

**MITIGATED NEGATIVE DECLARATION
GEORGIA PACIFIC GYPSUM ANTIOCH WHARF
UPGRADE PROJECT**

August 2015



Lead Agency:

California State Lands Commission
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LIST OF ABBREVIATIONS AND ACRONYMS

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
μPa	micropascal
A AB	Assembly Bill
ABAG	Association of Bay Area Governments
AHPA	Archaeological and Historic Preservation Act
B BAAQMD	Bay Area Air Quality Management District
BD	breasting dolphin
BMPs	Best Management Practices
C CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCTA	Contra Costa Transportation Authority
CDFW	California Department of Fish and Wildlife (formally known as California Department of Fish and Game [CDFG])
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CHRIS	California Historical Resources Information System
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CSFM	California State Fire Marshal
CSL	Canadian Steamship Lines International
CSLC	California State Lands Commission
CVFPB	Central Valley Flood Protection Board
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
D dB	decibels

dba	A-weighted decibels
dbh	diameter at breast height
DEPM	Division of Environmental Planning and Management
DOT	U.S. Department of Transportation
DPM	diesel particulate matter
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control
E	
eBART	East Contra Costa BART extension
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
F	
FCAA	Federal Clean Air Act
FERC	Federal Energy Regulatory Commission
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FPP	Fire Protection Plan
FR	Federal Register
FTA	Federal Transit Administration
G	
GHG	Greenhouse Gas
GP	Georgia Pacific
H	
H ₂ S	hydrogen sulfide
HCP	Habitat Conservation Plan
HMTA	Hazardous Materials Transportation Act
Hz	hertz
I	
IPCC	Intergovernmental Panel on Climate Change
K	
kHz	kilohertz
km	kilometer
L	
L _{dn}	Day-Night Average Sound Level
L _{eq}	Equivalent Sound Level
LOP	Letter of Permission
LOS	Level of Service
LSAP	Lake and Streambed Alteration Program
M	
MARPOL	International Convention for the Prevention of Pollution from Ships
MBTA	Migratory Bird Treaty Act
MHHW	mean higher high water
MLLW	mean lower low water
mm	millimeter
MM	Mitigation Measure
MMP	Mitigation Monitoring Program
MMPA	Marine Mammal Protection Act
MMS	modified Mercalli scale
MMT	million metric tons

MND	Mitigated Negative Declaration
MOTEMS	Marine Oil Terminal Engineering and Maintenance Standards
MPA	Marine Protected Area
MRZ	mineral resource zones
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MT	metric ton
Mw	Richter magnitude
N N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	natural community conservation plan
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Parks Service
NTU	nephelometric turbidity units
NWIC	Northwest Information Center
O O ₃	ozone
OHP	Office of Historic Preservation
OPA	Oil Pollution Act
OSHA	Occupational Safety and Health Administration
OSPR	Office of Spill Prevention and Response
OSPRA	Oil Spill Prevention and Response Act
P Pb	lead
PCBs	polychlorinated biphenyls
PERP	portable equipment registration program
PM	particulate matter
PM ₁₀	particulate matter less than 10 micrometers
PM _{2.5}	particulate matter less than 2.5 micrometers
PPM	parts per million
PTS	permanent threshold shift
R RCNM	roadway construction noise model
RCRA	Resource Conservation and Recovery Act
Refuge	Antioch Dunes National Wildlife Refuge
RHA	Rivers and Harbors Act
River	San Joaquin River
rms	root mean squared

	ROG	reactive organic gases
	RWQCB	Regional Water Quality Control Board
S	SARA	Superfund Amendments and Reauthorization Act
	SEL	sound exposure levels
	SFBAAB	San Francisco Bay Area Air Basin
	SHPO	State Historic Preservation Officer
	SMARA	Surface Mining and Reclamation Act
	SO ₂	sulfur dioxide
	SPL	sound pressure level
	SWRCB	State Water Resources Control Board
T	TAC	toxic air contaminant
	TMMC	The Marine Mammal Center
	TSCA	Toxic Substances Control Act
	TTS	temporary threshold shift
U	USACE	U.S. Army Corps of Engineers
	USCG	U.S. Coast Guard
	USEPA	U.S. Environmental Protection Agency
	USFWS	U.S. Fish and Wildlife Service
	USGS	U.S. Geological Survey
V	VdB	Vibration Decibels
W	WEAP	Worker Environmental Awareness Program
Y	yr	year

