3.3.6 Geology and Soils

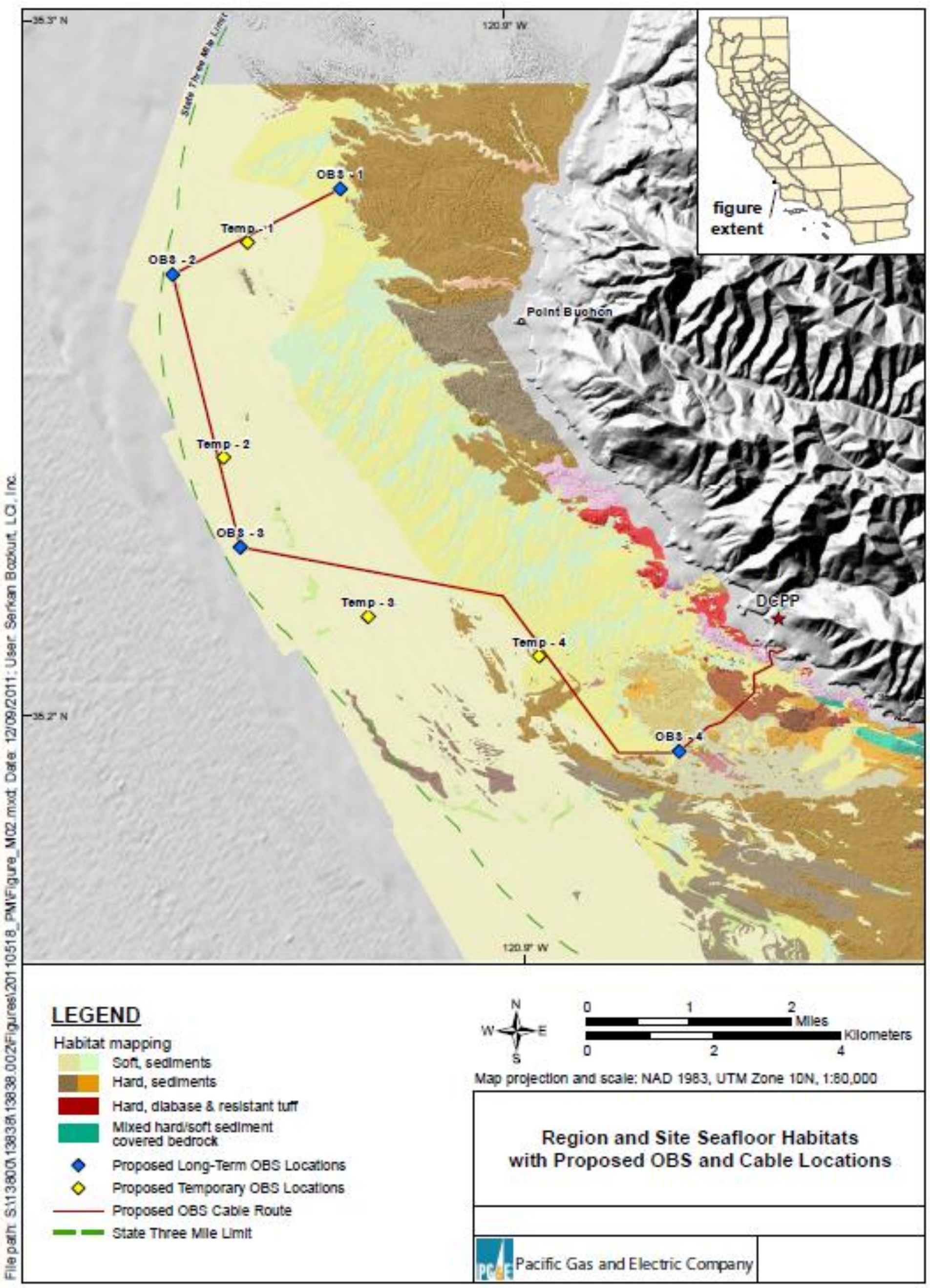
VI. GEOLOGY AND SOILS: Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

3.3.6.1 Environmental Setting

Region and Site Marine Geology. The onset of glaciation during the Pleistocene Epoch caused several major oscillations in the sea level of more than 91 m (300 ft), as the polar ice caps formed and subsequently receded. The last major regression occurred about 17,000 years ago, and global sea levels dropped approximately 122 m (400 ft) (Fillon et al. 2004). Thus, sediments on the seafloor of the present-day continental shelf were exposed for several thousand years. Migrating rivers eroded sizeable channels when sea-level regressions exposed portions of the present seafloor. Sediments on the inner continental shelf in the Project area are consistent with recent deposition under turbulent, shallow water conditions. Sediments farther offshore consist of silty clays that settled out of suspension.

Substrate and habitat descriptions are provided here for the proposed 30 m- (100 ft-) wide corridor for the cable designed to connect the four proposed long-term OBS units on the seafloor offshore of DCPP with a land-based signal receiving station located in the DCPP intake cove (see Figure 3.3.4-3). The geologic descriptions are based on interpretive geologic maps constructed for PG&E from multibeam echosounder bathymetry and backscatter data collected offshore of DCPP.

