per year over a number of shorter discrete events. Operation of the marine facility would generate low level EMFs and small amounts of chlorine gas, neither of which would have the capacity to have an adverse effect on water quality in the water column adjacent to the buried cables or electrode vaults (see Section 3.8). Based on the lack of impacts associated with the existing marine cables and electrode vaults as established in the Existing Electrode Study (Appendix D4), EMF and chlorine gas production associated with operation of the marine facility would not affect marine habitats in the areas adjacent to the cables or concrete vaults associated with the Project. Therefore, operation of the proposed SGRS marine facility would not have a significant impact on habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS, or NOAA/NMFS.

Abandonment Impacts

The existing electrode vaults and buried cables have been in operation at their present location since 1970. In 2015, the Existing Electrode Study was conducted to assess the condition of the subsea cables and electrode vaults (see Appendix D4). The study found that the existing electrode cables were buried from the beach to the existing electrode vaults and that conditions along the cable route (chemical, toxicological, and biological) were similar to reference conditions as well as conditions at other locations in Santa Monica Bay (based on large-scale regional assessments). The study also found that the concrete vaults that comprise the electrode array support a diverse biological community that is similar to other natural rocky reefs in the area. The study identified no adverse impacts associated with operation of the electrode (which has been in operation for 45 years) and offers evidence that the three dimensional structure of the electrode vaults provides habitat that supports a rich biological community that is not found in the adjacent soft bottom habitat. In addition, there have been no recorded adverse impacts associated with the buried cables or electrode vaults on any species since the electrode was placed on the seafloor in 1969. It is expected that the conditions associated with the existing cables and electrode vaults after abandonment in place of the system would continue to have no adverse impacts on habitats or other sensitive natural communities in the future.

Based on the conditions identified in the Existing Electrode Study and the lack of recorded impacts associated with the existing cables and electrode vaults, abandoning the existing cables and electrode vaults in place would not have a significant impact on habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS, or NOAA/NMFS.

c) Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Construction Impacts

As discussed above, the proposed marine facility would originate at the existing Gladstone Vault. Utilizing existing conduit, the marine cables would extend from the vault through the conduit, under the parking lot and Will Rogers State Beach, and continue under the ocean floor to a location approximately 1,200 feet offshore in Santa Monica Bay. From there, the marine cables would be installed within a plowed furrow several feet below the ocean floor, extending to the proposed electrode array. Thus, the construction of the SGRS marine facility would completely avoid and have no impact on any federally protected wetlands as defined by Section 404 of the Clean Water Act.

Date: 2/26/2016 Path: H:\127116\DD\GIS\Apps\EIR_BM\Figure_3.3-4_Marine_Protected_Areas.mxd

- Existing Marine Cables
- Proposed Marine Cables
- Marine Protected Area
- DeFacto Marine Protected Area
- Essential Fish Habitat Conservation Area
- Artificial Reef

Miles
0 5

FIGURE 3.3-4
MARINE PROTECTED AREAS

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LA DWP

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Date: 3/1/2016 Path: H:\127116\DD\GIS\Apps\EIR_BM\Figure_3.3-5_Soft-Bottom_Habitat_from_Shoreline_to_100-foot_Depth_Contour.mxd

FIGURE 3.3-5
SOFT-BOTTOM HABITAT FROM SHORELINE TO 100-FOOT DEPTH CONTOUR

SYLMAR GROUND RETURN SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LA DWP

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Operational Impacts

As described above, the proposed Project would originate at the existing Gladstone Vault and continue underwater for two miles offshore. Thus, operation of the SGRS marine facility would completely avoid and have no impact on any federally protected wetlands.

Abandonment Impacts

The existing electrode array is located two miles from shore on the floor of Santa Monica Bay. Therefore, abandoning the existing cables and electrode vaults in place would not have an adverse impact on federally protected wetlands.

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

Construction Impacts

Santa Monica Bay, including the Project area, is considered to be a highly productive biological environment used by both migratory and resident species of fish, sea turtles, seabirds, and marine mammals. Santa Monica Bay has a rich diversity of migratory and resident species of pelagic and demersal fishes whose movements and migratory patterns have the potential to be affected by Project construction. Sea turtles spend the vast majority of their lives swimming in the open water of the ocean and are known to migrate great distances from the nesting beaches where they were hatched. Although there are no known nesting sites on the west coast of the United States for the sea turtle species that have been observed in Santa Monica Bay, four species of sea turtles have the potential to be found in the Project area. Santa Monica Bay also supports an abundant and diverse population of both resident and migratory seabirds, and the bay is located within the Pacific flyway, a major avian migratory route. Seven cetacean species are commonly observed in nearshore waters in significant numbers and are likely to occur in the Project area either seasonally or on a year-round basis. These species include bottlenose dolphin, short-beaked common dolphin, Risso’s dolphin, Dall’s porpoise, Pacific white-sided dolphin, long-beaked common dolphin, and gray whale. The gray whale population migrates through southern California from December through April, and their migration pattern has the potential to cross through the Project area.

Given the small footprint of the Project relative to Santa Monica Bay, the construction of the Project would not interfere substantially with the movement of any native or migratory marine or avian species. In addition, any potential disturbance related to the movement of marine mammals or other wildlife species during construction of the proposed Project would be temporary, as the entire marine construction process would last approximately four to five months. However, as discussed above in Item a), the potential for collision with marine mammals or sea turtles during construction does exist. Therefore, Mitigation Measure BIO-1, Marine Mammal and Sea Turtle Avoidance Practices, would be implemented to minimize any potential encounters with marine mammals and sea turtles that may be moving through the area during construction of the Project. Biological monitors will have the authority in coordination with LADWP to halt and redirect construction activities to avoid impacts to marine wildlife if they are observed in the Project area during construction.

Operational Impacts

The marine cables would be laid beneath the ocean floor at a depth of several feet and therefore would not impact movement of marine species. The electrode vaults, once in place, would have the potential to impact the migratory behavior of some demersal species that reside in the bay. Migrations are common among marine fishes and are usually related to feeding and reproduction. For instance, dover sole (*Microstomus pacificus*) migrate into deep water during winter for reproduction and into shallow water in the summer for feeding (Cross 1985). Scorpionfish (*Scorpaena guttata*) migrate offshore and aggregate at traditional spawning grounds from May through August (Love et al. 1987), and Pacific hake migrate from their summer feeding grounds in the California current off the Pacific Northwest to their winter spawning grounds off Southern California and Baja California (Bailey et al. 1982). The electrode vaults have the potential to affect the behavior of demersal fishes during these migrations. However, the vaults would be confined to a very small area of Santa Monica Bay (0.13 acre) that comprises a very small fraction of the soft-bottom habitat available to demersal fishes. Therefore any impact on demersal fish migratory patterns from the electrode vaults would be less than significant.

Pelagic fishes that migrate in coastal waters off Santa Monica Bay include Pacific sardine, Pacific mackerel, jack mackerel, and northern anchovy (as well as marker squid [*Loligo opalescens*]) (CDFG 2001). The concrete vaults would not interfere with the migrations of these pelagic species because the vaults would be relatively low profile (approximately four feet in height) and confined to a small area of Santa Monica Bay (0.13 acre) at a depth of approximately 100 feet. Pelagic fish and other migratory species could utilize more than 100 feet of the water column above the electrode vaults to traverse the area. Therefore any impact on pelagic fish and squid migratory patterns from the electrode vaults would be less than significant.

As discussed above, the SGRS marine facility has been designed to limit any potential impacts associated with the release of electrical and magnetic fields during operation, which could affect movements of marine species sensitive to EMFs. The electric field generated by the proposed electrode array is modeled to be no greater than 1.15 V/m when the system is operating at maximum amperage. Even under peak operations, the strength of the field is below the pre-standard IEC 62344 of 1.25 V/m to protect biota. The strength of the field decreases substantially with distance from the electrode array, and would be about 0.34 V/m at a distance of three feet from the exterior of the vault and about 0.15 V/m at six feet from the vault. At these levels, species with electrical sensory abilities, such as elasmobranchs, may be able to detect the field, since these species have been reported to detect electric fields as weak as 1 nV/m (Fisher and Slater, 2010, cited in Weston, 2012b, Appendix D3). While predicted strength of the electric field is within the detection limits of select marine species, the strength is below reported thresholds for harmful effects on marine biota, and studies have not demonstrated that electric fields of this small magnitude and frequency affect the movement of marine species.

The proposed electrode array would also produce a magnetic field when in operation. As discussed above, the importance of the magnetic sense for orientation or navigation of marine species is not well understood (Walker et al. 2007). The effects of magnetic fields from undersea power cables on marine species were recently reviewed by the USDOI (USDOI 2011). While infrastructure-induced magnetic fields have been reported to be detectable by a number of marine species, the literature does not indicate that the levels anticipated to be produced by the proposed SGRS electrode would adversely affect the navigational capabilities or migration patterns of marine species that may inhabit or pass through the area.

In addition, there have been no documented impacts on interferences with the movement of migratory marine species related to the operation of the existing marine electrode, which has been operating in Santa Monica Bay for more than 45 years at an operational capacity similar to that proposed for the new SGRS marine facility.

Based on the lack of impacts associated with the existing SGRS marine facility and the small amount of time the SGRS marine facility would be in operation (approximately five hours per year in several shorter discrete events), the EMF production is expected to be very low and infrequent, and potential impacts to the movement of marine species from electrode operation would be less than significant.

Therefore, the Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Impacts from Project operations relative to these issues would be less than significant.

Abandonment Impacts

The existing electrode vaults and buried cables have been in their current location in Santa Monica Bay since 1969, and the system has been operational since 1970. Over that time period, there have been no reported impacts on native resident or migratory fish or wildlife species associated with the physical structures on the seafloor or operation of the electrode. These conditions would not be expected to change in the future with the existing cables and concrete vaults after abandonment in place of the system. Therefore, abandoning the existing cables and concrete vaults would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Therefore, there would be no impacts relative to facility abandonment.

e) Would the Project conflict with any local policies or ordinances protecting biological resources, such as tree preservation or ordinance?

Construction Impacts

The Santa Monica Bay Restoration Plan (BRP) is a set of goals, objectives, and milestones to improve water quality, conserve and rehabilitate natural resources, and protect the bay's benefits and values. In 2013, the SMBRC finalized a comprehensive update to the BRP in order to addresses remaining challenges and newly emerging issues (SMBRC 2013). The 2013 plan consists of 14 goals related to three priority issues: improve water quality, conserve and rehabilitate natural resources, and protect the bay’s benefits and values. Construction of the SGRS marine facility will comply with the goals, milestones, and objectives of the BRP through route selection that avoids sensitive habitats to protect marine biological resources, water quality, recreational activities, and cultural resources discussed in other subsections of this Chapter.

Thus, the Project would not conflict with local policies or ordinances protecting biological resources.

Operational Impacts

Operation of the SGRS marine facility would not have a long-term impact on water quality, marine habitats, or marine biota as discussed in other sections of the chapter and would, therefore, not conflict with local policies or ordinances protecting biological resources.

Abandonment Impacts

Decommissioning and abandoning in place the existing SGRS cables and electrode vaults would not have a long-term impact on water quality, marine habitats, or marine biota as discussed in other sections of the chapter and would, therefore, not conflict with local policies or ordinances protecting biological resources.

f) Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

Construction Impacts

The BRP is a set of goals, objectives, and milestones to improve water quality, conserve and rehabilitate natural resources, and protect the bay's benefits and values and is considered the comprehensive conservation management plan for bay protection and management. As discussed above, construction of the SGRS marine facility will comply with the goals, milestones, and objectives of the BRP through route selection that avoids sensitive habitats to protect marine biological resources, water quality, recreational activities, and cultural resources discussed in other subsections of this Chapter.

Thus, the Project would not conflict with the provisions of an adopted habitat conservation plan and no impacts are expected.

Operational Impacts

Operation of the SGRS marine facility would not have a long-term impact on water quality, marine habitats, or marine biota as discussed in other sections of the chapter and would, therefore, not conflict with the provisions of an adopted habitat conservation plan and no impacts are expected.

Abandonment Impacts

Decommissioning and abandoning in place the existing SGRS cables and electrode vaults would not have a long-term impact on water quality, marine habitats, or marine biota as discussed in other sections of the chapter and would, therefore, not conflict with the provisions of an adopted habitat conservation plan and no impacts are expected.

g) Would noise associated with the Project substantially impact marine biological resources?

Construction Impacts

The impacts related to construction noise have been considered based on the cable laying activities for the marine portion of the SGRS because the cable laying would involve the operation of vessels at the surface and a jet plow on the ocean floor and would create the highest levels of noise associated with Project construction. The installation of the electrode array itself would also involve the operation of vessels for brief periods at the surface, but the actual setting of the concrete vaults on the ocean floor is not anticipated to create substantial noise.

Although studies have been conducted on potential impacts to marine species associated with construction and operation of offshore wind farms (reviewed by Madsen et al. 2006), the majority of these assessments have focused on impacts related to pile driving and continuous operation, which are not applicable to the construction or operational activities anticipated with the SGRS Project. Limited studies have been conducted on potential noise impacts from the installation and operation of subsea cables (reviewed by BERR 2008; Nedwell et al. 2007). One of the difficulties in assessing noise impacts on marine species from underwater construction is the wide range of hearing capabilities among fish and marine mammal species. In order to standardize noise impacts on marine fauna, Nedwell et al. (1998) developed a scale based on a hearing threshold (ht) of sound perception on the decibel (dB) scale for individual marine species (dBht [species]). This species-specific scale dBht (species) accounts for the hearing threshold of individual species and allows for an assessment of potential impacts of a given level of noise on a species-specific basis. The dBht (species) scale is the only metric that quantifies the risk of behavioral effects across a wide range of species having varying hearing ability. It gives a species-specific noise level referenced to an animal’s hearing ability and therefore a measure of the potential of the noise to cause an effect. The measure that is obtained represents the “loudness” of the sound for that animal. Generally, maximum sound pressure levels related to the installation or operation of cables are moderate to low, and there are no clear indications that noise impacts related to the installation of subsea cables pose a high risk of harming marine fauna (BERR 2008).

Nedwell et al. (2003) measured the noise associated with cable laying construction at varying distances from trenching operations and compared noise levels in the field to the hearing thresholds of several fish and marine mammal species using the dBht (species) scale. Based on the scale, avoidance reactions were considered mild at species-specific sound levels greater than 75 dBht (species), significant at levels greater than 90 dBht (species), and strong at levels greater than 100 dBht (species). This model was validated for a variety of fish species and marine mammals by Nedwell et al. (2007). They found that the noise measurements in the field associated with cable trenching were less than 70 dBht (species) for all species tested. Thus, based on the classification reaction outlined above, the sound associated with trenching during the cable-laying process was less than the level at which significant avoidance reactions would be expected (i.e., 90 dBht [species]).

Disturbance caused by noise generated from cable-laying operations (as well as noise associated with vessels and equipment) may displace fish within the water column from the vicinity of construction activities. However, because the cable laying activity for the SGRS marine facility would occur for a very brief period in any given location, this would be a localized and temporary effect, which in isolation would not represent a significant impact on marine biological resources.

Operational Impacts

Operation of the SGRS marine facility is expected to occur for approximately five hours per year in several shorter discrete events and would not generate any sound. Therefore, there would be no impacts related to noise on biological resources during operation.

Abandonment Impacts

When the proposed replacement SGRS marine facility is constructed and operational, the existing undersea cables and electrode vaults will be de-commissioned and power will be cut. There would be no sound produced by the existing structures and no potential for noise from the abandoned structures to impact marine biological resources.

3.3.4 Cumulative Impacts

Cumulative effects refer to the impacts on the environment that result from a combination of past, present, and reasonably foreseeable projects. This discussion describes effects that may be individually limited but cumulatively considerable when measured alongside other projects.

A summary of past, present, and reasonably foreseeable future projects that may affect resources within the Project area are presented in Section 3.1.3 of the Draft EIR. Projects identified are not located adjacent to the Project area and therefore are not expected to result in cumulative effects to biological resources that would be potentially affected by the proposed Project. Refer to Figure 3.3-1, which depicts the location of the marine-based projects considered in this analysis.

The closest marine-based project is the Southern California Wetlands Recovery Project, which involves a major restoration effort for coastal wetland habitats. The nearest restoration location is Topanga Creek and Lagoon, located approximately 1.5 miles from the Project area. This restoration effort is not located in the immediate vicinity of the Project, nor would it involve construction on the seafloor or impacts to biological resources in offshore areas. Therefore, the proposed Project would not create an incremental effect to biological resources that would be cumulatively considerable.

3.3.5 Mitigation Measures and Level of Significance After Mitigation

Mitigation Measures

BIO-1 Marine Mammal and Sea Turtle Avoidance Practices

1. A biological monitor will be required on vessels and, when appropriate, in the water during construction activities within Santa Monica Bay and will have the authority in coordination with LADWP to halt and redirect construction activities to avoid adverse impacts to marine wildlife. If a sea turtle or marine mammal is identified within 100 meters of the construction work zone, construction activity shall be temporarily halted until the sea turtle or marine mammal moves safely beyond this distance.

2. Construction and vessel crews will be trained to recognize and avoid marine mammals and sea turtles prior to initiation of Project construction activities.
3. Vessels involved in construction activities will maintain a steady course and slow speed.
4. Any collisions with marine wildlife will be reported promptly to state and federal resource agencies.

Level of Significance After Mitigation

Mitigation Measure BIO-1 requires a biological monitor during project construction activities and the training of construction and vessel crews to recognize and avoid marine mammals and sea turtles prior to initiation of construction. If a sea turtle or marine mammal is identified within 100 meters of the construction work zone, construction activity shall be halted until the sea turtle or marine mammal moves safely beyond this distance. This measure also requires that construction vessels maintain a slow speed and avoid rapid course changes (i.e., maintain a steady course). This will reduce potential for unanticipated collisions with mammals or turtles. Therefore, with implementation of Mitigation Measure BIO-1, temporary construction-related impacts to any candidate, sensitive, or special-status species and substantial interference with the movement of native, resident, or migratory species would be less than significant.

3.4 CULTURAL RESOURCES

This section assesses the potential for impacts created by proposed Project to cultural resources, which include both historical and archaeological resources. As discussed in the Project Description (Chapter 2 of the Draft EIR), the Project would involve minor construction activities on land, where the proposed SGRS marine facility would be connected to the existing landside segment of the SGRS at the Gladstone Vault, which is located in a parking lot. The activity at the Gladstone Vault would entail cable pulling through existing conduit and would not require any excavation or ground disturbance. The majority of the proposed Project components (and the related construction activity) would be located within Santa Monica Bay. Therefore, the focus of analysis in this section is in relationship to the marine environment and potential impacts to the physical remains of vessels (i.e., shipwrecks) or other historical manmade artifacts in the bay. This section relies on information from historical resource records searches, Native American outreach, and site surveys, as noted below.

In relation to paleontological resources, the Gladstone Vault site was formerly an open coastal beach consisting of young unconsolidated sandy deposits. The site is currently a parking lot and is likely underlain by imported fill to provide a stable structural base for the pavement. The floor of Santa Monica Bay in the area of the proposed marine facility is a gently sloping plain that generally consists of unconsolidated sediments composed mostly of sand and silt accumulated from onshore drainage and littoral drift. Based on the relatively shallow depth of disturbance required for the installation of the proposed Project facilities, the type of geologic formations or introduced materials present (e.g., unconsolidated sand and silt sediments), and the resultant lack of contextual associations, no significant vertebrate fossils are anticipated to be exist within the Project's area of impact. No impacts to paleontological resources would occur, and the following analysis therefore focuses on historical and archaeological resources.

3.4.1 Existing Conditions

Environmental Setting

Santa Monica Bay, the location of the existing and proposed SGRS marine facilities, has been an area of human activity and a resource for humans since the prehistoric era in California. The bay was ringed by numerous Tongva villages from present-day Point Dume in Malibu to the Palos Verdes Peninsula, including a large village at Topanga, approximately 1.5 miles from the site of the Gladstone Vault (Keepers of Indigenous Ways, Inc. 2015). The Tongva, who occupied a widespread area of present-day

Los Angeles and Orange Counties, harvested crustaceans and shellfish along the shoreline of the bay and fished using nets, spears, and hooks (Santa Monica Bay Audubon Society 2013). The Tongva also constructed seaworthy canoes from wooden planks sealed with tar or pine pitch, which enabled them to conduct fishing within the deeper waters offshore. These canoes also allowed for transport and trade between the mainland and the Channel Islands that were also the site of Tongva villages (present-day Catalina and San Nicolas Islands) and for coastal trade with neighboring Chumash people to the north and Acjachemem people to the south (Haramokngna American Indian Cultural Center 2015).

In the first half of the sixteenth century, the Portuguese explorer Juan Rodriguez Cabrillo is believed to be the first European to enter Santa Monica Bay when he anchored in the bay during his 1542 expedition along the Pacific coast of California for the Spanish crown. Although Sebastian Vizcaino further explored and provided detailed mapping of the California coast some 60 years later in 1602, it was not until the latter half of the eighteenth century that the area was reached overland by Europeans, when members of the Gaspar de Portola expedition briefly camped in the vicinity of modern day Santa Monica in 1769.

From the late eighteenth century to the early nineteenth century, the land surrounding the bay was allotted in several large tracts, or ranchos, which provided settlement and grazing rights to an individual under a concession but retained land ownership for the Spanish crown. After the Mexican War of Independence ended Spanish rule in the region in 1822, the ownership of the ranchos was passed to private parties under various land grants (Santa Monica History Museum 2011).

During the Mexican period, some shipping activity related to trade between the United States and Alta California did occur, but San Pedro Bay, rather than Santa Monica Bay, was the primary trading locale in the Southern California region. Coastal Southern California remained largely unsettled by Europeans during the time of the California Gold Rush of the mid-nineteenth century, when shipping activity in the state was concentrated predominantly in the San Francisco Bay. After California joined the union in 1850, commercial whaling activity along the coast increased and included the establishment in the latter part of the century of numerous landside whaling stations, where whales taken in coastal waters were delivered for processing. However, once again, San Pedro Bay, with two stations, was the focus of this activity in the Southern California region rather than Santa Monica Bay, and even these stations had been abandoned by late in the century (Starks 1923).

Roads around portions of Santa Monica Bay, including in the vicinity of the proposed Project, were constructed as early as the late nineteenth century to connect various coastal communities and ranches (Masters 2012a). By the late century, the Los Angeles Pacific Railroad also extended a rail line along the coast from Santa Monica as far north as Temescal Canyon (about 1.2 miles east of the Gladstone Vault via Pacific Coast Highway [PCH]). It was this rail access that provided perhaps the greatest promise for major shipping activity in Santa Monica Bay with the construction in the early 1890s in the bay of the so-called Long Wharf, dubbed the first Port of Los Angeles by its developers.

Based on a monopoly of land holdings and rail rights-of-way providing access to the bay, Collis P. Huntington, the president of Southern Pacific Railroad, along with the founders and majority landowners of the City of Santa Monica, attempted to persuade the United States Congress and the local business community and politicians to support the development of Santa Monica Bay as a west coast commercial port rivaling San Diego and San Francisco by building a breakwater to form an actual harbor. They were opposed by a consortium of local business interests, including rival railroads, which feared the Southern Pacific's monopolistic grip on Santa Monica Bay and instead supported the development of San Pedro harbor, which provided more open access for local commerce (Quiett 1977).

To gain the advantage of an established facility, the Santa Monica partners constructed between 1892 and 1894 a nearly mile-long pier, extending southwest into the bay from the terminus of the Southern Pacific track that hugged the steeply palisaded coastline for about 2.5 miles southeastward to the City of Santa Monica, where it turned eastward to connect to the network of tracks serving the greater Los Angeles area. The actual wharf was a 1,000-foot long facility for loading and offloading cargo and passengers from ships via a double-tracked rail line running the length of the pier and connecting to the coastal rail line. In the years after its construction, the Long Wharf succeeded in attracting commercial shipping traffic away from San Pedro. However, with Federal support, improvements began at San Pedro in the late nineteenth century, including a breakwater and dredging, and by early in the following century, the Long Wharf was unable to compete and was closed to shipping operations in 1913. Because a large commercial port never developed in Santa Monica Bay, major shipping lanes routed to the Ports of Los Angeles and Long Beach have essentially skirted the bay (Masters 2012b).

The landside end of the Long Wharf was located about 1.75 miles south-southeast of the origination point of both the existing and proposed marine facilities at the Gladstone Vault (PCH and Sunset Boulevard). The tip of the wharf was located about one mile east of the existing electrode array and 1.25 miles east of the centerline of the proposed electrode cable corridor. However, the wharf itself was demolished in 1920, and by the early 1930s, all remnants of the pier had also been removed. Other than a plaque and a small section of the original track located at the Will Rogers State Beach lifeguard headquarters, no trace of the Long Wharf remains (California State Parks 2015).

In addition to the Long Wharf, numerous other piers were constructed in Santa Monica Bay starting in the late 1800s. These included piers in Malibu, Santa Monica, Ocean Park, Venice, and the South Bay. While these piers often originated with a commercial function to receive and ship various cargoes via water, they eventually evolved into fishing and amusement attractions. The pier in closest proximity to the proposed Project, the Santa Monica Pier, was constructed in 1909 with the dual purpose of supporting outfall pipes to dispose of Santa Monica's sewage past the surf zone and as a tourist destination for the burgeoning population in Southern California (PCR 2011).

The primary tourist activity in the early years was angling from the pier, but within a decade, amusement rides, entertainment venues, and dining establishments were drawing thousands of visitors daily, and though numerous iterations, these attractions have remained on Santa Monica Pier to present day. Nonetheless, the commercial opportunities related to pleasure fishing were also apparent, and this activity greatly expanded starting in the 1920s, when many commercial sportfishing businesses began operating from the pier, offering daily excursions into the deeper waters of the bay. These operations involved actual fishing boats as well as launches that would ferry passengers between the pier and fishing barges, which were larger vessels of various types permanently anchored offshore, providing deeper-water angling platforms. With the extensive Red Car rail system able to deliver patrons from across Southern California on a routine schedule, sportfishing operations in Santa Monica Bay were highly successful during the 1920s and 30s (Jones 2005).

In a unique chapter of Santa Monica Bay maritime history, significant boating activity was also generated in the bay in the 1930s in association with offshore gambling operations that were established on ships anchored in the bay beyond the State of California's jurisdictional limit of three nautical miles. This small fleet of gambling ships operated successfully by shuttling customers, often free of charge, between the mainland and the floating casinos until State and local law enforcement agencies were able to successfully press legal action against the operators and seize the ships in 1939 (Los Angeles Almanac 2014).

The sportfishing activity from the pier was largely disrupted during World War II, when commercial fishing operations at harbors along the coast were displaced by the United States Naval operations, and the breakwater at Santa Monica (which had been constructed in 1934) became the only local safe haven for the Southern California commercial fishing fleet (Santa Monica Pier.org 2012). But after the war, boating operations in the bay related to pleasure fishing returned and remained robust during the 1940s and 50s, even after the demise of the Pacific Electric Red Car system. However, the popularity of pleasure fishing waned beginning in the 1960s, and after violent storms destroyed the western half of Santa Monica Pier in the early 1980s, the fishing boat operations vacated the pier (PCR 2011).

