

1 **3.8 HYDROLOGY AND WATER QUALITY**

<b>HYDROLOGY AND WATER QUALITY –</b> Would the Project:	<b>Potentially Significant Impact</b>	<b>Less Than Significant with Mitigation</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

1 **3.8.1 Environmental Setting**

2 **Regional Hydrologic Setting**

3 The Project site lies within the Carquinez Strait, which is part of the San Francisco Bay  
4 Area Hydrologic Region. The San Francisco Bay Hydrologic Region encompasses  
5 approximately 4,500 square miles and includes the counties of San Francisco, Marin,  
6 Sonoma, Napa, Solano, San Mateo, Santa Clara, Contra Costa, and Alameda. The San  
7 Francisco Bay Estuary (Bay) is the largest estuary on the west coast of the U.S. and  
8 functions as the drainage outlet for the Central Valley's freshwater systems. The Bay  
9 provides drinking water for more than 70 percent of the California population and  
10 irrigation for approximately 4.5 million acres of farmland. It lies within the fourth largest  
11 metropolitan region of the U.S.

12 The Bay's dynamic and complex environmental conditions support a high level of  
13 diversity that drives a productive ecosystem. Many plant and animal species' survival  
14 depends on the wide variety of habitats within the Bay system, which includes  
15 deepwater channels, tidal flats, marshlands, freshwater streams, rivers, and lagoons.  
16 Additionally, the salinities in different portions of the Bay vary among seasons and  
17 years, and this creates a dynamic distribution of fish assemblages, invertebrates, plants,  
18 birds, and animals within them.

19 The rate and timing of the freshwater flows coming from the rivers and streams that flow  
20 into the Bay system influence its physical, chemical, and biological conditions. Flows  
21 are seasonal, with over 90 percent of the annual runoff occurring between October and  
22 April. However, much of this inflow is trapped upstream by dams, reservoirs, and canals  
23 for water diversion projects, which potentially affects the Bay's characteristics.

24 The RWQCB (2011) identifies several beneficial uses of the Carquinez Strait that must be  
25 protected. These beneficial uses include: industrial process supply, commercial and sport  
26 fishing, estuarine habitat, fish migration, preservation of rare and endangered species,  
27 spawning, wildlife habitat, water contact recreation, noncontact water recreation, and  
28 navigation.

29 **Climate**

30 Contra Costa County has a moderate climate similar to Mediterranean climate, with  
31 relatively cool summers and mild winters. Temperatures generally range between 50 to  
32 66 degrees Fahrenheit and average annual precipitation is approximately 22 inches  
33 (Contra Costa County 2005).

1 **Water Quality**

2 Under Section 303(d) of the CWA, states are required to list impaired waters based on  
 3 whether or not they meet state water quality standards. The RWQCB has listed the  
 4 entire Bay as an impaired water body. For the Carquinez Strait, pollutants of concern  
 5 from both point and nonpoint sources that do not meet the State water quality standards  
 6 include the following: chlordane; dichlorodiphenyltrichloroethane (DDT); dieldrin; dioxin  
 7 compounds, exotic species; furan compounds; mercury; PCBs; PCBs – dioxin-like; and  
 8 selenium (USEPA 2006).

9 **Groundwater**

10 Shallow groundwater aquifers are closely linked to the local surface waters. The San  
 11 Francisco Bay Hydrologic Region has 28 identified groundwater basins comprising  
 12 approximately 1,400 square miles in total, of which 5 percent is allocated for agricultural  
 13 and urban uses and less than one percent is distributed for groundwater uses. The  
 14 Arroyo del Hambre Valley Groundwater Basin is located just to the south of the Project  
 15 site. The RWQCB (2011) lists potential beneficial uses of the Arroyo del Hambre Valley  
 16 Groundwater Basin as municipal and domestic water supply, industrial process water  
 17 supply, industrial service water supply, and agricultural water supply.

18 **3.8.2 Regulatory Setting**

19 Federal and State laws and regulations pertaining to this issue area and relevant to the  
 20 Project are identified in Tables 1-2 and 3.8-1. Local goals, policies, and/or regulations  
 21 applicable to this issue area are listed below.