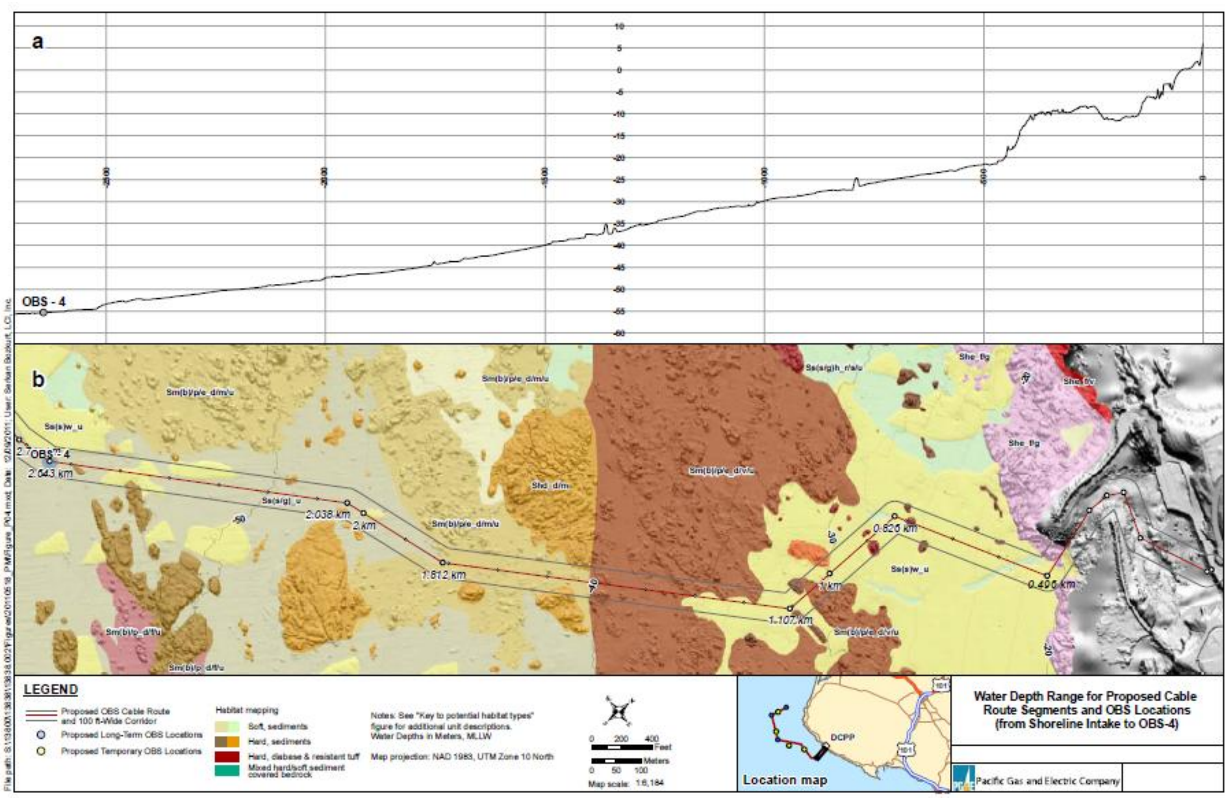
Figure 3.3.6-1. Region and Site Seafloor Habitats with Proposed OBS and Cable Locations



The corridor described here is an 18.3 km- (11.4 mi-) long, four-segment route that extends from the receiving station to OBS-1 (see Figure 3.3.6-1). Segment 1 runs from the receiving station to OBS-4, Segment 2 from OBS-4 to OBS-3, Segment 3 from OBS-3 to OBS-2, and Segment 4 from OBS-2 to OBS-1 (see Figures 3.3.6-2 through 3.3.6-5). Two of the cable segments are sinuous, with Segment 1 having four bends (route direction changes) and five separate tangents and Segment 2 having three bends with four separate tangents. Segments 3 and 4 are straight without bends, and so not broken down into tangents. In Figures 3.3.6-2 through -6, each tenth of a kilometer along the cable is shown depicted as a small, filled circle to facilitate location and description of seafloor habitats. Each bend, OBS site, even-numbered kilometer mark (KM) or position of a particular feature of interest, too is shown as a large, filled circle and labeled with the cumulative distance from shore in kilometers. The locations of the long-term and temporary OBS units are shown in close-up views with the seafloor habitat (see Figure 3.3.6-6).

Cable Segment 1 (KM 0.496 – KM 2.643) - This 2.144 km-long segment is sinuous, with four bends that divide the segment into five tangents, and ranges in depth from ~20 m to 53 m (66 to 174 ft) at OBS-4, a depth differential of ~35 m (115 ft). Most of the cable route crosses relatively smooth, flat sediment seafloor, but short stretches are within hard bedrock exposures. (See Figure 3.3.6-2).

Figure 3.3.6-2. Seafloor Habitat and Bathymetry for Cable Segment 1



Tangent 1 (KM 0.496 – KM 0.826) – The eastern end of Segment 1, tangent 1 is located in ~20 m (66 ft) water depth on a soft, mobile, unconsolidated sand sheet that covers the southern tip of a hard bedrock (diabase) exposure; the exposure crops out to the north of KM 0.496 and appears to form an ~10 m-high rock face at the entrance to DCPP intake bay. At KM 0.570, one of many troughs (depressions) of unconsolidated rippled sand and gravel is exposed on the seafloor and is probably ephemeral, as mobile sand sheets that migrate through this area periodically cover the substrate at the base of depressions like this one. From KM 0.570 to where the route bends to the south at KM 0.826, the seafloor within the cable corridor is composed of a soft, mobile, unconsolidated sand sheet habitat with locally exposed, small, hard bedrock outcrops and boulders. At KM 0.795, the center of the cable corridor crosses an ~3 m-high boulder or bedrock exposure with three other rock outcrops present within the cable corridor at approximately KM 0.610, 0.750 and 0.820. The end of this tangent is at ~27 m (89 ft), giving an overall depth range of 7 m (23 ft) for the 0.327 km (0.2 mi) stretch (1.23 degree slope or 2.14 percent grade).