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EXECUTIVE SUMMARY

1
2 This Mitigated Negative Declaration (MND) has been prepared by the California State
3 Lands Commission (CSLC), as lead agency under the California Environmental Quality
4 Act (CEQA) (Pub. Resources Code, § 21000 et seq.), in order to analyze and disclose
5 the potential environmental effects associated with the proposed Georgia Pacific
6 Gypsum Antioch Wharf Upgrade Project (Project). The Project would authorize Georgia
7 Pacific Gypsum, LLC (GP Gypsum or Applicant) to repair/replace several deteriorated
8 and damaged components at the existing GP Gypsum Antioch wharf (wharf/ship
9 terminal). The wharf/ship terminal is covered under existing General Lease – Industrial
10 Use No. PRC 1589.1, which the CSLC approved on October 27, 2011, and which
11 expires November 30, 2016; GP Gypsum is seeking to amend the lease to conduct
12 Project-related rehabilitation activities as required by Special Provision 4 of the lease.

13 The Project is located offshore on the San Joaquin River at 801 Minaker Drive, city of
14 Antioch, Contra Costa County, approximately 2 miles west of the Senator John A.
15 Nejedly Bridge (Antioch Bridge), and east of Suisun Bay (see Figures ES-1 and ES-2).
16 The Project is expected to begin as soon as all project approvals are obtained, but no
17 earlier than August 1, end no later than November 30, and take approximately 8 weeks
18 to complete, including mobilization, timber removal, pile installation, repairs, and
19 demobilization. Among other benefits, after the upgrades, the wharf would improve
20 berthing and mooring capacities for the larger vessels that currently deliver the gypsum
21 rock product under new shipping contracts. While the ships themselves are larger than
22 ships that were commonly used for delivery in the past, the amount of gypsum rock
23 being delivered and processed is not expected to increase after the Project. The
24 gypsum rock, as under current practice, would be unloaded then transported through
25 the existing hopper conveyor (unloading system on the wharf) seen in Figures ES-2 and
26 ES-3 to the GP Gypsum Antioch plant (Plant). The Plant itself is not under the CSLC's
27 jurisdiction. The gypsum rock would be used to produce wallboard products at the Plant.

28 The CSLC prepared an MND because it determined that, while the Initial Study
29 identified potentially significant impacts related to the Project, measures have been
30 incorporated into the Project proposal and agreed to by the Applicant that avoid or
31 mitigate those impacts to a point where no significant impacts would occur.

32 PROPOSED PROJECT

33 GP Gypsum proposes to structurally upgrade several wharf components at the existing
34 wharf/ship terminal consistent with California Building Code berthing requirements for
35 Marine Oil Terminals (Cal. Code Regs., tit. 24, § 3101F et seq.), commonly and herein
36 referred to as the Marine Oil Terminal Engineering and Maintenance Standards
37 (MOTEMS). Although the wharf is not a marine oil terminal subject to MOTEMS
38 regulations, GP Gypsum proposes to use applicable berthing and mooring provisions of

