

3.7

GROUNDWATER AND SOILS

3.7.1 Introduction

3.7.2 Environmental Setting

3.7.3 Applicable Regulations

3.7.4 Impacts and Mitigation Measures

3.7.4.3 Project Impacts and Mitigation

3.7.4.3.1 Proposed Project

3.7.4.3.1.1 Construction Impacts

Impact GW-1.1: Construction activities may encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure (duration of construction) to construction/ operations personnel and/or long-term exposure to future site occupants.

As described in Section 3.7.2.3, soil and/or groundwater contamination has been documented adjacent to portions of Pipeline Segments 1, 2, 3, 4, and 5, as well as in the vicinity of Tank Farm Sites 1 and 2, and alternative Pigging Station B. Other areas of subsurface soil and/or groundwater contamination are likely present along the pipeline corridor, at Pigging Station A, and at the ExxonMobil Southwest Terminal, due to the prolonged duration of industrial land use in the proposed Project area. Below ground pipeline construction is proposed for the majority of the pipeline corridor.

Grading would be completed for Tank Farm Sites 1 and 2. In general, concentrations of contaminants in sediments dredged for the Pier 400 landfill were relatively low and below regulatory action levels for confined disposal. However, detectable levels of copper, zinc, PCBs, and TBT were detected. Placement of this dredged material in the Pier 400 landfill resulted in a significant long-term positive impact by isolating and

1 containing the contaminants (USACE and LAHD 1992). However, these contaminated
2 sediments could be encountered during excavations for construction of Tank Farm Site
3 1.

4 A baseline environmental study completed at proposed Tank Farm Site 2 (i.e., Tank
5 Farm Site 2) detected only low concentrations of PAHs and no other high levels of
6 contaminants. This baseline study is representative of conditions upon initiation of
7 operations at the LAXT facility, as operations began in 1997. Although no data were
8 generated during operations or subsequent to cessation of operations at the facility,
9 which is currently being demolished, coal/petroleum coke processing operations from
10 1997 to 2004 may potentially have resulted in soil and/or groundwater contaminated
11 with TPH, VOCs, and/or PAHs. Therefore, excavations could potentially encounter
12 unknown contaminated sediments at Tank Farm Site 2.

13 Trenching would be completed in numerous areas along the pipeline route, including
14 Pipeline Segments 1, 2a, 2b, 2c; at the ExxonMobil Southwest Terminal; within and
15 adjacent to the horizontal directional drilled (HDD) work areas; at Piggling Station Site A
16 and Alternative Site B; and at Pipeline Segments 4 and 5 (Figure 2-1, Figures 2-6
17 through 2-10). As previously discussed, concentrations of contaminants in sediments
18 dredged for the Pier 400 landfill were relatively low and below regulatory action levels
19 for confined disposal. However, there were detectable levels of copper, zinc, PCBs, and
20 TBT. These contaminated sediments could be encountered during trenching for Pipeline
21 Segment 1. Similarly, contaminated sediments would likely be encountered during
22 trenching for the northern portion of Pipeline Segment 1, east of Tank Farm Site 2; along
23 Pipeline Segment 2, 4, and 5; and within and adjacent to the HDD work areas of Pipeline
24 Segments 3 South and 3 West.

25 HDD operations completed for proposed Pipeline Segment 3 would likely generate a
26 substantial quantity of contaminated sediments and slurry, due to documented (i.e.,
27 known VOCs, SVOCs, PAHs, metals, PCPs, dioxin, and TPH in soil and groundwater,
28 including NAPL) and undocumented spills of petroleum products and hazardous
29 substances in soils and groundwater in this industrial area. A large quantity of soil/slurry
30 cuttings would be generated due to an HDD diameter up to 52 inches.