Tangent 2 (KM 0.826 – KM 1.107) - The cable corridor along this tangent is located mainly on soft, mobile, unconsolidated sand sheets with local exposures of bedrock or sediment-covered bedrock. A small scour depression of soft, unconsolidated, rippled sand and gravel is located just to the west of the bend at KM 0.826, and may be covered in the future by the migrating mobile unconsolidated sand sheets that are prominent in this area. At KM 0.900, the center of the cable corridor splits two bedrock exposures that rise several meters above the seafloor, then crosses a boulder at KM 1.010 in ~28 m (92 ft) water depth. Further along this segment, between KM 1.010 and 1.070, the cable corridor is composed of soft, mobile, unconsolidated sand sheets that locally cover bedrock with small, scattered hard bedrock outcrops, producing a fairly varied and rugose seafloor. The end of this tangent is located at ~29 m (95 ft) water depth, giving an overall depth differential of 2 m for the 0.281 km length of the tangent (0.40 degree slope or 0.71 percent grade).

Tangent 3 (KM 1.107 – KM 1.182) - The most complex benthic habitat types of Segment 1, and the entire cable route, exist within tangent 3. From KM 1.180 to 1.300 in ~32 m (105 ft) water depth on a flat seafloor, the centerline of the proposed cable corridor skirts along the southern margin of hard bedrock exposure that is locally covered with sediment. The northern half of the corridor is located mostly in hard, differentially-eroded bedrock that is mixed with locally unconsolidated sediment pockets, while the southern half is located on mobile, unconsolidated sand sheets. Then, from KM 1.300 to 1.500, the cable corridor is located on differentially-eroded bedrock exposures that are locally covered with unconsolidated sediment, pebbles and boulders. Two closely-spaced (~20 m [66 ft] peak to peak) rock pinnacles, one rising 1 m (3 ft) off the seafloor and the other 2.5 m- (8.2 ft-) high, are crossed by the centerline of the proposed cable corridor between KM 1.50 and 1.53 in 37 m (121 ft) water depth.

A lithologic contact exists in 40 m (131 ft) water depth. The proposed cable corridor crosses a fairly flat sediment covered bedrock seafloor from KM 1.500 to the end of the tangent at KM 1.812, with the centerline crossing over several small, hard, rock boulders or pinnacles; the most prominent one, located at KM 1.76, rises ~1 m (3 ft) off the 44 m- (128 ft-) deep seafloor.

Tangent 3 varies in depth from ~32 m to ~45 m (105 to 148 ft), a range of 13 m (43 ft) along a 0.705 km (0.437 mi) stretch (1.06 degree slope or 1.84 percent grade). This tangent is nearly equal to the slope and grade of Tangent 1, the steepest of all the segments.

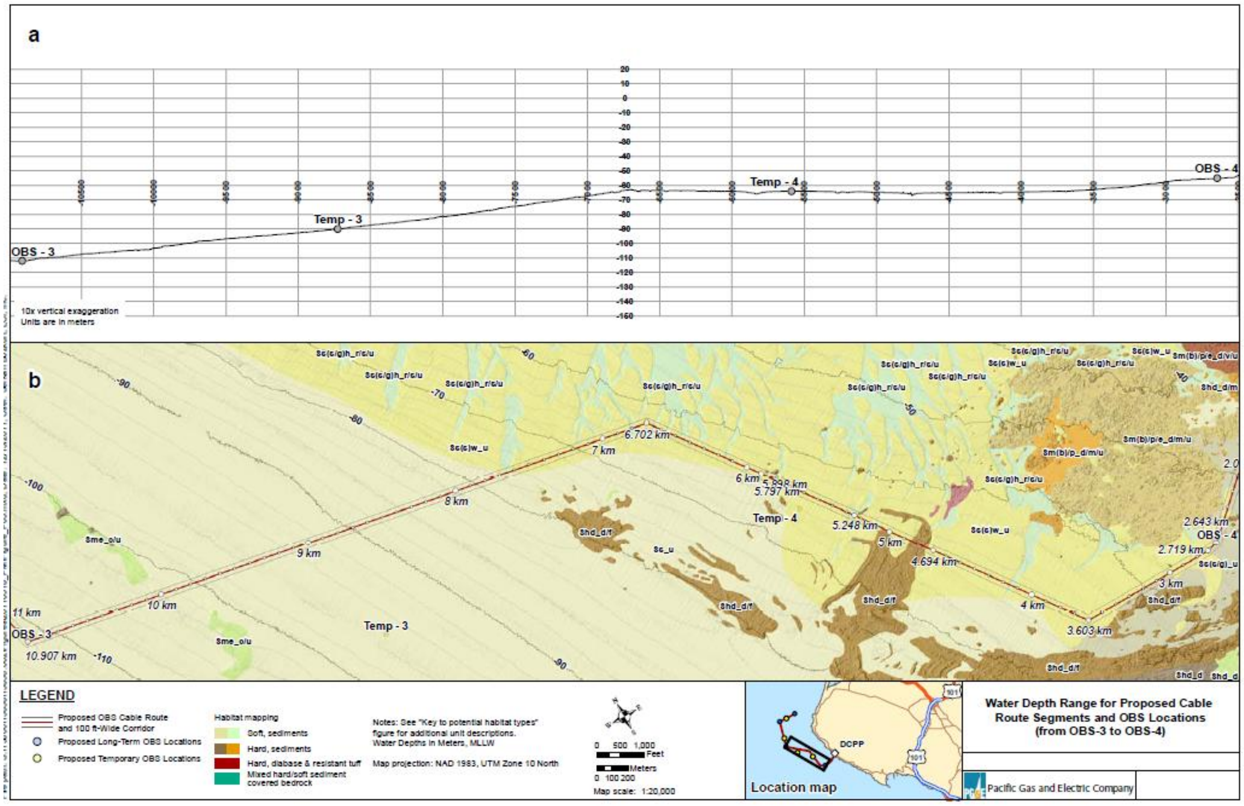
Tangent 4 (KM 1.812 – KM 2.038) - The entire proposed cable corridor along this tangent crosses flat scoured sediment (rippled sand and gravel) substrate with the exception of the stretch between KM 1.980 and 2.000, where the centerline crosses the front of a small mobile unconsolidated sand sheet and the southern edge of the corridor skirts several hard outcrops of differentially eroded sedimentary bedrock. Water depth ranges from about 45 m to about 47 m (148 to 154 ft), a differential of 2 m (6 ft) for the 0.226 km (0.140 mi) length of the tangent (0.51 degree slope, 0.89 percent grade).