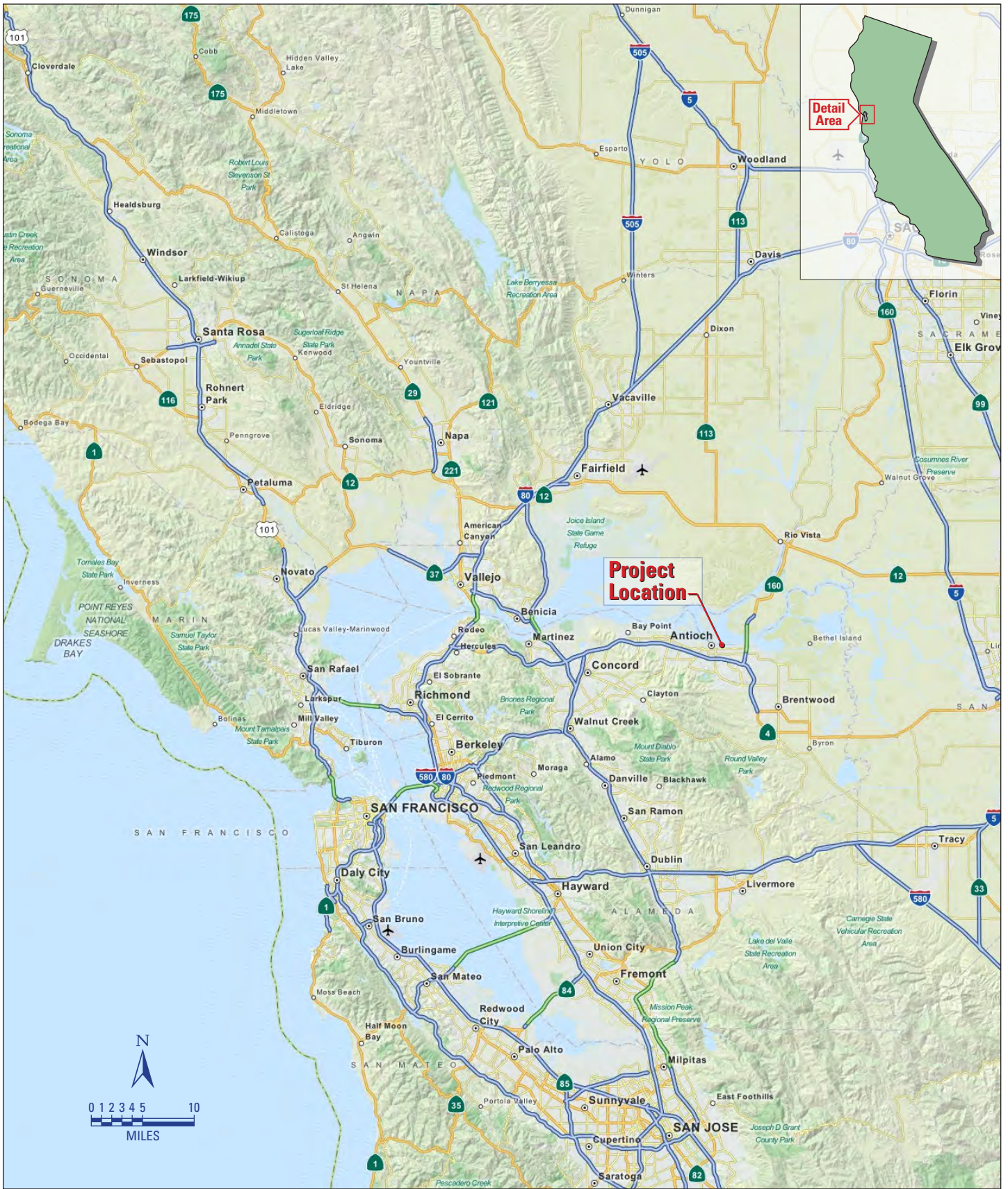


Figure ES-1

Project Location

Source: MapQuest/Grassetti Environmental



Figure ES-2

Existing Facilities and Surrounding Land Uses

Source: Grasseti Environmental



Figure ES-3

Overview of Existing and Proposed Project Features and Work Areas

Source: Ben C. Gerwick, Inc.

- 1 MOTEMS in the design criteria because MOTEMS is considered to be the “state of the
 2 art” design code. The upgrades generally include removing or repairing existing wooden
 3 structures and installing new concrete and steel structures (see Table ES-1).

Table ES-1. Proposed Project Activities

Structures	Structural Dimensions	Pile Quantities and Sizes	Pile Length Below Mudline
Remove			
Five existing timber breasting and mooring dolphins	21 feet long x 9.5 feet wide	140 14-inch-diameter treated timber piles	About 30 to 40 feet
Two existing wooden walkways connecting dolphins to the wharf and their supporting pilings	East walkway: 280 feet long x 6.67 feet wide West walkway: 200 feet long x 6.67 feet wide	10 14-inch-diameter treated timber piles	About 30 to 40 feet
Install			
Four new breasting dolphins	20 feet long x 13.5 feet wide	Four 72-inch-diameter hollow-core steel monopiles ¹	About 65 feet
Four new cone fender systems for the four new breasting dolphins	6 feet long x 6 feet wide (center located at 7.5 feet above mean lower low water)	Fender systems would be part of breasting dolphin systems	NA
Three new mooring dolphins	15 feet long x 12 feet wide	Three 42- to 48-inch-diameter hollow-core steel monopiles	55 feet
Nine new walkway segments connecting new mooring dolphins	<ul style="list-style-type: none"> • Two each 66 feet long x 4 feet wide (handrail to handrail) • Two each 56 feet long x 4 feet wide • Two each 84 feet long x 4 feet wide • Two each 40 feet x 4 feet wide • One each 28 feet long x 4 feet wide 	Six 24- to 30-inch-diameter steel-pipe piles	About 40 to 50 feet
Repair			
One timber piling	14 inches diameter	14-inch-diameter timber pile	About 30 to 40 feet
12 stringers (beams/lumbers) on existing wharf	<ul style="list-style-type: none"> • 4 inches long x 12 inches wide • 6 inches long x 12 inches wide • 10 inches long x 12 inches wide • 12 inches long x 12 inches wide 	NA	NA

¹ A monopile foundation uses a single, generally large-diameter, foundation structural element to support all the loads.

