

San Francisco Bay Conservation and Development Commission

455 Golden Gate Avenue, Suite 10600, San Francisco, California 94102 tel 415 352 3600 fax 415 352 3606

July 3, 2015

Application Summary

(For Commission consideration on July 16, 2015)

Number: BCDC Permit Application No. 2014.006.00
Date Filed: May 15, 2015
90th Day: August 13, 2015
Staff Assigned: Jaime Michaels (415/352-3613; jaime.michaels@bcdc.ca.gov)

Summary

Applicant: Tesoro Refining & Marketing Company LLC (“Tesoro”)

Location: In the Bay, within the 100-foot shoreline band, and within a *San Francisco Bay Plan*-designated (Map 2) Water-Related Industry site, at the Golden Eagle Refinery Avon Wharf, located approximately 1.7 miles east of the Benicia-Martinez Bridge at the southern shoreline of Suisun Bay, near the mouth of Pacheco Creek, at 150 Solano Way, in the City of Martinez, Contra Costa County (Figure 1).

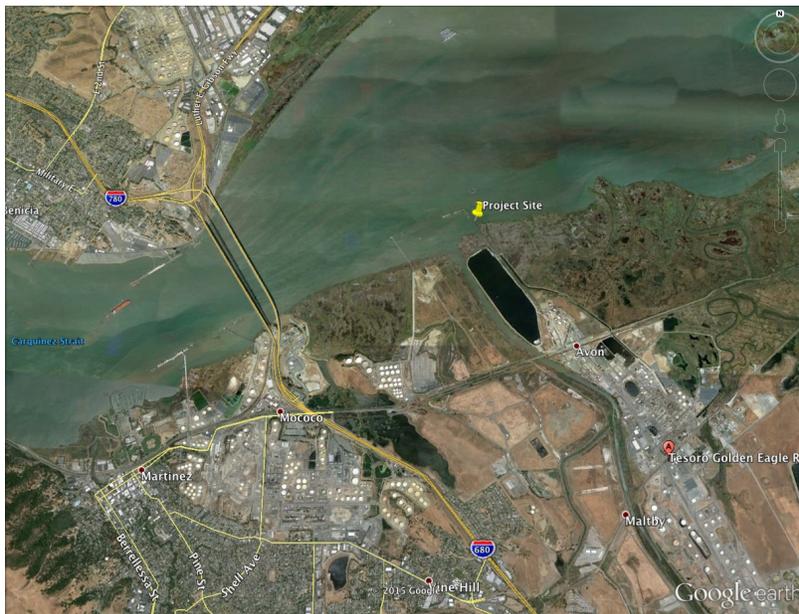


Figure 1: Project Site

Project: The proposed project is designed to meet mechanical, electrical and structural/seismic criteria established through the State of California Marine Oil Terminal Engineering and Maintenance Standards (“MOTEMS”) administered by the California State Lands Commission. MOTEMS resulted from the passage of the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990 (“Act”). The Act defines the State Lands Commission’s responsibilities, including adoption of rules, regulations and guidelines to review the location, type, character, performance standards, size and operation of all marine terminals to assure safe operation and minimize the potential of oil spills.

MOTEMS became an enforceable part of the California Building Code in 2006.¹ Among the requirements of these standards are audits of marine oil terminals, and implementation of repair and maintenance measures to ensure their suitability for continued operation. An audit of Tesoro’s facility resulted in the state’s determination that the marine terminal required upgrading to ensure its integrity in a manner consistent with MOTEMS. The California State Lands Commission required Tesoro to complete MOTEMS compliance at the Avon Wharf by June 2017. According to Tesoro, “[t]he planned modifications and repairs to the Avon Wharf do not provide any increase or expansion of operations.”

The proposed project consists of the following primary activities: (1) the demolition of a timber berth (Berth 5) and an approachway (or “roadway”) with timber piling support, which provides wharf access to personnel and supplies from an upland refinery; (2) the construction of a steel pile-supported approachway; (3) the construction of a berth (Berth 1A) located adjacent to the existing Berth 1; and (4) the construction of a pipeway trestle supporting existing pipelines located adjacent to the proposed approachway (Exhibits A and B).

¹ Title 24, CCR, Part 2, California Building Code, Chapter 31F, Marine Oil Terminals.

The proposed demolition and construction activities would result in an approximate 11,939-square-foot (0.28-acre) net increase in open water surface area, and an approximate 237 cubic yards (cy) decrease in Bay volume resulting from an increase in the quantity and size of pilings at the proposed wharf, approachway, and pipeway.

The permit application raises five main issues, specifically whether the project would be consistent with: (1) the Commission’s law and policies on Bay fill and the project site’s priority use designation for water-related industry; (2) the Bay Plan policies regarding natural resource protection; (3) the Bay Plan policies on safety of fills; (4) the Bay Plan policies on climate change; and (5) the Bay Plan policies on navigational safety and oil spill prevention.