Tangent 5 (KM 2.038 – KM 2.643) - With the exception of four small, hard bedrock outcrops at KM 2.038 (located along the southern margin of the corridor), KM 2.850 (located along the southern margin of the corridor), KM 1.160 (located along the northern margin of the corridor), and KM 2.690 (located in the southern half of the corridor and partially underlying the centerline), this tangent crosses soft unconsolidated sediment. Most of the route is in scoured substrate of rippled sand and gravel, while from KM 2.280 to 2.400, the centerline skirts the front of a mobile unconsolidated sand sheet that covers most of the northern half of the corridor. Also, from KM 2.420 to 2.52 at a general depth of 50 m (164 ft), the corridor crosses a mobile, unconsolidated sand sheet. Water depth along this tangent ranges from ~47 to ~55 m at OBS-4 (154 to 180 ft) along the 0.605 km (0.375 mi) length, a depth differential of 8 m for the tangent (0.76 degree slope, 1.32 percent grade).

Cable Segment 2 (KM 2.643 – KM 10.907) - This segment extends from OBS-4 (~55 m [180 ft] deep) to OBS-3 (~113 m [371 ft] deep) (8.264 km- [5.124 mi-] long). Segment 2 has 4 tangents with 3 bends and a total length of 8.264 km (5.124 mi). The most sinuous part of the segment is located along its southern half which, is oblique to the coast and isobaths for a short distance (1.032 km [0.640 mi]), then parallels the coast. The northern half, however, is oriented nearly east-west as one straight tangent, oblique to the coastline and obliquely crossing isobaths (see Figure 3.3.6-3).

Tangent 1 (KM 2.643 – KM 2.719) - All of tangent 1 skirts the southeastern front of an unconsolidated, mobile sand sheet and is located on flat, current-scoured, rippled sand and gravel substrate. For the 0.076 km (0.047 mi) length of the tangent, depth varies from ~55 m (181 ft) water depth to ~56 m (184 ft) water depth, a 1 m (3 ft) differential (0.75 degree slope, 1.316 percent grade).

Figure 3.3.6-3. Seafloor Habitat and Bathymetry for Cable Segment 2



Tangent 2 (KM 2.719 – KM 3.603) - This tangent crosses a flat seafloor composed primarily of soft, unconsolidated, mobile sand sheets, with a finger of scoured sand and gravel substrate at the northeastern end of the tangent (from KM 2.719 to 2.800). The remainder of this segment is located on and at the front of an unconsolidated, mobile sand sheet, the only hard bedrock outcrops located between KM 3.200 and 3.250 and at KM 3.320. Depth along this 0.884 km- (0.548 mi-) long tangent varies from ~55 m to ~63 m (180 to 207 ft), ~8 m (27 ft) difference (0.52 degree slope, 0.900 percent grade).

Tangent 3 (KM 3.603 – KM 6.702) - This tangent is primarily located on soft, mobile, unconsolidated sand sheets that migrate over scoured unconsolidated rippled sand and gravel substrate, with occasional local exposures of hard flat bedrock. The fronts (east-facing) of the mobile sand sheets locally obtain 1 m (3 ft) in height. From the bend at KM 3.603 to ~4.780, the benthic habitat is composed of soft, mobile, unconsolidated sand with one narrow stringer of scoured, rippled sand and gravel substrate located between KM 4.140 and 4.160. From KM 4.780 to 4.860, the proposed cable corridor crosses a hard, deformed (folded) bedrock outcrop. Then, from KM 4.800 to 5.200, the tangent's corridor is located in unconsolidated, mobile sand sheets with small, isolated hard bedrock located within the 30 m (100 ft) wide corridor at KM 5.240 and between KM 5.900 and 6.000. In addition, the cable corridor crosses the distal ends of narrow stringers of rippled, scoured depressions floored with sand and gravel substrate at KM 5.248 to 5.280, KM 5.800 to 5.860, KM 6.150, 6.360, 6.850, 6.450, 6.570 and 6.750. Tangent 3 ranges in depth from ~63 m to ~62 m (206 to 203 ft), ~1 m (3 ft) difference along its 3.099 km (1.921 mi) length (0.018 degree slope, 0.32 percent grade).