A large portion of Santa Monica Bay, from Malibu Point (just west of Malibu Pier) to Rocky Point (on Palos Verdes Peninsula) is now closed to nearly all commercial fishing activities, but because of its proximity to the densely populated greater Los Angeles area, the bay has remained a popular recreational fishing and boating location. Based on this long history of boating activity in Santa Monica Bay, numerous vessels are known to have sunk in the bay and the surrounding waters since the latter half of the nineteenth century.

The immediate vicinity of the Gladstone Vault (named after the adjacent restaurant on PCH), is a heavily developed urban setting. However, until approximately 100 years ago, the area was entirely undeveloped when, in 1912, film pioneer Thomas Ince built a self-contained movie studio around the mouth of Santa Ynez Canyon, at the present day intersection of Sunset Boulevard and PCH. The studio, dubbed Inceville, included elaborate set pieces, stages, shops, offices, and other facilities that supported the complete production of movies, which Ince churned out at a rate of up to 150 a year. Ince pioneered the production of Westerns themed movies at his studio, which was the first to use an ‘assembly-line’ system of filmmaking (Bartlett 2012). Ince eventually moved his production facilities to Culver City, and Inceville was purchased by a succession of movie companies. Following Ince’s departure, several fires occurred at the studio, including one in 1924 that destroyed all but a few buildings (Ince 1924). No remnants of the Inceville still exist.

Although residential development in Pacific Palisades in areas surrounding Santa Monica and Temescal Canyons began as early as the 1920s, the area around Sunset Boulevard and PCH remained generally undeveloped until the post-war era. By the late 1940s, some commercial development was established at the intersection, and by the late 1950s and early 1960s, the surrounding hillsides were largely developed as residential neighborhoods.

The actual site of the Gladstone Vault, where the proposed Project cable installation would commence on land, was an open sandy beach adjacent to PCH until the late 1950s or early 1960s, when a parking lot was built on the site. To broaden the site seaward to provide a larger area for parking and to protect the parking lot from the surf, a rock revetment was constructed extending into the surf zone. The area behind the revetment was backfilled with structural material to provide a stable base for the parking lot.

Regulatory Framework

Under CEQA, a project is considered to have a significant effect on cultural resources if it causes a substantial adverse change in the significance of a historical resource or unique archaeological resource or if it impacts Native American human remains.

Historical Resources

According to CEQA, lead agencies are required to identify historical resources that may be affected by a proposed project. A historical resource is a cultural resource that is eligible for listing in the California Register of Historical Resources (Public Resource Code [PRC] Section 5024.1, Title 14 California Code of Regulations [CCR], Section 4852). For a resource to be eligible for the California Register of Historical Resources, it must satisfy one or more of the following criteria:

- It is associated with events or patterns of events that have made a significant contribution to the broad patterns of the history and cultural heritage of California or the United States.
- It is associated with the lives of persons important to the Nation’s or California’s past.
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- It has yielded, or has the potential to yield, information important to the prehistory or history of the state or the nation.

Generally, to be significant, a historical resource must retain integrity, which is defined as the authenticity of its physical identity as evidenced by the survival of the original characteristics of the resource. California Office of Historic Preservation guidance specifies that integrity is a quality that applies to historical resources in seven ways: location, design, setting, materials, workmanship, feeling, and association. Generally, resources must be 50 years old or older to be classified as historical (except in rare cases of resources of exceptional significance).

Unique Archaeological Resources

Under CEQA, the lead agency must also determine whether a proposed project will have a significant effect on unique archaeological resources. PRC 21083.2(g) states:

…a 'unique archaeological resource' means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- It contains information needed to answer important scientific research questions and that there is demonstrable public interest in that information.
- It has a special and particular quality, such as being the oldest of its type or the best available example of its type.
- It is directly associated with a scientifically recognized important prehistoric or historic event or person.

A non-unique archaeological resource does not meet these criteria and does not need to be given further consideration other than simple recording unless it happens to qualify as a historical resource.

Native American Human Remains

Under CEQA, the discovery of Native American human remains must be addressed according to PRC 5097.98, which provides for the full protection of the site where remains are discovered, the identification of the remains, the notification of the most likely descendant, and the appropriate treatment or disposition of the remains and any associated artifacts according to consultation with the designated descendant.

3.4.2 Methodology and Thresholds of Significance

Methodology

To establish the presence of potentially significant cultural resources that may be affected by the proposed Project, a process involving a search of existing data sources, outreach to Native American representatives, and site surveys was conducted.

A review of records on file at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton, a unit of the California Historical Resource Information System (CHRIS), was conducted for the Project in March 2015.

The Native American Heritage Commission (NAHC) was sent a letter on April 2, 2015, with a request to conduct a Sacred Lands File search related to the Project site and its surrounding and provide a contact list of Native American representatives with potential interest in or association with the general vicinity of the Project site. The letter included a brief description of the Project, including a map. A response was received from the NAHC on April 20, 2015, including a list of the local Native American contacts. Each individual from the list was sent a letter on June 12, 2015. These letters also included a brief description of the Project, including a map, and a request that the recipients provide any additional information regarding cultural resources in relation to the proposed Project area of impact. Two Native American representatives contacted LADWP personnel by phone to discuss the Project, and one of these individuals sent a brief follow-up email. Neither individual provided any additional specific information related to

Native American cultural resources in relation to the Project site (see Appendix E for documentation related to Native American outreach).

Various databases containing information regarding shipwrecks in Santa Monica Bay and the surrounding area were examined in winter 2015. These included the NOAA Automated Wrecks and Obstructions Information System (AWOIS) and Electronic Navigational Charts (ENC), which contain verified information regarding wreck locations related to navigational hazards. In addition, the California State Lands Commission California Shipwrecks database (California State Lands 2015) provides an extremely comprehensive resource for shipwrecks. However, while the California Shipwrecks database reflects a historical record regarding maritime disasters, the accuracy of the information in terms of precise location or even the actual existence of surviving wrecks has not, in most cases, been verified by field surveys. Therefore, while the California Shipwrecks database provides a comprehensive historical record of wrecks (including 156 within Los Angeles County and several dozen within Santa Monica Bay itself), documents related to wrecks in the vicinity of the proposed Project, such as contemporaneous news accounts or ships' histories, were also examined to help verify the existence and location of wrecks identified in the database.

The Project landside origination point at the Gladstone Vault was visited in March 2015 to conduct a visual survey of the site. Underwater side-scan sonar surveys were conducted along the proposed marine facility alignment in April and May 2012 to help establish the existence and location of previously undetected shipwrecks or artifacts that could be affected by Project construction (Appendix D1). As discussed in Chapter 2 of the Draft EIR, the existing marine electrode facility would be abandoned in place, and no construction activity would occur related to the facility that could impact potential cultural resources. Nonetheless, in relation to the determination regarding abandonment, the facility, including both the cable alignment and the electrode array, was also physically surveyed by divers in January 2015 (Appendix D4).

Thresholds of Significance

The following criteria used to determine whether the proposed Project would create a significant impact related to cultural resources are based on Appendix G of the State CEQA Guidelines. Accordingly, a project may create a significant impact if it would:

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines;
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines; or
c) Disturb any human remains, including those interred outside of formal cemeteries.

A substantial adverse change in the significance of a cultural resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired or diminished.

3.4.3 Best Management Practices

The following BMPs would apply to the proposed Project to avoid or minimize potential impacts to cultural resources.

BMP-2 Archaeological Resources

Should previously unknown archaeological resources be found during project construction activities, all activities shall cease in the immediate area of the discovered resource. A project archaeologist shall be retained to first determine whether the resource discovered is a unique archaeological resource pursuant to Section 21083.2(g) of the PRC or a historical resource pursuant to Section 15064.5(a) of the CEQA Guidelines. If the archaeological resource is determined to be a unique archaeological resource or a historical resource, the archaeologist shall recommend disposition of the site and formulate a mitigation plan in consultation with LADWP that satisfies the requirements of Section 21083.2 of the PRC and/or Section 15064.5 of the CEQA Guidelines. If the archaeologist determines that the archaeological resource is not a unique archaeological resource or historical resource, the site will be recorded and the site form submitted to the California Historical Resource Information System (CHRIS) at the South Central Coastal Information Center (SCCIC). The archaeologist shall prepare a report of the results of any study prepared following accepted professional practice and guidelines of the California Office of Historic Preservation. Copies of the report shall be submitted to the CHRIS at the SCCIC.

BMP-3 Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be notified within 24 hours of the discovery. No further disturbance of the site or any nearby area reasonably suspected to overlie other remains shall occur until the Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the Coroner determines that the remains are or are believed to be Native American, the Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 48 hours. In accordance with PRC Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descended from the deceased Native American. The descendants shall complete an inspection of the site within 48 hours of being granted access. The designated Native American representative shall then determine, in consultation with LADWP, the disposition of the human remains.

3.4.4 Impact Analysis

a) Would the Project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines?

According to the CHRIS data search conducted in March 2015, several cultural resource sites have been recorded within one mile of the Gladstone Vault, where the proposed Project cable installation would commence on land. However, no cultural resources sites were located at or adjacent to the vault, and none of the known resources would be impacted by construction of work at the vault. Table 3.4-1 provides a list of these resource sites.

TABLE 3.4-1 RECORDED CULTURAL RESOURCES WITHIN ONE MILE OF THE GLADSTONE VAULT

PRIMARY NUMBER	TRINOMIAL	SITE TYPE	PERIOD	DISTANCE TO PROJECT
19-000134	CA-LAN-134	Village site, destroyed/developed over	Prehistoric	1⁄10 mile
19-000219	CA-LAN-219	Village site, destroyed/developed over	Prehistoric	1/2 mile
19-003192	-	1929 Castellammare Sales office	Historic	1/4 mile
19-167242	-	1927 mansion in Castellammare	Historic	3/4 mile
19-188034	-	Mid-century modern mansion in Castellammare	Historic	5/8 mile
19-188035	-	1927 mansion in Castellammare	Historic	5/8 mile

Furthermore, the field survey of the Gladstone Vault site did not identify any previously unrecorded historic resources that would be impacted by Project construction. Therefore, no substantial adverse change in the significance of a historical resource would occur in relation to construction activity at the Gladstone Vault site. In addition, since after construction, the proposed SGRS facilities at the Gladstone site would be located entirely underground, the Project would not affect any historically significant setting in the vicinity.

Archaeological resources related to the Tongva have been recorded on land throughout the Southern California region, but there are no known physical vestiges of prehistoric activity within Santa Monica Bay itself. Therefore, in relationship to the bay proper, a potentially significant impact would occur if the installation of the proposed cable under the ocean floor and/or the construction of the proposed electrode array adversely affected a historical resource, including a shipwreck or other manmade structure or artifact in the bay. Other than the existing electrode facility, which would be abandoned in place after Project construction is complete, there are no other manmade structures in the bay in the immediate vicinity of the of the existing or proposed electrode facilities (Office of Coast Survey 2015). However, as noted above, there have been numerous shipwrecks recorded within the Santa Monica dating back to at least the mid-1800s.

The California Shipwrecks database, even if lacking precision relative to the exact location or even the verified existence of surviving underwater wrecks, is revealing of the general pattern of wrecks that have occurred within Santa Monica Bay. Wrecks in the bay have occurred predominantly in the waters surrounding Palos Verdes peninsula. According to the database, only three wrecks are recorded within three miles of either the existing or proposed marine facilities. This three-mile offset distance provides a conservative buffer around the marine facilities to account for potential inaccuracies in locational information for wrecks in the database.

The closest verified surviving wreck to the existing and proposed marine facilities is the Star of Scotland, which was a 260-foot fishing barge that was anchored in the bay when it sank in early 1942 (Tucson 1942). The existence and location of this wreck is verified in the NOAA AWOIS and ENC mapped data and is also accurately reflected in the California Shipwrecks database. The wreck lies on the bottom of the bay approximately 1.5 miles southwest of Santa Monica Pier. The wreck is located nearly three miles from the existing electrode array and over three miles from the proposed electrode array and centerline of the proposed cable corridor. It is therefore outside the potential area of impact related to the proposed Project.

Two additional shipwrecks are located within three miles of the existing and proposed electrode facilities as reported on the California Shipwrecks database but not on the NOAA mapped data. The Minnie A. Caine was a 4-masted, 200-foot schooner built in 1900 that had been converted to fishing barge anchored in Santa Monica Bay (Magellan Ship Biographies 2015). Based on the coordinates provided in the California Shipwrecks database, the wreck site of the Minnie A. Caine is located approximately 0.1 mile offshore at Sunset Boulevard, about 250 feet from the existing electrode cable. However, based on contemporaneous newspaper accounts, the Minnie A. Caine broke from its moorings during a violent storm on September 24, 1939, and was beached adjacent to PCH. All those on board the vessel were rescued (Ogden Standard-Examiner 1939). The basic alignment of the PCH has not changed since 1939 nor has the shoreline in the area of Sunset Boulevard substantially receded such that it was 0.1 mile farther offshore in 1939 (the location of the Minnie A. Caine wreck site as recorded in the California Shipwrecks database). In addition, the side-scan sonar surveys conducted in 2012 (see below) did not reveal any evidence of the wreck in the general area indicated in the database. Therefore, the offshore location (rather than the beach itself) indicated for the wreck in the database is likely inaccurate. As reported in contemporaneous newspaper accounts, plans to refloat the Minnie A. Caine were abandoned when it was determined that the underside of the hull was damaged beyond repair (Santa Ana Register 1939a). It remained on the beach for three months, but during this time, it acted as a barrier to the natural transport and deposition of sand by wave action, and the beachfront adjacent to the highway eroded to the point that the pavement was in danger of being undercut (Santa Ana Register 1939b). To remove the vessel, it was burned to dispose of its wooden members, and its metal components were salvaged (Magellan Ship Biographies 2015). Therefore, the Minnie A. Caine does not represent a potential historical resource site located within the alignment of either the existing or proposed marine facilities.

The Ameco was a 45-foot wooden-hulled open launch that was built in 1917 (California State Lands 2015; Santa Cruz Evening News 1930). Based on the coordinates provided in the California Shipwrecks database, the wreck site of the Ameco is located about 0.5 mile offshore, approximately 0.7 mile southeast of Topanga Canyon Boulevard at its intersection with PCH. This location would place the wreck about 0.6 miles northwest of the centerline of the proposed electrode cable corridor and about 0.7 miles west of the existing electrode cable. The Ameco was serving as a water taxi ferrying passengers from an offshore fishing barge back to Santa Monica Pier on Memorial Day weekend in 1930 (Bonham Daily Favorite 1930). It was reportedly loaded beyond its limit with passengers when it was capsized by a large wave, and all on board were thrown into the water. Of the 70 passengers and crew, 54 were rescued by other vessels or managed to swim ashore, three bodies were recovered near the scene shortly after the accident, and 13 persons were unaccounted for (San Bernardino County Sun 1930). Over the next month, the bodies of all the missing passengers were recovered in the bay (Oregon 1930). Based on contemporaneous newspaper accounts, the Ameco was swamped and sank about 0.75 mile offshore, near Topanga Canyon, which varies slightly but is nonetheless generally consistent with the location established in the California Shipwrecks database, and it would still place the site of the accident about 0.5 miles from the centerline of the proposed electrode cable corridor (Santa Cruz Evening News 1930; Bonham Daily Favorite 1930; Modesto News-Herald 1930). There are no known reports as to whether the Ameco was salvaged or refloated, but based on the reported location of its sinking, it would nonetheless be outside the potential area of impact related to the proposed Project.

In addition to the evidence related to shipwrecks provided by existing databases, a geophysical survey of the proposed electrode alignment, including side-scan sonar imaging of the ocean floor, was conducted in spring of 2012 (Appendix D1). A total of nine survey paths parallel to the proposed electrode cable alignment were followed with the sonar, including the centerline of the proposed alignment and four paths spaced at 160 feet on either side of the centerline. This provided a total survey corridor width of about 1,440 feet, which encompasses the centerline of the proposed cable alignment and the footprint of the proposed electrode array site, two miles offshore. The sonar was able to detect objects as small as one foot in dimension.

Within the proposed Project corridor, a total of seven objects were detected by the side-scan sonar. Two small objects were identified as a possible abandoned crab pot and its detached buoy line. An additional unidentified target of approximately six feet by three feet by two feet in height in was located nearby. However, these objects are located a minimum of approximately 475 feet from the proposed electrode cable centerline and atop a rock outcropping that would be avoided by the cable route. These objects would be located about 1.7 miles from the proposed electrode array. They are therefore outside the potential area of impact of the proposed marine facility. The remaining objects detected during the side-scan sonar survey were all classified as unidentified targets. They ranged in size from approximately six feet by two feet by two feet in height, to 10 feet by two feet by one foot in height. However, none of these unidentified targets is closer than 0.4 mile to either the proposed electrode array or cable alignment. Therefore, they are outside the potential area of impact of the proposed marine facility.

Therefore, based on the evidence related to shipwrecks or other manmade structures or objects within the area of impact of the proposed Project marine facility, no substantial adverse change in the significance of a historical resource would occur.

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

As discussed above, the site of the Gladstone Vault was an open sandy beach prior to the construction of a parking lot on the site in the late 1950s or early 1960s. The longshore transport process that takes place along shorelines, resulting in the constant erosion and deposition of sediments, is not conducive to the preservation of archaeological resources in a given location. Furthermore, the site of the vault was substantially modified when the parking lot was built, including the construction of a revetment within the surf zone and the placement of structural fill behind the revetment and beneath the parking lot. Therefore, it is unlikely that significant archeological resources are present at the site. There are no previously recorded resources on the site according to the CHRIS data search. Based on the current paved condition of the site, no archaeological resources were detectable during field surveys. Native American representatives were given an opportunity to reveal the existence, to their knowledge, of any cultural resources within or adjacent to the Project site, and none did so. Furthermore, because the only construction activity at the Gladstone Vault would be pulling cables through existing conduits, no excavation or ground disturbance would occur. Therefore, there would be no impacts to archaeological resources.

c) Would the Project disturb any human remains, including those interred outside of formal cemeteries?

As discussed above, the site of the Gladstone Vault was an open sandy beach prior to the construction of a parking lot on the site in the late 1950s or early 1960s. Furthermore, the site of the vault was substantially modified when the parking lot was built, including the construction of a revetment within the surf zone and the placement of structural fill behind the revetment and beneath the parking lot. There is no indication that human remains are present within the Project site. Background research failed to find any evidence of potential remains, and no evidence was found when the Project site was physically inspected. Native American representatives were given an opportunity to reveal the existence, to their knowledge, of any remains within or adjacent to the Project site, and none did so. Furthermore, because the only construction activity at the Gladstone Vault would be pulling cables through existing conduits, no excavation or ground disturbance would occur. Therefore, there would be no potential to disturb human remains.

3.4.5 Cumulative Impacts

Based on a records search, site investigations, Native American outreach, and the types of formations present in the proposed Project area of impact, the Project is not anticipated to create any impacts to historical or archaeological resources. Therefore, the Project would not result in a cumulatively considerable incremental effect when considered in combination with the effects of other current or probable future projects in the vicinity.

3.4.6 Mitigation Measures and Level of Significance After Mitigation

Based on the impact analysis contained in this section and on the implementation of the aforementioned BMPs, the proposed Project would not result in any significant impacts to cultural resources. Therefore, no mitigation measures are required.

3.5 NOISE

This section describes potential noise and vibration impacts to the land environment only. For a detailed discussion of potential noise impacts related to biological resources in the marine environment, please refer to Section 3.3.

3.5.1 Existing Conditions

Background

Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement for sound is the decibel (dB). The human ear is not equally sensitive to sound at all frequencies. The "A-weighted scale," abbreviated dBA, reflects the normal hearing sensitivity range of the human ear. On this scale, the range of human hearing extends from approximately 3 to 140 dBA. Figure 3.5-1 provides examples of A-weighted noise levels from common sounds.

Noise Exposure and Community Noise

This noise analysis discusses sound levels in terms of equivalent noise level (L_{eq}). L_{eq} is the average noise level on an energy basis for any specific time period. The L_{eq} for one hour is the energy average noise level during the hour. The average noise level is based on the energy content (acoustic energy) of the sound. L_{eq} can be thought of as the level of a continuous noise which has the same energy content as the fluctuating noise level. The L_{eq} is expressed in units of dBA.

Effects of Noise on People

Noise is generally defined as unwanted sound. The degree to which noise can impact the human environment ranges from levels that interfere with speech and sleep (annoyance and nuisance) to levels that cause adverse health effects (hearing loss and psychological effects). Human response to noise is subjective and can vary greatly from person to person. Factors that influence individual response include the intensity, frequency, and pattern of noise; the amount of background noise present before the intruding noise; and the nature of work or human activity that is exposed to the noise source.

Noise Attenuation

Studies have shown that the smallest perceptible change in sound level for a person with normal hearing sensitivity is approximately 3.0 dBA. A change of at least 5.0 dBA would be noticeable and may evoke a community reaction. A 10-dBA increase is subjectively heard as a doubling in loudness and would likely cause a community response.

Noise levels decrease as the distance from the noise source to the receiver increases. Noise generated by a stationary noise source, or “point source,” will decrease by approximately 6.0 dBA over hard surfaces (e.g., reflective surfaces such as parking lots or smooth bodies of water) and 7.5 dBA over soft surfaces (e.g., absorptive surfaces such as soft dirt, grass, or scattered bushes and trees) for each doubling of the distance. For example, if a noise source produces a noise level of 89 dBA at a reference distance of 50 feet, then, as the noise travels over hard surfaces, the noise level would be 83 dBA at a distance of 100 feet from the noise source, 77 dBA at a distance of 200 feet, and so on. Noise generated by a mobile source will decrease by approximately 3.0 dBA over hard surfaces and 4.8 dBA over soft surfaces for each doubling of the distance.

Generally, noise is most audible when traveling by direct line-of-sight. Line-of-sight is an unobstructed visual path between the noise source and the noise receptor. Barriers, such as walls, berms, or buildings that break the line-of-sight between the source and the receiver, greatly reduce noise levels from the source since sound can only reach the receiver by bending over the top of the barrier. However, if a barrier is not high or long enough to entirely break the line-of-sight from the source to the receiver, its effectiveness as a noise barrier is greatly reduced.

Fundamentals of Vibration

Vibration is an oscillatory motion through a solid medium in which the motion’s amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual for vibration from sources, such as buses and trucks, to be perceptible, even in locations close to major roads. Some common sources of vibration are trains, buses on rough roads, and certain construction activities, such as blasting, pile driving, and heavy earth-moving equipment.

There are several different methods used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings and is usually measured in inches per second. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body.

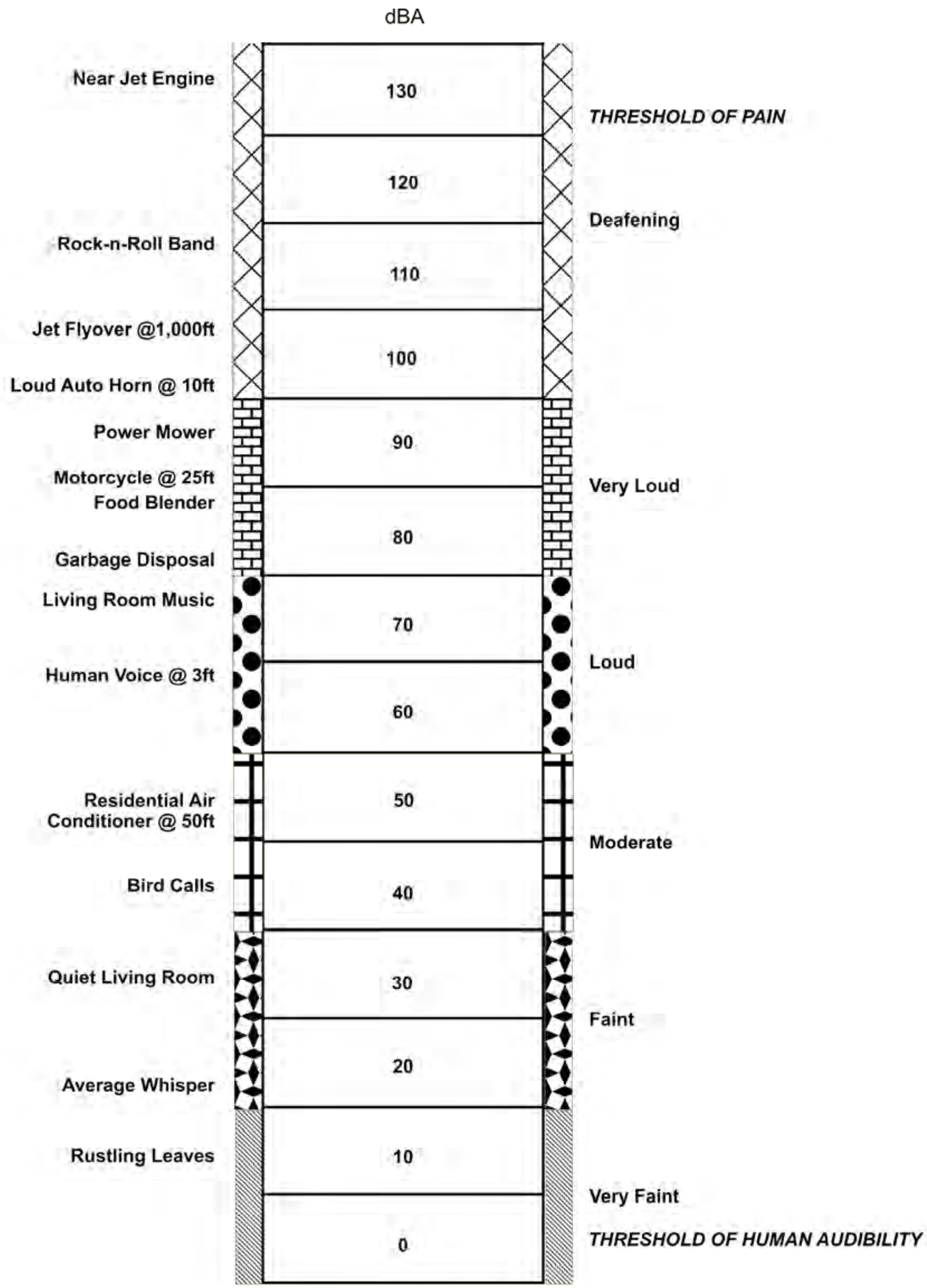

FIGURE 3.5-1
A-WEIGHTED DECIBEL SCALE

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

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The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The VdB acts to compress the range of numbers required to describe vibration. Vibration is a function of the distance of the receiver from the vibration source (i.e., construction equipment). Vibration dissipates rapidly with distance (e.g., the vibration level at 15 feet is approximately half the vibration level at 10 feet).

Effects of Vibration on People

High levels of vibration may cause physical personal injury or damage to buildings. However, groundborne vibration levels rarely affect human health. Instead, most people consider groundborne vibration to be an annoyance that can affect concentration or disturb sleep. High levels of groundborne vibration can damage fragile buildings or interfere with equipment that is highly sensitive to groundborne vibration (e.g., electron microscopes).

Perceptible Vibration Changes

In contrast to noise, groundborne vibration is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually 50 RMS or lower, well below the threshold of perception for humans, which is around 65 RMS. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, vibration from traffic is rarely perceptible.

Regulatory Framework

Federal

The Federal Noise Control Act of 1972 established programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In 1981, the USEPA administrators determined that subjective issues, such as noise, would be better addressed at more local levels of government, thereby allowing more individualized control for specific issues by designated federal, state, and local government agencies. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to specific federal agencies and state and local governments. However, noise control guidelines and regulations contained in USEPA rulings in prior years remain in place. No federal noise regulations are directly applicable to the proposed Project.