**Table 3.8-1. Federal and/or State Laws, Regulations, and Policies Potentially Applicable to the Project (Hydrology and Water Quality)**

U.S.	Clean Water Act (CWA) (33 USC 1251 et seq.)	<p>The CWA is comprehensive legislation (it generally includes reference to the Federal Water Pollution Control Act of 1972, its supplementation by the CWA of 1977, and amendments in 1981, 1987, and 1993) that seeks to protect the nation’s water from pollution by setting water quality standards for surface water and by limiting the discharge of effluents into waters of the U.S. These water quality standards are promulgated by the USEPA and enforced in California by the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). CWA sections include:</p> <ul style="list-style-type: none"> <li>• <u>State Water Quality Certification</u>. Section 401 (33 USC 1341) requires certification from the State or interstate water control agencies that a proposed water resources project is in compliance with established effluent limitations and water quality standards. USACE projects, as well as applicants for Federal permits or licenses are required to obtain this certification.</li> <li>• <u>National Pollution Discharge Elimination System)(NPDES)</u>. Section 402 (33 USC 1342) establishes conditions and permitting for discharges of pollutants under the NPDES.</li> <li>• <u>Ocean Discharges</u>. Section 403 (33 USC 1343) addresses criteria and</li> </ul>
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**Table 3.8-1. Federal and/or State Laws, Regulations, and Policies Potentially Applicable to the Project (Hydrology and Water Quality)**

		<p>permits for discharges into the territorial seas, the contiguous zone, and the oceans.</p> <ul style="list-style-type: none"> <li>• <u>Permits for Dredged or Fill Material</u>. Section 404 (33 USC 1344) authorizes a separate permit program for disposal of dredged or fill material in U.S. waters.</li> </ul>
U.S.	Oil Pollution Act (OPA) (33 USC 2712)	The OPA requires owners and operators of facilities that could cause substantial harm to the environment to prepare and submit plans for responding to worst-case discharges of oil and hazardous substances. The passage of the OPA motivated California to pass a more stringent spill response and recovery regulation and the creation of the Office of Spill Prevention and Response (OSPR) to review and regulate oil spill plans and contracts.
U.S.	Rivers and Harbors Act (33 USC 401)	This Act governs specified activities (e.g., construction of structures and discharge of fill) in “navigable waters” of the U.S. (waters subject to the ebb and flow of the tide or that are presently used, have been used in the past, or may be susceptible for use to transport interstate or foreign commerce). Under section 10, excavation or fill within navigable waters requires approval from the USACE, and the building of any wharf, pier, jetty, or other structure is prohibited without Congressional approval.
CA	Porter-Cologne Water Quality Control Act (Cal. Water Code § 13000 et seq.) (Porter-Cologne)	<p>Porter-Cologne is the principal law governing water quality in California. The Act established the SWRCB and nine RWQCBs who have primary responsibility for protecting State water quality and the beneficial uses of State waters. Porter-Cologne also implements many provisions of the Federal CWA, such as the National Pollutant Discharge Elimination System (NPDES) permitting program. Pursuant to the CWA § 401, applicants for a Federal license or permit for activities that may result in any discharge to waters of the U. S. must seek a Water Quality Certification (Certification) from the State in which the discharge originates. Such Certification is based on a finding that the discharge will meet water quality standards and other appropriate requirements of State law. In California, RWQCBs issue or deny certification for discharges within their jurisdiction. The SWRCB has this responsibility where projects or activities affect waters in more than one RWQCB’s jurisdiction. If the SWRCB or a RWQCB imposes a condition on its Certification, those conditions must be included in the Federal permit or license.</p> <p>Statewide Water Quality Control Plans include: individual RWQCB Basin Plans; the California Ocean Plan; the San Francisco Bay/Sacramento-San Joaquin Delta Estuary Water Quality Control Plan (Bay-Delta Plan); the Water Quality Control Plan for Enclosed Bays and Estuaries of California; and the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan). These Plans contain enforceable standards for the various waters they address. For example:</p> <ul style="list-style-type: none"> <li>• <u>Basin Plan</u>. Porter-Cologne (§ 13240) requires each RWQCB to formulate and adopt a Basin Plan for all areas within the Region. Each RWQCB establishes water quality objectives to ensure the reasonable protection of beneficial uses and a program of implementation for achieving water quality objectives within the basin plans. 40 CFR 131 requires each State to adopt water quality standards by designating water uses to be protected and adopting water quality criteria that protect the designated uses. In California, the beneficial uses and water quality objectives are the State’s water quality standards.</li> </ul>

**Table 3.8-1. Federal and/or State Laws, Regulations, and Policies Potentially Applicable to the Project (Hydrology and Water Quality)**