31 Table 3.7-1 summarizes known soil and groundwater contamination in the Project areas.

Table 3.7-1. Known Soil and Groundwater Contamination in the Project Area

<i>Project Area</i>	<i>Known Contamination in the Area</i>
Tank Farm Site 1	Copper, zinc, PCBs, and TBT in soil
Tank Farm Site 2	Low concentrations of PAHs in soil (site characterization not completed since cessation of LAXT operations)
Pipeline Segment 1	Copper, zinc, PCBs, and TBT in soil on Pier 400 Low levels of TPH, VOCs, and PAHs along northern pipeline section, east of Tank Farm Site 2 (sampling and TPH analysis required for future excavations)
Pipeline Segment 2	Low concentrations of PAHs in soil (site characterization not completed since cessation of LAXT operations)
Pipeline Segment 3 South	VOCs, PAHs, and metals in soil TPH, PAHs, and NAPL in groundwater
Pipeline Segment 3 West	TPH, VOCs, SVOCs, PAHs, PCPs, dioxin, and metals in soil and groundwater
Pipeline Segment 3 East	Relatively low levels of metals in soil and VOCs in groundwater
Pipeline Segment 4	TPH, VOCs, and metals in soil TPH, VOCs, and free-phase hydrocarbons in groundwater
Pipeline Segment 5	TPH, VOCs, and metals in soil TPH and VOCs in groundwater
Pigging Station A	Possible TPH, VOCs, and metals in soil and groundwater
Alternate Pigging Station B	TPH, VOCs, and metals in soil TPH and VOCs in groundwater

CEQA Impact Determination

Grading and construction, including grading for Tank Farm Sites 1 and 2; trenching for Pipeline Segments 1, 2a, 2b, 2c, 4, and 5; trenching at the ExxonMobil Southwest Terminal; trenching within and adjacent to the HDD work areas; excavations at pigging Station Site A and Alternative Site B; and dewatering at pigging Station Site A and Alternative Site B could potentially expose construction personnel, existing nearby operations personnel, and future occupants of the site to contaminated soil and groundwater, as summarized in Table 3.7-1. Human health and safety impacts would be significant pursuant to exposure levels established by Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA).

Mitigation Measures

Mitigation Measure (MM) GW-1: Site Remediation. Unless otherwise authorized by the lead regulatory agency for any given site, the LAHD shall remediate all contaminated soils or contamination within the excavation zones on the Project site boundaries prior to or during subsurface construction activities. [Remediation shall also include suspected or known contamination within boundaries of the proposed Project that occurred as a result of leaks or spills on adjacent properties.](#) Remediation shall occur in compliance with local, state, and federal regulations, as described in Section 3.7.3, and as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB.

1 Soil remediation shall be completed such that contamination levels in subsurface
2 excavations are below health screening levels established by OEHHA and/or applicable
3 action levels established by the lead regulatory agency with jurisdiction over the site.
4 Only clean soil would be used as backfill. Soil contamination waivers may be
5 acceptable as a result of encapsulation (i.e., paving) in backland areas and/or risk-based
6 soil assessments but would be subject to the discretion of the lead regulatory agency.

7 Existing groundwater contamination throughout the proposed Project boundary shall
8 continue to be monitored and remediated as encountered, simultaneous and/or
9 subsequent to site development, and/or in accordance with direction provided by the
10 LARWQCB.

11 Unless otherwise authorized by the lead regulatory agency for any given site, areas of
12 excavation with soil contamination that shall be remediated prior to, or in conjunction
13 with, Project construction.

14 **MM GW-2: Soil, Slurry, and Groundwater Characterization in Areas of Known**
15 **Contamination.** The following sampling plan shall be implemented to address areas of
16 known soil contamination during grading, trenching, HDD, and dewatering activities:

- 17 a. Excavated soil in areas of known contamination shall be systematically tested
18 for contaminants, including but not limited to those listed in Table 3.7-1, for
19 each project area. The Port shall confirm the presence of the suspect material
20 and direct the contractor to remove, stockpile, or contain the suspect material(s)
21 identified within the boundaries of the construction area. Contaminated
22 sediments shall either be treated on-site or trucked off-site for disposal at a
23 licensed facility approved for disposal of such waste. There are numerous
24 contaminated waste treatment facilities in California, including TPS
25 Technologies in Adelanto and TRS in Azusa. The closest Class I hazardous
26 waste landfill is the Buttonwillow Landfill, located in Kern County,
27 approximately 8 miles west of Buttonwillow and 36 miles west of Bakersfield.
28 In addition, the Class I Kettleman Hills facility is located further to the north in
29 Kings County and has a remaining capacity of 1,901,860 cubic yards, with no
30 daily limit (CIWMB, 2007). Several other hazardous waste disposal sites are
31 located in California and neighboring states. See Section 3.13, Utilities and
32 Public Services, for additional information.
- 33 b. HDD drilling waste shall be systematically tested for contaminants, and if
34 present, segregated from clean soils and slurry. Contaminated slurry shall be
35 containerized, dewatered, and dried, pending remediation or off-site disposal.
36 Contaminated groundwater, derived from the slurry dewatering process, shall be
37 trucked off-site and disposed at a licensed disposal facility.
- 38 c. The remedial option(s) of contaminated material shall be dependent upon a
39 number of criteria (including but not limited to types of chemical constituents,
40 concentration of the chemicals, health and safety issues, time constraints, cost,
41 etc.) and shall be determined on a site-specific basis.
- 42 d. On-site personnel handling or working in the vicinity of the contaminated
43 material shall be trained in accordance with Occupational Safety and Health and
44 Administration (OSHA) regulations for hazardous waste operations. These
45 regulations are based on CFR 1910.120 (e) and 8 CCR 5192, which states that