State

The State of California has adopted noise standards in areas of regulation not preempted by the federal government. State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation. State regulations governing noise levels generated by individual motor vehicles and occupational noise control are not applicable to planning efforts nor are these areas typically subject to CEQA analysis. There are no vibration regulations mandated by the state that are applicable to the proposed Project.

Local

The City of Los Angeles has established policies and regulations concerning the generation and control of noise. Section 41.40 (Noise Due to Construction, Excavation Work – When Prohibited) of the Los Angeles Municipal Code (LAMC) indicates that no construction or repair work shall be performed between the hours of 9:00 p.m. and 7:00 a.m. on weekdays, since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, apartment or other place of residence. No person, other than an individual home owner engaged in the repair or construction of his/her single-family dwelling, shall perform any construction or repair work of any kind or perform such work within 500 feet of land so occupied before 8:00 a.m. or after 6:00 p.m. on any Saturday or on a federal holiday, nor at any time on any Sunday. Under certain conditions, the City of Los Angeles may grant a waiver to allow limited construction activities to occur outside of the limits described above.

Section 112.05 (Maximum Noise Level of Powered Equipment or Powered Hand Tools) of the LAMC also specifies the maximum noise level of powered equipment or powered hand tools. Any powered equipment or hand tool that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet is prohibited. However, this noise limitation does not apply where compliance is technically infeasible. Technically infeasible means the above noise limitation cannot be met despite the use of mufflers, shields, sound barriers and/or any other noise reduction device or techniques used during the operation of equipment.

Environmental Setting

Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise- and vibration-sensitive. The 2006 City of Los Angeles CEQA Thresholds Guide (CEQA Thresholds Guide) lists 500 feet as a screening distance for assessing impacts. No residences, schools, hospitals, guest lodging, or libraries are located within 500 feet of the active construction zone (i.e., where equipment would be operating). The nearest usable part of Will Rogers State Beach is located approximately 300 feet from the construction zone. The potentially impacted area is a small percentage of the approximately two mile beach. Therefore, Will Rogers State Beach is not considered as a noise-sensitive receptor.

Gladstones Restaurant outdoor dining area is located approximately 280 feet west of the construction zone surrounding the Gladstone Vault. Although restaurants are not typically considered sensitive to short-term construction noise, construction noise would potentially interfere with patio dining. Therefore, Gladstones Restaurant is considered as a sensitive receptor.

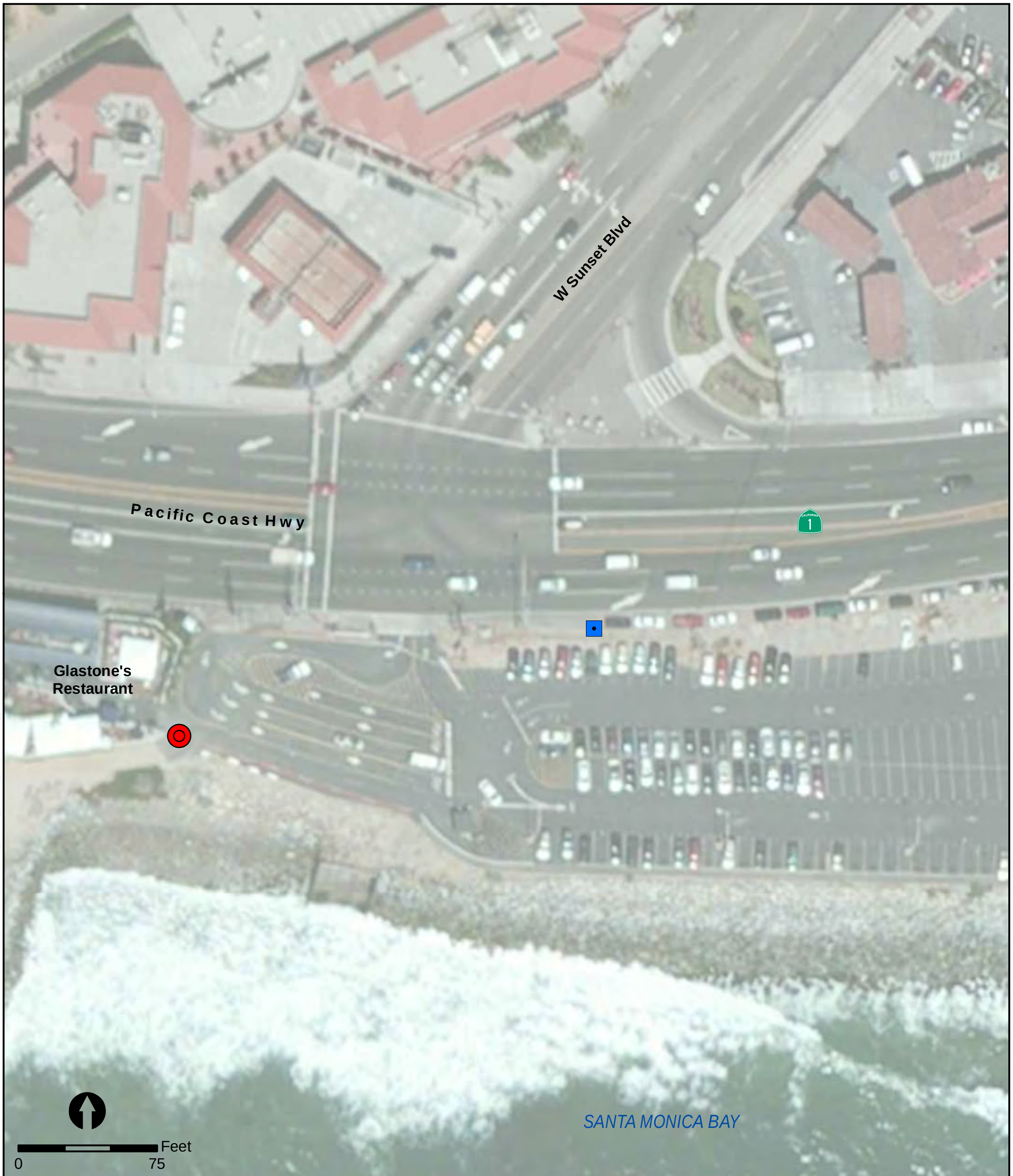
The existing noise environment along the proposed alignment is primarily characterized by vehicular traffic on local roadways and the parking lot. An ambient noise measurement was taken at the proposed Project site using a SoundPro DL Sound Level Meter on September 2, 2015. This reading was used to establish existing ambient noise conditions and to provide a baseline for evaluating construction noise impacts. The noise monitoring location is shown in Figure 3.5-2.

As shown in Table 3.5-1, the typical 15-minute daytime existing ambient sound level is approximately 67.0 dBA L_{eq}. There are no substantial existing sources of vibration at the Project site.

TABLE 3.5-1 AMBIENT NOISE MEASUREMENT

LOCATION	LAND USE	DISTANCE FROM CONSTRUCTION ACTIVITY (FEET)	MEASURED VALUE (LEQ, DBA)
Gladstones Restaurant	Restaurant	280	67.0

Source: Terry A. Hayes and Associates 2015.



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Noise Monitoring Location - Gladstone's Restaurant and Beach Access

Gladstone Vault

FIGURE 3.5-2
NOISE MONITORING
LOCATION

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

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3.5.2 Methodology and Threshold of Significance

Methodology

The following discussion describes the methodology used to assess noise impacts and defines the thresholds of significance.

No noise is expected to be generated by the operation of the proposed Project. Therefore, the noise and vibration analysis considers construction sources only. Noise levels associated with the construction equipment were obtained from equipment specifications listed in the Federal Highway Administration Roadway Construction Noise Model and the equipment manufacturer. Noise levels at the receptor location were estimated by (1) making a distance adjustment to the construction source sound level and (2) logarithmically adding the adjusted construction noise source level to the ambient noise level. The methodology used for this analysis can be viewed in Sections 2.1.3.5 (Adding, Subtracting, and Averaging Sound Levels) and 2.1.4 (Sound Propagation) of the California Department of Transportation (Caltrans) Technical Noise Supplement (November 2009). Vibration levels generated by construction equipment were estimated using example vibration levels and propagation formulas provided by the Federal Transit Administration (FTA) in the *Transit Noise and Vibration Impact Assessment* (May 2006) guidance. The methodology used for the analysis can be viewed in Section 12.2 (Construction Vibration Assessment) of the FTA guidance.

Thresholds of Significance

The general thresholds, derived from Appendix G of the State CEQA Guidelines, indicate that a project could have potentially significant impacts if it would:

a) Result in the exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
b) Result in the exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels.
c) Result in the substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
d) Result in the substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the project would expose people residing or working in the project area to excessive noise levels.
f) For a project within the vicinity of a private airstrip, the project would expose people residing or working in the project area to excessive noise levels.

Noise

According to the L.A. CEQA Thresholds Guide (2006), a project may have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA Leq or more at a noise-sensitive use;
- Construction activities lasting more than 10 days in a three month period would exceed existing ambient exterior noise levels by 5 dBA Leq or more at a noise-sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA Leq at a noise sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 am or after 6:00 p.m. on Saturday, or anytime on Sunday.

Construction activity would last for approximately one week. Therefore, a significant impact would occur if construction-related noise levels exceed existing ambient exterior noise levels by more than 10 dBA L_{eq}.

Vibration

There are no federal, state, or local vibration regulations or guidelines directly applicable to the proposed construction activity. Although the proposed Project is not a transportation project, the FTA *Transit Noise and Vibration Impact Assessment* (May 2006) guidance includes relevant criteria for assessing vibration impacts from construction activity. According to the FTA guidance, a project may have a significant vibration impact if construction activities expose buildings to vibration levels that exceed the criteria shown in Table 3.5-2. Gladstones Restaurant appears to be an engineered concrete and masonry construction. Therefore, the 0.3 inch per second criterion is applicable for assessing building damage.

TABLE 3.5-2 VIBRATION DAMAGE CRITERIA

BUILDING CATEGORY		PPV (INCHES/SECOND)
I.	Reinforced-concrete, steel or timber (no plaster)	0.5
II.	Engineered concrete and masonry (no plaster)	0.3
III.	Non-engineered timber and masonry	0.2
IV.	Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2006.

Vibration annoyance was also taken into account due to the sensitivity of patio diners. The FTA guidance includes annoyance criteria for high sensitivity land uses (e.g., concert halls), places where people sleep (e.g., residences), and institutional land uses (e.g., schools). From this list, a restaurant most closely functions as an institutional land use. Assuming that vibration-generating activity would be a frequent event (i.e., 70 vibration events from the same source per day), the FTA annoyance criterion is 75 VdB.

3.5.3 Impact Analysis

a) Would the Project result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The landside construction process at the Gladstone Vault would involve cable pulling equipment and trucks for materials delivery. It is anticipated that landside construction activity would be completed in about one week, and receptors would be exposed to increased noise levels for a short duration.

Typical noise levels from the equipment that would be used during construction are listed in Table 3.5-3. The cable puller would generate the loudest noise level of 77.6 dBA L_{eq}.

TABLE 3.5-3 CONSTRUCTION EQUIPMENT NOISE LEVELS

EQUIPMENT	NOISE LEVEL AT 50 FEET (DBA)
Truck	72.5
Cable Puller (Hydra 985)	77.6

Source: Federal Highway Administration, Roadway Construction Noise Model, Version 1.1.

It is anticipated that construction equipment would be used sequentially in the order shown in Table 3.5-3. It is not anticipated that equipment use would overlap. Table 3.5-4 shows projected construction noise levels at Gladstones Restaurant, which would be approximately 280 feet from construction activity. Equipment-related noise levels would range between 57.5 and 62.6 dBA L_{eq}. The existing noise level at Gladstones is 67.0 dBA L_{eq}. The increased noise levels from construction equipment would range between 0.5 and 1.3 dBA L_{eq}. Construction activity would incrementally increase noise levels by less than the 10-dBA significance threshold. Therefore, the proposed Project would result in a less-than-significant impact related to construction noise.

TABLE 3.5-4 CONSTRUCTION NOISE LEVELS

EQUIPMENT	EQUIPMENT NOISE LEVEL AT GLADSTONES (DBA, LEQ)	EXISTING NOISE LEVEL (DBA, LEQ)	SHORT-TERM NOISE LEVEL (DBA, LEQ)	INCREASE (DBA)
Truck	57.5	67.0	67.5	0.5
Cable Puller (Hydra 985)	62.6	67.0	68.3	1.3

Source: California Department of Transportation, *Technical Noise Supplement*, 2009.
Federal Highway Administration, Roadway Construction Noise Model, Version 1.1 and Terry A. Hayes and Associates 2015.

There would be no operational source of noise other than regular maintenance and testing, which would typically occur twice per year during daytime hours and would typically not involve the use of heavy equipment. Therefore, the proposed Project would not create new sources of noise, and no operational impact would occur.

b) Would the Project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction activity would result in varying degrees of vibration. Operation of construction equipment causes vibrations that spread through the ground and diminish in strength with distance. Table 3.5-5 presents typical vibration levels associated with the equipment for the cable pulling activity. As discussed above, vibration is a function of the distance of the receiver from the vibration source (i.e., construction equipment). Vibration dissipates rapidly with distance (e.g., the vibration level at 15 feet is approximately half the vibration level at 10 feet). Truck activity would generate higher vibration levels than the stationary cable puller. Truck-related vibration levels would be 0.00203 inch per second at Gladstones Restaurant. This vibration level would be below the 0.3 inch per second significance threshold for building damage.

TABLE 3.5-5 VIBRATION DAMAGE ANALYSIS

EQUIPMENT	REFERENCE VIBRATION LEVEL AT 25 FEET(INCHES PER SECOND)	VIBRATION LEVEL AT 280 FEET (INCHES PER SECOND)
Truck	0.076	0.00203
Cable Puller (Hydra 985)	0.003	0.00008

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.

Equipment activity would have the potential to cause unwanted shaking and movement which would be annoyance to customers at Gladstones Restaurant. Table 3.5-6 shows vibration levels that can be compared to the FTA impact criteria for annoyance. Vibration levels would be well below the 75-VdB impact criteria that was previously established as the significance threshold. Therefore, the proposed

Project would result in a less-than-significant impact related to construction vibration damage and annoyance.

TABLE 3.5-6 VIBRATION ANNOYANCE ANALYSIS

EQUIPMENT	REFERENCE VIBRATION LEVEL AT 25 FEET(VDB)	VIBRATION LEVEL AT 280 FEET(VDB)
Truck	86	55
Cable Puller (Hydra 985)	58	27

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.

There would be no operational source of vibration. Maintenance and testing activities would not utilize heavy-duty equipment and would not generate perceptible vibration. Therefore, the proposed Project would not create new sources of vibration, and no operational impact would occur.

c) Would the Project result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?

Long-term operation of the proposed Project would not include any above-ground operations, with the exception of periodic maintenance and testing. As discussed above, periodic maintenance operations for the land component would typically occur twice per year during daytime hours and would typically not involve the use of heavy equipment. Therefore, no impacts would occur related to a permanent operational activity.

d) Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?

As described above, Gladstones Restaurant would experience increased noise levels associated with construction. The increased noise levels from construction equipment would range between 0.5 and 1.3 dBA L_{eq}. The maximum noise level increase would be less than the 10-dBA significance threshold. Therefore, the proposed Project would result in a less-than-significant impact related to temporary noise.

e) Would the Project expose people residing or working in the Project area to excessive noise levels related to a public airport or public use airport?

The proposed Project site is located approximately six miles northwest of the Santa Monica Airport. The proposed Project involves no occupied facilities and, thus, would not have the potential to expose people to excessive noise sources generated by airport flight operations. Therefore, no impacts would occur related to public airports.

f) The Project would expose people residing or working in the Project area to excessive noise levels related to a private airstrip?

The proposed Project area is not within the vicinity of a private airstrip. Therefore, no impacts would occur related to private airstrips.

3.5.4 Cumulative Impacts

The closest related project to the proposed Project is Palisades Village, which would be located approximately 1.5 miles from the Project site. Noise and vibration are localized effects that are typically limited to within approximately 500 feet of the construction zone for noise and approximately 25 feet for vibration. There is no potential for noise and vibration associated with the proposed Project to overlap with noise and vibration from related projects. Therefore, significant cumulative noise impacts are not anticipated.

3.5.5 Mitigation Measures and Level of Significance After Mitigation

Impacts would be less than significant, and no mitigation measures are required.

3.6 RECREATION AND FISHING

This section provides a discussion of the recreational and commercial uses in the vicinity of the Project area in Santa Monica Bay and also evaluates potential recreation and fishing impacts associated with Project construction and operation.

3.6.1 Existing Conditions

As stated in the Project Description, the marine facility of the existing SGRS starts at the Gladstone Vault, located in a parking lot along the south side of PCH at Sunset Boulevard. From this location, two submarine cables are placed in conduit extending under the parking lot, Will Rogers State Beach, and the seafloor to a location approximately 1,200 feet offshore. From this location, the cables are buried beneath the ocean floor and continue to the electrode array, approximately one mile offshore in Santa Monica Bay.

Recreational Uses

The coastal and offshore portions of the Project area support a myriad of commercial and recreational uses. The area is a popular recreational and leisure area located near the western end of Will Rogers State Beach. Santa Monica Bay is one of the world's most populous urban areas. Nearly 10 million people live within an hour's drive of the bay, which comprises 22 public beaches, 22 miles of bike path, and 55 miles of shoreline (Heal the Bay 2011). Each year, approximately 50 million people visit Santa Monica Bay beaches to enjoy recreational sports, such as fishing, surfing, swimming, kayaking, offshore canoeing, windsurfing, paddle boarding, kite boarding, beach combing, boating, parasailing, diving, and whale watching. The nearest harbors to the Project area are located at Marina del Rey and Redondo Beach, which provide slips for more than 7,000 small craft.

Santa Monica Bay's sandy beaches are heavily used as a recreational resource by residents of Los Angeles County and visitors from around the world. As a result, beaches are primarily managed for their recreational value rather than for their value as habitat for coastal and marine species. Due to the intense urban uses of the landside community and the proximity to dense residential populations of the Los Angeles region, the beach is heavily used by day visitors.

Surfing

Popular surfing destinations in the vicinity of the Project are located at Topanga State Beach and Topanga Point. Topanga Point is an intermediate skill level surfing location where the waves break over a rocky point. Topanga Point becomes more crowded during strong south and west swells as it supports superior conditions compared to other popular beach breaks in Santa Monica and South Santa Monica Bay. It is located approximately 1.5 miles west of the Gladstone Vault. Sunset Boulevard (Sunset) is considered a novice/beginner surfing spot that tends to break softly over a rocky/sand bottom. Similar to Topanga Point, Sunset also becomes more crowded with larger southern swells as conditions at the South Santa Monica Bay beach breaks deteriorate. These periods of larger swells can occur any time of year, during winter from Pacific storm swells and during summer from southern swells and swells related to hurricanes off the coast of Mexico. Surfing in these areas has continued to take place, unimpeded, since prior to 1970, when the existing electrode was placed into service.

Kayaking, Paddle Boarding, and Kite Boarding

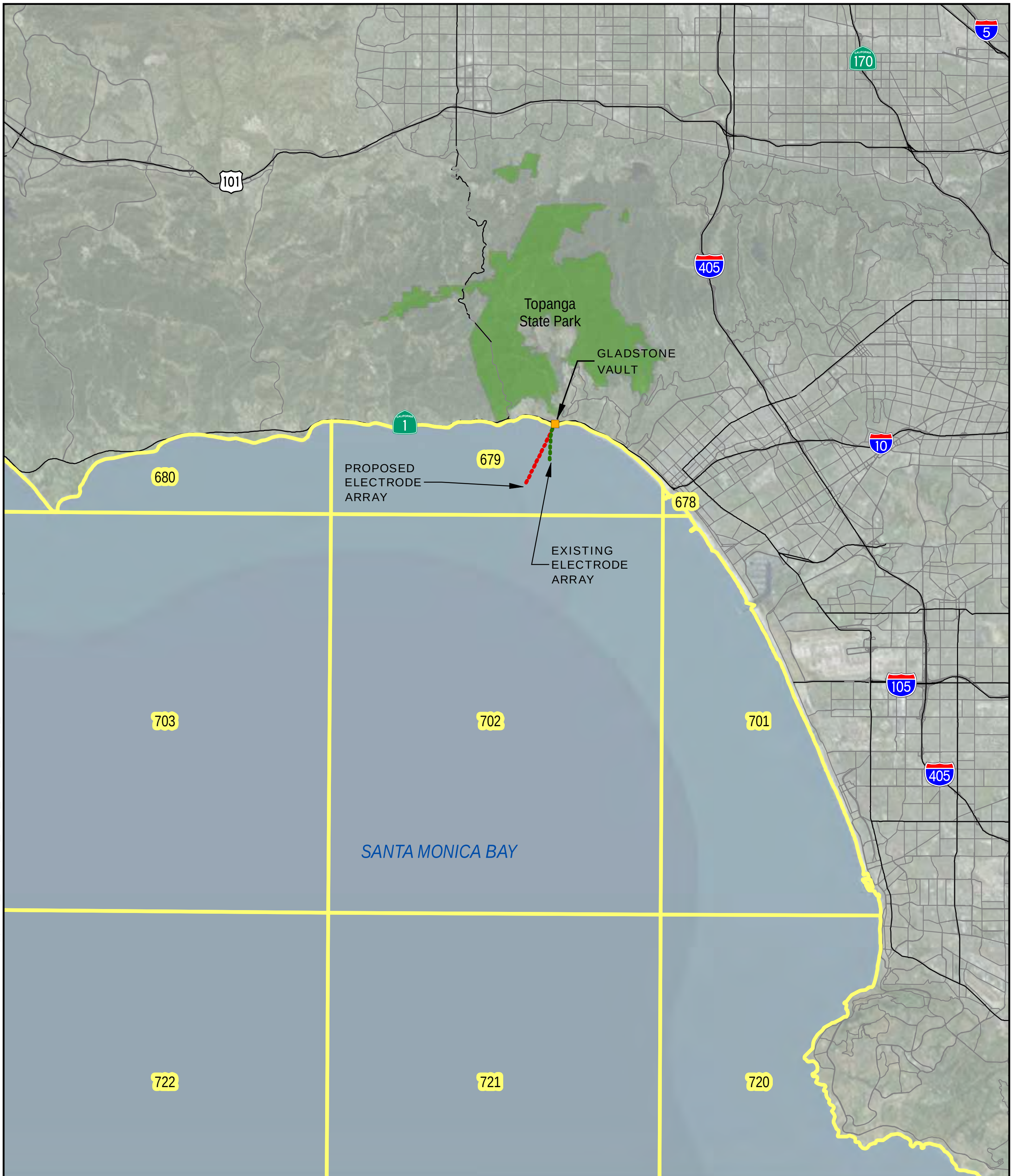
Kayaking has gained popularity since the advent of the plastic molded kayak. Sunset and Topanga Point are popular launching locations for nearshore kayak fishing and surf kayaking. Paddle boarding, which includes both stand up paddling and prone position paddling, is also a common water recreational activity. Kite surfing, one of the newer water sports, has become popular in Santa Monica Bay. Kite surfers like Santa Monica Bay beaches because they easy to access and because they are often windy (Topanga Messenger 2003).

Recreational and Sport Fishing

Recreational fishing in Santa Monica Bay includes fishing from the shore, from boats originating from the two local harbors (Marina Del Rey and Redondo Beach), from kayaks launching from local shores, and by divers. Primary species targeted by recreational fishermen include California halibut (*Hippoglossus stenolepis*), kelp bass (*Paralabrax clathratus*), barred sand bass (*Paralabrax nebulifer*), rockfishes, Pacific chub mackerel (*Scomber japonicas*), Pacific bonito (*Sarda chiliensis*), white seabass (*Atractoscion nobilis*), and Pacific barracuda (*Sphyraena argentea*). The sandy shelf areas are fished mainly for pelagic species such as bonito and barracuda, and bottom dwelling species, such as California halibut. In contrast, vermilion rockfish (*Sebastes miniatus*), bocaccio (*Sebastodes paucispinus*), and chilipepper rockfish (*Sebastes goodei*) are taken along the Redondo and Santa Monica Submarine Canyons and along the continental shelf off Hermosa Beach. Vermilion rockfish, olive rockfish, and bocaccio are caught in the rocky substrates off Point Dume (Squire and Smith 1977; Weston 2012a).

Because there is not a source of reliable recreational fishing data specific to the Project area, recreational fishing was analyzed for the broader region, comprising the coastlines of San Diego, Orange, and Los Angeles Counties, as well as Fishing Block 679, which encompasses the proposed Project site. The catch locations for recreational and commercial fishing data are reported using a statistical block system originally developed in the 1930s.[2] Fishing block units (colloquially referred to as caltrawl fish blocks or caltrawl grids) are used to report catch locations for use in CDFW landing receipts and Pacific Fishery Management Council Trawl logbooks. These blocks are 10 x 10 minute units used to describe a general location for fishing activity. The blocks were developed by the CDFW Marine Region GIS Unit. The Project area lies within CDFW statistical Fishing Block 679 and is adjacent to Fishing Blocks 680 to the west and 701, 702, and 703 to the south, as shown on Figure 3.6-1 (CDFW, 2015).

[2] Development of the Pacific Coast Fisheries GIS Resource Database: available here: http://www.werc.usgs.gov/fileHandler.ashx?File=/project_203/shared%20documents/Fisheries%20Database%20Creation.pdf



Existing Marine Cables

Proposed Marine Cables

Fishing Blocks

Miles
0 4

FIGURE 3.6-1
CDFW FISHING BLOCKS

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LA DWP

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Regional Recreational Fishing

Table 3.6-1 provides a summary of the top 10 fish species caught by recreational anglers in nearshore coastal waters (less than three nautical miles) throughout the region (San Diego, Orange, and Los Angeles Counties) from 2004 to 2009. The numbers provided in the table are conservative estimates of catch landings because reporting is voluntary, and many catches go unreported (Weston 2012a).

TABLE 3.6-1 TOP 10 INDIVIDUAL FISH SPECIES RECREATIONALLY HARVESTED WITHIN THREE NAUTICAL MILES OF SHORE IN SOUTHERN CALIFORNIA FROM 2004 TO 2009

TAXON	REPORTED CATCH[a] (# OF FISH)	
	2004-2009	2009
Pacific mackerel (*Scomber japonicas*)	3,955	475
Pacific sardine (*Sardinops sagax caerulea*)	1,877	361
Barred sand bass (*Paralabrax nebulifer*)	1,218	66
Kelp bass (*Paralabrax clathratus*)	1,098	108
Pacific bonito (*Sarda chiliensis lineolata)*	888	20
Barred surfperch (*Amphistichus argenteus*)	837	72
Queenfish (*Seriphus politus*)	701	61
Jacksmelt (*Atherinopsis californiensis*)	583	78
Yellowfin croaker (*Umbrina roncador*)	402	73
California scorpionfish (*Scorpaena guttata*)	328	33

Source: Weston 2012a, and Pacific States Marine Fisheries Commission 2010.

(a) Three total fish counts for San Diego to Los Angeles areas as defined by RecFIN database.

Several nearshore fishes are targeted in the surf zone in the Santa Monica Bay, where they are commonly caught from piers or the beach. These include California corbina (*Menticirrhus undulates*), barred surfperch (*Amphistichus argenteus*), and shovelnose guitarfish (*Rhinobatos productus*). California halibut are frequently caught from shore as well, particularly when they move inshore to feed on California grunion (*Leuresthes tenuis*), which come ashore to spawn on the sandy beaches within the Santa Monica Bay (Weston 2012a).