Tangent 4 (KM 6.702 – KM 10.907) - The shallow part of this tangent crosses benthic habitats of soft, mobile, unconsolidated sand sheets, interspersed with scoured depressions of rippled sand and gravel. The scour depressions are located within the corridor at approximately KM 6.770 to 6.800, 7.180 and 7.670. As these features are mobile and ephemeral, they may not be present in these locations in the future. The mobile sand sheets appear to die out below a depth of ~78 m (256 ft) near KM 7.700.

From KM 7.700 to the end of the tangent at OBS-3, the proposed corridor cuts across the Hosgri fault zone and is located within undifferentiated, unconsolidated sediment (possible mud and sand habitat) on a gently sloping seafloor. No fault scarps or bedrock exposures were identified within the proposed corridor along this part of the tangent, although the possibility exists that an occasional isolated boulder or pinnacle may be present. Tangent 4 ranges in water depth from ~62 m to ~113 m (203 to 371 ft) for its 4.205 km (2.607 mi) length, a depth variation of ~51 m (167 ft) (0.70 degree slope, 1.213213 percent grade). The seafloor is generally smooth and soft with a very gently inclination.

Cable Segment 3 (KM 10.907 – KM 15.384) - This segment extends from OBS-3 (~113 m [371 ft] deep) to OBS-2 (~97 m [318 ft] deep) (4.384 km- [2.718 mi-] long).

Segment 3 consists of one long tangent, oriented north-south from the proposed OBS-3 location to proposed OBS-2 location (see Figure 3.3.6-4).

The majority of the proposed cable corridor route is located on flat, smooth, soft, unconsolidated sediment (mud and sand) habitat; however, a boulder or bedrock pinnacle with a scour moat and down-current soft, hummocky, sediment depression is present at KM 15.2 in about 97 m (318 ft) of water , located just outside of the eastern margin of the corridor. This linear, hummocky, soft-sediment, comet-shaped mark is oriented parallel to the proposed cable route, extending along the eastern margin of the corridor from the boulder at KM 15.2 to KM 14.9, 300 m (984 ft) in length.

The difference in depth along this 4.384 km- (2.718 mi-) long segment range from ~113 m (371 ft) at OBS-3 location to ~97 m (318 ft) at OBS-2 location, a total of ~16 m (53 ft) for the 4.384 km-long Segment.

Cable Segment 4 (KM 15.411 – KM 18.300) - From OBS-2 (~97 m [318 ft] deep) at KM 15.411 to OBS-1 (~62 m [203 ft] deep) at KM 18.300 (2.916 km- [1.808 mi-] long)

Segment 4 is oriented nearly east-west, extending from the bend at KM 15.384 at the proposed location of OBS-2 in ~97 m (318 ft) water depth to the end of the cable route at KM 18.383 at proposed OBS-1 position in ~62 m (203 ft) water depth (see Figure 3.3.6-5), an ~35 m (115 ft) difference in water depth (0.69 degree slope, 1.200 percent grade.