1 “general site workers” shall receive a minimum of 40 hours of classroom
2 training and a minimum of three days of field training. This training provides
3 precautions and protective measures to reduce or eliminate hazardous
4 materials/waste hazards at the work place.

- 5 e. Copies of hazardous waste manifests or other documents indicating the amount,
6 nature, and disposition of such materials shall be submitted to the Chief Harbor
7 Engineer within 30 days of soil/slurry sampling, remediation, and/or disposal.
- 8 f. All excavations shall be filled with structurally suitable fill material which
9 contains contaminant concentrations (if any) that are within permissible limits,
10 as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB.
- 11 g. Any project-related dewatering activities shall either discharge into the sanitary
12 sewer, under permit with the City of Los Angeles Sanitation Bureau, or comply
13 with the NPDES permit regulations and an associated SWPPP regarding
14 discharge into storm drains and/or directly into Harbor waters. Such permit
15 requirements typically include on-site treatment to remove pollutants prior to
16 discharge. Effluent analyses should include, but not be limited to, contaminants
17 summarized in Table 3.7-1. Alternatively, the water shall be temporarily stored
18 onsite in holding tanks, pending off-site disposal at a disposal facility approved
19 by the LARWQCB. An NPDES-mandated SWPPP shall include measures
20 ensuring that potential pollutant-contaminated waters encountered during
21 excavation would be isolated and collected for transportation to a hazardous
22 waste treatment facility prior to their discharge into the storm drain system.

23 **MM GW-3: Contamination Contingency Plan.** The following contingency plan shall
24 be implemented to address unknown contamination during grading, trenching, HDD, and
25 dewatering activities:

- 26 a. All grading, trench excavation and filling operations, HDD, and dewatering
27 operations shall be observed for the presence of free-phase petroleum products,
28 chemicals, or contaminated soil/groundwater. Discolored soil or suspected
29 contaminated soil shall be segregated from clean soil. In the event unexpected,
30 contaminated soil or groundwater is encountered during construction, the
31 contractor shall notify the LAHD's Chief Harbor Engineer, Director of
32 Environmental Management, and Risk Management's Industrial Hygienist. The
33 Port shall confirm the presence of the suspect material and direct the contractor
34 to remove, stockpile or contain, and characterize the suspect material(s)
35 identified within the boundaries of the construction area. Continued work at a
36 contaminated site shall require the approval of the Chief Harbor Engineer.
- 37 b. A photoionization detector (or other organic vapor detecting device) shall be
38 present during grading, excavation, and HDD through suspected chemically
39 impacted soil.
- 40 c. Excavation of VOC-impacted soil will require obtaining and complying with a
41 South Coast Air Quality Management District Rule 1166 permit.
- 42 d. The extent of removal actions shall be determined on a site-specific basis. At a
43 minimum, the chemically impacted area(s) within the boundary of the tank farm
44 construction area or pipeline trench shall be remediated to the satisfaction of the
45 lead regulatory agency for the site. The Port Project Manager overseeing