1 The proposed upgrades will not result in any changes in the volume of gypsum rock off-
2 loading at the facility, changes to the terminal capacity, delivery schedules, or onshore
3 Plant capacity or operations. As illustrated above, the wharf upgrade plan entails
4 demolition of five existing timber breasting and mooring dolphins (containing a total of
5 150 14-inch-diameter creosote treated timber piles) and their replacement with four new
6 breasting dolphins, each with a cone fender system, and three new mooring dolphins,
7 with connecting walkways. The new dolphins will be hollow core steel monopoles. The
8 breasting dolphins will be 72 inches in diameter with tip elevations of about minus 97
9 feet (installed about 65 feet below the mudline); the mooring dolphins will be 42 to 48
10 inches in diameter with tip elevations of about minus 56 to minus 61 feet (installed at
11 about 51 to 56 feet below the mudline). The walkway support piles will be 24 to 30
12 inches in diameter with tip elevations about minus 43 to minus 67 feet (installed about
13 38 to 48 feet below the mudline). Removal of the existing creosote treated timber piles
14 will occur with a clamshell bucket or a chain; an attempt will be made to remove the
15 piles in their entirety by vertically pulling them; if the piles break or snap, the clamshell
16 bucket would be used to grasp the remaining stump and complete the removal. While
17 complete removal is preferred, the CSLC recognizes that field conditions and the
18 possible deteriorated state of the piles may necessitate abandonment in place of an
19 unknown number of timber piles. Therefore, if a pile breaks or snaps 3 feet or more
20 below the mudline during the removal attempt, the remaining pile stub would be left in
21 place, and the location recorded. GP Gypsum would monitor the area periodically to
22 ensure any abandoned pile stubs remain buried over time.

23 Construction will be entirely supported from barges moored in the water. Construction
24 activities and materials will be staged from barges anchored close to each specific work
25 area. Two general types of barges will be used during construction – material barges
26 and derrick barges. Material barges typically have a flat deck for optimal loading of
27 materials. These barges will store construction materials such as timber, steel piles,
28 precast concrete, fenders, and handrails and will be secured to the derrick barges.
29 Derrick barges are equipped with revolving cranes built into the barge that will be used
30 for pile driving and removal, and are connected to mooring anchors and spuds used to
31 secure the floating equipment in place during construction. Barges will be positioned
32 around the wharf by tugboats. Currently, the barges anticipated for use on the Project
33 have a home port at the contractor's yard, 200 Cutting Boulevard, Richmond, CA; the
34 tug boats anticipated for use on the Project are expected to come from Pier 50 in the
35 Port of San Francisco.

36 All demolition and construction activities are anticipated to occur between August 1 and
37 November 30, in order to minimize impacts to sensitive fish species. During this period,
38 an estimated 24 days of in-water construction is planned; no vessel deliveries of
39 gypsum shipments would take place during the construction period.

1 The original solid deck walkways of the wharf will be replaced with new light-permitting
2 walkway decks constructed of grip strut type planking (expanded metal grating). The
3 total shadowed area has been reduced by 157 square feet by narrowing the walkways.

4 **EXISTING CONDITIONS**

5 The Project wharf is located on approximately 1.4 acres of ungranted sovereign lands.
6 The overall 780-foot-long wharf/ship terminal structure includes the 199-foot-long main
7 wharf and several dolphins and walkways totaling 581 feet in length (see Figure ES-3).
8 The facility can accommodate 584-foot-long (Canadian Steamship Lines International
9 [CSL] Trailblazer) to 804-foot-long (CSL Acadian) ships; the wharf improvements under
10 the Project would not increase the capacity of the facility to accommodate additional
11 deliveries. The wharf, which was originally built in 1955, is constructed of timber piles,
12 timber cap beams, timber stringers, and timber decking. The main part of the wharf
13 supports breasting timber dolphins² and a hopper conveyor system that unloads
14 material to be delivered to the Plant. Additional timber dolphins (connected by wooden
15 walkways) extend upstream and downstream from the main wharf platform to provide
16 further mooring and berthing capabilities. The hopper on the wharf unloads gypsum
17 rock, generally transported from Mexico, from the ships docking at the terminal
18 approximately once every 4 weeks; each unloading event takes approximately 24 hours
19 to complete.