		<ul style="list-style-type: none"> <li>The <u>California Ocean Plan</u> establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the State's ocean and coastal waters. For example, the Ocean Plan incorporates the State water quality standards that apply to all NPDES permits for discharges to ocean waters.</li> </ul>
CA	Other	<ul style="list-style-type: none"> <li>Under California Code of Regulations, Title 23, the Central Valley Flood Protection Board (CVFPB) regulates specific river, creek, and slough crossings for flood protection: (1) new crossings must maintain hydraulic capacity through such measures as in-line piers, adequate stream bank height (freeboard), and measures to protect against stream bank and channel erosion, and (2) improvements, including crossings, must be constructed in a manner that does not reduce the channel's capacity or functionality, or that of any Federal flood control project.</li> <li>California Water Code § 8710 requires that a reclamation board permit be obtained prior to the start of any work, including excavation and construction activities, if projects are located within floodways or levee sections. Structures for human habitation are not permitted within designated floodways.</li> </ul>
CA	San Francisco Bay Plan (see also Table 1-2)	<p>Pursuant to the Bay Plan, BCDC responsibilities include the following:</p> <ul style="list-style-type: none"> <li>Regulation of all filling and dredging in the Bay;</li> <li>Administration of the Federal Coastal Zone Management Act within the Bay segment of the California coastal zone;</li> <li>Regulation of new development within the first 100 feet inland from the Bay to ensure public access to the Bay is provided;</li> <li>Pursuit of an active planning program to implement studies of Bay issues so that BCDC plans and policies are based on the best available current information;</li> <li>Participation in the region-wide State and Federal program to establish a Long Term Management Strategy for dredging and dredged material disposal to be conducted in an environmentally sound and economically prudent way.</li> </ul>

1 Contra Costa County Watershed Program (CWP). The Contra Costa CWP is a  
2 collaboration between the County, the 19 incorporated cities and towns of the County,  
3 and the County Flood Control and Water Conservation District. The CWP is responsible  
4 for ensuring that the County's unincorporated areas comply with its municipal  
5 stormwater NPDES permits, as authorized by Contra Costa County Ordinance 96-21,  
6 Title 1014 Stormwater Management and Discharge Control. The County currently holds  
7 two NPDES permits: the Municipal Regional Permit for discharges to the San Francisco  
8 Bay and the East Contra Costa County Permit for discharges to the Delta. The CWP  
9 oversees new development and construction projects; provides municipal maintenance,  
10 inspection activities, public education, and industrial outreach; and implements  
11 stormwater/urban run-off monitoring programs, pollution prevention programs, and illicit  
12 discharge control activities.

1 Contra Costa County General Plan. General Plan policies relevant to the Project include  
2 the following:

- 3 • Water Resources Goal 8-T: To conserve, enhance, and manage water  
4 resources, protect their quality, and assure an adequate long-term supply of  
5 water for domestic, fishing, industrial, and agricultural use.
- 6 • Water Resources Goal 8-V: To preserve and restore remaining natural  
7 waterways in the county which have been identified as important and  
8 irreplaceable natural resources.
- 9 • General Water Resources Policy 8-75: Preserve and enhance the quality of  
10 surface and groundwater resources.

### 11 **3.8.3 Impact Analysis**

12 The Project site occurs in waters regulated by the San Francisco Bay RWQCB. The  
13 RWQCB develops and implements the Water Quality Control Plan for the San  
14 Francisco Region (Basin Plan), which designates beneficial uses and water quality  
15 objectives for the region and includes programs of implementation to achieve State and  
16 Federal water quality objectives. The SIP establishes a standardized method for  
17 permitting discharges of toxic pollutants to inland surface waters, enclosed bays, and  
18 estuaries of California subject to the Porter-Cologne Act and the CWA.

#### 19 **a) *Violate any water quality standards or waste discharge requirements?***

20 Because the Project would take place in the Carquinez Strait, there is potential for the  
21 degradation of water quality due to deconstruction activities.

#### 22 **Impact WQ-1: The Project could result in a violation of water quality standards.**

23 **Less than Significant with Mitigation.** During wharf deconstruction, sediment  
24 disturbance may increase localized turbidity and re-suspend contaminants. Removal of  
25 pilings may also release creosote into the water. However, creosote could be leaching  
26 out of the pilings as they exist; therefore, removal of the pilings could potentially reduce  
27 creosote exposure over the long-term. There is also potential for the accidental release  
28 of oil or fuel into the Strait from equipment operation during deconstruction activities or  
29 from vehicles and equipment parked in the temporary upland staging areas within the  
30 former TXI property. Also, if the embankment is disturbed and not properly stabilized,  
31 potential erosion over time could lead to increased turbidity and increased exposure to  
32 contaminants that may have accumulated in the soil during MOT operations.  
33 Implementation of **MM HAZ-1b** and the mitigation measure described below would  
34 reduce potentially significant water quality impacts to less than significant.