- 1 removal actions shall inform the contractor when the removal action is
2 complete.
- 3 e. HDD drilling waste shall similarly be monitored for contaminants, and if
4 present, segregated from clean soils and slurry. Contaminated slurry shall be
5 containerized, dewatered, and dried, pending remediation or off-site disposal.
6 Contaminated groundwater, derived from the slurry dewatering process, shall be
7 trucked off-site and disposed at a licensed disposal facility.
- 8 f. The remedial option(s) of contaminated material shall be dependent upon a
9 number of criteria (including but not limited to types of chemical constituents,
10 concentration of the chemicals, health and safety issues, time constraints, cost,
11 etc.) and shall be determined on a site-specific basis. Both off-site and on-site
12 remedial options shall be evaluated.
- 13 g. Copies of hazardous waste manifests or other documents indicating the amount,
14 nature, and disposition of such materials shall be submitted to the Chief Harbor
15 Engineer within 30 days of project completion.
- 16 h. In the event that contaminated soil is encountered, all on-site personnel handling
17 or working in the vicinity of the contaminated material shall be trained in
18 accordance with Occupational Safety and Health and Administration (OSHA)
19 regulations for hazardous waste operations. These regulations are based on
20 CFR 1910.120 (e) and 8 CCR 5192, which states that “general site workers”
21 shall receive a minimum of 40 hours of classroom training and a minimum of
22 three days of field training. This training provides precautions and protective
23 measures to reduce or eliminate hazardous materials/waste hazards at the work
24 place.
- 25 i. In cases where potential chemically impacted soil is encountered, a real-time
26 aerosol monitor shall be placed on the prevailing downwind side of the
27 impacted soil area to monitor for airborne particulate emissions during soil
28 excavation and handling activities.
- 29 j. All excavations shall be filled with structurally suitable fill material which
30 contains contaminant concentrations (if any) that are within permissible limits,
31 as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB.
- 32 k. Any project-related dewatering activities shall either discharge into the sanitary
33 sewer, under permit with the City of Los Angeles Sanitation Bureau, or comply
34 with the NPDES permit regulations and an associated SWPPP regarding
35 discharge into storm drains and/or directly into Harbor waters. Such permit
36 requirements typically include on-site treatment to remove pollutants prior to
37 discharge. Alternatively, the water shall be temporarily stored onsite in holding
38 tanks, pending off-site disposal at a disposal facility approved by the
39 LARWQCB. An NPDES-mandated SWPPP shall include measures ensuring
40 that potential pollutant-contaminated waters encountered during excavation
41 would be isolated and collected for transportation to a hazardous waste
42 treatment facility prior to their discharge into the storm drain system.

43 *Residual Impacts*

44 Additional soil characterization and remediation of Tank Farm Site 2, as outlined in **MM**
45 **GW-1**; soil, slurry, and groundwater characterization in areas of known contamination,

1 as outlined in **MM GW-2**; as well as implementation of a contingency plan for
2 potentially encountering unknown soil or groundwater contamination, as outlined in
3 **MM GW-3**, would reduce health and safety impacts to on-site personnel in onshore
4 areas, as well as operational personnel in immediately adjacent areas, such that residual
5 impacts would be less than significant.

6 **NEPA Impact Determination**

7 Grading and construction, including grading for Tank Farm Sites 1 and 2; trenching for
8 Pipeline Segments 1, 2a, 2b, 2c, 4 and 5; trenching at the ExxonMobil Southwest
9 Terminal; trenching within and adjacent to the HDD work areas; excavations at pigging
10 Station Site A and Alternative Site B; and dewatering at pigging Station Site A and
11 Alternative Site B could potentially expose construction personnel, existing nearby
12 operations personnel, and future occupants of the site to contaminated soil and
13 groundwater, as summarized in Table 3.7-1. Human health and safety impacts would be
14 significant under NEPA pursuant to exposure levels established by Cal/EPA's Office of
15 Environmental Health Hazard Assessment (OEHHA).

16 *Mitigation Measures*

17 Additional soil characterization and remediation of Tank Farm Site 2, as outlined in **MM**
18 **GW-1**; soil, slurry, and groundwater characterization in areas of known contamination,
19 as outlined in **MM GW-2**; as well as implementation of a contingency plan for
20 potentially encountering unknown soil or groundwater contamination, as outlined in
21 **MM GW-3**, shall be applied to reduce potentially significant health and safety impacts
22 to on-site personnel in onshore areas, as well as operational personnel in immediately
23 adjacent areas.