Project Description

Project

Details:

The applicant, Tesoro Refining & Marketing Company LLC, proposes the following project:

In the Bay:

1. **Demolition.** Demolish existing pile-supported structures covering a total of approximately 74,510 square feet (1.71-acre) of Bay surface area and supported by 208, 18-inch-diameter, 994, 15-inch-diameter, and 60, 14-inch-diameter pilings (a total of approximately 889 cubic yards of solid fill), including the following: (a) an approximately 28,000-square-foot berth (Berth 5) and an adjoining 5,500-square-foot transition structure to Berth 1; (b) an 120-square-foot mooring dolphin (“T”); and (c) an approximately 40,890-square-foot (0.94 acre) section of a pile-supported approachway and pipeway trestle;
2. **Berth 1A, Approachway, and Pipeway.** Construct, use and maintain in-kind Berth 1A, an approachway, and a pipeway trestle covering a total of approximately 60,595 square feet (1.39-acre) of Bay surface area with the following primary features: (a) an approximately 14,910-square-foot (0.34 acre) pile-supported concrete platform with infrastructure, including an above-deck pipeline system, a two-story operator control building, an approximately 75-foot-tall loading hose/boom tower, utilities, a marine vapor recovery “skid” system, a mooring line tension monitoring system, fire and smoke detectors, firewater monitors and pumps, and emergency shutdown valves, and seismic instrumentation; (b) an approximately 6,090-square-foot (0.14 acre) pile-supported trestle to support existing pipelines, including an additional two-inch-diameter fire-fighting line;

(c) an approximately 825-square-foot floating spill response boat dock with a pile-supported gangway; (d) two emergency egress vessel boat lifts covering a total of approximately 192 square feet; (e) an approximately one-half-mile-long, pile-supported approachway, including an approximately 4,000-square-foot vehicle parking area, and adjoining trestle supporting pipelines covering a total of approximately 38,578 square feet (0.88 acre); and (f) associated steel pilings—12, 72-inch-diameter; 4, 48-inch-diameter; 71, 36-inch-diameter; 176, 30-inch-diameter; 135, 24-inch-diameter together displacing a total of approximately 1,125 cy of Bay volume;

3. **Berth 1.** Install, use and maintain in-kind, at Berth 1, an approximately 1,976-square-foot (0.045-acre) mooring dolphin (M4) and pile-supported gangway;
4. **Temporary Piles.** Install, use, maintain in-kind, and, ultimately, remove 27 temporary 16-inch-diameter piles (2 cy) to facilitate construction of the approachway;
5. **Navigation Aid.** Relocate, use and maintain in-kind an existing navigation aid supported by three, 18-inch-diameter pilings; and
6. **Nesting Platform.** Install, use and maintain in-kind an osprey nesting perch consisting of a single approximately 30-foot-tall pole with an approximately 16-square-foot nesting platform in a marsh area.

Within the 100-foot shoreline band:

1. **Approachway and Pipeway.** Install, use, and maintain in-kind, 12 pilings to support an approximately 672-square-foot section of a concrete approachway and pipeway system.

Bay Fill:

The proposed demolition and construction activities would result in an approximate 11,939-square-foot ("SF") (0.28-acre ("AC")) net increase in open Bay surface area, and an approximate 237 cubic yards ("CY") net reduction in Bay volume from the installation of pilings, as shown below:

Fill	Removed (Demolition)			New (Installed)			TOTAL
	SF	AC	CY	SF	AC	CY	
Pile-Supported Structures	74,510	1.71	---	62,571	1.43	---	-11,939 SF -0.28 AC
Solid Pilings	---	---	889	---	---	1,125	+237 CY

Mitigation: The proposed project would permanently impact an approximately 0.02-acre area of tidal/brackish marsh suitable for the federally-listed salt marsh harvest mouse (“SMHM”), and temporarily impact an approximately 1.5-acre area of tidal/brackish marsh suitable for SMHM. Additionally, annual vegetation clearance at the site to facilitate pipeway inspections would regularly impact an approximately 3.3-acre tidal/brackish marsh area suitable for SMHM and the federally-listed Ridgway rail.

To mitigate impacts to SMHM habitat, Tesoro has provided funding to purchase 12.56 acres of SMHM habitat at the (proposed, not yet approved by the Commission) Cordelia Slough Preserve mitigation bank, located at the former Green Lodge Duck Club, in an unincorporated area of Solano County, approximately 7.2 miles north of the Tesoro marine terminal. Additionally, Tesoro has provided \$225,000.00 to improve SMHM habitat at McNabney Marsh, located southwest of the project site and east of Interstate 680, in the City of Martinez, Contra Costa County (outside of the Commission’s jurisdiction). Finally, to compensate for construction impacts and the on-going impacts from annual vegetation clearance on Ridgway rail and SMHM, Tesoro has provided \$260,000.00 to restore a minimum of four acres of Ridgway clapper rail habitat at the San Pablo Bay National Wildlife Refuge (Figure 2).

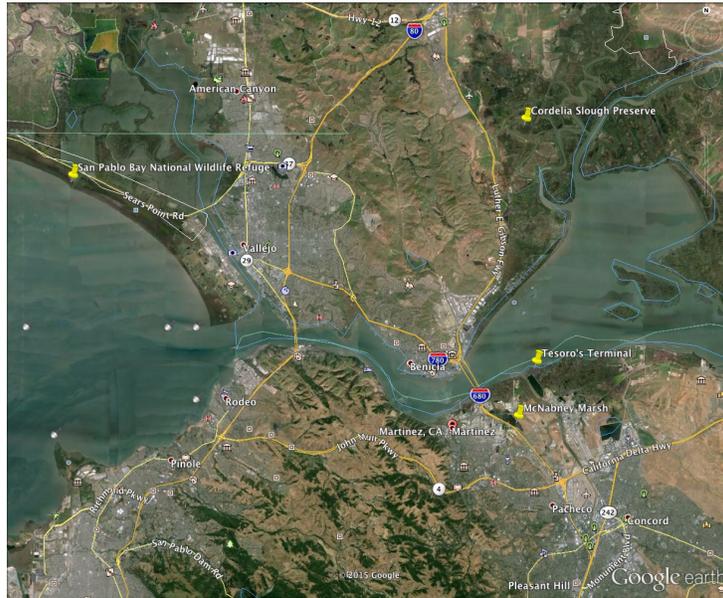


Figure 2: Proposed Mitigation Sites

**Public
Access:**

The proposed modifications and repairs to Tesoro’s Avon Wharf system are designed to achieve compliance with MOTEMS. The project site is not accessible to the general public due to federal security and safety restrictions. According to the application, all persons accessing the wharf (and the associated wetland area) must be accompanied by Tesoro personnel with federal security credentials or obtain specific required safety and security clearance. According to the

applicant, the proposed activities would “not provide any increase or expansion” of existing operations and not result in impacts on nearby public use of or access to the Bay. As proposed, the project does not include public access improvements.