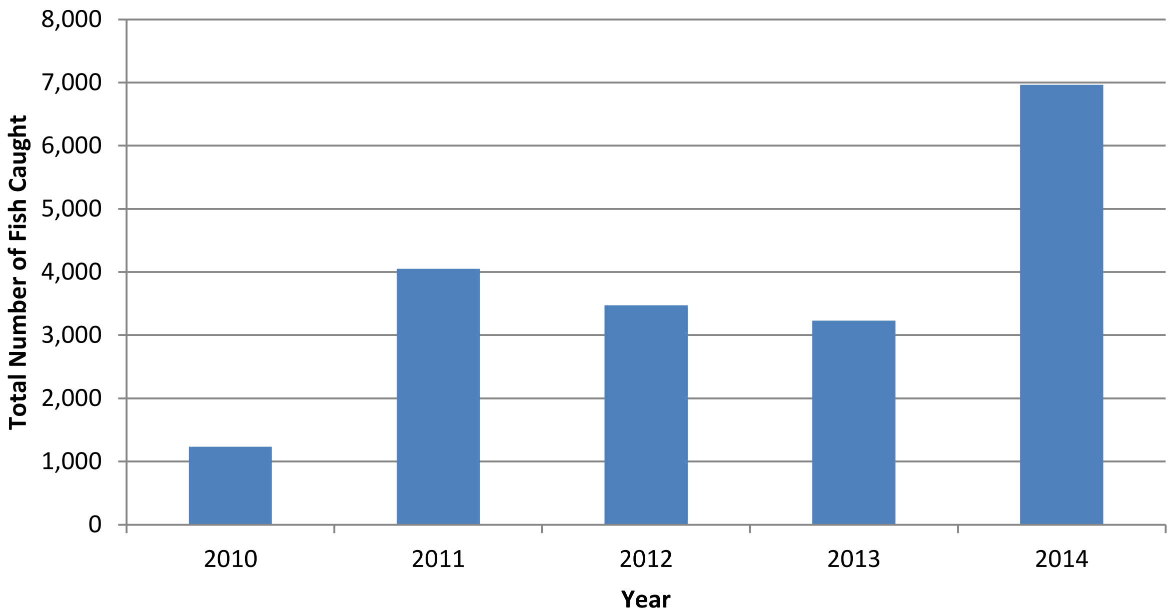
The recreational fishing season varies from year to year based on local fish populations, and corresponding fishing seasons established by the Pacific Fishery Management Council and California Fish and Game Commission. For 2015, rockfish, cabezon, and greenlings (referred to as the RCG complex), lingcod, California sheephead, ocean whitefish, Pacific sanddab, and other groundfish were open to boat based anglers from March 1 to December 31, and were closed between January 1 and February 28, with the exception of shore-based anglers and divers, to which the fishery season was open year round (CDFW 2015).

Lobster fishing is also a popular recreational activity. The legal season occurs primarily from October 1 through mid-March of each year and is specified annually by CDFW. The California spiny lobster (*Panulirus interruptus*) is taken primarily by diving (scuba or skin) or hoop netting. CDFW conducted a study during the first half of the 2008-2009 lobster season and included surveys of data taken from Block 679 and adjacent blocks along the California coast. The area from Santa Monica to Malibu Point ranked ninth (in terms of number caught) among all California locations during the 2008-2009 lobster season, and represented 2.8 percent of the overall recreational catch in California (CDFW 2011). The total number of trips within Los Angeles County was estimated at more than 3,000 trips (at 20 percent estimated reporting). Scuba diving was the single most common method used to collect lobsters. Specific catch data via hoop netting for the six-block area adjacent to the Project site ranged from as low as 10 lobsters in Block 703 to more than 1,000 lobsters in Block 701. Block 679 was approximated between 100 and 300 lobsters. In contrast, specific catch data via diving for the six-block area adjacent to the Project site ranged from approximately 300 lobsters in Block 679 to more than 1,000 lobsters in Blocks 680 and 701.

The recreational fishery for spiny lobster was closed in 2015 from mid-March to early October. The recreational fishery for California halibut, kelp bass/sand bass, white seabass, and tunas remained open year round. While CDFW does not have an official open season for recreational fishing for forage and bait fish such as sardines, this season generally occurs between June and October.

Recreational Fishing in Fishing Block 679

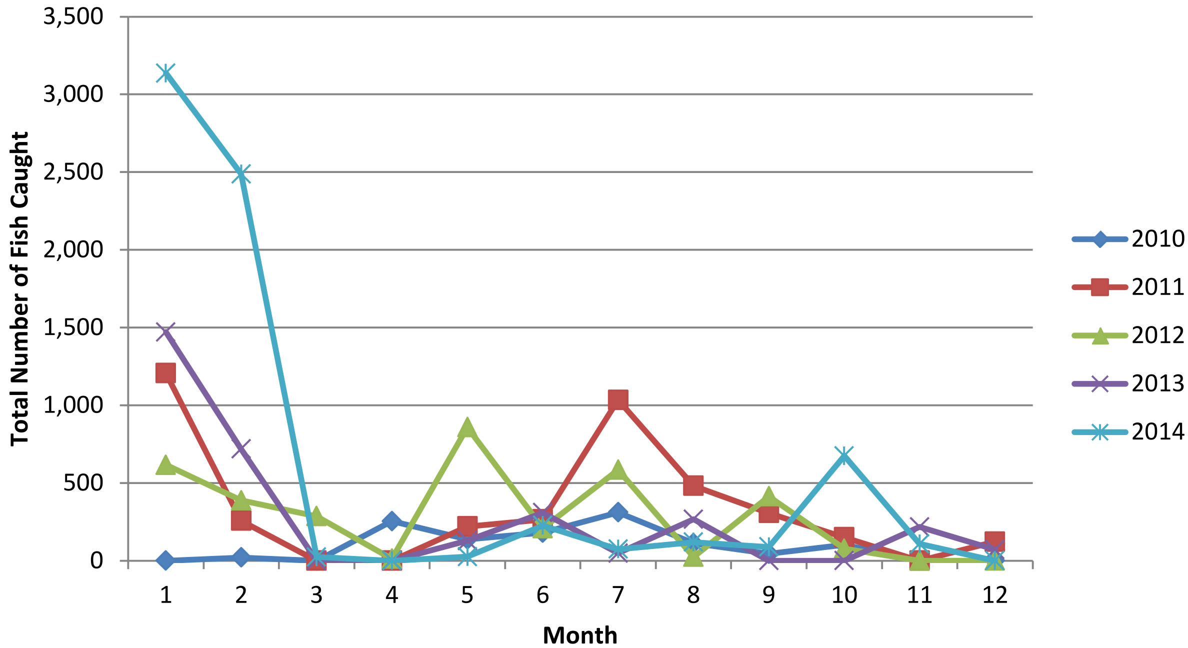
Reporting for recreational landings (catch) is voluntary and is thus not as accurate as commercial landing data. Nevertheless, the data collected for Block 679, provided by CDFW (personal communication with Jana Robertson, Marine Fisheries Statistical Unit, October 2015) is used herein to provide context for the existing recreational fishing activities in the vicinity of the Project area. Recreational fishing data for Fishing Block 679 from 2010-2014 is provided in Appendix D5. Figure 3.6-2 depicts the total number of fish caught annually (for recreational fisheries) between 2010 and 2014.



Source: Personal communication with Jana Robertson, CDFW Marine Fisheries Statistical Unit, October 2015

FIGURE 3.6-2 TOTAL RECREATIONAL FISH CATCH PER YEAR IN FISHING BLOCK 679

Figure 3.6-3 indicates that for most years, the greatest number of fish caught recreationally between the years 2010 and 2014 was caught in the early months of the year (January and February), typically with a secondary peak in the summer months.



Source: Personal communication with Jana Robertson, CDFW Marine Fisheries Statistical Unit, October 2015

FIGURE 3.6-3 TOTAL NUMBER OF FISH CAUGHT IN FISHING BLOCK 679 BY MONTH

Commercial Uses

Commercial uses in the vicinity of the Project include tourism-related recreational businesses such as surfing instruction, whale watching, parasailing, party boat fishing, scuba diving, photography, and movie production. Commercial fishing is restricted in the Project area. Further discussion of commercial fishing is provided below.

Commercial Fishing

As described above, the catch locations for commercial and sport fishing data are reported using a statistical block system developed by the CDFW Marine Region GIS Unit. The Project area lies within CDFW statistical Fishing Block 679 and is adjacent to Blocks 680 to the west and 701, 702, and 703 to the south, as shown on Figure 3.6-1 (CDFW, 2015). The discussion below provides an overview of commercial fishing activities found in the Project area. Commercial fishing catch data for Fishing Block 679, provided by CDFW (personal communication with Jana Robertson, Marine Fisheries Statistical Unit, October 2015), are shown in Table 3.6-2. A detailed spreadsheet of commercial landing data for fishing blocks in Santa Monica Bay is included in Appendix D5. Sardine, squid, mackerel, anchovy, and urchin comprised the largest mass of commercial fish landings in Santa Monica Bay. It is important to note that while commercial fishing activities may occur in the general vicinity of the Project, most commercial fishing activities are not permitted in the Project area, as described further below under Subsection 3.6.2, Local Regulatory Framework. The Project is located in a Commercial Fishing Restricted Area, Fishing District 19A (Figure 3.6-4) which has been designated as a Commercial Fishing Closure Area by the CDFW (CCR Title 14 – Natural Resources). As shown in Table 3.6-2, fishing restrictions in District 19A were associated with a substantial reduction in landings and commercial value in 2014. Annual commercial value from Fishing Block 679 was less than $7,500, which is considered negligible and therefore not a viable commercial industry. For context, the neighboring Fishing Block 703 (which lies outside District 19A) commercial fishing value in 2014 was $163,550. The only commercial fish landed in Fishing Block 679 in 2014 were sablefish (*Anoplopoma fimbria*), shortspine thornyhead (*Sebastolobus alascanus*), grenadier (*Coryphaenoides* sp.), and petrale sole (*Eopsetta jordani*) from longlining. Appendix D5 includes the commercial and recreational fishing data provided by CDFW.

TABLE 3.6-2 COMMERCIAL FISHING DATA IN FISHING BLOCK 679, SANTA MONICA BAY

YEAR	FISH/INVERTEBRATE SPECIES	METHOD/GEAR DESCRIPTION	POUNDS	VALUE
2010	Sea hare, sea urchin (red), squid (market)	Hand take, diving, and purse seine	817,907.00	$208,674.50
2011	California spiny lobster, warty sea cucumber, squid (market), red sea urchin, rock crab	Crab or lobster trap, diving, purse seine	164,655.50	$60,665.24
2012	Warty sea cucumber, California barracuda, squid (market)	Diving, hook and line, purse seine	26,486.50	$8,494.50
2013	Red sea urchin, warty sea cucumber, giant red sea cucumber, squid (market)	Diving, single rigged trawl, brail/dip net or a-frame	39,443.00	$16,493.85
2014	Sablefish, shortspine thornyhead, grenadier, petrale sole	Set longline	2,277.40	$7,376.44

Source: Personal communication with Jana Robertson, CDFW Marine Fisheries Statistical Unit, October 2015

Commercial fishers in the region utilize fishing gear capable of targeting multiple species, including the following (Weston 2012a):

- Seines for coastal pelagics such as sardine, northern anchovy, mackerel, and market squid
- Trawls for shrimp, sole, flounder, and halibut
- Hook and line/longlines for rockfish and other rocky outcrop fish
- Traps for crab and lobster
- Drift/set gill nets for shark and swordfish
- Trawls for albacore and salmon

Although these gear types are used in Santa Monica Bay, the Project is located in a Commercial Fishing Closure Area (see Figure 3.6-4) that severely limits the gear types used in the Project area. Takes of any species caught through set and drift gill nets, trammel nets, trawl nets, and slurp guns are prohibited in the Project area, as discussed further below.

Kelp Harvesting

Although kelp harvesting occurs along the California coast, the Project area is in Administrative Kelp Bed Area 15, which is closed to harvesting at all times (Figure 3.6-5).

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FIGURE 3.6-4
COMMERCIAL FISHING RESTRICTED AREA

SYLMAR GROUND RETURN SYSTEM REPLACEMENT PROJECT

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Open: Kelp bed not subject to lease

Closed: May not be harvested at any time

Leasable: Kelp bed available for lease

FGC: Lessee must be authorized by the Fish and Game Commission

Leased: Kelp bed currently leased for harvest

Miles
0 80

FIGURE 3.6-5
CALIFORNIA KELP BEDS
ADMINISTRATIVE BOUNDARIES

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

POWER ENGINEERS

LA DWP

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Regulatory Framework

The following discussion sets forth the federal, state, and local regulations that are applicable to recreational uses of the Project area.

Federal

Coastal Zone Management Act (CZMA). The major focus of the Federal CZMA (1972) is to assist states in the development and implementation of management programs for coastal zone land and water resources, giving full consideration to ecological, cultural, historic, and aesthetic values as well as to the needs of economic development. The CZMA establishes a "federal consistency" review process whereby each federal agency conducting or supporting activities directly affecting the coastal zone must conduct or support activities in a manner consistent with, to the maximum extent practicable, the Coastal Zone Management Program.

Magnuson-Stevens Fishery Conservation and Management Act. The Magnuson-Stevens Fishery Conservation and Management Act (1976) is the cornerstone legislation of fisheries management in U.S. jurisdictional waters. The Act created eight regional Fishery Management Councils and mandated a continuing planning and management program for marine fisheries by the Councils. The Act, as amended, requires that a Fishery Management Plan based upon the best available scientific and economic data be prepared for each commercial species or group of related species of fish that is in need of conservation and management within each respective region. In accordance with the Act, the Councils report directly to the U.S. Secretary of Commerce.

Although not directly related to commercial and recreational fisheries, amendments to the Act require "the identification of Essential Fish Habitat (EFH) for Federal-managed species and the implementation of measures to conserve and enhance this habitat."

As part of the Fishery Management Plans, the NMFS is required to identify HAPCs that are subsets of EFH. Within Santa Monica Bay, sensitive natural marine communities include canopy kelp, rocky reefs, and seagrass, which are defined as HAPCs. NMFS (2006) has identified HAPCs along the west coast of the United States, including Santa Monica Bay, within areas determined to be EFH (Pacific Fisheries Management Council 2012). The Project area has been sited to avoid all HAPCs in Santa Monica Bay. The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801 et seq.) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Santa Monica Bay, along with the entirety of the offshore waters of the West Coast to a depth of 3,500 feet and associated sea mounts, is considered to be EFH for Pacific Coast Groundfish (Pacific Fishery Management Council 2012). Potential impacts related to EFH are discussed in Section 3.3, Biological Resources.

State

Marine Life Protection Act (MLPA). The need to safeguard the long-term health of California's marine life was recognized by the California Legislature in 1999 with the passage of the MLPA. This Act aims to protect California's marine natural heritage through establishing a statewide network of MPAs designed, created, and managed using sound science and stakeholder input. MPAs protect the diversity and abundance of marine life, the habitats they depend on, and the integrity of marine ecosystems. The MLPA recognizes that a combination of MPAs with varied amounts of allowed activities and protections (marine reserves, marine conservation areas, and marine parks) can help conserve biological diversity, provide a sanctuary for marine life, and enhance recreational and educational opportunities. MPAs can also provide scientific reference points to assist with resource management decisions, and protect a variety of marine habitats, communities, and ecosystems for their economic and intrinsic value. There are no MPAs established through the MLPA in the vicinity of the Project area as depicted on Figure 3.6-6.

State of California Commercial Fishing Laws and Licensing Requirements. These laws specify seasonal and gear restrictions within the various CDFW Commercial Fishing Districts (Districts), licensing instructions and restrictions, and species-specific fishing requirements. Most of the MPAs have commercial fishing restrictions (based on the designation of each area).

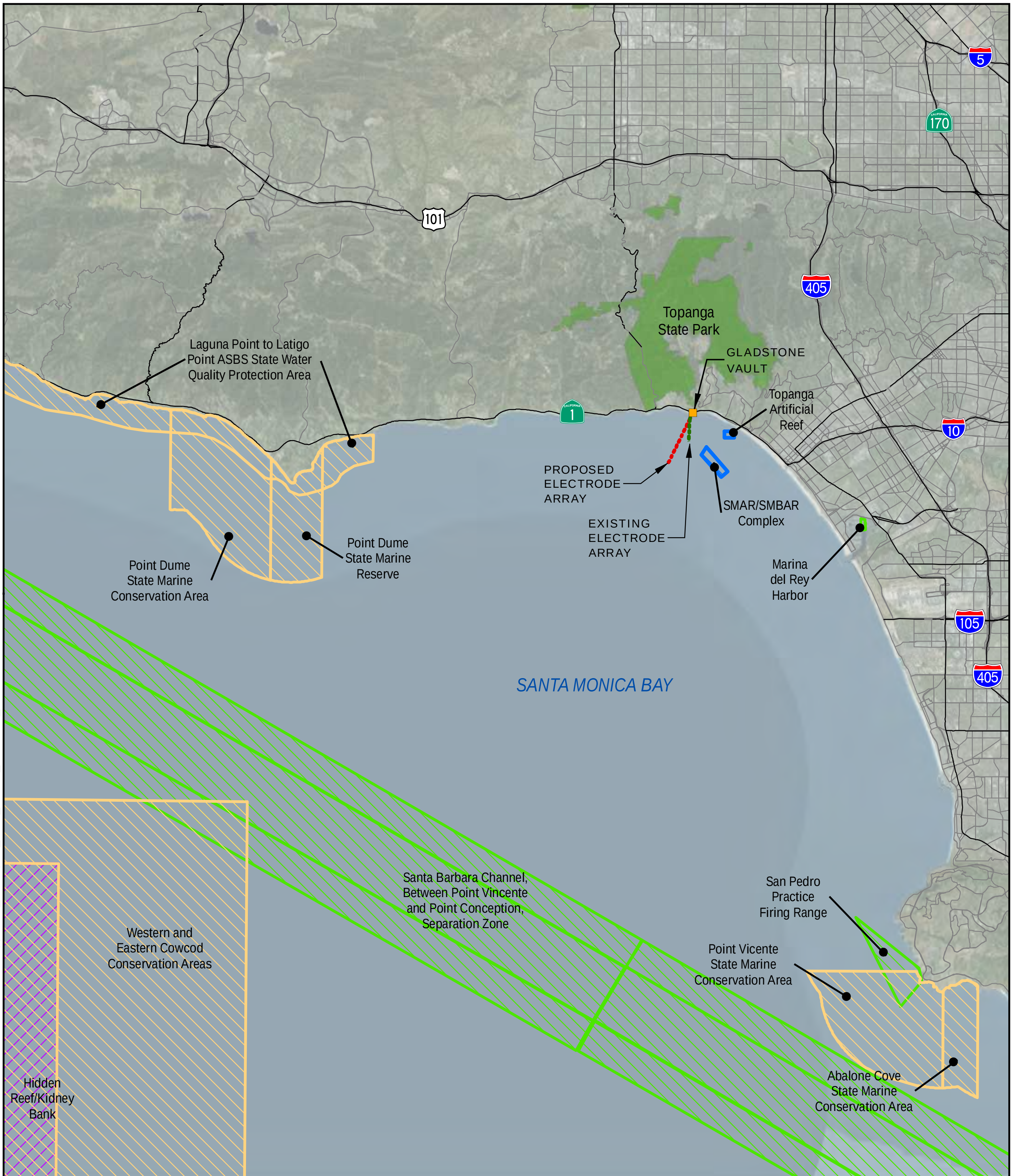
California Coastal Act. The California Coastal Act (Coastal Act) became law in 1976 as a means of providing a comprehensive framework for the protection and management of coastal resources. The main goals of the Coastal Act are to protect and restore coastal zone resources, to ensure balanced and orderly utilization of such resources, to maximize public access to and along the coast, to ensure priority for coastal-dependent and coastal-related development, and to encourage cooperation between State and local agencies toward achieving the Act's objectives. Specifically, Section 30001 of the Coastal Act promotes public safety, health, and welfare, and protects public and private property, wildlife, marine fisheries, other ocean resources, and the natural environment, in order to protect the ecological balance of the coastal zone and prevent its deterioration and destruction.

The Coastal Act includes recreational policies in Article 3, Recreation. Relevant sections of the Coastal Act are listed in Table 3.6-3.

TABLE 3.6-3 RECREATIONAL POLICIES RELEVANT TO THE PROJECT IN THE CALIFORNIA COASTAL ACT OF 1976

CCA NUMBER	POLICY	DEFINITION
30220	Protection of certain water-oriented activities	Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.
30221	Oceanfront land; protection for recreational use and development	Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.
30222	Private lands; priority of development purposes	The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.
30222.5	Oceanfront land; aquaculture facilities; priority	Oceanfront land that is suitable for coastal dependent aquaculture shall be protected for that use, and proposals for aquaculture facilities located on those sites shall be given priority, except over other coastal dependent developments or uses.
30223	Upland areas	Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.
30224	Recreational boating use; encouragement; facilities	Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.
30234	Commercial fishing and recreational boating activities	Facilities serving the commercial fishing and recreational boating industries shall be protected and where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.
30234.5	Economic and recreational importance of fishing	The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

Source: *California Coastal Act (CCA), available here: http://www.coastal.ca.gov/ccatc.html, accessed 10/5/15.



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- Existing Marine Cables
- Proposed Marine Cables
- Marine Protected Area
- DeFacto Marine Protected Area
- Essential Fish Habitat Conservation Area
- Artificial Reef

0 5 Miles

FIGURE 3.6-6
MARINE PROTECTED AREAS

SYLMAR GROUND RETURN
SYSTEM REPLACEMENT PROJECT

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District 19A. The Project is located in a Commercial Fishing Restricted Area, District 19A (Figure 3.6-4), which has been designated as a Commercial Fishing Closure Area by the CDFW (CCR Title 14 – Natural Resources). District 19A includes ocean waters and tidelands to the high watermark between the southern extremity of Malibu Point and Rocky Point (Palos Verdes Point) in Santa Monica Bay, excluding all rivers, streams, and lagoons. Market squid for human consumption, rock crab, lobster, and finfish caught through trapping is not allowed in District 19A. Also not permitted are takes of abalone and any species caught through set and drift gill nets, trammel nets, trawl nets, and slurp guns. Gill nets, trawl nets, and trammel nets may not be used in District 19A, nor may they be possessed on any boat. Vessels may carry nets across District 19A to open water outside the district. Vessels carrying nets may enter harbors in District 19A only in cases of distress or emergency. Refer to Table 3.6-4 for a detailed list of the CDFW regulations applicable in District 19A.

Bait nets or round haul nets may be used in District 19A to take only anchovies, queenfish, white croakers, sardines, mackerel, squid, and smelt and only for live bait purposes. Bait nets that are permitted in District 19A may not be used within 750 feet of any public pier. Spot prawn may be taken in District 19A from February through October, but only by trapping and only in waters of 50 fathoms (300 feet) or greater. Table 3.6-4 provides a detailed list of the CDFW Code regulations applicable in District 19A.

TABLE 3.6-4 APPLICABLE CDFW CODE REGULATIONS FOR FISHING DISTRICT 19A

CDFW CODE SECTION NUMBER/SECTION TITLE	APPLICABLE TEXT
§8282(a) Non–restrictive commercial fishing permits	Crabs other than Dungeness: Only rock crabs 4¼ inches or more in breadth may be taken under a revocable general trap permit and Commission regulations in any waters of the State at any time, except in Districts 9, 19A, 19B, and 21 and those portions of District 20
§8344. §115 Title 14 Season, bag and size limits by species	Mussels: Any time in any number except that in Districts 19, 19A, 19B, and 21 the daily bag limit for California sea mussels is 250 pounds in the shell or equivalent out of the shell.
§8660 Prohibited uses of nets in particular districts	In Districts 19 or 19A nets (except dip nets) may not be used within 750 feet of any pier, wharf, jetty, or breakwater. For information regarding the use of nets within or near Channel Islands marine protected areas, refer to §632, Title 14, or contact a Department office…In Districts 19A and 20, vessels may transport nets through these districts at any time but may enter harbors only in case of distress or emergency (FGC §8661).
Calendar of Commercial Fishing Open Seasons 2015 (and 2016 where applicable)	Spot Prawn (Trapping): all traps must be in waters of 50 fathoms or greater South of Point Arguello. Open 02/01/15 – 10/31/15
§8757. Restrictions on Use of Nets in Districts 19 and 20	Notwithstanding Section 8661, and in addition to Sections 8754, 8755, and 8780, round haul nets may be used to take fish in those portions of Districts 19 and 20 that are closed to the use of round haul nets by Sections 8754 and 8755 and in Districts 19A and 19B, but only for use or sale of those fish for live bait and subject to the following restrictions: (a) In Districts 19A and 19B, round haul nets may not be used within 750 feet of any public pier. (b) It is unlawful to buy, sell, or possess in any place of business where fish are bought, sold, or processed, any dead fish taken under the authority of this section.

CDFW CODE SECTION NUMBER/SECTION TITLE	APPLICABLE TEXT
§8780. Bait Net; Use in Districts Specified	(b) Bait nets may be used to take fish for bait in Districts 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 19A, 19B, 20A, 21, 118, and 118.5. (c) In District 19A, bait nets may be used only to take anchovies, queenfish, white croakers, sardines, mackerel, squid, and smelt for live bait purposes only. Bait nets may not be used within 750 feet of Seal Beach Pier or Belmont Pier. (d) No other species of fish may be taken on any boat carrying a bait net in District 19A, except that loads or lots of fish may contain no more than 18 percent by weight of the fish, of other bait fish species taken incidentally to other fishing operations and which are mixed with other fish in the load or lot.
§8694. Prohibited use or possession in District 19A	In District 19A, gill nets may not be used, nor may they be possessed on any boat.
§8725. Use or Possess in Boat Trammel Nets in District 19A	In District 19A, trammel nets may not be used, nor may they be possessed on any boat.
§8842. Take Shrimp - Trawl Nets	(b) Trawling for shrimps or prawns shall be authorized only in those waters of Districts 6, 7, 10, 17, 18, and 19 that lie not less than three nautical miles from the nearest point of land on the mainland shore, and all offshore islands and the boundary line of District 19A, except that in waters lying between a line extending due west from False Cape and a line extending due west from Point Reyes, trawling is allowed not less than two nautical miles from the nearest point of land on the mainland shore until January 1, 2008.
§9001.7. Finfish traps	(g) No finfish traps shall be set within 750 feet of any pier, breakwall, or jetty in District 6, 7, 17, 18, 19, 19A, 19B, 20, 20A, 20B, or 21.

Source: CDFW 2015.

3.6.2 Methodology and Thresholds of Significance

Methodology

Because commercial fishing activity is restricted in District 19A, the Project will not impact the commercial fishing industry. Therefore, no impacts are anticipated with respect to commercial fishing, including bait net use or spot prawn trapping, and further analysis of commercial fishing activities is not included herein.

Instead, this subsection focuses on analyzing impacts to marine-based recreational activities that could result from construction and operation of the Project. Specifically, this analysis is concerned with impacts that could be caused by changes to the marine conditions and disruption of recreational activities. The potentially affected recreational opportunities that are the focus of this analysis are related to:

- Recreational and sport fishing
- Recreational boating
- Water contact sports (swimming, diving, surfing, etc.)