Figure 3.3.6-4. Seafloor Habitat and Bathymetry for Cable Segment 3

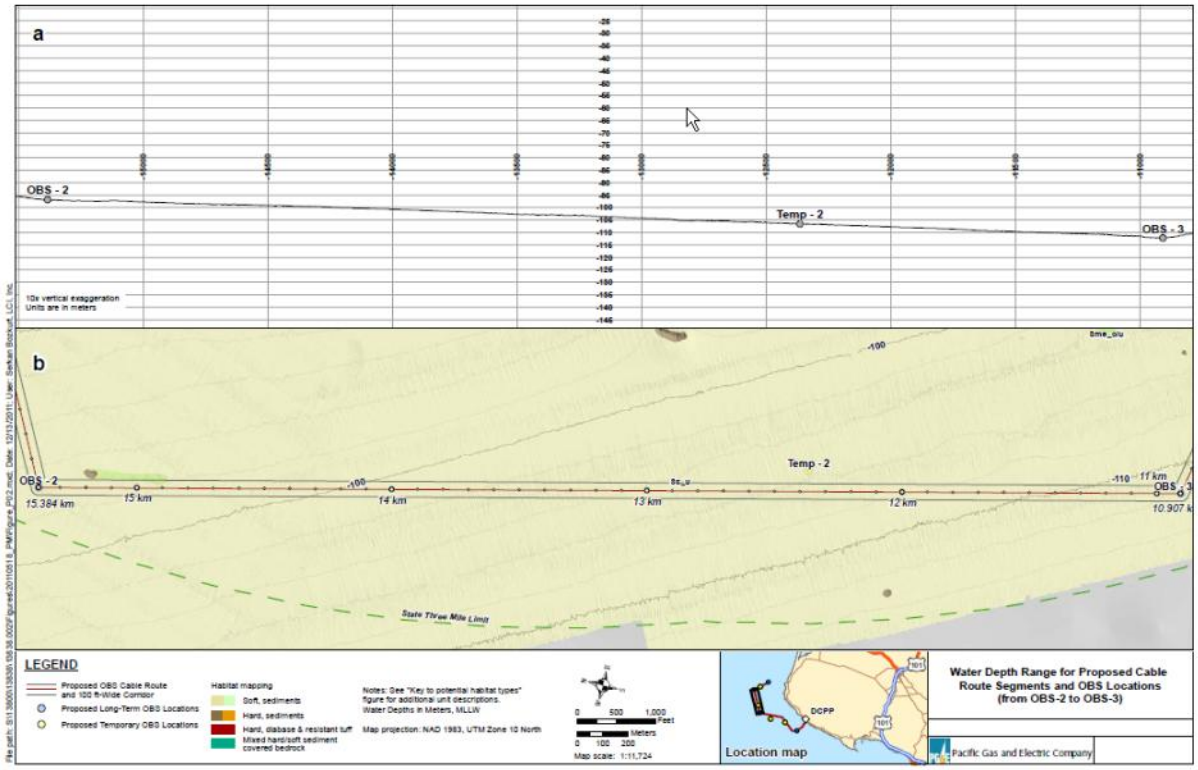
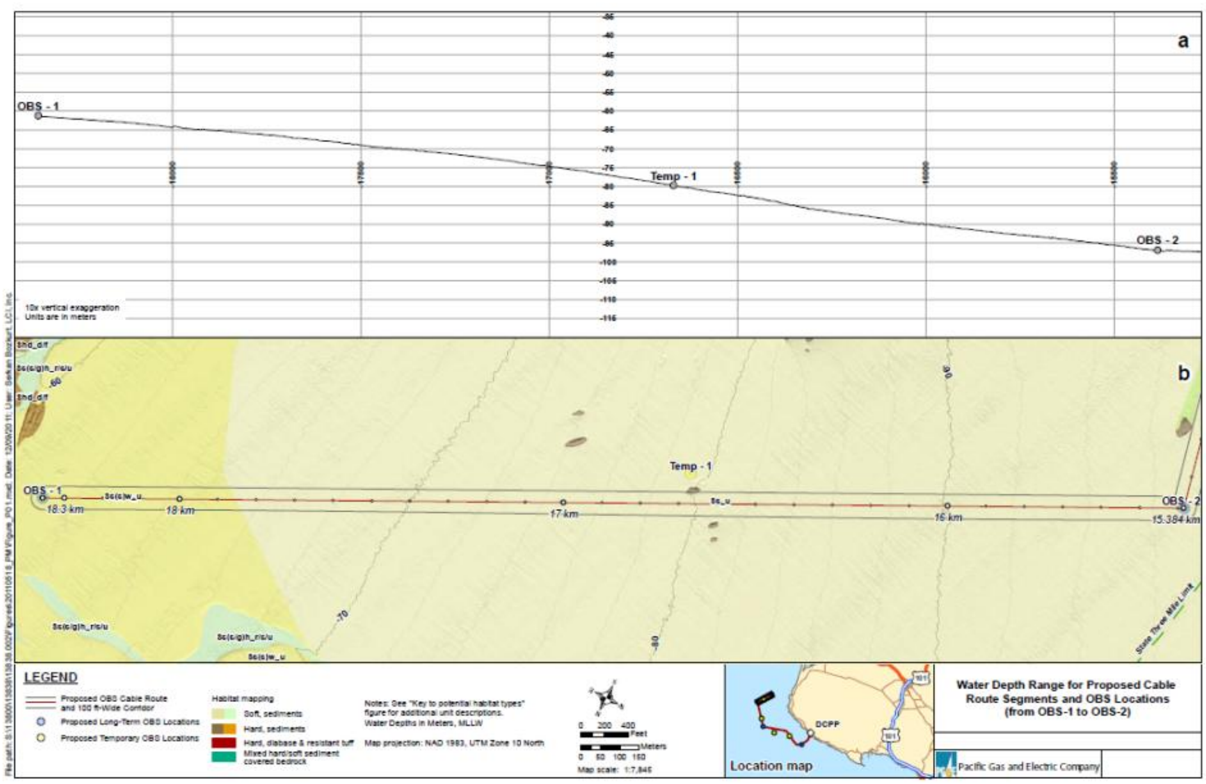