Schedule

and Cost: Proposed construction would begin in summer 2015, and, as required by the State Lands Commission, would be completed by June 2017. The total project cost would be approximately \$90,000,000.

Staff Analysis

A. **Issues Raised:** The permit application raises five main issues, specifically whether the project would be consistent with: (1) the Commission’s law and policies on Bay fill and the project site’s priority use designation for water-related industry; (2) the McAteer-Petris Act’s and Bay Plan policies regarding natural resource protection; (3) the Bay Plan policies on safety of fills; (4) the Bay Plan policies on climate change; and (5) the Bay Plan policies on navigational safety and oil spill prevention.

1. **Bay Fill and Priority Use.** The Commission may allow fill when it meets the requirements identified in Section 66605 of the McAteer-Petris Act, which provide, in part, that: (a) fill “should be limited to water-oriented uses;” (b) fill in the Bay should be approved only when “no alternative upland location” is available; (c) fill should be “the minimum amount necessary to achieve the purpose of the fill”; (d) “the nature, location, and extent of any fill should be such that it will minimize harmful effects to the Bay area, such as, the reduction or impairment of the volume, surface area or circulation of water, water quality, fertility of marshes or fish or wildlife resources, or other conditions impacting the environment...”; (e) “fill [should] be constructed in accordance with sound safety standards which will afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters”; and (f) “fill should be authorized when the applicant has such valid title to the properties in question that he or she may fill them in the manner and for the uses to be approved.”

The Bay Plan Map 2 designates the project site for water-related industrial use, and includes Policy 12, which states that “[p]ipelines and piers may be built over marshes.”

In the Bay, the proposed project would primarily involve the demolition and removal of existing facilities, including Berth 5, an approachway, and piles supporting various structures (e.g. a pipeway), and the construction of a berth and an approachway, improvements at Berth 1, and a pipeway trestle supporting existing pipelines.

- a. **Water-Oriented Use and Upland Alternative.** Section 66605 of the McAteer-Petris Act identifies “water-related industry” as a water-oriented use. The Bay Plan findings on water-related industries state, in part, that water-related industries “require a waterfront location on navigable, deep water to receive raw materials and distribute finished products by ship, thereby gaining a significant transportation cost advantage.”

The project site is located adjacent to the Suisun Bay, east of Carquinez Strait, within an area serving deep-water marine vessels. Water depths at the berth are approximately 45 to 50 feet below Mean Lower Low Water (MLLW). The site transfers oil products to and from ships moored at the Avon Wharf. Oil products are transferred through several pipelines connected to the upland facility, which is located outside the Commission's jurisdiction.

According to the Final Environmental Impact Report ("FEIR") on the proposed project, annual ship and barge traffic currently averages 124 vessels per year. Current throughput ranges from 5.1 to 12.8 million barrels per year. Future estimates are 70 to 120 vessels per year, with annual throughput estimates ranging from 10 to 15 million barrels per year. The maximum capacity at the facility is 45 million barrels per year. The timber and creosote-treated structures proposed for demolition, including Berth 5 and the approachway, have been in place for approximately 90 years and require complete removal. According to the FEIR, the project would "not provide any increase or expansion" of existing operations, but the site would continue to fulfill a water-related industrial use as a marine oil terminal.

The proposed facilities would continue to take advantage of their proximity to the Bay—relocation to an upland site is not feasible for a marine-based terminal. According to the application, the proposed Berth 1A main platform would house facilities whose specific over-water location is necessary to achieve compliance with the MOTEMS program. For example, the proposed two-story control building at the main platform is designed to improve "visibility of the terminal" and, thereby, ensure safe operations. Other proposed facilities at the main platform include: a marine vapor recovery system for capturing hydrocarbon vapors associated with oil product loadings to comply with Bay Area Air Quality Management District regulations; a fire and smoke detection and response facility; and MOTEMS-required instrumentation and control infrastructure. Upon completion of the project, loading operations would cease at the existing Berth 1 and shift to the proposed Berth 1A. The project also includes new docking facilities for oil spill response boats and lifts for emergency egress boats. According to the application, the proposed mooring dolphin at existing Berth 1A would "allow vessels to be secured with a more secure, symmetrical mooring line arrangement."

A proposed pile-supported, 12-foot-wide, concrete approachway and pipeway support system would be directly connected to the wharf complex and built over tidal marsh. These structures would involve the installation of 352 steel piles, and the removal of 795 existing creosote timber piles. The proposed improvements at the pipeway would support eleven existing pipelines measuring 2- to 20-inches-diameter and carrying recovered oil, water, vapor recovery, gasoline, and a proposed 2-inch line carrying firefighting foam. A parking area for vehicles would also be located on a 4,000-square-foot section of the proposed approachway.