Thresholds of Significance

Impacts on marine-based recreation opportunities are considered significant if Project-related construction or operation activities or abandonment of the existing electrode facility would cause a substantial long-term disruption of any recognized recreational activity.

Specifically regarding impacts related to electrical current from the electrode array, the SGRS is designed to maintain an electric field at the exterior of the vaults of no greater than about 1.15 V/m. The threshold of 1.25 V/m adopted by the ICNIRP and established by IEC in the *Design of Earth Electrode Stations for*

High-Voltage Direct Current (HVDC) Links (IEC Technical Standard 62344:2013) has been designated as a safe level for humans and large fish in sea water in a number of studies.

Regarding impacts related to static magnetic fields, to avoid effects related to vertigo and nausea, the ICNIRP has recommended a limit of 2,000 G time-weighted average per working day for occupational exposures, with a maximum occupational exposure of 20,000 G. For the general public, a continuous exposure limit of 400 G has been established by the ICNIRP. During the peak level of the operational cycle on the electrode (3,100 amps), a maximum magnetic field of about 245 G would be present (at a distance of one inch from the cable) if all the system cables were immediately adjacent to each other where the conduit from Gladstone Vault enters the ocean (about 1,200 feet offshore). The strength of the field would decrease substantially with distance from the cables, and would be about 4 G at a distance of five feet and 1 G at a distance of 20 feet. The field strength would also decrease substantially (from about 245 G to 122 G) when the cables are placed in the parallel furrows 20 feet apart in two separate bundles of three cables each.

3.6.3 Best Management Practices

The following BMPs would apply to the proposed Project to avoid or minimize potential construction-related impacts relative to recreation and fishing.

BMP-4 Marine Location Markings

The position of the electrode array will be marked using surface buoys, and the United States Coast Guard (USCG) and other responsible entities will be notified of the position and as-built characteristics of the electrode array and underwater cables.

BMP-5 Issuance of Notices

Advance notice of construction activities shall be provided to local recreational and commercial boaters and fisherman through the USCG Notice to Mariners regarding the restrictions in the use of the Project area with sufficient lead-time for affected persons to plan for alternate times and places to perform offshore activities. In addition, LADWP shall post notices in the harbor master’s offices at least 15 days in advance of in-water construction activities.

3.6.4 Impact Analysis

The following subsections describe the potential impacts to recreational activities from construction and operation of the proposed Project as well as abandonment of the existing electrode facilities.

Construction Impacts

The Project construction methods are detailed in Section 2.5 of this Draft EIR. The following subsections describe potential construction-related impacts to recreational fisheries, recreational boating, and water contact sports.

Recreational Fisheries

While recreational fishing season varies somewhat from year to year, it is expected that the Project construction activities (anticipated to begin in fall 2016) would occur during the peak season for some of the local recreational fish species. Seasons for California halibut, tuna, white seabass, kelp bass, and sand bass are open year round. Limits on rockfish and other small fishes are described in Section 3.6.1. Recreational fishing would be precluded from the active construction areas during Project construction. To reduce the duration of construction, work in the ocean would occur six days per week up to 10 hours each day. In accordance with BMP-5, advance notice regarding restrictions in the Project area will be given to local recreational fishermen through the USCG Notice to Mariners. In addition, notices in the harbor master’s offices shall be posted in advance. The Project construction would not restrict recreational fishing for the entirety of a peak season for locally important species, and recreational fishing could still take place outside of active Project work areas. Other recreational fishing opportunities in similar fish habitats (soft bottom, benthic, and pelagic) are ample within the Santa Monica Bay.

Furthermore, while some additional boat traffic is anticipated during Project construction due to the presence of water taxis for workers, tug boat activity from Marina del Rey, and the cable laying vessel, this traffic would be intermittent. Construction activity is not anticipated to significantly disrupt or substantially adversely affect existing recreational fishing opportunities within Santa Monica Bay because the area of construction is very small in relation to the entirety of the bay and opportunities to fish elsewhere in the bay would remain accessible to recreational fishers. Furthermore, the short duration of four to five months for marine construction is not considered a long-term activity. The presence of small crafts, tug boats, and the barge are not anticipated to significantly affect behavior or presence of locally important fish species, and individual fish would be able to avoid construction disturbances.

Therefore, construction activities associated with the Project would result in a less than significant impact to recreational fisheries.

Recreational Boating

Recreational boating would be precluded from active portions of the Project construction area, estimated to occur for up to five months. Boating is enjoyed year round in Santa Monica Bay, except for periods of inclement weather. Some Project-related vessels would be moored at Marina del Rey but would not displace existing vessels or recreational boat mooring space.

Advance notice of the Project's offshore activities would be provided to local recreational boaters through the Notice to Mariners and notices posted in harbor master's office (per BMP-5). These notices would allow for recreational boaters to plan alternate times and places to embark on recreational activity. These notices, the temporary duration of construction, and an absence of a specific peak season for boating would result in a less than significant impact from construction activities to recreational boating in the Project area.

Water Contact Sports and Other Recreational Activities

Because of the distance to offshore construction activities and the depth of the facilities, it is unlikely that recreational surfers or swimmers would enter the Project area waters from the shore and approach close enough to be a safety concern. However, it is possible that divers could enter waters where the cable plowing activity of vault installation was occurring. For this reason, divers would not be permitted in waters in the immediate vicinity of the construction activities. Boats associated with diving excursions would be informed about their preclusion from the area by the issuance of a Notice to Mariners, which would be posted in the relevant harbor master's offices in accordance with BMP-5. This would allow divers to make alternate plans to avoid precluded times/locations. Given the distance from the active construction areas to shore areas where surfers and swimmers would be present, the Project is not expected to impact these activities. Therefore, construction-related impacts to divers, surfers, swimmers, and other water-contact recreationists would be less than significant.

Operational Impacts

As discussed in Section 2.6 of the Project Description, the SGRS would have the capability of operating at 3,100 amps for up to 30 minutes. Based on the historical data, it is anticipated that the electrode would be operational an average of about 5.25 hours per year in several shorter discrete events. Therefore, it is anticipated that the SGRS would be operational for relatively few hours in any one year and for only relatively brief periods at any given time.

Impacts related to EMF and chlorine gas emissions are addressed under Biological Resources in Section 3.3. Some marine species may be particularly sensitive to magnetic fields, but no adverse effects to recreational fishery species from the fields created by high-voltage DC cables have been determined (Section 3.3). There is no data to suggest that EMF or chlorine gas emissions would attract or repel fish or marine mammals in a manner that would affect (either adversely or beneficially) recreational activities such as fishing or whale watching.

In accordance with BMP-4, the position of the electrode array would be marked on the surface using buoys, and the USCG and other responsible entities would be notified of the position and as-built characteristics of the array and any underwater cable.

The following subsections describe potential operational related impacts to recreational fisheries, recreational boating, and water contact sports.

Recreational Fisheries

Recreational fishing would not be precluded in the Project area during operations. Additional vessel traffic associated with Project operations (bi-annual inspections with divers) would be negligible when compared to existing conditions in the Santa Monica Bay. As discussed in Section 3.3, the operation of the existing electrode over a 45-year period has not resulted in any observable disruption to the fish species in the vicinity. The proposed replacement electrode is anticipated to operate similarly in terms of the general levels and frequency of use (approximately 5.25 hours a year in a number of shorter discrete events). Therefore, fish populations are not anticipated to be adversely affected by the operation of the proposed replacement electrode, and potential operational impacts to recreational fisheries would be less than significant.

Recreational Boating

Recreational boating would not be precluded in the Project area during operations. Additional vessel traffic associated with Project operations (bi-annual inspections with divers) would be negligible when compared to existing conditions in the bay. Therefore, potential operational impacts to recreational boating would be less than significant.

Water Contact Sports and Other Recreational Activities

It is anticipated that the SGRS would be operational for relatively very few hours in any one year and for only relatively brief periods at any given time. As stated in Section 2.6, Project Operation and Maintenance, the SGRS system would have a total maximum operational time of about 160 minutes during a single event, and it is anticipated that the electrode would be operational an average of about 5.25 hours per year in several shorter discrete events. Nonetheless, the system would be designed to limit the impacts associated with the release of electrical current at the electrode array during an event triggered by a fault on the PDCI. The SGRS is designed to maintain an electric field at the exterior of the vaults of no greater than about 1.15 V/m when the SGRS is operating at maximum amperage (3,100 amps). The strength of the field decreases substantially with distance from the electrode array, and would be 0.34 V/m at a distance of three feet from the exterior of the vault and about 0.15 V/m at six feet from the vault. This maximum electric field strength of 1.15 V/m is below the threshold of 1.25 V/m adopted by ICNIRP and established by IEC Technical Standard 62344:2013 as a safe level for humans in sea water.

There are no known harmful effects related to static magnetic fields at the field strengths of the proposed SGRS. Only temporary effects have been documented in occupational environments involving field strengths substantially greater than that which would be generated by the SGRS. During the peak level of the operational cycle on the electrode (3,100 amps), a maximum magnetic field of about 245 G would be present (at a distance of one inch) if all the system cables were immediately adjacent to each other where the conduit from Gladstone Vault enters the ocean (about 1,200 feet offshore). This magnetic field strength would be below the 2,000 G and 400 G thresholds established by the ICNIRP. The strength of the field would decrease substantially with distance from the cables, and would be about 4 G at a distance of five feet and 1 G at a distance of 20 feet. Furthermore, the magnetic fields created during the operation of the proposed marine facility would be no greater than those associated with the operation of the existing marine facility. Since the electrode would typically operate for relatively few hours per year and for only relatively brief periods at a time, during the vast majority of the time, there would be no electric or magnetic fields generated because no electrical current would be flowing in the facility.

The proposed electrode array would be located two miles offshore, at sufficient distance that water contact sports participants, other than scuba divers, would not encounter the electrode. As mentioned above, the position of the electrode array would be marked on the surface using buoys, and the USCG and other responsible entities would be notified of the position and as-built characteristics of the array and any underwater cable. Although the facility, located at about a 100-foot depth, would be less accessible to divers than the existing electrode array (which is located at a depth of approximately 50 feet), the vaults would nonetheless be marked with signs indicating the potential for electrical discharges.

Therefore, Project operations are anticipated to have a less than significant impact on water contact sports.

Abandonment

An assessment of impacts associated with abandonment of the existing electrode in place is based on a survey of the existing electrode. A report evaluating the existing electrode is attached as Appendix D4. An additional source for this analysis is the Marine Resources Assessment in Appendix D2.

Recreational Fisheries

The results of the Existing Electrode Assessment (Appendix D) indicate that the existing electrode vaults support a rich biological community, and no impact would be associated with leaving the existing electrode vaults in place. Thus, there are no anticipated adverse effects to the fish species or environment supporting the recreational fishery in the Santa Monica Bay due to abandonment of the existing electrode cables and vaults.

The concrete vaults and exposed cables of the existing electrode array have the potential to adversely affect commercial and recreational fishing due to the potential for entanglement of fishing gear during bottom fishing. However, as explained above, commercial fishing is restricted in District 19A, and commercial trawling is not permitted. Recreational fishing gear used for bottom fishing have the potential to become entangled; however, recent investigations of the existing electrode (Appendix D4) and previous investigations (Appendix D2) did not indicate the presence of any entangled fishing gear on the existing electrode vaults or areas associated with existing cables.

Therefore, abandonment of the existing electrode in place would result in a less than significant impact to recreational fisheries.

Recreational Boating

Abandonment of the existing electrode in place is not anticipated to impact recreational boating activities in the Project area. The existing electrode array is marked on navigational charts. Additionally, the existing electrode is located at a depth of 50 feet, which is far deeper than the draft of recreational vessels. Beyond the concrete vaults that rise only a few feet from the ocean bottom, there are no other structures that would impede boating. Furthermore, the existing electrode has been in place since 1969, and there is no indication of significant effects to boating. No impacts to recreational boating would occur through abandonment of the existing electrode.

Water Contact Sports and Other Recreational Activities

Impacts due to abandonment in place of the existing electrode on water contact sports and other recreational activities in the Project area are not anticipated. The existing electrode array is located at a depth of 50 feet, a depth at which surfers, kayakers, and other surface water contact sports would not interact with the facility. Scuba diving is the only water contact activity that has the potential for interaction with the abandoned electrode. The nonoperational electrode structures would not pose a threat to divers. This is substantiated by the fact that the existing electrode has been in place since 1969, and there is no indication of significant adverse effects associated with surfing, diving, or other water contact sports. No impacts to water contact sports or other recreational activities would occur through abandonment of the existing electrode.

3.6.5 Cumulative Impacts

Cumulative effects refer to the impacts on the environment that result from a combination of past, present, and reasonably foreseeable projects. This discussion describes effects that may be individually limited but cumulatively considerable when measured alongside other projects.

A summary of past, present, and reasonably foreseeable future projects that may affect resources within the Project area are presented in Section 3.1.3 of the Draft EIR. Projects identified are not located adjacent to the Project area and therefore are not expected to result in cumulative effects to the recreational fisheries species or recreational activities that would be potentially affected by the proposed Project. Refer to Figure 3.1-1 which depicts the location of the marine-based projects considered in this analysis.

The closest marine-based project is the Southern California Wetlands Recovery Project, which involves a major restoration effort for coastal wetland habitats. The nearest restoration location is Topanga Creek and Lagoon, located approximately 1.5 miles from the Project area. This restoration effort is not located in the immediate vicinity of the Project, nor would it involve construction on the seafloor or limit public access to the beach. Therefore, the proposed Project would not create an incremental effect to recreational boating, fishing, water-contact sports, or other recreational activity that would be cumulatively considerable.

3.6.6 Mitigation Measures and Level of Significance After Mitigation

No significant impacts would occur; therefore, no mitigation measures are required.

3.7 TRAFFIC AND TRANSPORTATION

The purpose of this section is to assess the potential impacts of proposed Project on the surrounding traffic and transportation system. The majority of Project construction activities would occur in the marine environment with limited impacts to landside traffic and transportation systems. To that end, potential landside traffic and transportation system impacts would primarily stem from equipment and material deliveries and worker trips associated with cable pulling activities at the Gladstone Vault site, located in an existing parking lot near the intersection of Sunset Boulevard and PCH.

3.7.1 Existing Conditions

<u>Regulatory Framework</u>

Federal

Code of Federal Regulations (CFR), Title 49, Subtitle B

The CFR, Title 49, Subtitle B, provides guidelines for regulations pertaining to interstate and intrastate transport (including hazardous materials program procedures) and provides safety measures for motor carriers and motor vehicles that operate on public highways.

State

California Vehicle Code (CVC)

The CVC includes regulation pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials.

Local

Los Angeles County Congestion Management Program

The Los Angeles Metropolitan Transportation Authority (Metro) is the agency responsible for the development of the Los Angeles County Congestion Management Program (CMP). The 2010 CMP is the eighth CMP adopted for Los Angeles County since the requirement became effective with the passage of Proposition 111 in 1990. The CMP is intended to address the impact of local growth on the regional transportation system in compliance with statutory requirements, including monitoring designated freeways and roadways, measuring frequency of public transit, and implementing transit related programs.

Level of Service Values

Measurements for the assessment of traffic operations are based on a ratio of traffic volume on a roadway segment or at an intersection to the volume that is calculated to be the design capacity (volume to capacity [V/C] ratio). The efficiency of traffic operations at a location is measured in terms of Level of Service (LOS) related to V/C ratios. LOS ranges from A to F, with A representing excellent (free-flow) conditions, and F representing extreme congestion. The delay on a street segment corresponds to an LOS value. Roadway segments with vehicular volumes that are at or near capacity (a V/C ratio of 1.0) experience greater congestion and longer vehicle delays. Generally, the minimum acceptable LOS for any intersection or roadway segment in Los Angeles is LOS D. Therefore, LOS D serves as the minimum acceptable standard for the Project study area.

Environmental Setting

Roadway Network

In the vicinity of the Project site, PCH is a heavily traveled four-lane state highway that also includes turning lanes at its signalized intersection with Sunset Boulevard. Sunset Boulevard is also a heavily traveled arterial roadway that terminates at PCH; it consists of four lanes leading to and from PCH, but also includes additional right- and left-turn lanes at the intersection. The intersection of PCH and Sunset Boulevard is a CMP Monitoring Intersection with an existing AM Peak LOS of F and a PM Peak LOS of E. It has striped pedestrian crosswalks on the west side of the intersection across PCH and on the north side of the intersection across Sunset Boulevard. Sunset Boulevard has sidewalks on both sides; PCH has sidewalks on the northern side only. There are no striped bike lanes on either PCH or Sunset Boulevard near the Project site.

On the northern (landward) side of PCH, the area surrounding the intersection consists of commercial development, including office and retail space and two gas stations. On the south (seaward) side of PCH, are Gladstones Restaurant and a large paved parking lot that provides parking for the restaurant and beach patronage. The parking lot includes over 200 marked spaces and is available by means of valet service only. This parking lot is the site of the proposed Project landside cable pulling activities. Public parking is also available along the south side of PCH to the east of Sunset Boulevard, and limited additional off-highway parking is located to the west of Sunset.

Transit Service

Transit services within the Project area are provided by the Metro. Bus service routes servicing the Project area are summarized in Table 3.7-1.

TABLE 3.7-1 PROJECT AREA TRANSIT SERVICES

AGENCY	LINE	FROM	TO	VIA	PEAK FREQUENCY
Metro	2	Pacific Palisades	Downtown Los Angeles	Sunset Blvd.	10 to 30 Minutes
Metro	302	Pacific Palisades	Downtown Los Angeles	Sunset Blvd.	20 to 40 Minutes
Metro Express	534	Malibu	Culver City	Pacific Coast Highway / I-10 Freeway	12 to 30 Minutes

Source: Metro.net.

Bicycle Network

The bicycle network within the Project area includes bike facilities that fall within the following three categories:

> **Class I** is designated as a bicycle path that allows for two-way, off-street bicycle use.
> **Class II** is designated as a bicycle lane where a portion of the roadway is striped, signed, and marked for the exclusive use of cyclists.
> **Class III** is designated as a bicycle route where the roadway facilities are shared by motorists and cyclists.

PCH is a Los Angeles County Class III bike route with shared a roadway between motorists and bicyclists. Sunset Boulevard is not a designated bike facility.

3.7.2 Methodology and Threshold of Significance

Methodology

Project Construction Truck and Vehicle Trips

Truck trips associated with Project cable pulling activity at the Gladstone Vault would be related to the delivery of equipment and supplies. As discussed in Section 2.5.1 (Installation of the Proposed Marine Facility) of this Draft EIR, LADWP would install the initial segment of the new marine cables within existing conduits that initiate at the Gladstone Vault. A cable pulling rig would be required for an approximate construction duration of one week, resulting in an estimated maximum of four truck trips a day at the height of construction activities (i.e., initial delivery of equipment and materials); for analysis purposes, one of these truck trips is anticipated to occur during either the AM or PM peak hours. The construction crew is estimated to be a about five workers; the work crew would park in the existing parking lot. Work at the Gladstone Vault site would occur Monday through Friday and would not commence before 7:00 a.m. or continue beyond 5:00 p.m. No nighttime work would occur.

Project construction would also require the delivery by road of the marine electrode vaults. The vaults would be manufactured at an existing facility in the City of Fontana, and each vault would be transported from the source of manufacture via truck to Marina del Rey. Based on the size of the equipment and vaults, oversize load permits from Caltrans or City of Los Angeles are not expected to be required; however, if any loads are determined to be oversized, appropriate permits would be sought as needed. A maximum of 36 trips, spread over the duration of electrode array installation (about two to three months), would be required for delivery of the vaults.

Thresholds of Significance

The general thresholds, derived from Appendix G of the State CEQA Guidelines, indicate that a project could have potentially significant impacts if it would:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
e) Result in inadequate emergency access or impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The significant traffic impact thresholds of the City of Los Angeles are provided in the City of Los Angeles CEQA Threshold guide. These guidelines are developed for the purpose of determining how trips generated by proposed development projects would incrementally impact roadway facilities. It includes screening criteria for conflicts with applicable plans, ordinances, policies, or the applicable CMP. Exceedance of the screening criteria indicates the need for a more detailed analysis to determine if impacts may be significant. Those criteria include the following:

- Would the proposed project generate and/or cause a diversion or shift of 500 or more daily vehicle trips or 43 or more AM or PM peak hour trips?
- Would the proposed project add 150 or more one-way vehicle trips to a CMP mainline freeway monitoring segment during either the AM or PM Peak hours?
- Would the proposed project add 50 or more AM or PM Peak hour trips to a freeway on- or off-ramp?
- Generate more than 120 daily vehicle trips to a local residential street?

3.7.3 Impact Analysis

a) Would the Project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?
b) Would the Project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

The discussion below references both questions a) and b) from above.

The majority of Project construction-related activities would occur in the marine environment with limited impacts to landside traffic and transportation system. Potential impacts to landside traffic and transportation systems would primarily stem from equipment and material deliveries related to cable pulling activity at the Gladstone Vault site. No construction or staging of construction materials or equipment would occur within existing streets. Furthermore, access to the existing Gladstones Restaurant and adjacent beach area would be maintained during construction. Once operational, the proposed Project would not generate any additional traffic above what is currently generated by the existing SGRS for minimal routine operations and maintenance activities at the Gladstone Vault.

Estimated maximum daily truck and vehicle trips would not exceed any screening criteria contained within the City of Los Angeles CEQA Threshold Guide to address conflicts with applicable plans, ordinances, policies, or the applicable CMP. While the intersection of PCH and Sunset Boulevard is an intersection that is monitored under the CMP and operates at LOS F and LOS E during the AM Peak and PM peak hours respectively, the addition of an estimated four daily truck trips and five worker trips would be negligible in the context of overall traffic through the intersection and would not affect existing travel patterns or LOS. Furthermore, these added trips would be temporary in nature, ceasing after the one-week construction period at the Gladstone Vault site; therefore, no impact would occur.

c) Would the Project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The Project would not impact air traffic patterns since the Project consists of construction activities within an existing parking lot and Santa Monica Bay; no impact would occur.

d) Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Project construction activities would be confined to the parking lot adjacent to the Gladstone's Restaurant and would not infringe on the highway. This off-road activity would not increase any hazards to the roadway related to design features or incompatible uses. Therefore, no impact would occur.

e) Would the Project result in inadequate emergency access or impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Landside construction activities would be confined to an existing parking lot and would last about one week. Therefore, they would not interfere with emergency response by ambulance, fire, paramedic, and police vehicles or with the physical implementation of an adopted emergency response or evacuation plan. No impacts would occur.

f) Would the Project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No construction would occur within existing streets, and based on the low level of Project construction generated traffic, no conflicts would occur with any existing transit, bicycle, or pedestrian facilities. No impacts would occur.

3.7.4 Cumulative Impacts

Section 3.1.3, Cumulative Projects, provides a list of present and reasonably foreseeable future projects considered for this analysis. Due to the very low level of traffic that would be generated by Project construction, as well as the brief duration of construction activities, the Project would not make a cumulatively considerable contribution to any impacts to traffic and transportation systems in the vicinity. The impact would be less than significant.

3.7.5 Mitigation Measures and Level of Significance After Mitigation

No significant impacts would occur; therefore, no mitigation measures are required.

3.8 WATER QUALITY

This section provides a description of existing water and sediment quality conditions within the Project area and the larger Santa Monica Bay and evaluates potential water quality impacts associated with Project construction and operation.

3.8.1 Existing Conditions

The following discussion on water quality was derived from the Marine Resources Assessment provided in Appendix D2. Water and sediment quality within Santa Monica Bay has been studied extensively in recent years, particularly near the Hyperion Wastewater Treatment Plant's five-mile outfall pipe and as part of the Southern California Bight Regional Monitoring Program. Research suggests that there are multiple pollutants of potential concern in Santa Monica Bay, including metals, organics, and bacterial contaminants (SMBRC 2010). Sources and pathways of contaminants include industrial discharges, urban runoff into creeks and storm drains, municipal wastewater treatment plants (WWTPs), boating and shipping activities, dredging, and advection of pollutants from other areas.

Approximately 645 million gallons of treated wastewater are discharged to Santa Monica Bay each day via seven major point-source facilities and more than 160 permitted smaller commercial and industrial facilities (SMBRC 2010). As a result of the nearly 30 billion gallons of wastewater effluent that flows into Santa Monica Bay on a yearly basis, impacts to water and sediment quality have been documented. SMBRC (2010) rated the water quality "good" overall in Santa Monica Bay, but sediment quality was given a rating of "poor" at 59 percent of sites for sediment contaminants and at 21 percent of sites for sediment toxicity.

Santa Monica Bay is located adjacent to a highly urbanized area. Approximately 400 square miles of varied landscape drains into the Bay, including the highly urbanized and channelized Ballona Creek Watershed and the less developed Malibu Creek Watershed. The State Water Resources Control Board has listed Santa Monica Bay as an impaired waterbody under Section 303(d) of the Clean Water Act (CWA).

Historically, the pollutant pathway of most concern for Santa Monica Bay was point source discharges from industrial outfalls and large wastewater treatment facilities, including the Hyperion WWTP and the Joint Water Pollution Control Plant, the outfalls for which are located approximately nine miles and 18 miles, respectively, south of the proposed Project. Over the past few decades, pollutants discharged from these treatment facilities have been greatly reduced as secondary treatment has been implemented. Currently, non-point sources constitute a larger source of contaminants to Santa Monica Bay than point sources (Schiff 2000).

The primary pathway for pollutants entering the Bay through non-point sources is discharge from storm drains throughout the surrounding watersheds (Dojiri et al. 2003). The primary pollutants of concern for Santa Monica Bay are nutrients, bacteria, trash, and metals, along with historical pesticides. The Los Angeles Regional Water Quality Control Board has implemented nine total maximum daily loads (TMDLs) to address the pollutant issues in the Bay. These TMDLS are mainly being implemented through incorporation of controls into existing NPDES permits. Over the next five years, several more TMDLs are expected to be developed (SMBRC 2010).

2012 Survey

In 2012, a Marine Resources Assessment was conducted in the vicinity of the SGRS marine facility for the proposed Project. Existing water quality was assessed through collection and analyses of water and sediment samples in the vicinity of the Project area (Appendix D2; also summarized in Section 3.3.1). Sample locations of water quality and sediment quality parameters are shown on Figure 3.3-1. To assess baseline conditions, water samples were analyzed for trace metals, total residual chlorine, and both volatile and semi-volatile halogenated organic compounds. Halogenated organic compounds and chlorine produced oxidants (measured as total residual chlorine) were targeted for analysis based upon literature reviews that indicated the potential for halogenated and chlorinated compounds to form in the vicinity of subsea electrodes during electrode operation. Background levels of metals were targeted for analysis because they are a common sediment contaminant that can be re-suspended by construction activities and have the potential to cause toxicity to marine species.

Sampling locations and results of seawater chemistry analyses can be found in the Marine Resources Assessment in Appendix D2. The COP Daily Maximum and Instantaneous Maximum water quality objectives for the protection of marine aquatic life are provided for comparison to sample results. The results indicate that there were no detectable concentrations of residual chlorine or halogenated organic compounds (volatile and semi-volatile) in any of the samples collected. Concentrations of trace metals were measured at levels that were substantially below the most conservative water quality objectives for the protection of marine life, as listed in the COP.