24 *Residual Impacts*

25 Additional soil characterization and remediation of Tank Farm Site 2, as outlined in **MM**
26 **GW-1**; soil, slurry, and groundwater characterization in areas of known contamination,
27 as outlined in **MM GW-2**; as well as implementation of a contingency plan for
28 potentially encountering unknown soil or groundwater contamination, as outlined in
29 **MM GW-3**, would reduce health and safety impacts to on-site personnel in onshore
30 areas, as well as operational personnel in immediately adjacent areas, such that residual
31 impacts would be less than significant.

32 **3.7.4.4 Mitigation Monitoring**

33 No mitigation measures developed in the Deep Draft FEIS/FEIR remain applicable to
34 the proposed Project. Mitigation measures developed in this ~~Draft~~-SEIS/SEIR are as
35 follows.

<p>Impact GW-1.1: Construction activities may encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure (duration of construction) to construction/operations personnel and/or long-term exposure to future site occupants.</p>	
<p>MM GW-1: Site Remediation.</p>	
Mitigation Measure	<p>Unless otherwise authorized by the lead regulatory agency for any given site, the LAHD shall remediate all encountered contaminated soils or contamination within the excavation zones on the Project site boundaries prior to or during subsurface construction activities. Remediation shall also include suspected or known contamination within boundaries of the proposed Project that occurred as a result of leaks or spills on adjacent properties. Remediation shall occur in compliance with local, state, and federal regulations, as described in Section 3.7.3, and as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB.</p> <p>Soil remediation shall be completed such that contamination levels in subsurface excavations are below health screening levels established by OEHHA and/or applicable action levels established by the lead regulatory agency with jurisdiction over the site. Only clean soil would be used as backfill. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) in backland areas and/or risk-based soil assessments but would be subject to the discretion of the lead regulatory agency.</p> <p>Existing groundwater contamination throughout the proposed Project boundary shall continue to be monitored and remediated as encountered, simultaneous and/or subsequent to site development, and/or in accordance with direction provided by the LARWQCB.</p> <p>Unless otherwise authorized by the lead regulatory agency for any given site, areas of excavation with soil contamination that shall be remediated prior to, or in conjunction with, Project construction.</p>
Timing	Prior to or during grading activities.
Methodology	Soil and groundwater remediation shall be completed such that contamination levels are below health screening levels established by OEHHA and/or applicable action levels established by the lead regulatory agency with jurisdiction over the site. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) and/or risk-based soil assessments, but would be subject to the discretion of the lead regulatory agency.
Responsible Parties	LAHD, Los Angeles Fire Department, DTSC, and/or LARWQCB
Residual Impacts	Less than significant after mitigation.

MM GW-2: Soil, Slurry, and Groundwater Characterization in Areas of Known Contamination.	
Mitigation Measure	<p>The following sampling plan shall be implemented to address areas of known soil contamination during grading, trenching, HDD, and dewatering activities:</p> <ol style="list-style-type: none"> Excavated soil in areas of known contamination shall be systematically tested for contaminants, including but not limited to those listed in Table 3.7-1, for each project area. HDD drilling waste shall be systematically tested for contaminants, and if present, segregated from clean soils and slurry. The remedial option(s) of contaminated material shall be dependent upon a number of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, cost, etc.) and shall be determined on a site-specific basis. On-site personnel handling or working in the vicinity of the contaminated material shall be trained in accordance with Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations. These regulations are based on CFR 1910.120 (e) and 8 CCR 5192, which states that “general site workers” shall receive a minimum of 40 hours of classroom training and a minimum of three days of field training. This training provides precautions and protective measures to reduce or eliminate hazardous materials/waste hazards at the work place. Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials shall be submitted to the Chief Harbor Engineer within 30 days of soil/slurry sampling, remediation, and/or disposal. All excavations shall be filled with structurally suitable fill material which contains contaminant concentrations (if any) that are within permissible limits, as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB. All excavations shall be filled with structurally suitable fill material which contains contaminant concentrations (if any) that are within permissible limits, as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB. Any project-related dewatering activities shall either discharge into the sanitary sewer, under permit with the City of Los Angeles Sanitation Bureau, or comply with the NPDES permit regulations and an associated SWPPP regarding discharge into storm drains and/or directly into harbor waters. Such permit requirements typically include on-site treatment to remove pollutants prior to discharge. Effluent analyses should include, but not be limited to, contaminants summarized in Table 3.7-1. Alternatively, the water shall be temporarily stored onsite in holding tanks, pending off-site disposal at a disposal facility approved by the LARWQCB. An NPDES-mandated SWPPP shall include measures ensuring that potential pollutant-contaminated waters encountered during excavation would be isolated and collected for transportation to a hazardous waste treatment facility prior to their discharge into the storm drain system.
Timing	Prior to or during grading, excavation, and construction activities.
Methodology	<p>The Port shall confirm the presence of the suspect contaminated soil and direct the contractor to remove, stockpile, or contain the suspect material identified within the boundaries of the construction area. Contaminated sediments shall either be treated on-site or trucked off-site for disposal at a California licensed facility approved for disposal of such waste.</p> <p>Contaminated slurry shall be containerized, dewatered, and dried, pending remediation or off-site disposal. Contaminated groundwater, derived from the slurry dewatering process, shall be trucked off-site and disposed at a California licensed disposal facility.</p> <p>The remedial option(s) of contaminated material shall be dependent upon a number of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, cost, etc.) and shall be determined on a site-specific basis.</p>
Responsible Parties	LAHD, Los Angeles Fire Department, DTSC, and/or LARWQCB
Residual Impacts	Less than significant after mitigation.