- b. **Minimum Fill.** As proposed, the project would result in an approximately 11,939-square-foot (0.28-acre) net decrease in open surface area of the Bay, and an approximately 237 cubic yards net increase in Bay volume due to an increase in the size of pilings. Additional activities, namely temporary construction pilings/facilities and the relocation of a navigational aid, would not result in any permanent change in the Bay's volume. The proposed osprey nesting platform would involve the placement of an approximately 16-square-foot nesting platform elevated approximately thirty feet above a tidal brackish marsh area.
- c. **Valid Title.** The California State Lands Commission issued a renewed a lease dated January 1, 2015, to Tesoro to continue its marine terminal operations at the project site. The lease-term is 30 years, expiring on December 31, 2044, at which time, if the lease is not further renewed, the lease requires Tesoro to "remove all or any portion of the improvements at its sole expense and risk, provided that all necessary government permits are obtained."

The Commission should determine whether the proposed project would be consistent with its law on Bay fill and the Bay Plan priority use designation for the project site.

2. **Bay Resources and Mitigation.** In addition to the provisions of Section 66605 of the McAtter-Petris Act regarding fill effects on resources, the Bay Plan contains the following relevant policies:

Fish, Other Aquatic Organisms, and Wildlife Policy 2, states, in part: "...habitats that are needed to conserve, increase, or prevent the extinction of any native species, species threatened or endangered...should be protected...." Policy 4 states, in part: "[t]he Commission should: (a) consult with the California Department of Fish and Game and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service whenever a proposed project may adversely affect an endangered or threatened... species....; [and] (c) give appropriate consideration to the recommendations of the [resource agencies] in order to avoid possible adverse effects of a proposed project on fish, other aquatic organisms and wildlife habitat."

Tidal Marshes and Tidal Flats Policy 1 states, in part: "...[f]illing, diking, and dredging projects that would substantially harm tidal marshes...should be allowed only for purposes that provide substantial public benefits and only if there is no feasible alternative." Policy 2 states: "[a]ny proposed fill, diking, or dredging project should be thoroughly evaluated to determine the effect of the project on tidal marshes and tidal flats, and designed to minimize, and if feasible, avoid any harmful effects." Further, the Bay Plan Subtidal Areas Policy 1 states, in part, projects in subtidal areas "should be designed to minimize and, if feasible, avoid any harmful effects" on Bay resources.

The Bay Plan Water Quality Policy 2 states: "[w]ater quality in all parts of the Bay should be maintained at a level that will support and promote the beneficial uses of the Bay as identified in the Regional Water Quality Control Board's Basin Plan. The policies, recommendations, decisions, advice and authority of the State Water Resources Control Board and the Regional Water Quality Control Board, should be the basis for carrying out the Commission's water quality responsibilities." Policy 3 states, in part: "[n]ew projects should be sited, designed, constructed and maintained to prevent or, if preven-

tion is infeasible, to minimize the discharge of pollutants into the Bay....” The Bay Plan Water-Related Industry Policy 1 also states, in part, that sites should be planned to minimize “water pollution...through strict compliance with all relevant laws, policies and standards.”

The Bay Plan Mitigation Policy 1 states, in part, that projects should avoid adverse environmental impacts and, if unavoidable, impacts minimized to the greatest extent practicable and, moreover, require measures to compensate for such impacts. Policy 2 states, in part: “...compensatory mitigation projects should be sited and designed...as close to the impact site as practicable...” The Bay Plan Mitigation Policy 4 states, in part: “[t]he amount and type of compensatory mitigation should be determined...based on a clearly identified rationale that includes an analysis of: the probability of success of the mitigation project; the expected time delay between the impact and the functioning of the mitigation site; and the type and quality of the ecological functions of the proposed mitigation site as compared to the impacted site.” Policy 6 states, in part, mitigation should occur “prior to, or concurrently with those parts of the project causing adverse impacts.” Policy 7 states, in part, that the program should include goals, performance standards to evaluate success, and plans for site monitoring, adaptation, maintenance, and management. Additionally, Bay Plan Water-Related Industry Policy 1 states, in part, that projects should be “consistent with the Commission's policy concerning mitigation...provid[ing] for all unavoidable adverse environmental impacts.”

According to the application, the “project area is located in what was historically level brackish marsh,” where some upland area has been filled to serve oil refinery purposes. The northern-most section of the project site is open to tidal action and covered by “relatively undisturbed brackish marsh[es]” and “unvegetated Suisun Bay mudflats and subtidal areas.” The tidelands south of open water is tidal marsh, but in the immediate vicinity of the existing approachway and pipeway, the marsh is degraded due to State Fire Marshall required and regular vegetation clearance to allow pipeline inspections. Within the project area, tidal-brackish marsh provides suitable habitat for the federally-endangered salt marsh harvest mouse (“SMHM”) and the federally-endangered Ridgway rail (“rail”). Open water and low elevation marshes at the site provide habitat suitable for the federally-threatened southern distinct population segment (“DPS”) North American green sturgeon.

In the Bay, the proposed project primarily involves the removal of Berth 5, an approachway, and associated pilings, and the construction of Berth 1A and a new approachway, upgrades to a trestle supporting existing pipelines, and minor improvements at Berth 1A. The proposed facilities would be supported on pilings over the open water and tidal brackish marsh areas. The project would result in an approximately 11,939-square-foot (0.28-acre) net decrease in open surface area of the Bay, and an approximately 237 cubic yards net increase in Bay volume associated with proposed solid fill by new larger pilings.