Sediment samples were analyzed for the following contaminants of concern: metals, organochlorine pesticides, PAHs, and PCB congeners. Sediment concentrations of contaminants of concern measured within the Project area were compared to the ER-L and ER-M benthic organism toxicity threshold developed by Long et al. (1995). Sediment contaminant concentrations less than the ER-M values are considered below the thresholds likely for toxicity. Concentrations of all contaminants of concern measured within the Project area were below ER-Ms in the 2012 Marine Resources Assessment. There were a limited number of contaminants, such as DDT, mercury, and total PCBs that were found at concentrations above ER-Ls (i.e., chemical concentrations that may have some potential for biological effects based on prior laboratory studies); however, bioassay tests of the sediments collected within the Project area during this assessment did not show evidence of toxicity. These contaminants occurred at concentrations that are typically found in Santa Monica Bay. It has been estimated from large-scale regional studies that 90 percent of the surface sediments of the Bay are contaminated (Schiff 2000), largely due to legacy inputs of pollutants.

2015 Survey

In January 2015, the Existing Electrode Study was conducted to assess water chemistry, sediment quality parameters (i.e., chemistry, toxicity, and benthic infaunal community health), and biological community health at the existing SGRS cables and electrode array, as well as at reference sites (also summarized in Subsection 3.3.1 and presented in Appendix D4). Comparisons between the existing SGRS system and reference conditions were made to determine if SGRS operation since 1970 had measurable impacts on water quality, sediment quality, and the associated biological community.

Seawater concentrations of contaminants of concern collected from the water column at the existing SGRS cables and electrode vaults were less than the most conservative COP water quality objectives (COP Daily Maximum). Additionally, water chemistry concentrations were similar between SGRS and reference sites, indicating that the existing electrode has not had a measurable effect on water quality.

Sediment concentrations of metals and total DDTs were also below the ER-M thresholds for likely toxicity at all existing electrode vault, cable, and reference sites. Total PCB congener concentrations did exceed the ER-M at one of the five vault sites and at three of the five reference sites. Total DDT concentrations were just above the ER-L at all five vault sites, but did not exceed the ER-M at any site. Concentrations of PCBs and DDT were similar to those found elsewhere in Santa Monica Bay, based on large-scale, regional studies (i.e., Bight 2008 Regional Monitoring Program). Although there were a limited number of exceedances of chemical thresholds, bioassay tests of the sediments collected from all existing cable and existing electrode sites did not show any evidence of toxicity. Additionally, the benthic infaunal communities collected in the sediments at the vaults and along the cable route were indicative of a low disturbance environment. Once again, sediment quality parameters did not indicate that the existing SGRS operation was having an adverse effect on the surrounding environment.

Lastly, biological surveys of the existing electrode vaults indicate that a rich biological community (fish, invertebrates, and marine algae) currently inhabits the concrete vaults. Diver surveys documented that the biological conditions at the existing electrode vaults are similar to those found at other natural and man-made reefs throughout the region (Santa Monica Bay and other areas in the Southern California Bight).

Regulatory Framework

Potential impacts to water quality as a result of the proposed Project were analyzed based upon applicable environmental policies, regulations, and standards. Applicable and/or relevant ordinances related to potential impacts on water and sediment quality are summarized in Table 3.8-1.

TABLE 3.8-1 SUMMARY OF RELEVANT WATER QUALITY REGULATIONS

REGULATION	SUMMARY
Federal	
Clean Water Act	Established the basic structure for regulating discharges of pollutants into the waters of the United States and established minimum water quality standards for surface waters. Enforcement of the CWA falls under the United States Environmental Protection Agency (USEPA) and United States Coast Guard (USCG) and is enforced in California through the State Water Resources Control Board and Regional Water Quality Control Boards.
Coastal Zone Management Act	Administered by the National Oceanographic and Atmospheric Administration (NOAA) Office of Ocean and Coastal Resource Management, this Act provides for management of the nation's coastal resources and balances economic development with conservation.
Endangered Species Act	The Endangered Species Act (ESA) of 1973 protects and conserves threatened and endangered species of plants and animals and their ecosystems. Water quality standards established must be protective of threatened and endangered species.
State	
California Coastal Act of 1976	Designed to guide local and State decision-makers in the management of coastal and marine resources, includes protections for environmentally sensitive habitat, water quality, and wetlands, stating that "Marine resources shall be maintained, enhanced, and, where feasible, restored." A Coastal Development Permit will be required to be obtained from the California Coastal Commission.
California ESA	The California Endangered Species Act (CESA) provides for the protection of all native endangered or threatened species of plants and animals, and their habitats, within the State of California. Water quality standards established must be protective of threatened and endangered species.
California Fish and Game Code	The California Fish and Game Code places restrictions on the take of protected species, defines sport fishing and hunting regulations and seasons, defines refuge boundaries and addresses other licensure requirements for particular varieties of fish and game. It also has provisions to protect water quality of waters of the State, as well as marine habitats.
California Ocean Plan of 2012	Provides for the "protection of the quality of the ocean waters for use and enjoyment by the people of the State" by setting forth provisions for the discharge of waste to ocean waters. Essentially, the COP specifies water quality criteria for the protection of beneficial uses of ocean waters of California.
Water Quality Control Plan: Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties	Establishes beneficial uses, water quality objectives, and actions necessary to maintain beneficial uses and control point and non-point sources of pollution for water bodies.

REGULATION	SUMMARY
Marine Life Protection Act of 1999	Directs the State of California to re-evaluate and redesign California's network of Marine Protected Areas (MPAs) to more effectively protect the State's biological marine resources and to improve recreational, scientific, and educational opportunities provided by minimally disturbed marine ecosystems. The Marine Life Protection Act (MLPA) recognizes the importance of water quality in protecting marine resources.
California Marine Managed Areas Improvement Act of 2000	Extends the California Department of Parks and Recreation (DPR) management jurisdiction into the marine environment and gives priority to MPAs adjacent to protected terrestrial lands.
Local	
The Santa Monica Bay Restoration Plan	Set of goals, objectives, and milestones to fulfill its mission to "improve water quality, conserve and rehabilitate natural resources, and protect the Bay's benefits and values."

3.8.2 Methodology and Thresholds of Significance

Methodology

This analysis is based studies conducted in 2012 (Appendix D2) and January 2015 (Appendix D4) to assess marine resources at the existing facility and along the proposed Project alignment. Potential impacts associated with the operation of the proposed marine facility and abandonment of the existing marine facility were addressed by comparing empirical data collected from the existing SGRS cables, electrode vaults, and the proposed cable route for the Project to water quality and sediment quality objectives and standards in applicable regulatory documents (e.g., the COP). Potential impacts related to construction activities associated with the Project were assessed by comparing the cable laying activities associated with the Project to an extensive review of studies of the environmental effects of cable laying techniques conducted for the offshore wind farm industry (BERR 2008) and other pertinent studies.

Thresholds of Significance

The following significance thresholds are based on the environmental checklist presented in Appendix G of the CEQA Guidelines in Section IX (Hydrology and Water Quality). They are used to determine the potential impacts of the proposed Project upon hydrology and water quality in the Project area.

A project would have a significant impact on hydrology and water quality if it would result in one or more of the following:

a) Violate any water quality standards or waste discharge requirements.
b) Otherwise substantially degrade water quality.

3.8.3 Best Management Practices

The following BMPs would apply to the proposed Project to avoid or minimize potential impacts from construction.

BMP-6 Hazardous Materials

As required by the Clean Air Act, Section 401 of the Clean Water Act, the Toxic Substance Control Act, and the Hazardous Materials Transportation Act, all vehicles, vessels, and equipment must be in proper working condition to avoid fugitive emissions or accidental release of motor oil, fuel, antifreeze, hydraulic fluid, grease, or other hazardous materials. To reduce potential for accidental spills and discharges that could impact water and sediment quality during construction, the following are recommended:

- Discharge of hazardous materials during construction activities into the Project area shall be prohibited.
- A comprehensive spill prevention control and countermeasure plan shall be developed that documents management practices that will be enacted to limit the potential for accidental spills.
- An environmental protection plan shall be developed that addresses issues related to storage and handling of fuel, waste disposal, equipment and vessel operation, and field policies.
- All debris and trash shall be disposed of in appropriate trash containers on land or on construction barges by the end of each construction day.

3.8.4 Impact Analysis

The following subsections describe the potential impacts to water quality and sediments from construction and operation of the proposed Project as well as abandonment of the existing electrode facilities.

a) Would the Project violate any water quality standards or waste discharge requirements?
b) Would the Project otherwise substantially degrade water quality?

Construction Impacts

As defined in Section 13030 of the California Water Code, water quality inputs of concern include discharges that create pollution, contamination, or nuisance or that release toxic substances deleterious to humans, fish, birds, or plant life. The use of vessels during construction activities can increase the potential for localized accidental spills of hazardous materials, such as oil; however, this risk is no greater than ongoing recreational and commercial vessel operations within the region. Additionally, small spills would be unlikely to cause a significant adverse effect to water or sediment quality because wave action and current dynamics within Santa Monica Bay would disperse and dilute potential inputs, reducing concentrations below levels expected to have toxic effects on biota (California State Lands Commission 2010). Furthermore, BMP-6, Hazardous Materials, would be implemented during all phases of construction to minimize the potential for impacts to water quality.

Cabling techniques (including the jet-plow technology) of the offshore windfarm industry and associated environmental effects were reviewed by BERR (2008). The review indicated that the jet-plow technology produces a low level of disturbance in marine sediments composed of sand and silt, as is found in the selected cable route for the proposed Project (see Appendix D2 and Appendix D4). Additional studies conducted in the North Atlantic on impacts from cable furrowing (reviewed in BERR 2008) suggest that during cable installation, fine sediments disperse throughout the water column, and background concentrations of total suspended solids are only raised by a few percent. The results indicated that dispersion of fine sediment was rapid, with concentrations within a single flood or ebb excursion dropping to less than one milligram per Liter (mg/L) above background concentrations. This level of impact is well within the natural variability associated with waves, tidal action, and storm events experienced in Santa Monica Bay and substantially less than that associated with anthropogenic impacts from dredging or aggressive fishing practices (BERR 2008). It is unlikely that construction activities would increase turbidity beyond levels commonly encountered during high wave events and storms; therefore, the impact of construction on turbidity would be both short-term and within the natural level of variability.

Sediment re-suspension also has the potential to increase the concentrations of contaminants in the water column; however, this potential impact is likely to be small for the proposed Project. Sediment concentrations of contaminants of concern measured within the Project area as part of the 2012 Marine Resources Assessment (Appendix D2) and 2015 Existing Electrode Study (Appendix D4) were below the thresholds for likely toxicity. Additionally, sediments showed no evidence of toxicity in laboratory bioassay tests. Measured contaminants occurred at concentrations that are typically found in Santa

Monica Bay. It has been estimated from large-scale regional studies that 90 percent of the surface sediments of the Santa Monica Bay are contaminated (Schiff 2000), largely due to legacy inputs of pollutants. Therefore, re-suspension due to construction activities associated with cable plowing or installation of the electrode would not be expected to result in an increase in the distribution of contaminants of concern above bay-wide background levels. Additionally, sediment suspension would not necessarily result in increased bioavailability of contaminants in the water column since contaminants are often bound to sediment particles that quickly resettle following disturbance events and may not substantially increase contaminant concentrations in the overlying water (Chadwick et al. 1999).

Thus, short-term impacts on sediment and water quality during construction of the Project would be less than significant.

Operational Impacts

Once the electrode system construction has been completed, the system is unlikely to result in re-suspension of sediments that could impact water quality. Routine maintenance activities would not require excavation or disturbance of sediments. In the event that one or more of the cables required repair or replacement, excavation could result in short-term sediment re-suspension, which would not result in significant impacts to water quality, as previously discussed.

The operation of the proposed electrode is expected to generate chlorine gas as a byproduct of the electrolysis process. Chlorine is an oxidizing biocide that is non-selective in terms of the organisms that it has the potential to affect. Free chlorine (chlorine gas dissolved in water) can be toxic to fish and aquatic organisms at concentrations greater than 0.01 mg/L. However, its dangers are short-lived because it reacts quickly with other substances in water or dissipates as a gas into the atmosphere.

The production of chlorine can be a problem for electrodes normally operated in continuous service (i.e., the rated current is kept constant for long periods, such as months). As the production of chlorine depends on the dispersed charge, continuous operation could lead to significant chlorine releases in the environment. However, the operation of the proposed electrode will be characterized by short cycles, normally very limited in time and number. Based on the discrete, short-duration events associated with operation of the proposed electrode, combined with the relatively few events per year (an average of seven between 2008 and 2014) and the small amount of chlorine gas produced per event over a relatively large area, the increase in chlorine concentration in the water column associated with the electrode is expected to be small. Based on the design parameters of the proposed SGRS marine facility, the Project would have less than a significant impact on water quality.

Furthermore, there have been no documented impacts on any marine species from the existing marine electrode, which has been operating in Santa Monica Bay for more than 45 years at an operational capacity similar to that proposed for the new SGRS. To the contrary, a thorough assessment of the existing marine electrode (summarized in Section 3.3.1 and presented in Appendix D4) indicated the presence of a healthy, thriving biological community associated with the existing electrode vaults, which is similar to other natural and artificial reefs in the region. This suggests that the operation of the existing electrode has not degraded water or sediment quality to a level that would have a measurable negative impact on associated marine biota. Thus, long-term impacts on sediment and water quality during operation of the Project would be less than significant.

Abandonment Impacts

Based on the 2015 survey of the existing SGRS electrode and cables and comparisons to reference sites (Appendix D4), the existing vaults and cables have not had significant impacts on water or sediment quality or the associated biological communities, relative to reference sites or conditions in the greater Santa Monica Bay.

Over time, the existing concrete vaults may slowly deteriorate from physical, biological, and chemical reactions in the marine environment. However, concrete has proven to be a durable material for marine construction, especially when designed for use in seawater environments. The location of the vaults fully submerged in 50 feet of water, where they are not exposed to the physical forces or the continuous wetting and drying cycle of the intertidal zone, as well as the rarity of freezing temperatures in coastal Southern California, also greatly limit deterioration. Furthermore, the very gradual deterioration of the concrete vaults would not be expected to adversely affect the marine environment. Extensive surveys around the existing vaults indicated no deleterious effects to sediment or water quality from 45 years of operation of the SGRS.

The HDPE material serving as insulation on the existing marine cables and as a jacket encasing the cable bundles was chosen because of its durable properties. HDPE does not corrode, is not biodegradable, has high tensile strength, and is resistant to abrasion. The general life expectancy of high-voltage cables is about 40 years. However, this is not representative of the general degradation of the HDPE insulation itself, but of the formation of small breaks or fissures that may allow moisture to reach the actual conductor, leading to corrosion of the conductor. Testing of corrugated HDPE water pipes under high pressure concluded that the pipes have a service life (as defined by the development of stress cracks) of several hundred to several thousands of years, depending on the pressures applied (Hsuan 2005). The HDPE on the existing marine cables is not subject to the same pressures and, after the existing SGRS marine facility is decommissioned, any heat within the cable associated with the occasional operation of the electrode would cease. The buried condition of the cables will help protect them from physical damage or deterioration. Extensive surveys along the existing cable route indicated no deleterious effects to sediment or water quality from 45 years of operation of the SGRS. It is expected that the conditions associated with the existing cables and electrode vaults after abandonment in place of the system would continue to have no adverse impacts on sediment or water quality in the future. Thus, impacts would be less than significant.

3.8.5 Cumulative Impacts

Cumulative effects refer to the impacts on the environment that result from a combination of past, present, and reasonably foreseeable projects. This discussion describes effects that may be individually limited but cumulatively considerable when measured alongside other projects.

A summary of past, present, and reasonably foreseeable future projects that may affect resources within the Project area are presented in Section 3.1.3 of the Draft EIR. Projects identified are not located adjacent to the Project area and therefore are not expected to result in cumulative effects to water quality that would be potentially affected by the proposed Project. Refer to Figure 3.3-1 which depicts the location of the marine-based projects considered in this analysis.

The closest marine-based project is the Southern California Wetlands Recovery Project, which involves a major restoration effort for coastal wetland habitats. The nearest restoration location is Topanga Creek and Lagoon, located approximately 1.5 miles from the Project area. This restoration effort is not located in the immediate vicinity of the Project, nor would it involve construction on the seafloor or degradation to water or sediment quality in offshore areas. Therefore, the proposed Project would not create an incremental effect to water or sediment quality that would be cumulatively considerable.

3.8.6 Mitigation Measures and Level of Significance After Mitigation

No significant impacts would occur; therefore, no mitigation measures are required.

CHAPTER 4: ALTERNATIVES

4.1 INTRODUCTION

In accordance with the California Environmental Quality Act (CEQA) Guidelines, alternatives to the proposed Sylmar Ground Return System (SGRS) Replacement Project (Project or proposed Project) have been considered to foster informed decision-making and public participation. According to CEQA Guidelines Section 15126.6(a), an Environmental Impact Report (EIR) "shall describe a range of reasonable alternatives to the proposed project, or to the location of the proposed project, which would feasibly attain most of the basic objectives of the proposed project, but would avoid or substantially lessen any of the significant effects of the proposed project, and evaluate the comparative merits of the alternatives." The CEQA Guidelines state that an EIR need not consider every conceivable alternative or consider alternatives that are infeasible. The alternatives analysis must also include a comparative evaluation of a No Project Alternative. Through evaluation of alternatives, the advantages and disadvantages of each alternative, compared with the proposed Project, can be determined.

As detailed in Chapter 3 of the Draft EIR, the proposed Project would result in temporary significant impacts related to air quality and biological resources during construction. Impacts would be less than significant for all other environmental factors during construction. There would be no significant impacts created during operation of the proposed Project. A range of alternatives was evaluated to identify means by which environmental impacts could be lessened to the extent practicable.

The Project objectives establish the basis for identifying potential alternatives. The objectives for the proposed Project are to:

- increase the reliability and stability of the power generation and delivery system for Southern California;
- continue to meet current and projected demand for power in the region; and
- help increase the available share of renewable resource energy for the Pacific Direct Current Intertie (PDCI) partners.

A detailed discussion regarding these objectives and their relation to the proposed Project is included in Chapter 2 of the Draft EIR.

4.2 NON-ELECTRODE-BASED ALTERNATIVES

Rather than replacing the marine facility of the existing SGRS, as is proposed under the Project, the following alternatives consider means by which the existing PDCI transmission system might be supplanted, which would eliminate the need for a ground return system and thereby avoid the environmental impacts associated with the construction of the Project.

4.2.1 Energy Conservation

Under this alternative, the proposed Project as outlined in Chapter 2 of the Draft EIR would not be implemented in any manner. This would effectively result in the removal of the PDCI transmission line from service as the existing electrode marine facility degrades and becomes unsafe or physically inoperable. To compensate for this removal from service, the requirement for the energy provided by the PDCI on an annual basis would be offset through additional energy conservation in the Southern California region. This would be achieved through both energy efficiency programs (which reduce the overall demand for electricity) and demand response programs (which decrease energy use during critical high-demand periods). If implemented, this alternative would achieve the objective of the proposed Project related to increasing the reliability and stability of the power generation and delivery system. It would also help meet the current and projected demand for power by reducing that demand rather than providing energy generation and transmission to meet the demand. However, this alternative would not help increase the share of renewable resource energy available to the PDCI partners. By eliminating the need for the replacement of the marine facility of the existing SGRS as described in Chapter 2 of the Draft EIR, this alternative would avoid the environmental impacts associated with its construction.

In accordance with state law (Assembly Bill [AB] 2021), the Los Angeles Department of Water and Power (LADWP) and the other PDCI partners have implemented aggressive energy conservation programs, including both demand response and energy efficiency programs, to help reduce demand and lessen the need for additional electrical power generation and the associated transmission infrastructure. LADWP's 2014 Power Integrated Resource Plan (which is the department's 20-year horizon framework plan reflecting policy commitments for electrical energy use, conservation, generation, and transmission) accounts for the load reductions expected to result from these programs. Based on LADWP's programs, an approximate 15 percent reduction in electricity use between 2010 and 2020 will be realized through energy efficiency, and over 500 megawatts of capacity that would otherwise need to be provided by some type of generation and/or transmission facility will be displaced in the LADWP system through conservation by 2026. Similar levels of energy savings and generation capacity offsets will also be achieved by the other PDCI partners, in proportion to their total system generation and transmission requirements.

However, although conservation programs potentially represent a means of achieving the objectives of the proposed Project related to system reliability and energy demand, they do not represent a technically feasible alternative to the Project because their implementation has already been accounted for in the assessment of the need for the continued availability of the energy provided by the PDCI and, therefore, the need for the proposed Project to provide a replacement for the SGRS marine facility. Based on the long-range strategies to address demand-side and supply-side resources within the power system, energy efficiency and demand response programs are complementary to the proposed Project and will continue as planned whether or not the Project is implemented.

Furthermore, the displacement of the PDCI through conservation programs in the Southern California region would essentially strand in the Pacific Northwest very large amounts of electrical generation capacity, including renewable energy resources, which are currently accessed through the PDCI. New transmission facilities would likely be required to redirect the generated energy to alternate markets. The construction and operation of such facilities would likely result in environmental impacts that cannot be specifically ascertained at this time. In addition, the displacement of the PDCI would also eliminate the capability provided by the line to transmit energy from Southern California to the Pacific Northwest during seasonal variations in load and resource conditions.

However, perhaps the greatest limiting factor affecting the implementation of this alternative is the amount of power that would need to be displaced through conservation in order to eliminate the need for the PDCI and, by extension, the proposed Project. In order to replace the capacity provided by the PDCI, over 3,000 megawatts (MW) of additional power would need to be offset through conservation programs beyond that already projected under current and future programs. The levels outlined under the current programs generally represent the realistically achievable, cost-effective amount of conservation derived from the latest energy efficiency potential studies mandated by AB 2021 and prepared in accordance with California Energy Commission guidelines. Therefore, additional conservation programs capable of displacing the very large capacity provided by the PDCI are deemed infeasible. Because the additional energy conservation at a level necessary to offset the capacity of the PDCI (and, therefore, the need for the proposed Project) is infeasible, this alternative has been dismissed from further consideration in the Draft EIR.

4.2.2 Replacement of PDCI with an Alternating Current Transmission Line

Under this alternative, the proposed Project as outlined in the Chapter 2 of the Draft EIR would not be implemented in any manner. Instead, the existing PDCI direct current (DC) transmission line would be replaced with multiple high-voltage alternating current (AC) lines to achieve the same transmission capacity. Unlike the existing DC lines, AC lines would not require a ground return electrode system, the partial replacement of which is the purpose of the proposed Project. New AC lines would allow for the continued transfer of electrical energy between the Pacific Northwest and Southern California, as is currently provided by the PDCI. If implemented, this alternative would achieve all the objectives of the proposed Project related to increasing the reliability and stability of the power generation and delivery system, continuing to meet the current and projected demand for power, and helping increase the available share of renewable resource energy. By eliminating the need for the replacement of the marine facility of the existing SGRS as described in Chapter 2, this alternative would avoid the environmental impacts associated with its construction.

This alternative would require the replacement of the entire 850-mile PDCI between The Dalles, Oregon, and Sylmar in order to avoid the requirement for a ground return electrode. This would involve both the southern portion of the line (south of the Oregon border) operated by LADWP and the northern portion of the line (within Oregon) operated by the Bonneville Power Administration. The construction of the replacement AC lines would take numerous years to complete, and because the existing PDCI could not be removed from service for any extended period, the AC lines would need to be constructed within a new right-of-way.

However, while technically achievable, numerous critical factors would make this alternative effectively infeasible when compared to the proposed Project. First, while all transmission systems experience a loss of energy between the generation source and a receiving station due to electrical resistance in the conductors, in relation to the transfer of bulk power over long distances, AC lines experience approximately 40 to 60 percent greater losses compared to DC lines. Therefore, while an AC line would continue to provide for the transfer of power between Southern California and the Pacific Northwest, it would result in the delivery of less energy. In addition, a high-voltage DC transmission system linking distant AC distribution systems (as is currently the case with the PDCI) provides greater stability to the electrical grid, limiting the potential for cascading failures that might occur over an interconnected AC system, as would be created under this alternative.

Second, although they cannot be specifically ascertained at this time, the potential short-term and long-term environmental impacts related to the construction and operation of new AC lines over a distance of approximately 850 miles would be substantially greater than the impacts related to the construction of the two-mile proposed Project. Based on these impacts, the approvals that would be required from multiple jurisdictions and agencies to construct the new AC lines under this alternative would be far from assured, especially considering the adequacy of the existing PDCI, assuming the proposed Project was implemented.

Last, the cost of replacing the entire PDCI would be vastly greater compared to the cost of replacing a relatively small portion of the existing SGRS (several billion dollars versus approximately $80 million). It would also render obsolete relatively recent and major financial investments in the converter stations at the northern and southern ends of the PDCI, which would no longer be required if energy was transferred on AC rather than DC lines.

For the above reasons, but in particular the economic considerations, this alternative is considered infeasible given that only a very limited portion of the SGRS requires replacement to maintain the full functionality of the existing PDCI system. Therefore, this alternative has been dismissed from further consideration in the Draft EIR.

4.3 ELECTRODE-BASED ALTERNATIVES

The above alternatives considered means by which the existing PDCI system might be supplanted, which would eliminate the need for the SGRS marine facility replacement. However, for the reasons outlined above, the removal of the PDCI from service is considered infeasible. Therefore, the following alternatives consider various means by which the existing SGRS, or portions of the SGRS, might be replaced to eliminate deficiencies in the system but potentially avoid or reduce the environmental impacts associated with the construction of the proposed Project.

4.3.1 Land-Based Electrode System

Under this alternative, the proposed Project as outlined in the Chapter 2 of the Draft EIR would not be implemented. Instead, the electrode array for the SGRS would be relocated to a site on land rather than in Santa Monica Bay. This alternative, if implemented, would allow for the continued operation of the existing PDCI and, therefore, would achieve all the objectives of the proposed Project related to increasing the reliability and stability of the power generation and delivery system, continuing to meet the current and projected demand for power, and helping increase the available share of renewable resource energy. By eliminating the need for the replacement of the marine facility of the existing SGRS as described in Chapter 2, it would avoid the environmental impacts associated with its construction.

A land-based facility, including the electrode array and interconnecting conductors, would be similar to the ground return system utilized at the Celilo Converter Station at the northern end of the PDCI, near The Dalles, Oregon. The Celilo electrode array consists of electrodes buried in a circular trench approximately 0.65 mile in diameter. The array is located in fallow agricultural fields about seven miles from the converter station and other development, and it is connected to the converter station by means of overhead conductors strung on the PDCI transmission towers. A land-based facility is also utilized on the LADWP-operated Intermountain Power Project (IPP) DC transmission system, which extends from Lynndyl, Utah, to Adelanto, California. The Adelanto Converter Station electrode array consists of a series of electrodes buried in 235-foot deep wells that are arranged in a circular pattern about 0.60 mile in diameter. The array is located in a dry lake bed (Coyote Lake) about 60 miles from the Adelanto Converter Station and about 15 miles from the nearest development. It is connected to the station by means of overhead conductors strung on the IPP DC transmission towers. This use of overhead electrode conductors strung on transmission towers is preferred because of the considerably lower expense of installation and operation as well as lessened environmental effects compared to a buried cable configuration. A similar configuration, with overhead conductors linking the Sylmar Converter Station to the electrode array, would be utilized for the land-based system alternative for the proposed Project.