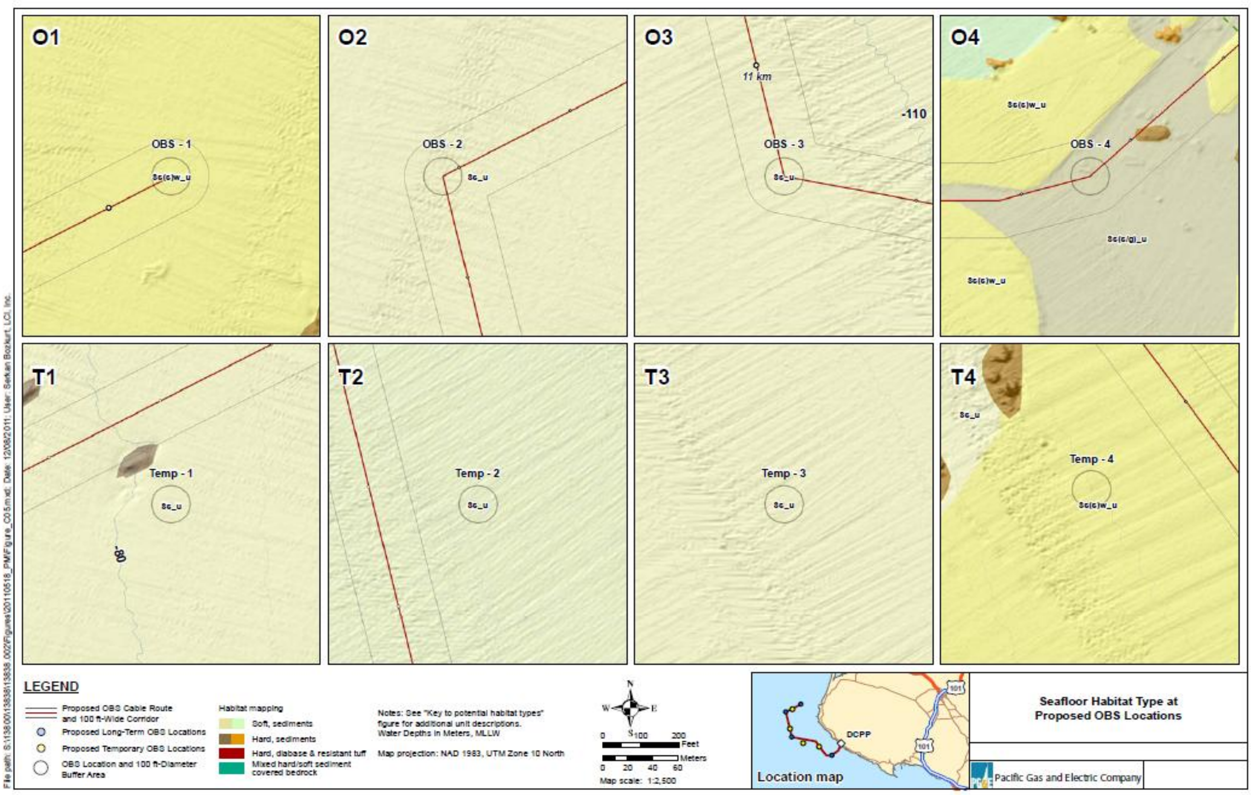
Figure 3.3.6-5. Seafloor Habitat and Bathymetry for Cable Segment 4



This segment is almost exclusively in soft sediment, crossing soft, unconsolidated (mud and sand) habitat from KM 15.384 to 17.880; however, the stretch between KM 16.600 and 16.700 in 80 m (262 ft) water depth runs between several small rockier areas. Then, from KM 17.880 to the end of the segment at KM 18.300, the cable corridor is located in a soft, mobile, unconsolidated sand sheet.

OBS-1. The proposed location of OBS-1 is on an ephemeral, mobile unconsolidated sand sheet that may move in the future (see Figure 3.3.6-6). No other habitat type such as hard bedrock exposures or pinnacles is present within a 15 m (50 ft) radius of the proposed OBS position.

Figure 3.3.6-6. Seafloor Habitat for OBS Unit Locations



OBS-2. The proposed location of OBS-2 is within soft unconsolidated sediment (mud and sand) habitat with no hard rock or other habitat type located within a 15 m (50 ft) radius of the location (see Figure 3.3.6-6). A single small bedrock outcrop is located 0.2 km (0.1 mi) southeast of the OBS site. The OBS location is the turn point at KM 15.384, in a water depth of ~97 m (318 ft).

OBS-3. The proposed location of OBS-3 at KM 10.907, at a water depth of ~113 m (371 ft), is located in homogeneous, undifferentiated, soft, unconsolidated seafloor habitat of mud or sandy mud (see Figure 3.3.6-6). No hard rock outcrops, pinnacles or boulders appear to exist anywhere within a 15 m (50 ft) radius. The closest rock outcrop is located 0.8 km (0.5 mi) northeast of the OBS location.

OBS-4. The proposed location of OBS-4 is flat, current-scoured, rippled sand and gravel substrate, near but down-current of the front of a mobile, unconsolidated sand sheet (see Figure 3.3.6-6). The sand sheet is an ephemeral feature and could migrate across the proposed OBS location and expose underlying substrate or bedrock. No bedrock outcrops or other hard habitat type is located within a 15 m (50 ft) radius of the location. A small bedrock exposure is located 0.17 km (0.11 mi) east of the OBS location, with scattered rocks present 0.17 km (0.11 mi) away north of the OBS location.

Temporary OBS-1. The proposed location for temporary OBS-1 is in soft, unconsolidated mud and sand on flat seafloor (see Figure 3.3.6-6). No other habitat type exists within a 15 m-(50 ft) radius of the proposed position.

Temporary OBS-2. The proposed location for temporary OBS-2 is in soft, unconsolidated mud and sand on flat seafloor (see Figure 3.3.6-6). No other habitat type exists within a 15 m-(50 ft) radius of the proposed position.

Temporary OBS-3. The proposed location for temporary OBS-3 proposed location is in soft, unconsolidated mud and sand on flat seafloor (see Figure 3.3.6-6). No other habitat type exists within a 15 m-(50 ft) radius of the proposed position.

Temporary OBS-4. Temporary OBS-4 would be located on flat seafloor in a soft, unconsolidated, mobile sand sheet (see Figure 3.3.6-6). No other habitat type exists within the 15 m (50 ft) radius around the proposed OBS position; however, approximately 45 m (148 ft) northwest of the proposed OBS location is a small, differentially-eroded sedimentary bedrock exposure. Migration of the sand sheet may expose the underlying substrate of gravel and bedrock.