- a. **Fish.** On April 13, 2015, the National Marine Fisheries Service (“NMFS”) issued a biological opinion (“B.O.”) for the proposed project. The opinion states that, the project would occur in an area populated by the threatened southern DPS North American green sturgeon and, thus, could result in impacts to green sturgeon from pile driving and elevated sound levels, and water quality degradation from turbidity. However, the B.O. concluded that the project would not likely jeopardize the continued existence of the species or result in adverse effects of associated critical habitat due to Tesoro’s proposed impact minimization construction measures, including: the use of a vibratory hammer to install piles and, if impact drivers are needed, the restriction of their use from August 1 to November 30, and the use of bubble curtains to attenuate underwater sound levels. Additionally, NMFS recommended—and Tesoro proposes—to implement the hydro-acoustic monitoring program during construction to assess pile driving effects on green sturgeon, as described in *Tesoro Avon Motems Compliance Project Underwater Acoustic Monitoring Plan*, dated November 21, 2014. Regarding Essential Fish Habitat (“EFH”) in the project area, NMFS determined that the project could adversely affect EFH for various federally-managed species included the Pacific Salmon, coastal Pelagic, and Pacific Groundfish Fishery Management Plans, but such effects would be temporary and offset, in part, by an overall project decrease in over-water fill. The B.O. concludes by stating “[w]hen completed, the project is expected to benefit aquatic habitat through...” the resulting decrease in over-water (i.e., pile-supported) fill and the removal of creosote-treated timber pilings.
- b. **Wildlife.** On May 11, 2015, the USFWS issued a B.O. focusing primarily on the project’s “likely” effects on the federally-endangered SMHM and Ridgway rail, and the threatened Delta smelt and designated critical habitat. The B.O. states that Tesoro’s proposed construction measures to reduce elevated sound effects of pile driving and minimize potential water quality impacts would address potential long-term effects on smelt. Regarding effects on the SMHM and the rail, the USFWS found that the project would impact marsh habitat suitable for these special-listed species, specifically: permanent habitat loss of an approximately 0.02-acre area of tidal/brackish marsh suitable for SMHM habitat; temporary construction impacts (from proposed approachway and pipeway construction) affecting a total of approximately 1.5-acre area of tidal/brackish marsh suitable for SMHM habitat; and on-going impacts affecting approximately 3.3-acre tidal/brackish marsh area suitable for SMHM and rail from regular vegetation clearance along the pipeway alignment.
- c. **Mitigation.** The USFWS recommended that impacts to SMHM habitat be mitigated through funding the purchase of a total of 21.12 acres of similar habitat (11.13 acres for construction-related impacts and 9.99 acres for annual vegetation clearing impacts). In response, Tesoro funded the purchase of 12.56 acres of salt marsh harvest mouse habitat at the (proposed) Cordelia Slough Preserve (“Preserve”), located at the former private Green Lodge Duck Club, in the Commission’s Primary Management Area of the Suisun Marsh, approximately 7.2 miles north of Tesoro’s

marine terminal. The Preserve has been purchased by a private company (Wildlands Inc.,) and, in the future, would cover an approximately 195-acre area. It should be noted that the Preserve has not yet been reviewed by Commission staff nor has the mitigation area been authorized through a Commission action.

Tesoro also provided \$225,000.00 to improve SMHM habitat at McNabney Marsh, located southwest of the project site and east of Interstate 680, in the City of Martinez, Contra Costa County, and about a half mile south of the Commission's jurisdiction.²

To compensate for 1.1 acres of short-term construction impacts and 0.9 acres of impacts associated with annual vegetation clearance on Ridgway rail as well as SMHM, Tesoro provided \$260,000.00 to restore a minimum of four acres of Ridgway clapper rail habitat at the San Pablo Bay National Wildlife Refuge. The exact location and improvements at the four-acre area within the Refuge have not yet been finalized. Also, Tesoro proposes to implement site-specific measures to reduce perch areas for predators of SMHM and the rail through the removal of trees and the use of a certain type of pile cap at the east site of the proposed pipeway.

Tesoro would also incorporate other USFWS-recommended measures to avoid and minimize project impacts, including: the preparation and, following the completion of project construction, implementation of a revegetation plan to restore tidal/brackish marsh impacted by the project (excluding areas to be affected by annual vegetation clearance), which includes a five-year monitoring program and success criteria; the implementation of precautionary steps to protect SMHM at the project site (e.g., employing a site biologist while work is underway, training personnel working in marshlands on the biology and sensitivity of the SMHM and Ridgway rail, installing fencing to keep the SMHM and rail from work areas, restricting work to dry periods and certain times of day, etc.), and conducting surveys for Ridgway rail and, if detected, restricting work during periods when the species is not expected to be affected or present.

In light of the proposed mitigation and construction minimization measures, the USFWS concluded its consultation stating that, the project "is not expected to jeopardize the continued existence" of Delta smelt, Ridgway rail or SMHM.

- d. **Water Quality.** On May 13, 2015, the San Francisco Bay Regional Water Quality Control Board ("RWQCB") issued a water quality certification for the proposed project. The certification requires Tesoro to incorporate a majority of the minimization measures contained in the above-referenced biological opinions. In addition, the certification requires Tesoro to: remove all pilings to three feet below the mudline; following demolition, to conduct bathymetric surveys to determine if in-water debris remains and, if so, remove resulting debris from the Bay; and limit proposed demolition activities to daylight hours.

² Funds are to be directed to the Dorothy M. Sakazaki Environmental Endowment Fund.

Further, “to ensure that there will be no violations of water quality standards,” the certification requires Tesoro to provide treatment for all stormwater runoff from the proposed approachway and Berth 1A. According to the certification, stormwater runoff from Berth 1A would be collected and conveyed to the upland refinery for treatment. Tesoro has not, however, designed measures to address runoff from the proposed approachway and, consequently, as an alternative, the certification requires Tesoro to design and implement a stormwater treatment system at a yet-to-be-determined off-site location with an equivalent impervious surface area (37,500 square feet (0.86 acres)).