MM GW-3: Contamination Contingency Plan.	
Mitigation Measure	<p>The following contingency plan shall be implemented to address unknown contamination during grading, trenching, HDD, and dewatering activities:</p> <ol style="list-style-type: none"> a. All grading, trench excavation and filling operations, HDD, and dewatering operations shall be observed for the presence of free-phase petroleum products, chemicals, or contaminated soil/groundwater. Discolored soil or suspected contaminated soil shall be segregated from clean soil. In the event unexpected, contaminated soil or groundwater is encountered during construction, the contractor shall notify the Los Angeles Harbor Department's Chief Harbor Engineer, Director of Environmental Management, and Risk Management's Industrial Hygienist. The Port shall confirm the presence of the suspect material and direct the contractor to remove, stockpile or contain, and characterize the suspect material(s) identified within the boundaries of the construction area. Continued work at a contaminated site shall require the approval of the Chief Harbor Engineer. b. A photoionization detector (or other organic vapor detecting device) shall be present during grading, excavation, and HDD through suspected chemically impacted soil. c. Excavation of VOC-impacted soil will require obtaining and complying with a South Coast Air Quality Management District Rule 1166 permit. d. The extent of removal actions shall be determined on a site-specific basis. At a minimum, the chemically impacted area(s) within the boundary of the tank farm construction area or pipeline trench shall be remediated to the satisfaction of the lead regulatory agency for the site. The Port Project Manager overseeing removal actions shall inform the contractor when the removal action is complete. e. HDD drilling waste shall similarly be monitored for contaminants, and if present, segregated from clean soils and slurry. Contaminated slurry shall be containerized, dewatered, and dried, pending remediation or off-site disposal. Contaminated groundwater, derived from the slurry dewatering process, shall be trucked off-site and disposed at a California licensed disposal facility. f. The remedial option(s) of contaminated material shall be dependent upon a number of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, cost, etc.) and shall be determined on a site-specific basis. Both off-site and on-site remedial options shall be evaluated. g. Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials shall be submitted to the Chief Harbor Engineer within 30 days of project completion. h. In the event that contaminated soil is encountered, all on-site personnel handling or working in the vicinity of the contaminated material shall be trained in accordance with Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations. These regulations are based on CFR 1910.120 (e) and 8 CCR 5192, which states that "general site workers" shall receive a minimum of 40 hours of classroom training and a minimum of three days of field training. This training provides precautions and protective measures to reduce or eliminate hazardous materials/waste hazards at the work place. i. In cases where potential chemically impacted soil is encountered, a real-time aerosol monitor shall be placed on the prevailing downwind side of the impacted soil area to monitor for airborne particulate emissions during soil excavation and handling activities. j. All excavations shall be filled with structurally suitable fill material which contains contaminant concentrations (if any) that are within permissible limits, as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB. k. Any project-related dewatering activities shall either discharge into the sanitary sewer, under permit with the City of Los Angeles Sanitation Bureau, or comply with the NPDES permit regulations and an associated SWPPP regarding discharge into storm drains and/or directly into harbor waters. Such permit requirements typically include on-site treatment to remove pollutants prior to discharge. Alternatively, the water shall be temporarily stored onsite in holding tanks, pending off-site disposal at a disposal facility approved by the LARWQCB. An NPDES-mandated SWPPP shall include measures ensuring that potential pollutant-contaminated waters encountered during excavation would be isolated and collected for transportation to a hazardous waste treatment facility prior to their discharge into the storm drain system.
Timing	Prior to or during grading, excavation, and construction activities.