However, the overhead configuration of electrode conductors places added stress on transmission towers that already support the primary electrical transmission conductors. This configuration also requires adequate clearances between the electrode conductors and the ground and the primary electrical transmission conductors. Therefore, this overhead configuration is typically accommodated in the original planning, design, and construction of a DC transmission system. Since this is not the case for the SGRS, following existing transmission rights-of-way and utilizing, with necessary modifications, existing transmission towers to the extent possible, would be required to minimize extensive property acquisition, new tower construction, and underground installations.

In addition, several requirements must be considered in relation to the siting of the land-based electrode array itself under this alternative. These include a relatively flat, vacant parcel of land large enough to accommodate an array of approximately 0.60 mile in diameter; a site located along or in close proximity to an existing transmission line from which the electrode conductors from the Sylmar Converter Station would be strung; a site located relatively distant from underground infrastructure, such as water, petroleum, or gas transmission lines, to avoid the corrosive effects on such infrastructure related to the operational events at the electrode array; and, for similar reasons, a site located in an area distant from existing development and that would not be subject to future development. These requirements were considered when selecting the site of the IPP Coyote Lake electrode array, for example, in a location over 60 miles from the Adelanto Converter Station, which, unlike the Sylmar Converter Station, is already located in a rural desert setting.

Based on these various requirements and constraints, LADWP explored various options for a land-based SGRS. Any reasonable site for the electrode array in relation to the Sylmar Converter Station would need to be north of the Angeles National Forest in the high desert region to locate the array on a relatively large, vacant, and flat parcel and to avoid existing infrastructure and existing and potential future development. This would place the electrode array a substantial distance from the converter station. Because the transmission line portion of the electrode (i.e., the conductors linking the electrode array to the converter station) can be substantially more expensive than the array itself, minimizing the extent of new transmission tower construction or replacement of existing towers was an important factor in site selection.

Based on these various considerations, LADWP determined the preferred option for a land-based alternative for the SGRS would be to site the electrode array in a section of the Owens Dry Lake bed and use existing LADWP transmission corridors between Sylmar Converter Station and the lake to route the electrode conductors. This would place the array in appropriate terrain on a site with limited access and with a sufficient buffer from underground infrastructure and existing or potential development. The total distance for this electrode route would be approximately 175 miles, but it would allow for the use of existing transmission rights-of-way and towers. This would compare to a potential electrode route from Sylmar Converter Station to Coyote Lake of about 150 miles. Importantly, however, over one-third of the route to Owens Lake would coincide with the approved LADWP Barren Ridge-Haskell Canyon segment of the new Barren Ridge Renewable Transmission Project, which would allow for the electrode conductors to be incorporated into construction of the transmission towers. While the addition of the electrode conductors to the Barren Ridge Project would increase the size and cost of the towers, it would be considerably less costly than retrofitting or replacing existing transmission towers that were not originally designed to accommodate the electrode. Adapting the new Barren Ridge line would also reduce transmission system disruption because no existing lines would need to be taken out of service temporarily during construction in this segment. It would also limit environmental impacts to essentially those that would be occurring regardless, in relation to the construction of the Barren Ridge Project.

Nonetheless, notwithstanding of the important advantages offered by adapting a portion of the Barren Ridge Project, substantial construction would still be required along the remaining two-thirds of the proposed route to accommodate the electrode conductors on existing towers and/or within existing alignments to the extent feasible. This would include modifications to towers, where possible, to increase height and/or structural capacity and the complete replacement of towers that cannot be appropriately modified. Depending on the extent of the construction required in a given section of an existing transmission route, rather than removing the transmission line from service, temporary lines, including poles and conductors, may also need to be installed to maintain the continuity of electrical service during construction. Outside of the Barren Ridge Project, this work would create environmental impacts related to construction activities, even though they would occur within existing rights-of-way.

Even accounting for the considerably reduced costs associated with adapting the Barren Ridge Transmission Line to accommodate the electrode, as well as the lower costs associated with towers that could be modified rather than replaced, the total estimated cost for this alternative is between $250 million and $300 million (excluding potential land acquisition) compared to an estimated cost of about $80 million for the proposed Project. Therefore, although this alternative is technically achievable and would meet the objectives of the proposed Project, it is considered infeasible based on economic considerations, and it has been dismissed from further consideration in the Draft EIR.

4.3.2 Retrofit of Existing Electrode Array

Under this alternative, rather than constructing a new electrode array approximately two miles offshore of the Gladstone Vault, the existing electrode array, located about one mile offshore, would be retrofitted to eliminate deficiencies in the existing system and, if feasible, provide similar operational capabilities as the proposed Project. This retrofit would entail the cleaning, modification, and, as required, repair of the existing vault structures as well as the replacement of the existing electrode rods and installation of additional electrode rods in the vaults. Depending on the condition of individual vaults (which have been in service for over 45 years) as determined during the retrofitting process, some vaults may also need to be entirely removed and replaced in the same location or abandoned in place while a replacement vault is installed in an adjacent location. In addition, new vaults would need to be installed adjacent to the existing vaults to help achieve the operational parameters of the proposed Project. The retrofit would also require the replacement of the existing marine cables between the Gladstone Vault and the electrode array, but at only about half the length of cable installation of the proposed Project. Construction work at the existing vault structures associated with this alternative may substantially disturb the productive marine habitat that has established on and around the vaults.

The existing electrode array was placed into service in 1970. At that time, the PDCI had a transmission rating of 1,440 MW with a voltage of 400 kilovolts (kV) and a maximum current of 1,800 amps. In the first two decades of operation, the PDCI was upgraded several times. In 1982, the capacity was raised to 1,600 MW. In 1984, the voltage was increased to 500 kV, and the capacity was increased to 2,000 MW. In 1989, the capacity was again increased to 3,100 MW, which is the existing capacity, with a maximum current of 3,100 amps. However, since it was originally installed in 1970, the electrode array itself, which was designed to support a 1,800-amp system, has remained essentially the same in its physical configuration.

As discussed in the Project Description (Chapter 2 of the Draft EIR), the electrical current related to a high-voltage DC ground return system can result in electrochemical corrosion of buried metallic objects, especially pipelines (such as water, petroleum, or gas transmission lines), if an appropriate separation distance is not provided between the ground electrode and the objects. This corrosion can damage infrastructure, which can be costly, disruptive to services, and may result in environmental impacts. The location of the existing electrode array at one mile offshore was based on the maximum 1,800-amp electrical current for the SGRS when it was placed into service in 1970 and the distance required to minimize corrosive effects to onshore underground infrastructure caused by operational events at the array. Based on this location and electrical current, the SGRS was able to operate at maximum amperage for 30 minutes to provide operators time to resolve anomalies that might occur on the PDCI. However, to compensate for the increase in power and amperage that occurred on the PDCI since it was first placed into service, the operating time at maximum current (which is now 3,100 amps) has been decreased to 20 minutes, followed by a 10 minute ramp down to 1,460 amps, and operation at 1,460 amps for up to an additional two hours. These modified operational parameters have acted to minimize the corrosive effects associated with the electrode operation, but they have also substantially reduced the flexibility of operators to respond when a fault occurs on the PDCI.

Consistent with the Project objective of increasing the reliability and stability of the power generation and delivery system for Southern California, as discussed in Chapter 2, the proposed Project would restore the capability of the SGRS to be operated at maximum amperage for 30 minutes, as was the case when the SGRS was originally placed into service. This 30-minute operating period at 3,100 amps would be followed by a 10 minute ramp down to 2,000 amps (rather than the current 1,460 amps) and operation at 2,000 amps for up to an additional two hours. However, because the PDCI operates at a maximum 3,100 amps rather than 1,800 amps (as it did when it was sited in its present location), the electrode must now be sited at approximately two miles offshore of the Gladstone Vault to restore the operating duration and still minimize the corrosive effects to onshore infrastructure. While a retrofit of the existing electrode array would be technically feasible in terms of constructability, it would create an unacceptable risk related to corrosion of underground infrastructure and the associated costs, disruption to services, and potential environmental impacts. Therefore, this alternative has been dismissed from further consideration in the Draft EIR.

4.3.3 Long-Distance Horizontal Directional Drilling

As discussed in the Project Description (Chapter 2 of the Draft EIR), the conduit already in place for the existing SGRS would be utilized for the initial segment of the proposed marine cables from the Gladstone Vault to provide a pathway beneath the parking lot, the beach, and the ocean floor to a location approximately 1,200 feet offshore. This would reduce the impacts at the Gladstone Vault because it would eliminate the requirement for horizontal directional drilling (HDD) and the associated excavation. It would also avoid potential impacts to the marine environment from the inadvertent escape of bentonite drilling fluid used in the HDD process.

From the termination point of the conduit offshore of Pacific Coast Highway and Sunset Boulevard, the cables would be installed several feet beneath the ocean floor by means of a jet plow to the site of the proposed electrode array, approximately two miles offshore. While this plowing operation would create some surface disturbance on the ocean floor, generating temporary turbidity and temporary impacts to benthic organisms residing in the sediments in the path of the plowing, these impacts were determined to be less than significant. However, as an alternative to avoid these impacts, it has been suggested by State agencies with jurisdiction in the Project's marine environment that rather than installing the cables by means of plowing, they be installed via directional drilling from shore to the site of the electrode array, which would place the cables generally below the benthic zone and avoid surface disturbances. If feasible, this alternative would meet all the Project objectives.

Long-distance direction drilling has been utilized for many years in the petroleum industry to drill to vertical depths and horizontal distances of several miles. This petroleum drilling process is conducted in a staged manner using successively smaller-diameter drill bits and well casing strings. This staged process is followed because it is generally not possible to drill for great depths or distances without progressively stabilizing the sidewalls of the well hole and providing a less obstructed pathway as drilling strings get continuously longer. Because this process occurs in stages, the successive strings of casing must be threaded through the previous string, creating a set of nested casing strings to reach the target drilling length. The nested casing may range in diameter from 20 inches for the outermost surface level casing down to less than five inches for the innermost terminal casing.

The casing strings are made up of sections of about 40 feet in length that are securely joined together by a threaded coupling. Because the casing is run into the well for great distances of up to several miles, it must be able to withstand the force of being pushed forward from the wellhead as each new section is added to the string. For that reason, the casing used in long-distance direction drilling is made of carbon steel and has a wall thickness of approximately 0.5 inch. In addition, the wells drilled in this process generally consist of vertical holes that transition to a horizontal plane only at depths of 1,000s of feet below the surface. This means that the vast majority of the drilling operation occurs in harder, more stable formations below the unconsolidated sediments that exist near the surface and are most susceptible to collapse. To maintain the stability of the well hole, the successive steel casing strings are also cemented in place as they are installed.

However, utilizing this directional drilling process to install casing from the Gladstone Vault to the proposed electrode array two miles offshore, and thereby avoid the installation of the marine cables via plowing, is infeasible for several reasons.

First, unlike the long-distance directional drilling associated with oil and gas wells, a similar drilling procedure for the proposed marine cable would occur essentially entirely in a horizontal plane. This would mean that the casing would need to be constantly pushed forward in a horizontal direction, requiring considerably more force than in a traditional oil or gas well drilling operation, which utilizes the vertical orientation of the well to set casing.

Second, long-distance directional drilling for the marine cables would be located in generally unconsolidated strata nearer the surface. Even though drilling mud (i.e., bentonite) would be used to facilitate the drilling and temporarily stabilize the hole, the side walls of the hole would be more susceptible to collapse prior to the setting of casing because of the unconsolidated nature of the material and the horizontal orientation of the hole.

Third, because the casing would need to be installed in many stages to maintain the stability of the hole throughout the drilling process, the final casing string may be too small of a diameter to accommodate the marine cables. As a basis of comparison, the production tubing in an oil or gas well that actually carries the product to the surface is usually no greater than a few inches in inside diameter.

Fourth, the cost of a long-distance horizontal drilling procedure as described above is likely to be orders of magnitude greater the proposed surface plowing procedure, especially considering potential difficulties related to maintaining stability in the drill hole.

Fifth and most critically in relation to the purpose of the proposed ground return system, the steel casing that would be required to achieve a long-distance directional drilling installation would represent a path of least resistance and act as a conductor for the electrical current discharged at the electrode array during an operation event of the SGRS. This would carry the current landward, which would be both potentially damaging to facilities and dangerous. This is why only non-metallic components would be used in the proposed marine cabling conduit and sheathing, thereby inducing the current discharged at the electrode array during an operational event to use the water and earth as a safe and effective return path.

For the above reasons, but in particular the operational conflicts posed by using the steel casing required in a long-distance horizontal drilling operation, this alternative is considered infeasible. Therefore, it has been dismissed from further consideration in the Draft EIR.

4.3.4 Resiting of the Electrode Array and/or Marine Cable Route

Under this alternative, the electrode array would remain a minimum of two miles offshore, consistent with the requirement to minimize the corrosive effects to underground infrastructure caused by operational events of the SGRS. However, the electrode array would be relocated to a different site within Santa Monica Bay and/or the route of the cable interconnecting the array to the Gladstone Vault would be modified to reduce any impacts associated with construction at the currently proposed Project site. Since this alternative would provide essentially the same facilities as the proposed Project, it would meet all the Project objectives.

As discussed in the Project Description (Chapter 2 of the Draft EIR), the proposed electrode array was sited in relation to the designated route for the proposed marine cable and to maintain an approximate two-mile offset from the shoreline. As discussed in Chapter 2, the general route of the cable was determined based on several factors, including the course established by the existing conduit that originates at the Gladstone Vault and the avoidance of rock outcroppings located offshore of the Gladstone Vault. Based on this general route for the cable installation, it has been determined that impacts to sensitive biological habitats (including rocky reefs and kelp forests) and sensitive cultural resources (including shipwrecks or other artifacts) could be avoided (see Chapter 3 of the Draft EIR). Both the cable and the electrode array as sited in the proposed Project would be located in sandy bottom areas, within which impacts from construction and operations would be less than significant. Relocating the electrode array to an alternative site within the bay would be technically feasible. However, it would not lessen any potential environmental impacts and, in relation to an onshore origination point at the Gladstone Vault and the avoidance of offshore rock outcroppings, it would lengthen the cable route compared to the proposed Project designated route.

Modifying the proposed cable route by relocating the onshore origination point from the Gladstone Vault to another site along the coast could allow for the relocation of the electrode array without necessarily lengthening the marine cable route beyond the two-mile offset from the shoreline. However, because any new route would be located within the same marine environment, it would not lessen any potential environmental impacts of the proposed Project, which, as mentioned above, would be located in sandy bottom areas that would not be significantly impacted by construction or operations. Furthermore, any relocation of the onshore origination point would require potentially substantial construction activity within Pacific Coast Highway to provide a connection to the Gladstone Vault, where the existing underground cables terminate. Depending on the exact nature and extent of these construction activities within the highway, significant impacts would likely result in relation to traffic, air quality, and noise. Therefore, although this alternative is feasible, it would not eliminate or reduce (and may increase) impacts that would be caused by the proposed Project.

4.4 Removal of Existing SGRS Marine Facility

Under this alternative, the proposed marine facility would be constructed as described in the Project Description (Chapter 2 of the Draft EIR). However, the existing marine facility would be entirely removed, rather than abandoned in place as is proposed under the Project. As discussed in Section 3.3 of the Draft EIR, the abandonment of the existing facility is not anticipated to result in any significant environmental effects. However, State agencies with jurisdiction in the Project's marine environment have requested that the removal of the existing facility be addressed in the Draft EIR. The removal of the facility would be feasible, and since the replacement marine facility would be the same as under the proposed Project, all the Project objectives would be met by this alternative.

As described in Chapter 2, the existing marine facility consists of an electrode array located about one mile offshore, south of the Gladstone Vault, and two buried submarine cables connecting the Gladstone Vault and the array. The array includes 24 concrete vaults, each seven feet wide, 11 feet long, and six feet high; the vaults are placed from about 10 to 23 feet apart. The total length of the electrode array, including the spacing between vaults, is approximately 550 feet. The vaults are located directly on the ocean floor, approximately 50 feet below mean sea level. Due to shifting sediments over the 45-year life of the facility, the burial depth of the cables along their entire length is not known, but portions are at least several feet under the ocean floor.

As described in Sections 3.3 and 3.8 of the Draft EIR, extensive surveys of the existing marine facility, including seawater chemistry, sediment chemistry, sediment toxicity, and benthic organisms indicated no negative effects related to the presence or operation of either the cables or the electrode vaults when compared to reference sites within Santa Monica Bay. Furthermore, the biological community associated with the vaults, in terms of the diversity and numbers of fish, invertebrates, and algae, is considered rich and is similar to conditions found at other natural and manmade reefs in the region.

The removal of the cables would require severing each of the cable runs in numerous locations to create smaller spans that could more readily be pulled from the sand by a vessel stationed on the surface. This pulling operation would disturb the sediment and create turbidity in the immediate area of the cables. While the impacts to benthic organisms and from turbidity in the water column from this activity would be temporary and less than significant, the impacts would be greater than if the cables were left in place, since, as mentioned above, there are no apparent detrimental effects related to the cables after 45 years of operations.

The removal of the vaults would be achieved by hoisting them with steel cables to a barge stationed at the surface. Similar to the cable removal, this would disturb the sediment and create turbidity in the immediate area of the vaults. This impact would also be temporary and less than significant. However, the removal of the vaults would permanently remove the hard substrate that supports the biological community that has developed on and around the vaults. It would also directly impact organisms that have established on the vaults. Given the richness of this biological community in terms of diversity and numbers and its relative rarity in Santa Monica Bay, this impact would be considered significant. Therefore, although this alternative is feasible and would meet the objectives of the proposed Project, it would not eliminate any impacts created by the proposed Project and would in fact result in significant impacts not created by the Project.

4.5 NO PROJECT

A discussion of a No Project Alternative is required under CEQA. Under this alternative, the proposed Project would not be implemented in any manner. The No Project Alternative is technically feasible since no action would be taken. The No Project Alternative would eliminate the impacts directly associated with implementation of the proposed Project since no construction activities would occur. However, it would not meet any of the objectives identified for the proposed Project related to increasing the reliability and stability of the power generation and delivery system for Southern California; continuing to meet current and projected demand for power; and helping increase the available share of renewable resource energy.

The No Project Alternative would effectively result in the removal of the PDCI transmission line from service as the existing electrode facility degrades and becomes unsafe or physically inoperable. As discussed in Chapter 2 of this Draft EIR, the PDCI's 3,100-MW capacity is shared among the PDCI partners, which, in addition to LADWP, include Southern California Edison (SCE), and the cities of Burbank, Glendale, and Pasadena. LADWP owns a 40 percent share or approximately 1,240 MW, SCE owns a 50 percent share or approximately 1,550 MW, and the other partners own the remaining ten percent share or approximately 310 MW of the PDCI capacity. Based on their allocation of the line's capacity, the PDCI provides approximately 20 percent of LADWP's peak demand for electrical energy, approximately 6.5 percent of SCE's peak demand, and a major portion of peak demand for the cities of Glendale, Burbank, and Pasadena.

The loss of the PDCI that would result from the No Project Alternative could not be, as discussed above, feasibly offset through the conservation of energy equal to the capacity of the line. The energy provided by the PDCI could not be replaced by other generation or transmission sources without substantial new construction or renovation of existing facilities, which would be counter to the concept of a No Project Alternative. Therefore, because the energy provided by the existing PDCI is essential to meet the demand for electricity in Southern California and ensure the reliability of the regional power generation and transmission system, the No Project Alternative is effectively infeasible, and it has been dismissed from further discussion in the Draft EIR.

TABLE 4-1 COMPARISON OF ALTERNATIVES

ALTERNATIVE	FEASIBILE	MEET PROJECT OBJECTIVES	AVOID OR LESSEN SIGNIFICANT ENVIRONMENTAL IMPACTS	RESULT IN IMPACTS NOT CREATED BY PROPOSED PROJECT
Energy Conservation	Technically infeasible	N/A due to infeasibility	N/A due to infeasibility	N/A due to infeasibility
Replacement of PDCI with AC Line	Economically infeasible	N/A due to infeasibility	N/A due to infeasibility	N/A due to infeasibility
Land-Based Electrode System	Economically infeasible	N/A due to infeasibility	N/A due to infeasibility	N/A due to infeasibility
Retrofit of Existing Electrode Array	Technically feasible but effectively infeasible due to consequences related to corrosive effects to underground infrastructure	N/A due to infeasibility	N/A due to infeasibility	N/A due to infeasibility
Long-Distance Horizontal Directional Drilling	Technically infeasible	N/A due to infeasibility	N/A due to infeasibility	N/A due to infeasibility
Resiting of the Electrode Array and/or Marine Cable Route	Feasible	Would meet all Project objectives	No	May lengthen the marine cable installation route may increase impacts related to landside cable installation
Removal of Existing SGRS Marine Facility	Feasible	Would meet all Project objectives	No	Would result in permanent significant impacts to marine habitat and biota supported by hard substrate provided by vaults
No Project	Technically feasible but effectively infeasible due to consequences to regional electrical energy generation and transmission system	N/A due to infeasibility	N/A due to infeasibility	N/A due to infeasibility

4.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In accordance with Section 15126.6(e)(2) of the CEQA Guidelines, an EIR shall identify an environmentally superior alternative among the alternatives, including the proposed Project. Among the alternatives considered, only Resiting of the Electrode Array and/or Marine Cable Route and Removing the Existing SGSR Marine Facility were deemed feasible. These alternatives would also meet all the proposed Project objectives. However, they would not eliminate or reduce impacts that would be caused by the proposed Project. Furthermore, Resiting the Electrode Array and/or Marine Cable Route may result in increased impacts related to longer marine and landside cable installations; Removing the Existing SGSR Marine Facility would result in increased permanent and significant impacts to marine habitat and biota. Therefore, the proposed Project is considered the environmentally superior alternative.

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CHAPTER 5: OTHER CEQA CONSIDERATIONS

5.1 SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROPOSED PROJECT

This section is prepared in accordance with Section 15126.2(b) of the California Environmental Quality Act (CEQA) Guidelines, which requires the discussion of any significant environmental effects that cannot be avoided if a project is implemented. These include impacts that can be mitigated, but cannot be reduced to a less than significant level. An analysis of environmental impacts caused by the proposed Project has been conducted and is contained in Chapter 3 of this Draft Environmental Impact Report (EIR). According to the environmental impact analysis, the proposed Project would result in temporary but nonetheless significant and unavoidable adverse impacts during construction related to biological resources and air quality. Impacts to biological resources involving potential collisions with marine mammals and sea turtles during Project construction would be mitigated to a less than significant level with the implementation of mitigation measures. However, maximum daily air pollutant emissions of reactive organic gasses (ROG) and nitrogen oxides (NOx) would remain significant during construction even after mitigation. Impacts would be above the regional significance thresholds during cable laying activities and during electrode array installation due to emissions from marine vessels. Impacts associated with construction activities would therefore result in significant, but temporary, impacts on air quality. Please refer to Chapter 3, Section 3.2 (Air Quality) for a detailed discussion. No permanent significant impacts to air quality would result from Project operation.

5.2 GROWTH INDUCING IMPACTS

CEQA defines growth-inducing impacts as those impacts of a proposed project that “could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this definition are projects which would remove obstacles to population growth” (CEQA Guidelines Section 15126.2(d)).

The proposed Project would increase the reliability and stability of the power generation and delivery system for Southern California; continue to meet current and projected demand for power; and help to increase the available share of renewable resource energy. The Project would involve replacement of the marine facility of the existing Sylmar Ground Return System, which is a component of the existing Pacific Direct Current Intertie transmission line. Replacing components of an existing system would not provide additional energy sources or energy transmission. The construction of the Project would not induce population growth in the area because it would not provide additional electrical supply to the region. The proposed Project would not require the hiring of additional personnel to operate the new system. The Project construction workers would be hired primarily from the existing labor pool in Southern California; therefore, a significant number of new workers, new services, infrastructure, or housing would not occur relative to Project construction and operation. No significant growth-inducing impacts would result from the proposed Project.

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CHAPTER 6: COORDINATION AND CONSULTATION

6.1 INTRODUCTION

This chapter presents the City of Los Angeles Department of Water and Power's (LADWP's) public and agency involvement and outreach activities related to the California Environmental Quality Act (CEQA) requirements for public scoping and agency consultation and coordination for the Sylmar Ground Return System (SGRS) Replacement Project (Project or proposed Project). CEQA Guidelines Section 15129 states that an "EIR [Environmental Impact Report] shall identify all federal, state, or local agencies, other organizations, and private individuals consulted in preparing the draft EIR." LADWP is the Lead Agency under CEQA for the proposed Project.

Consistent with CEQA, public participation and agency consultation for this Project have been accomplished through issuance of public notices, public scoping meetings, outreach, and consultation with agencies, stakeholders, landowners, and Native American tribal representatives. This process helped to identify issues of concern, determine the scope of the Draft EIR analyses, and identify a range of alternatives.

As discussed above, the SGRS Replacement Project was considered in a previous Draft EIR that was released in 2014. Written comments on the previous Draft EIR were received from a number of agencies, organizations, and individuals during the review period. However, a Final EIR, which would have included formal written responses to the comments received as well as other necessary information, was never produced, and the EIR was not considered for certification by the City of Los Angeles Board of Water and Power Commissioners (LADWP Board or Board). Instead, LADWP reevaluated the Project based on more detailed studies that would have been conducted during the normal course of Project design after Board approval. Based on this reevaluation, the Project was modified in a substantial manner such that this current revised Draft EIR has been prepared by LADWP to consider the potential impacts of the modified Project. The revised Draft EIR was developed with consideration of applicable comments received on the previous Draft EIR and additional outreach conducted during its development and review. The revised Draft EIR is being recirculated to provide a meaningful opportunity for public and agency review and comment on the modified Project.

6.2 SUMMARY OF OUTREACH

LADWP has engaged in public and agency outreach throughout the development of the EIR. Agencies, the public, Native American tribes, and other interested parties were invited to participate in the environmental review process at multiple junctures. The following sections summarize the outreach process.

6.2.1 Notice of Preparation and Scoping

Release of Notice of Preparation and Initial Study

Scoping is the process for determining the scope of issues to be addressed in the Draft EIR. In compliance with CEQA Guidelines Section 15082, a Notice of Preparation (NOP) of an EIR was prepared that described the proposed Project and location, environmental review process, potential environmental impacts, and contact information. The NOP was published in the Los Angeles Times on September 23, 2010. On September 24, 2010, the NOP (SCH No. 2010091044) was filed with the Governor's Office of Planning and Research State Clearinghouse; the scoping review period started on September 24, 2010, and ended on October 25, 2010. In addition, a copy of the NOP was distributed via United States Postal Service to 343 individuals in the vicinity of the Project site. A copy of the NOP was distributed via certified U.S. mail to:

- 50 agencies (city, county, State, and federal)
- 5 elected officials
- 5 community organizations
- 6 businesses
- 9 libraries
- 15 schools

Scoping and Public Meetings

Public meetings were conducted on the dates and locations listed in Table 6-1. The purpose of the meetings was to inform the public about the Project; describe its purpose and need; provide information regarding the environmental review process; and gather input regarding the content of the Draft EIR.