The Commission should determine whether the proposed project would be consistent with Section 66605 of the McAteer-Petris Act and relevant Bay Plan policies regarding fish, other aquatic organisms, and wildlife, tidal marshes and tidal flats, subtidal areas, water quality, and mitigation.

3. **Sound Safety Standards and Safety of Fills.** In addition to the provisions of Section 66605 of the McAteer-Petris Act regarding fill safety standards, the Bay Plan Safety of Fills Policy 1 states, in part: “the Engineering Criteria Review Board [ECRB] [is] empowered to: (a) establish and revise safety criteria for Bay fills and structures thereon; (b) review all except minor projects for the adequacy of their specific safety provisions, and make recommendations concerning these provisions; (c) prescribe an inspection system to assure placement and maintenance of fill according to approved designs; (d) with regard to inspections of marine petroleum terminals, make recommendations to the California State Lands Commission and the U.S. Coast Guard, which are responsible for regulating and inspecting these facilities; (e) coordinate with the California State Lands Commission on projects relating to marine petroleum terminal fills and structures to ensure compliance with other Bay Plan policies and the California State Lands Commission's rules, regulations, guidelines and policies; and (f) gather, and make available performance data developed from specific projects.”

In addition, the Bay Plan Safety of Fills finding h. states, in part: “Marine petroleum terminals can pose a risk to public health and safety and the environment and increase the risk of oil spills if allowed to deteriorate or become structurally unsound. The California State Lands Commission and the U.S. Coast Guard regularly monitor oil transfers at marine petroleum terminals. The California State Lands Commission also conducts inspections and reviews engineering analysis and design changes for rehabilitation and/or new construction. This oversight includes, but is not limited to, oil transfer equipment, all major structural components, moorings, mechanical and electrical systems, and fire detection and suppression systems, pursuant to California State Lands Commission and U.S. Coast Guard rules, regulations, guide-lines and policies.”

The Safety of Fills Policy 2 states: “Even if the Bay Plan indicates that a fill may be permissible, no fill or building should be constructed if hazards cannot be overcome adequately for the intended use in accordance with the criteria prescribed by the Engineering Criteria Review Board.” Further, Policy 3 states, in part: “[t]o provide vitally needed information on the effects of earthquakes on all kinds of soils, installation of strong-motion seismographs should be required on all future major land fills.” Lastly

Policy 4 states, in part: “[a]dequate measures should be provided to prevent damage from sea level rise and storm activity that may occur on fill or near the shoreline over the expected life of a project.... New projects on fill or near the shoreline should either be set back from the edge of the shore so that the project will not be subject to dynamic wave energy, be built so the bottom floor level of structures will be above a 100-year flood elevation that takes future sea level rise into account for the expected life of the project, be specifically designed to tolerate periodic flooding, or employ other effective means of addressing the impacts of future sea level rise and storm activity.”

Further, the Bay Plan Climate Change Policy 2 states: “When planning shoreline areas or designing larger shoreline projects, a risk assessment should be prepared by a qualified engineer and should be based on the estimated 100-year flood elevation that takes into account the best estimates of future sea level rise and current flood protection and planned flood protection that will be funded and constructed when needed to provide protection for the proposed project or shoreline area. A range of sea level rise projections for mid-century and end of century based on the best scientific data available should be used in the risk assessment. Inundation maps used for the risk assessment should be prepared under the direction of a qualified engineer. The risk assessment should identify all types of potential flooding, degrees of uncertainty, consequences of defense failure, and risks to existing habitat from proposed flood protection devices.”

On June 10, 2014, the ECRB reviewed the proposed structures, and focused primarily on whether the design would meet or exceed MOTEMS requirements, protect against future sea level rise and storm activity, and be seismically-sound. The proposed Berth 1A would involve the construction of a concrete main platform supported by 130-foot-long steel pilings. The proposed approachway would involve the installation of a stationary steel beam and piling system on top of which would be placed a 12-foot-wide concrete roadway. Lastly, the adjacent pipeway would involve the replacement of timber pilings with a steel support system comprised of pilings and cross beams. The cross beams at the pipeway are designed to be adjustable and would be raised when rising water levels threaten inundation of the pipelines. The proposed approachway and pipeway would share the same set of center pilings (Exhibit B).

Through its review, the ECRB requested that Tesoro provide the following information so that the ECRB could better assess the design and engineering criteria and design, including: (1) the basis for the proposed measures to minimize oil spill risk at the terminal result from events, such as earthquakes, to ensure their adequacy—with a particular focus on proposed shut-off valves with a 30-minute lag time between spill discovery and actual shut-off; (2) a plan for installation of seismic instrumentation equipment; (3) an explanation about the response of proposed facilities to sea level rise and storm activity; and (4) a fuller assessment of the pipeway’s potential for movement and displacement in a seismic event particularly since different engineering criteria were used to design the pipeway and the proposed berth. Over the course of the year following the ECRB meeting, Tesoro responded as discussed below.

- a. **Oil Spill Response Measures.** Tesoro provided additional information about measures to minimize oil spill risks, including details on the spill containment boom reel, fire alarm and response facilities, an emergency response vessel dock to access and deploy spill response supplies, an emergency back-up generator to allow for shut-down of operations and continued use of emergency equipment, employee training programs, and contracts with Bay Area spill response services. Regarding the proposed pipeline shut-off valves, Tesoro explained that the system was selected to provide the most rapid response technically achievable, and that the 30-minute “lag time” was based on conservative estimates historically used by Tesoro.