MM GW-3: Contamination Contingency Plan. (continued)	
Methodology	<p>The Port shall confirm the presence of the suspect contaminated soil and direct the contractor to remove, stockpile, or contain the suspect material identified within the boundaries of the construction area. Contaminated sediments shall either be treated on-site or trucked off-site for disposal at a California licensed facility approved for disposal of such waste.</p> <p>Contaminated slurry shall be containerized, dewatered, and dried, pending remediation or off-site disposal. Contaminated groundwater, derived from the slurry dewatering process, shall be trucked off-site and disposed at a California licensed disposal facility.</p> <p>The remedial option(s) of contaminated material shall be dependent upon a number of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, cost, etc.) and shall be determined on a site-specific basis.</p>
Responsible Parties	LAHD, Los Angeles Fire Department, DTSC, and/or LARWQCB
Residual Impacts	Less than significant after mitigation.
Impact GW-2.1: Project construction activities would potentially result in release of contaminants to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated.	
MM GW-4: Aquifer Cross-Contamination Prevention.	
Mitigation Measure	<p>The following aquifer cross-contamination prevention measures shall be implemented to address HDD related operations:</p> <ol style="list-style-type: none"> Additional assessment of the hydrologic conditions of the semi-perched aquifer, Bellflower Aquiclude, and Gage Aquifer shall be performed in areas where cross-contamination could occur as a result of HDD operations. An HDD plan shall be developed and implemented to prevent the introduction of contaminated groundwater from the semi-perched aquifer into deeper aquifers along the HDD routes.
Timing	Prior to construction
Methodology	<p>Groundwater assessment would include groundwater well installation for sampling and constituent analysis, as well as pumping tests to evaluate aquifer characteristics, including storage, transmissivity, and hydraulic conductivity. Groundwater samples would be analyzed for TPH, VOCs, SVOCs, PAHs, pesticides, PCBs, and metals. Groundwater samples would also be analyzed for physical groundwater characteristics including pH, conductivity, general mineral content, and other parameters. At least one set of cluster wells shall be completed to evaluate the vertical gradient and potential for vertical flow between the semi-perched aquifer, Bellflower Aquiclude, and Gage Aquifer.</p> <p>The HDD plan shall be developed based on the results of an assessment of the hydrologic conditions, as described above in "a". The plan may include using a conductor casing during HDD through the semi-perched aquifer into the underlying Bellflower Aquiclude. Use of such a conductor casing would likely be most appropriate at the entry point to Pipeline Segment 3 South, as much of Mormon Island is underlain by NAPL.</p>
Responsible Parties	LAHD, Los Angeles Fire Department, DTSC, and/or LARWQCB
Residual Impacts	Less than significant after mitigation.
MM GW-5: Frac-Out Prevention.	
Mitigation Measure	<p>The following frac-out prevention measures shall be implemented to address construction related frac-outs:</p> <ol style="list-style-type: none"> A preliminary, site-specific, geotechnical investigation shall be completed in areas proposed for HDD. A frac-out contingency plan shall be completed, including measures for prevention, containment, clean up, and disposal of released drilling muds that might occur either on the ground surface or into harbor waters.
Timing	Prior to construction
Methodology	<p>Preliminary geotechnical borings shall be drilled to verify that the proposed depth of HDD is appropriate to avoid frac-outs (i.e., the depth of finest grained sediments and least fractures) and to determine appropriate horizontal directional drilling methods (i.e., appropriate drilling mud mixtures for specific types of sediments). Preventative measures would include incorporation of the recommendations of the geotechnical investigation to determine the most appropriate HDD depth and drilling mud mixture. In addition, drilling pressures shall be closely monitored so that they do not exceed those needed to penetrate the formation.</p>
Responsible Parties	LAHD, Los Angeles Fire Department, DTSC, and/or LARWQCB
Residual Impacts	Less than significant after mitigation.

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