TABLE 6-1 PUBLIC MEETING LOCATIONS

MEETING	LOCATION	DATE
Porter Ranch Neighborhood Council	19700 Rinaldi Street Porter Ranch, CA 91326	September 7, 2010
Brentwood Community Council Meeting	11820 San Vicente Boulevard Los Angeles, CA 90049	September 7, 2010
Granada Hills South Neighborhood Council Meeting	11128 Balboa Boulevard Granada Hills, CA 91344	September 9, 2010
Sylmar Neighborhood Council - Public Services Committee Meeting	13109 Borden Avenue Sylmar, CA 91342	September 14, 2010
Northridge West Neighborhood Council Meeting	19130 Tulsa Street Northridge, CA 91326	September 14, 2010
North Hills West Neighborhood Council Meeting	15725 Parthenia Street Los Angeles, CA 91343	September 15, 2010
Northridge East Neighborhood Council Meeting	9601 Zelzah Avenue Northridge, CA 91330	September 15, 2010
Reseda Neighborhood Council Meeting	7338 Canby Street Reseda, CA 91335	September 20, 2010
Tarzana Neighborhood Council Meeting	18321 Clark Street Tarzana, CA 91356	September 28, 2010
Pacific Palisades Chamber of Commerce	15330 Antioch Street Pacific Palisades, CA 90272	October 1, 2010
Chatsworth Neighborhood Council Meeting	10100 Variel Avenue Chatsworth, CA 91311	October 6, 2010
Old Granada Hills Residents' Group Meeting	10535 Zelzah Avenue Granada Hills, CA 91344	October 7, 2010
Brentwood Homeowners Association Meeting	Brentwood School (East Campus) 100 South Barrington Place Los Angeles, CA 90049	October 12, 2010
Pacific Palisades Community Council Meeting	Palisades Branch Library 861 Alma Real Drive Pacific Palisades, CA 90272	October 14, 2010
City of Santa Monica Public Meeting	Montana Avenue Branch 1704 Montana Ave Santa Monica, CA 90403	October 25, 2010

An additional scoping meeting was hosted by LADWP during the scoping review period on October 14, 2010, at the LADWP headquarters building in Los Angeles. Invitations were mailed in advance to jurisdictional agencies and agencies believed to have an interest in the Project; no invitees attended this meeting.

The public was also encouraged to comment by email, phone, or U.S. mail by October 25, 2010. The following contact information was listed on the NOP:

Email: SylmarGroundReturnProject@ladwp.com
Call: (213) 367-4710
Mail to: Los Angeles Department of Water and Power
111 North Hope Street, Room 1044
Los Angeles, CA 90012

AGENCY AND ELECTED OFFICIAL CONTACTS

In compliance with CEQA Guidelines Section 15129, Table 6-2 below identifies federal, state, or local agencies, or other organizations contacted during the preparation of the previous Draft EIR.

TABLE 6-2 AGENCY CONTACT SUMMARY

AGENCY	CONTACT
Federal	
U.S. Army Corps of Engineers	Dan Swenson
National Marine Fishery Services	Bryant Chesney
State	
California Department of Parks and Recreation	Craig Sap, Suzanne Goode, Kathyrn Tobias, David Wrightsman, Barbara Tejada, Tom Dore
California Coastal Commission	Allison Dettmer
State Lands Commission	Drew Simpkin, Grace Kato, Donn Oetzel
Local	
Los Angeles County Department of Beaches and Beaches	John Kelly
City of Santa Monica	Mark Cuneo, Greg DeVincu, Lee Swain, Terese Toomey, Bill Foley
PCH (Pacific Coast Highway) Partners	Various

Additionally, prior and subsequent to the public scoping period, LADWP met with numerous City of Los Angeles, County of Los Angeles, and State elected representatives and/or staff within whose district the Project was potentially sited. These included:

Los Angeles City Council District 3:
Octaviano Rios, Field Deputy
Cara Goldman, District Director

Los Angeles City Council District 11:
Councilmember Bill Rosendahl
Laura McLennan , Deputy Chief of Staff
Norman Kulla, Northern District and Senior Counsel
Jessyca R. Avalos. Field Deputy

Los Angeles City Council District 12:
Megan Cottier, Field Deputy
Sandy Clydesdale, District Director

County Supervisor District 3
Maria Chong-Castillo, Deputy

CA State 41st Assembly District
Timothy B. Lipppman, Senior Assistant

CA State Senate District 23
Kara Seward, Deputy District Director

Native American Coordination

In relation to the previous Draft EIR, The Native American Heritage Commission (NAHC) was contacted on three occasions to perform a Sacred Lands File search in the NAHC Sacred Lands File Inventory, established by the Legislature pursuant to Public Resources Code 5097.94(a). The various contacts were made in relation to changes in the Project scope, as outlined below. The NAHC was also sent a copy of the NOP. Responses from NAHC were received on September 7, 2009; July 8, 2010; and September 20, 2010. The responses included lists of tribal representatives who may have knowledge of the religious and cultural significance of the historic properties in the Project area (e.g., areas of potential effect), with the recommendation that the representatives be contacted.

A first round of letters was sent on September 8, 2009, to the contacts below asking for additional knowledge or concerns relative to cultural resources for the proposed Project. These letters described a Project that, at the time, included only the replacement of the cables of the overhead portion of the existing SGRS.

- Mr. Ron Andrade, LA City/County Native American Indian Community, Director
- Mr. Charles Cook, Chumash, Fernandeño, Tataviam, Kitanemuk
- Ms. Beverly Salazar Folkes, Chumash, Tataviam, Fernandeño Mr. John Valenzuela, San Fernando Band of Mission Indians, Tribal Administrator
- Mr. William Gonzales, Fernandeño Tataviam Band of Mission Indians, Cultural/Environmental Department
- Mr. Randy Guzman-Folkes, Chumash, Fernandeño, Tataviam, Shoshone Paiute, Yaqui
- Mr. John Tommy Rosas, Tongva Ancestral Territorial Tribal Nation, Tribal Administrator

A second round of letters was sent on August 2, 2010, to the contacts below asking for additional knowledge or concerns relative to cultural resources for the proposed Project. These letters described a Project that, at the time, included the overhead cable replacement and three alternative alignments to replace the existing underground portion of the SGRS.

- Ms. Cindi Alvitre, Ti'At Society
- Mr. Ron Andrade, LA City/County Native American Indian Community, Director
- Mr. Charles Cook, Chumash, Fernandeño, Tataviam, Kitanemuk
- Ms. Delia Dominguez, Kitanemuk and Yowlumne Tejon Indians
- Ms. Beverly Salazar Folkes, Chumash, Tataviam, Fernandeño
- Mr. William Gonzales, Fernandeño Tataviam Band of Mission Indians, Cultural/Environmental Department
- Mr. Randy Guzman-Folkes, Chumash, Fernandeño, Tataviam, Shoshone Paiute, Yaqui
- Mr. John Valenzuela, San Fernando Band of Mission Indians, Tribal Administrator

A third round of letters was sent on October 15, 2010, to the contacts below:

- Mr. Bernie Acuna, Gabrielino-Tongva Tribe
- Ms. Cindi Alvitre, Ti'At Society
- Ms. Linda Candelaria, Gabrielino-Tongva Tribe, Chairwoman
- Mr. Robert Dorame, Gabrielino Tongva Indians of California Tribal Council, Tribal Chair/Cultural Resources
- Mr. Sam Dunlap, Gabrielino/Tongva Nation, Chairperson
- Mr. Anthony Morales, Gabrielino/Tongva Tribal Council, Chairperson
- Mr. Freddie Romero, Santa Ynez Tribal Elders Council, Cultural Preservation Consultant
- Mr. John Tommy Rosas, Tongva Ancestral Territorial Tribal Nation, Tribal Administrator
- Mr. Andy Salas, Shoshonean Gabrielino Band of Mission Indians, Chairperson

A total of four responses were received from three individuals, as shown in Table 6-4 below.

TABLE 6-4 NATIVE AMERICAN SCOPING COMMENTS FROM PREVIOUS DRAFT EIR SCOPING

INDIVIDUAL	DATE RECEIVED	COMMENT SUMMARY
Mr. John Tommy Rosas, Tribal Administrator Tongva Ancestral Territorial Tribal Nation	9/11/2009	Stated that the CEQA document would be reviewed.
Mr. John Tommy Rosas, Tribal Administrator Tongva Ancestral Territorial Tribal Nation	10/18/2010	Stated that the Project would negatively affect sacred sites and that he officially objects to the Project.
Mr. Freddie Romero, Cultural Preservation Consultant, Santa Ynez Band of Chumash Indians Tribal Elders Council	10/29/2013	Stated no issues with the Project in terms of impacts to cultural resources and would have no further comments.
Mr. Andy Salas, Chairman, Shoshonean Gabrielino Band of Mission Indians	11/26/2010	Stated that the proposed Project is within one of the tribes' villages and is in a highly culturally sensitive area. In order to protect resources, requested one of their experienced and certified Native American monitors be retained to observe all ground disturbances related to the Project.

Scoping Comments Summary

A total of 424 comments were received during the scoping period from September 24, 2010, to October 25, 2010. The comments came from various sources, as summarized in Table 6-5, and were regarding various topics, as summarized below.

TABLE 6-5 SOURCE OF SCOPING COMMENTS

NUMBER OF COMMENTS	SOURCE OF COMMENT
407	Individuals
13	Agencies
	California Department of Fish and Wildlife (Trustee Agency)
	California Department of Parks and Recreation
	California Department of Transportation
	California State Lands Commission (Trustee and Responsible Agency)
	Brentwood Community Council
	Los Angeles City Council - 12th District
	Los Angeles Unified School District
	Metropolitan Transportation Authority
	Native American Heritage Commission (Trustee Agency)
	Pacific Palisades Community Council
	Santa Monica Mountains Conservancy
	South Coast Air Quality Management District
	U.S. Army Corps of Engineers
3	Organizations
	Brentwood Homeowners Association
	Topanga Canyon Docents
	Temescal Canyon Association

Aesthetics and Visual Resources

Comments on aesthetics and visual resources focused on the overhead and underground portions of the Project, which are no longer part of the current Project scope. Multiple comments were received regarding the Topanga State Park Alignment and the visual impacts it would cause in the park. Comments were also received supporting the undergrounding of all existing overhead wires leading to the Kenter Canyon Terminal Tower as well as undergrounding as many other existing overhead lines (whether part of the SGRS or not) as possible to reduce aesthetic impacts.

Air Quality

The South Coast Air Quality Management District (SCAQMD) recommended the identification of potentially adverse air quality impacts from all phases of the Project, as well as the preparation of a mobile health risk assessment. SCAQMD also stated that any significant adverse air quality impacts would require implementation of all feasible mitigation measures.

In addition, numerous members of the Brentwood community were concerned about the air pollution the Project construction would generate.

Alternatives

Comments on alternatives focused on the overhead and underground portions of the Project, which are no longer part of the current Project scope. Support for and opposition to various proposed alignments for the overhead and underground alignments were expressed. The Los Angeles Unified School District (LAUSD), and several other residents, wanted an alternative that would remove the above ground electrical transmission lines (not a part of the SGRS) near Kenter Elementary School. The California Department of Fish and Wildlife requested that a range of alternatives be analyzed to ensure that alternatives to the proposed Project are fully considered and evaluated.

Biological Resources

The California Department of Fish and Wildlife commented that a complete assessment of flora and fauna within and adjacent to the Project area would be required, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats; direct, indirect, and cumulative impacts expected to adversely affect biological resources; an examination of potential mitigation measures; and required permits.

Cultural Resources

According to the NAHC, cultural resources were identified within one-half mile of the Topanga State Park Alignment for the underground replacement portion of the Project, which is no longer part of the current Project scope. Consultation with interested Native American tribes, as required by law, was strongly encouraged.

Hazards and Fire

Comments on hazards and fire focused on the overhead and underground portions of the Project, which are no longer part of the current Project scope. The Brentwood Community Council expressed concern with health impacts of overhead electric lines. LAUSD commented that there could be larger electromagnetic field strengths from new aboveground power lines located adjacent to Kenter Elementary School and requested the preparation of an analysis of electric and magnetic field (EMF) exposure. Residents commented on the potential fire hazard in the Kenter Canyon area.

Land Use

The California State Lands Commission commented that they should be consulted in regards to construction activities and permitting requirements.

Noise

Brentwood residents expressed concern regarding the level of noise that would be generated during the construction of underground replacement portion of the proposed Project, which is no longer part of the current Project scope.

Transportation and Traffic

Comments on traffic and transportation focused on the overhead and underground portions of the Project, which are no longer part of the current Project scope. Residents expressed concerns regarding Project-related traffic impacts that would result from road closures during construction. The California Department of Transportation (Caltrans) recommended that LADWP provide a construction management plan and a cooperative agreement; Project coordination with Caltrans and the California Highway Patrol; and the limitation of construction truck trips to off-peak hours. The Metropolitan Transportation Authority would require a Traffic Impact Analysis and an analysis of development-related impacts to transit. The Los Angeles City Councilperson from the 12th District suggested providing an off-street bicycle path beginning in Sylmar and ending at Mulholland Drive along the main overhead alignment, which is no longer part of the Project scope.

Water Resources

The California Department of Fish and Wildlife expressed concern related to construction effects on watercourses, or canalization or conversion of natural or human-made drainages. Also, the U.S. Army Corps of Engineers commented that a permit for the discharge of dredged or fill material in waters or wetlands of the U.S. may be required, pursuant to the Clean Water Act.

6.2.2 Previous Draft EIR

Release of Notice of Availability and Previous Draft EIR

As mentioned above, the proposed Project was previously considered in a Draft EIR, that was released by LADWP for public review on May 15, 2014. A Notice of Completion was filed with the State Clearinghouse when the previous Draft EIR was published. A Notice of Availability (NOA) of the Draft EIR was also prepared and distributed the agencies, elected officials, Native American tribes, and interested individuals and organizations. The initial closing date for receipt of comments regarding the analysis and findings in the Draft EIR was June 30, 2014 (47 days of review, consistent with the CEQA Guidelines). During this period, additional outreach was conducted at the Pacific Palisades Community Council to inform the public about the Project. Subsequent to the release of the Draft EIR, the public review period was extended to September 2, 2014 (an additional 64 days), at the request of certain State agencies, the Los Angeles City Council district within which portions of the proposed Project would be located, and members of the public. Written comments on the Draft EIR were received from a number of agencies, organizations, and individuals during the review period.

This previous Draft EIR considered the replacement of the underground portion and marine facility of the existing SGRS. Since the release of the previous Draft EIR, LADWP has reevaluated the Project based on more detailed studies. Based on this reevaluation, the Project was modified (including the elimination or the underground replacement and a relocation and reduction in size of the replacement marine facility) such that this revised Draft EIR has been prepared for the modified Project. Comments received during the review of the previous Draft EIR, although part of the administrative record, do not, in accordance with CEQA, require a formal written response, and new comments must be submitted for this revised Draft EIR. However, the comments received on the previous Draft EIR were taken into account in the development of the modified Project and the analysis of its potential environmental impacts, as reflected in this revised Draft EIR.

Previous Draft EIR Comment Summary

During the public review period for the previous Draft EIR, numerous comments were received from agencies and members of the public regarding the analysis and findings in relation to the potential environmental impacts of the Project. Among the comments from several State agencies with jurisdiction in the marine and/or coastal environment was that there was a lack of substantial evidence (or an insufficient expression of substantial evidence) in the Draft EIR to support the conclusions of a less than significant environmental impact to the marine environment.

In addition, the agencies expressed the opinion that the Draft EIR did not adequately explore alternatives to the marine facility of the SGRS that would reduce the footprint of the facility, especially since the only alternative presented was tied to landside alternatives that established the same point of origin for the marine cable segment (i.e., Pacific Coast Highway [PCH] and West Channel Road/Chautauqua Boulevard). Suggested alternatives included an exploration of options for the electrode array location, altering the length and route of the buried marine cables by considering alternative origination points, considering routes that did not pass between the existing reefs offshore of Pacific Palisades, and the possibility of refurbishing or retrofitting the existing SGRS marine facility. In comparison to the proposed Project, the agencies expressed a general preference for a shorter, more direct cable route that would originate at PCH and Sunset Boulevard rather than at PCH and West Channel Road/Chautauqua Boulevard.

The agencies also indicated that there was insufficient analysis associated with the decommissioning of the existing SGRS marine facility (including a clear recommendation regarding the approach to abandonment in place and/or removal of facility components) to make a valid determination about potential environmental impacts related to the decommissioning.

Most of the comments relative to the replacement of the landside underground segment cables were in relation to the impacts of construction activity that would be experienced in Santa Monica Canyon, either along Entrada Drive/West Channel Road or Chautauqua Boulevard. These comments focused primarily on the impacts to traffic from lane closures along two-lane residential streets that already experience significant traffic constraints, which have been and will continue to be exacerbated by other roadway construction projects in the vicinity. Suggested alternatives to reduce these impacts were avoidance of Santa Monica Canyon by routing the cables along Sunset Boulevard to Temescal Canyon Road (approximately one mile west of Santa Monica Canyon) or to consider the construction of a new entirely land-based electrode system that could be sited remotely from urban areas, thereby avoiding the direct construction-related impacts associated with the underground segment of the Project as described in the previous Draft EIR.

6.2.3 Current Revised Draft EIR

Recirculation of Draft EIR

This Draft EIR is being recirculated to provide a meaningful opportunity for public and agency review and comment on the modified proposed Project. The current revised Draft EIR was developed with consideration of applicable comments received on the previous Draft EIR as well as additional outreach conducted during its development as described below.

Agency Contacts

After the release of the previous Draft EIR, LADWP engaged in additional coordination with local, state, and federal agencies to address concerns raised during the review of the previous Draft EIR. These contacts included:

PCH Partners and Taskforce Meetings:
  Participants include local agencies, Caltrans, LA City Council District 11 staff, and the public

Environmental Section, Bureau of Engineering, Public Works, City of Los Angeles:
  Regarding Local Coastal Development Permit

California Coastal Commission:
  Joseph Street

California Department of Fish and Wildlife:
  Loni Adams
  Vicki Fry
  William Panzokas

California State Lands Commission:
  Jennifer DeLeon
  Lauren Burnadett
  Afifa Awan
  Drew Simpkin
  Eric Gilles

U.S. Army Corps of Engineers:
  Bonnie Rogers
  Dan Swensen

Native American Coordination

In relation to this current revised Draft EIR, The NAHC was again contacted to perform a Sacred Lands File search since the extent of the proposed Project has changed substantially and all landside portions of the Project (i.e., the overhead and underground portions) had been eliminated. A response with tribal contact lists was received on April 21, 2015.

Letters were sent by certified mail dated June 12, 2015, to the contacts below asking for additional knowledge or concerns relative to cultural resources for the proposed Project as reflected in the revised Draft EIR:

- Mr. Bernie Acuna, Gabrielino-Tongva Tribe, Co-Chairperson
- Mr. Conrad Acuna, Gabrielino-Tongva Tribe
- Ms. Linda Candelaria, Gabrielino-Tongva Tribe, Co-Chairperson
- Mr. Robert Dorame, Gabrielino Tongva Indians of California Tribal Council, Tribal Chair/Cultural Resources
- Mr. Sam Dunlap, Gabrielino/Tongva Nation, Cultural Resources Director
- Ms. Sandonne Goad, Gabrielino/Tongva Tribal Council, Chairperson
- Mr. Anthony Morales, Gabrielino/Tongva Tribal Council, Chairperson
- Mr. John Tommy Rosas, Tongva Ancestral Territorial Tribal Nation, Tribal Administrator
- Mr. Andrew Salas, Shoshonean Gabrielino Band of Mission Indians, Chairperson

Two responses were received from two individuals, as shown in Table 6-8 below.

TABLE 6-8 NATIVE AMERICAN SCOPING COMMENTS FROM REVISED DRAFT EIR SCOPING

INDIVIDUAL	DATE RECEIVED	COMMENT SUMMARY
Mr. John Tommy Rosas, Tribal Administrator Tongva Ancestral Territorial Tribal Nation	6/29/2015	Requested acknowledgement of tribal ocean and sea rights under United Nations declaration and State of California resolution. Stated belief that project requires tribal consultation per Section 106 NHPA .
Mr. Robert Dorame, Gabrielino Tongva Indians of California Tribal Council, Tribal Chair/Cultural Resources	6/29/2015	There may be sensitive Native American resources in the area of the Project; however, based on the scope of work, the Project does not impact these resources.

6.3 PUBLIC REVIEW OF DRAFT EIR

6.3.1 Notice of Completion

Per CEQA Guidelines Section 15085, the Notice of Completion is a document that must be filed with the State Clearinghouse when the Draft EIR is published. The CEQA Lead Agency shall also provide the public an NOA of the Draft EIR (CEQA Guidelines Section 15087). The NOA should include details for any scheduled public meetings or hearings; a list of significant environmental effects; and whether the Project site is listed under Section 65962.5 of the Government Code (hazardous waste facilities). Pursuant to CEQA Guidelines Section 15105, the public review period for a Draft EIR submitted to the State Clearinghouse shall be no less than 45 days nor should it be longer than 60 days except under unusual circumstances.

6.3.2 Public Review

In accordance with CEQA requirements, this Draft EIR will be circulated for public and agency review and comment for a 45-day period.

Written comments received during the comment period associated with circulation of this Draft EIR will be addressed in the Final EIR. Comments will be accepted by email at SylmarGroundReturnProject@ladwp.com, and by writing to:

Sylmar Ground Return System Replacement Project
Los Angeles Department of Water and Power
Attn: Nancy Chung, Environmental Project Manager
111 North Hope Street, Room 1044
Los Angeles, CA 90012

6.3.3 Draft EIR Notification

An NOA of this Draft EIR was mailed to the agencies, elected officials, Native American tribes, and other interested individuals and organizations on the Project mailing list. The NOA was also published in the Los Angeles Times.

6.3.4 Document Repository Sites

CEQA documents prepared as part of the proposed Project, including this Draft EIR and appendices, are available at the public repository sites listed in Table 6-9 and online (www.ladwp.com/envnotices).

TABLE 6-9 DOCUMENT REPOSITORY SITES

REPOSITORY SITE	ADDRESS
Los Angeles Department of Water and Power	111 North Hope Street, Room 1044 Los Angeles, CA 90012
Palisades Branch Library	861 Alma Real Drive Pacific Palisades, CA 90272

6.4 ADDITIONAL STEPS IN THE ENVIRONMENTAL REVIEW

Following consideration of the comments received during this Draft EIR comment period, a Final EIR will be prepared and circulated per CEQA requirements. The Final EIR will include formal responses to all comments received on this Draft EIR related to the adequacy of the EIR analysis.

6.5 LIST OF PREPARERS

A list of persons responsible for the preparation of various sections of the Draft EIR or preparation of significant background materials, or who participated to a significant degree in preparing the Draft EIR, is presented below in Table 6-10.

TABLE 6-10 LIST OF PREPARERS

NAME	PARTICIPATION
LADWP (Lead Agency)	
Charles Holloway	Manager of Environmental Planning and Assessment
Nancy Chung	Environmental Project Manager
Nadia Parker	Previous Environmental Project Manager
POWER Engineers, Inc.	
Court Morgan	Project Manager
Sarah Perez	Project Coordinator, Technical Writing
Kim Quinn	Environmental Planner
David Barrackman	GIS, Graphics
Heidi Horner	Technical Editing
Fenner Associates	
Jeff Fenner	Senior Planner, Technical Writing
Scientific Resources Associated	
Valorie Thompson	Air Quality and Greenhouse Gas Emission
Terry Hayes and Associates	
Sam Silverman	Noise
Burns & McDonnell	
Matt Wartian	Marine Resources
Steve Gruber	Marine Resources

CHAPTER 7: ACRONYMS

AB	Assembly Bill
AC	alternating current
AQMP	Air Quality Management Plan
ASTM	American Society for Testing and Materials
AWOIS	Automated Wrecks and Obstructions Information System
BACM	best available control measures
BMPs	Best Management Practices
Board	City of Los Angeles Board of Water and Power Commissioners
BRI	benthic response index
BRP	Bay Restoration Plan
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimation Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CHRIS	California Historical Resource Information System
CMP	Los Angeles County Congestion Management Program
CO	are carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent
Coastal Act	California Coastal Act
COP	California Ocean Plan
CVC	California Vehicle Code
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibel
dBA	decibel A-weighted scale
dBht (species)	decibel hearing threshold (species)
DC	direct current
DDT	dichlorodiphenyltrichloroethane
Districts	Commercial Fishing Districts
DO	dissolved oxygen
DPR	California Department of Parks and Recreation
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EMF	electric and magnetic field
ENC	Electronic Navigational Charts
ER-L	Effects Range-Low
ER-M	Effects Range-Median
ESA	Endangered Species Act
FTA	Federal Transit Administration

Fugro	Fugro Consultants, Inc.
G	Gauss
GHGs	Greenhouse gases
HAPC	Habitat Areas of Particular Concern
HDD	horizontal directional drilling
HDPE	high-density polyethylene
HFCs	hydrofluorocarbons
HFE	hydrofluorinated ethers
ht	hearing threshold
HVDC	High Voltage Direct Current
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEC	International Electrochemical Commission
IPCC	Intergovernmental Panel on Climate Change
IPP	Intermountain Power Project
kV	kilovolts
kW	kilowatt
LADWP	Los Angeles Department of Water and Power
LADWP Board	City of Los Angeles Board of Water and Power Commissioners
LAMC	Los Angeles Municipal Code
LAUSD	Los Angeles Unified School District
lbs/day	pounds per day
Leq	equivalent noise level
LOS	Level of Service
LST	Localized Significance Threshold
MBC	Marine Biological Consultants
Metro	Los Angeles Metropolitan Transportation Authority
mg/L	milligram per Liter
mg/m^3	milligrams per cubic meter
MLPA	Marine Life Protection Act
MMPA	Marine Mammal Protection Act
MMRP	Mitigation Monitoring and Reporting Program
MMT	Million metric tons
MPA	Marine Protected Area
MSA	Metropolitan Statistical Area
MT/yr	metric tons per year
MW	megawatts
N_2O	nitrous oxide
NA	data not available
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NF_3	nitrogen trifluoride
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOP	Notice of Preparation
NOx	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
nV/m	1 nanovolt per meter
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment

OPR	Office of Planning and Research
PAHs	polycyclic aromatic hydrocarbon
Pb	lead
PCB	polychlorinated biphenyls
PCH	Pacific Coast Highway
PDCI	Pacific Direct Current Intertie
PFCs	perfluorocarbons
pH	hydrogen ion concentration
PM_{10}	suspended particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	fine particulate matter less than or equal to 2.5 microns in diameter
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
Project	Sylmar Ground Return System Replacement Project (proposed Project)
RCG complex	rockfish, cabezon, and greenlings
RMS	root mean square
ROG	reactive organic gases
ROV	remotely operated vehicle
SB	Senate Bill
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCCWRP	Southern California Coastal Water Research Project
SCE	Southern California Edison
SCH	State Clearinghouse
SF_6	sulfur hexafluoride
SGRS	Sylmar Ground Return System
SIP	State Implementation Plan
SMAR	Santa Monica Artificial Reef
SMBAR	Santa Monica Bay Artificial Reef
SMBRC	Santa Monica Bay Restoration Commission
SO_2	sulfur dioxide
Sunset	Sunset Boulevard
TACs	Toxic air contaminants
TAR	Topanga Artificial Reef
TMDLs	total maximum daily loads
$\mu g/m^3$	micrograms per cubic meter
U.S.C.	United States Code
USCG	United States Coast Guard
USDOI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
V/C	volume to capacity
V/m	volts per meter
VdB	Decibel notation
WRCC	Western Regional Climate Center
WWTPs	wastewater treatment plants

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CHAPTER 8: REFERENCES

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