Further, Tesoro explained that the proposed equipment—and the terminal facility as a whole—is not only required to comply with MOTEMS, but also with the U.S. Coast Guard Oil Response Plans, the U.S. Environmental Protection Agency Facility Response Plans, the State Office of Oil Spill Prevention and Response, and Contra Costa County’s Industrial Safety Ordinance. Additionally, the upgraded facility would be inspected and audited periodically in accordance with the 2013 California Building Code (MOTEMS) and by the State Lands Commission and the U.S. Coast Guard (USCG). Although, the ECRB expressed concern about the proposed valve shut-off system and the mentioned 30-minute lag-time between potential spill and actual shut-down, the Bay Plan findings and policies recognize the authority and expertise of the State Lands Commission and others overseeing the design and operation of such systems and, thus, ultimately the Commission staff recommended that the ECRB defer to the oversight of others on this matter.

- b. **Seismic Instrumentation.** Tesoro prepared a seismic instrumentation plan for the proposed facility, which was endorsed by the ECRB, which the applicant proposes to install at the project site.
- c. **Sea Level Rise.** According to Tesoro, the 100-year flood elevation at the project site is approximately 8.2 feet above Mean Lower Low Water (“MLLW”).³ In terms of future sea level rise at the site, Tesoro used the following projections in the project design: 0.6-foot rise by 2030 and 24-inch rise by 2070, resulting in projected water levels of 8.8 feet for 2030 and 10.2 feet at 2070 MLLW.

Tesoro informed the ECRB that the proposed Berth 1A and approachway (or “roadway”, as shown in Exhibit C) have an estimated design life of 50 years or through 2070. The proposed pipeway pilings are also designed with an estimated life of 50 years, through 2070. The pipeway cross beams are designed to be adjustable and, along the southern end of the pipeway alignment, would be initially installed at an elevation of 8.58 feet MLLW. As the pipeway extends north from the shoreline towards open water and the wharf, its height relative to water levels would increase, from 12.50 feet MLLW to 16.92 feet MLLW where it connects to Berth 1A (Exhibit D). Tesoro anticipates that the pipeway at its lowest proposed elevation

³ According to Tesoro, the Federal Emergency Management Act (“FEMA”) Flood Insurance Rate Map (2009) shows the project site located in a zone where no Base Flood Elevation (“BFE”) has been formally been estimated. Therefore, Tesoro conducted an analysis to determine the flood elevation.

would remain above water through approximately 2030. Further, Tesoro proposes a program for monitoring water levels over time (as discussed below in the Climate Change section) and raising the pipeway beams as water levels rise, to a maximum elevation of 16.92 feet MLLW.

- d. **Seismic Criteria.** At the ECRB meeting on June 10, 2014 and in follow-up correspondence, the ECRB requested additional information on the engineering criteria used to design the project, including the pipeway and the pipeline anchoring system. The ECRB also asked Tesoro to provide further information to understand the displacement analysis of the pipeway and associated pipelines to assess the full range of movement under varying seismic events. In the absence of such an analysis, the ECRB recommended that an independent third-party review of the pipeway be conducted.

Tesoro explained that the pipeway design includes features allowing flexibility so as to minimize breakage and/or damage in an earthquake. Further, Tesoro explained that it conducted a “simplified” displacement analysis for the project, which not only complies with MOTEMS code but accounts for maximum conflicting movement of the pipeway and lines. Further, Tesoro stated (email to Commission staff dated April 2, 2015) that “[u]nfortunately, an additional third party review of a project of this size and complexity cannot be completed in a timeframe that aligns with the 2015 August 1 to November 30 on-water work window.”

On a related note, in response to a State Lands Commission letter dated January 27, 2015, which included a request for a third-party review of the Berth 1A design criteria and design calculations, Tesoro stated (in a letter dated May 28, 2015) that it:

“has committed to make substantial upgrades to the Avon Wharf in order to bring the facility into compliance with MOTEMS. To that end, a team of highly competent, established engineering and design consultants that have extensive design experience using MOTEMS and other pertinent Codes have been retained to provide a robust design that meets all MOTEMS requirements. Quality assurance of designs has been completed as required by MOTEMS...as is standard practice for good engineering design. In addition, required reviews by the [State Lands Commission] Marine Facilities Division and the [Commission’s] Engineering Criteria Review Board have been conducted and Tesoro and its team of consultants have worked in earnest to provide responses to all technical inquiries from both entities. Given the level of scrutiny that has already been applied to the project, Tesoro believes the signed, stamped designs provided by its highly qualified team of consultants more than adequately addresses all MOTEMS / Code requirements.”

The State Lands Commission (in a letter dated June 17, 2015) accepted Tesoro’s response concerning its earlier request for third-party review.

According to the State Lands Commission staff, project proponents can conduct either a simple or “full non-linear time-history” analysis for marine terminal projects and, further, that a simplified analysis typically includes more conservative estimates than the “full non-linear time-history” analysis of pipeline deflection and stress. For this reason, the State Lands Commission concluded that the simple analysis was adequate to allow project construction to proceed. It should be noted, pursuant to MOTEMS, the State Lands Commission staff would conduct a complete review of Tesoro’s “simplified” analysis for the project and also conduct an audit of the as-built facility prior to allowing the marine terminal to commence operation.

At the time of mailing the Staff Summary, this issue remained unresolved. However, the Commission staff, the applicant, State Lands Commission staff, the ECRB, and the State Attorney General staff are in discussion about possible approaches to resolve the matter prior to presenting a recommendation to the Commission on the subject permit application.

The Commission should determine whether the proposed project would be consistent with the relevant Bay Plan safety of fills policies and the Bay Plan Climate Change Policy 1.