Faulting and Seismicity. The Project area is located in a seismically active region and has experienced numerous historic seismic events resulting from movement along onshore and offshore faults. The Hosgri Fault Zone, the southernmost component of the complex San Gregorio-San Simeon-Hosgri fault system, extends about 113 km (70 mi) from Point Pedernales to near San Simeon, trending to the northwest and remaining offshore for its entire length. The Hosgri fault is primarily a strike-slip fault, with a subordinate amount of dip slip that varies along strike. The California Geological Survey (CGS) defines a fault as active if it has had surface displacement within the Holocene period (approximately the last 11,000 years). Several studies (i.e., Lettis et al. 2004, and Bryant 2005) have indicated that the Hosgri fault is active. The proposed OBS units and cable would extend across the Hosgri Fault Zone in the vicinity of the DCPP (Figure 2-2).

In 2009, seismic studies identified a coast-parallel, near-shore bedrock fault zone that lies within the epicentral uncertainty of the seismicity lineament called the Shoreline fault zone. The Shoreline fault zone is divided into three segments based on differences in the geologic and geomorphic expression of surface and near-surface faulting, intersections with other mapped structures, features observed in the high-resolution magnetic field data, and variations in the continuity, trend, and depth of the seismicity along the lineament.

Regional onshore faults include the Edna, Los Osos and Oceanic faults, approximately 8 km (5 mi), 11.2 km (7 mi), and 20.8 km (13 mi) to the east respectively, and the San Andreas fault, approximately 75 km (47 mi) to the northeast at its closest point.

3.3.6.2 Regulatory Setting

Federal. There are no federal regulations related to geology and soils relevant to the Project.

State. California is a highly geologically-active area, and therefore has substantial relevant regulatory requirements. The regulations listed below are at least partially applicable to the Project.

Alquist-Priolo Earthquake Fault Zoning Act of 1972 (Pub. Resources Code, §§ 2621-2630). This act (formerly known as the Special Studies Zoning Act) requires that "sufficiently active" and "well-defined" earthquake fault zones be delineated by the state geologists and prohibits locating structures for human occupancy across the trace of an active fault. This act does not specifically apply to marine installations like the Project, but it does help define areas where fault rupture is most likely to occur onshore.

California Building Code (CBC). The CBC contains requirements related to excavation, grading, and construction. According to the CBC, a grading permit is required if more than 50 cubic yards (38.2 m^3) of soil are moved. Chapter 33 of the CBC contains requirements relevant to the construction of pipelines alongside existing structures. The California Code of Regulations, Title 23, sections 3301.2 and 3301.3 contain the provisions requiring protection of the adjacent property during excavations and require a 10-day written notice and access agreements with the adjacent property owners. The CBC does not specifically apply to offshore marine installations.

California Seismic Hazards Mapping Act of 1990 (Pub. Resources Code, § 2690 and following as Division 2, Chapter 7.8) **and the Seismic Hazards Mapping Regulations** (Cal. Code Regs., tit. 14, Div. 2, ch. 8, art. 10). Designed to protect the public from the effects of strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes, the act requires that site-specific geotechnical investigations be conducted identifying the hazard and formulating mitigation measures prior to permitting most developments designed for human occupancy. Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California (CGS 2008), constitutes the guidelines for evaluating seismic hazards other than surface fault rupture and for recommending mitigation measures as required by Public Resources Code section 2695, subdivision (a). This act does not specifically apply to marine cable installations like the Project.

Local. There are no local regulations related to geology and soils relevant to the Project.

3.3.6.3 Impact Analysis

The Project would not result in changes to existing power generation operations or facilities at the DCPP. This evaluation of potential geology and soils impacts considers possible effects related to the seismic monitoring equipment that would be provided by the Project, which consists of temporary and long-term OBS units, associated power/data transfer cable, and a new cable conduit.

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii) Strong seismic ground shaking?

iii) Seismic-related ground failure, including liquefaction?

iv) Landslides?

The Project objective is to deploy seismic monitoring equipment that would be used to gather accurate real-time data regarding seismic events that occur in the Project area. To accomplish this objective, proposed temporary and long-term OBS units, and associated power/data transfer cable would be deployed in offshore locations within the Hosgri Fault Zone. Although the monitoring equipment could be adversely affected if earthquake-related ground rupture or ground shaking were to occur, such effects would not result in a substantial risk of loss, injury or death. Therefore, potential ground rupture and ground shaking impacts to proposed seismic monitoring equipment are less than significant.

Proposed OBS units and cable would be located offshore in generally level areas. Therefore, the seismic monitoring equipment would not be subject to significant effects resulting from ground failure, liquefaction or landslides. The proposed power/data transfer cable would come ashore at the DCPP facility and would be located in a new cable conduit to be provided on an existing rock rip area. The new conduit would have no impact on the geologic hazards such as ground rupture, ground shaking, ground failure or landslides.

b) Result in substantial soil erosion or the loss of topsoil?

The Project would not result in any ground disturbing activities at the DCPP facility and would not result in any soil erosion or loss of topsoil impacts.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

See response below.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

The only onshore component of the Project would be a new cable conduit to be located on top of a rock rip-rap area. Therefore, the Project would not result in any structural development that could be adversely affected by soil-related hazards such as landslides, subsidence, liquefaction or expansive soil.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The Project would not result in any development that would increase the generation of wastewater or require the use of an individual waste water treatment or disposal system.

3.3.6.4 Mitigation and Residual Impact

Mitigation. The Project would not result in significant geology or soils impacts and no mitigation measures are required.

Residual Impacts. The Project would have no significant geology or soils impacts. No mitigation is required and no residual impacts would occur.