1       **MM WQ-1. Water Quality/Storm Water Pollution Prevention Plan.** In consultation  
2 with the regional agencies, the Applicant shall prepare a plan to prevent adverse  
3 impacts to nearby waterways and riparian areas associated with deconstruction. The  
4 final approved plan shall be submitted to the California State Lands Commission  
5 staff 2 weeks prior to deconstruction. The Plan shall include Best Management  
6 Practices (BMPs) for handling creosote-containing materials, spill prevention and  
7 containment, erosion and sedimentation prevention, and monitoring requirements.  
8 Measures shall include, but not be limited to, such BMPs as:

- 9           • During deconstruction activities, a floating boom and skirt shall be deployed  
10 around the Project site and absorbent booms and pads shall be provided on  
11 marine vessels on site.
- 12           • Within upland areas, BMPs may include implementation of silt fences, straw  
13 waddles and other measures determined appropriate for erosion and  
14 sediment control.
- 15           • BMPs to control waste, such as discarded deconstruction materials,  
16 chemicals, litter, and sanitary waste at the deconstruction site, shall be  
17 implemented.
- 18           • Vessel fueling shall be required at the selected contractor’s staging area or at  
19 an approved docking facility. No cross-vessel fueling shall be allowed.
- 20           • Marine vessels generally shall contain petroleum products within tankage that  
21 is internal to the hulls of the vessels. All deck equipment shall be equipped  
22 with drip pans to contain leaks and spills. All fuels and lubricants aboard the  
23 work vessels shall have a double containment system. Chemicals used within  
24 the Project area and on marine vessels shall be stored using secondary  
25 containment.
- 26           • The Applicant shall not store fuel or oil at the Project’s parking and staging  
27 areas upland of the work site. Fuel containment at the selected contractor’s  
28 existing shore base may store quantities of oil and fuel.

29       ***b) Substantially deplete groundwater supplies or interfere substantially with***  
30 ***groundwater recharge such that there would be a net deficit in aquifer volume or***  
31 ***a lowering of the local groundwater table level (e.g., the production rate of pre-***  
32 ***existing nearby wells would drop to a level which would not support existing land***  
33 ***uses or planned uses for which permits have been granted)?***

34       **No Impact.** The Project would not require the use of any groundwater supplies. No  
35 impervious surfaces would be introduced as a result of the Project; therefore, no  
36 interference with groundwater recharge would occur. Thus, the Project would have no  
37 impact on the aquifer volume either through groundwater extraction or reduced  
38 recharge.

1 **c) Substantially alter the existing drainage pattern of a site or area through the**  
2 **alteration of the course of a stream or river, or by other means, in a manner that**  
3 **would result in substantial erosion or siltation on- or off-site?**

4 **No Impact.** There would be no impact related to altered drainage patterns; no erosion  
5 or siltation would occur on- or off-site as a result of the Project.

6 **d) Substantially alter the existing drainage pattern of a site or area through the**  
7 **alteration of the course of a stream or river or, by other means, substantially**  
8 **increase the rate or amount of surface runoff in a manner that would result in**  
9 **flooding on- or off-site?**

10 **No Impact.** The Project would not result in any additional impervious surfaces and no  
11 stream or river alterations would occur. There would not be an increase in runoff that  
12 would cause flooding on- or off-site.

13 **e) Create or contribute runoff water which would exceed the capacity of existing**  
14 **or planned stormwater drainage systems or provide substantial additional**  
15 **sources of polluted runoff?**

16 **No Impact.** The Project would not create or contribute runoff exceeding the capacity of  
17 existing or planned stormwater drainage systems. Stormwater BMPs would be  
18 implemented as necessary. No polluted runoff would occur as a result of the Project.

19 **f) Otherwise substantially degrade water quality?**

20 See responses to subsections a) and e) above.

21 **g) Place housing within a 100-year flood hazard area as mapped on a Federal**  
22 **Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood**  
23 **hazard delineation map?**

24 **No Impact.** No housing is proposed as part of the Project; no impact related to  
25 placement of housing in a 100-year flood hazard area would occur.

26 **h) Place within a 100-year flood hazard area structures that would impede or**  
27 **redirect flood flows?**

28 **No Impact.** No structures are proposed as part of the Project; no impact related to  
29 placement of structures within a 100-year flood hazard area would occur.

30 **i) Expose people or structures to a significant risk of loss, injury or death**  
31 **involving flooding, including flooding as a result of the failure of a levee or dam?**



1 **No Impact.** Land areas adjacent to the Project site are not located within an inundation  
2 area for any regional dams (ABAG 2012); therefore, there would be no impact.

3 ***j) Expose people or structures to a significant risk of loss, injury or death***  
4 ***involving inundation by seiche, tsunami, or mudflow?***

5 **Less than Significant Impact.** According to the Contra Costa County General Plan  
6 (2005), the risk of a tsunami is low near the Richmond shoreline of the San Pablo Bay  
7 and diminishes further upstream. Although the event of a tsunami is possible near the  
8 Project site, which is located near the center of the Carquinez Strait, it is not probable.  
9 Additionally, there are no records of seiches occurring in the Bay. Therefore, the  
10 potential impact is considered to be less than significant.

#### 11 **3.8.4 Mitigation Summary**

12 Implementation of the following measures would reduce Project-related impacts  
13 associated with hydrology and water quality to less than significant.

- 14 • MM WQ-1: Water Quality/Storm Water Pollution Prevention Plan; and
- 15 • MM HAZ-1b: Hazardous Materials Management Plan (HMMP).