4. **Climate Change.** The Bay Plan Climate Change Policy 3 states: “To protect public safety and ecosystem services, within areas that a risk assessment determines are vulnerable to future shoreline flooding that threatens public safety, all projects—other than repairs of existing facilities, small projects that do not increase risks to public safety, interim projects and infill projects within existing urbanized areas—should be designed to be resilient to a mid-century sea level rise projection. If it is likely the project will remain in place longer than mid-century, an adaptive management plan should be developed to address the long-term impacts that will arise based on a risk assessment using the best available science-based projection for sea level rise at the end of the century.” Further, Policy 7 states, in part: “Until a regional sea level rise adaptation strategy can be completed, the Commission should evaluate each project proposed in vulnerable areas on a case-by-case basis to determine the project’s public benefits, resilience to flooding, and capacity to adapt to climate change impacts. The following specific types of projects have regional benefits, advance regional goals, and should be encouraged, if their regional benefits and their advancement of regional goals outweigh the risk from flooding...public utility or other critical infrastructure that is necessary for existing development....The following specific types of projects should be encouraged if they do not negatively impact the Bay and do not increase risks to public safety...repairs of an existing facility...[or] a use that is interim in nature and either can be easily removed or relocated to higher ground....”

To reduce future water level risks to the proposed pipeway and associated pipelines, which are not proposed for replacement at this time, Tesoro proposes to install cross beams that, for an “interim” period, meet water levels through approximately 2030 and are designed to be raised along with the pipeway as water levels necessitate such an action. To that end, Tesoro proposes, in coordination with the State Lands Commission MOTEMS audits, to monitor water levels along the pipeway and calculate water levels in

relation to the pipelines every four years following the project construction. At such time when water levels are approaching a point that would jeopardize pipeline integrity, Tesoro would initiate a 24-month design, permitting, and construction process at the end of which the cross beams would be elevated or replaced in their entirety. In addition, Tesoro proposes to construct the pipeway using corrosion resistant materials, including epoxy coating and “hot dipped galvanized” beams. Tesoro recognizes that if the implementation of future measures to address higher water levels were to result in current design weight changes, i.e., “more than ten percent of present requirements,” it would seek additional assessment on structural adequacy, i.e., through additional review by the Commission’s ECRB.

The Commission should determine whether the project is consistent with its laws and policies regarding Climate Change.

5. **Navigational Safety and Oil Spill Prevention.** The Bay Plan Navigational Safety and Oil Spill Prevention Policy 2 states, “The Commission should ensure that marine facility projects are in compliance with oil spill contingency plan requirements of the Office of Spill Prevention and Response, the U.S. Coast Guard [“USCG”] and other appropriate organizations.”

Pursuant to the California Environmental Quality Act (CEQA), the reissuance of the lease for the subject property was evaluated in an Environmental Impact Report with the State Lands serving as the lead agency. According to the EIR for the project, marine terminals and vessels calling at the terminals are required to have oil spill response plans and a prescribed level of initial response capability. The USCG and California Department of Fish and Wildlife’s (CDFW) Office of Spill Prevention and Response (OSPR) created the Oil Spill Response Organization (OSRO) classification program so that facility and tank vessel operator can contract with and list an OSRO in their response plans. Tesoro contracts with Marine Spill Response Corporation (MSRC) to serve as the primary OSRO in its Oil Spill Response Plan. In addition, Tesoro maintains its own on-site spill response capabilities. Tesoro’s Oil Spill Response Plan has been certified by the USCG and OSPR. Tesoro currently keeps its larger response boats at the Martinez Marina. As part of the MOTEMS renovation, these response boats would be relocated to the marine terminal thus affording a more rapid spill response.

An existing USCG aid to navigation range marker, which is currently located east of the proposed Berth 1A location, would be relocated within close proximity to the existing location “to ensure that it will not be damaged by marine construction activities.” The relocation would result in no change of existing solid fill associated with the marker. This activity was approved by the USCG in 2012.

B. Review Boards

1. **Engineering Criteria Review Board (ECRB).** The Commission’s ECRB reviewed the proposed project as discussed above in Section A.3 of the issues section.
2. **Design Review Board (DRB).** The Commission’s DRB did not review the project as public access improvements are not proposed.

C. **Environmental Review.** The California Environmental Quality Act (CEQA) requires all discretionary projects approved by public agencies to be in full compliance with CEQA, and requires a lead agency to prepare an appropriate environmental document for such projects. The proposed project is located on a California State Lands Commission lease consisting of an approximately 11-acre parcel of sovereign State land. Tesoro applied to State Lands for a new 30-year lease to conduct the proposed MOTEMS-related activities and to continue operation of the oil terminal. State Lands prepared an environmental impact report on the new lease, which included a full evaluation of impacts associated with the proposed work. Upon certification of the final EIR in March 2015, State Lands found that all significant project impacts would be mitigated to less than significant levels.

D. **Relevant Portions of the McAteer-Petris Act**

1. Section 66605
2. Section 66610

E. **Relevant Map and Policies of the San Francisco Bay Plan**

1. Bay Plan Map 2, Policy 12
2. Water-Related Industry
3. Fish, Other Aquatic Organisms, and Wildlife
4. Tidal Marshes and Tidal Flats
5. Subtidal Areas
6. Water Quality
7. Mitigation
8. Safety of Fills
9. Climate Change
10. Navigational Safety and Oil Spill Prevention

Exhibits

- A. **Overview of Proposed Project Site**
- B. **Proposed Berth 1A and Berth 1 Elements, and Proposed Approachway and Pipeway**
- C. **Existing and Proposed (and Future) Facility and Tidal Elevations**
- D. **Proposed and Future Water Levels**