20 The wharf is in need of repairs because of damage to the structures from years of use
21 and deterioration from the marine environment. The last repairs on the wharf were
22 completed in 1984. In 2008, an underwater study was completed that described the
23 wharf condition as in

24 *...generally fair to good condition, and has areas requiring upgrades and/or*
25 *improvements. There are areas of the structure that require repair and or*
26 *replacements. These areas include damaged or missing piling.*

27 At this time, the wharf structures are so deteriorated that they must be repaired in order
28 for the facility to continue to receive shipments of gypsum rock. As listed in Table ES-1,
29 above, the proposed Project-related activities consist of removing, installing, and
30 repairing various wharf components.

² Dolphins are generally divided into two types, breasting dolphins and mooring dolphins. Breasting dolphins serve the following purposes: assist in berthing of vessels by taking up some berthing loads; keep the vessel from pressing against the pier structure; and serve as mooring points to primarily restrict the longitudinal movement of the berthing vessel. Mooring dolphins are used for mooring only and for securing the vessels by mooring lines. They also are commonly used near pier structures to primarily control the transverse movement of berthing vessels.

1 Access to the wharf is via Minaker Drive then across the Plant property. The wharf is
 2 situated approximately 90 feet north of the shore, adjacent to the Plant; two units of the
 3 Antioch Dunes National Wildlife Refuge (Refuge) are located to the east and west of the
 4 Plant near the wharf but on the shore; and West Island is across the main channel of
 5 the river, to the north of the wharf. Other industrial uses are spread along the shoreline
 6 to the north and south. The nearest residences lie about 1,800 feet to the south of the
 7 wharf and the nearest school is about 0.9 mile from the Project site.

8 **ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES**

9 The environmental factors checked below in Table ES-2 would be potentially affected
 10 by this Project; a checked box indicates that at least one impact would be a “Potentially
 11 Significant Impact” except that the Applicant has agreed to Project revisions, including
 12 the implementation of mitigation measures (MMs), that reduce the impact to “Less than
 13 Significant with Mitigation,” as detailed in Section 3 of this MND. Table ES-3 lists
 14 proposed MMs designed to reduce or avoid potentially significant impacts. With
 15 implementation of the MMs, all Project-related impacts would be reduced to less than
 16 significant.

Table ES-2. Environmental Issues and Potentially Significant Impacts

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agriculture and Forest Resources	<input type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural and Paleontological Resources	<input type="checkbox"/> Geology and Soils
<input type="checkbox"/> Greenhouse Gas Emissions	<input checked="" type="checkbox"/> Hazards and Hazardous Materials	<input checked="" type="checkbox"/> Hydrology and Water Quality
<input type="checkbox"/> Land Use and Planning	<input type="checkbox"/> Mineral Resources	<input type="checkbox"/> Noise
<input type="checkbox"/> Population and Housing	<input type="checkbox"/> Public Services	<input type="checkbox"/> Recreation
<input type="checkbox"/> Transportation/Traffic	<input type="checkbox"/> Utilities and Service Systems	
<input checked="" type="checkbox"/> Mandatory Findings of Significance		
<input type="checkbox"/> Other Major Areas of Concern: Commercial Fishing and Environmental Justice		

Table ES-3. Summary of Proposed Project Mitigation Measures

Biological Resources	
MM BIO-1	Timing of Work
MM BIO-2	Restriction on Equipment Movements
MM BIO-3	Designation of an Agency-Approved Project Biologist
MM BIO-4	Worker Environmental Awareness Program
MM BIO-5	Wildlife Protections
MM BIO-6	In-Water Turbidity Protections
MM BIO-7	Minimize Underwater Sound from Pile-Driving
MM BIO-8	Toxic Substances Protections
MM BIO-9	Protection of Migratory Birds
Cultural Resources	
MM CUL-1	Discovery of Previously Unknown Cultural Resources
MM CUL-2	Unanticipated Discovery of Human Remains
Hazards and Hazardous Materials	
MM BIO-6	In-Water Turbidity Protections (see above)
MM BIO-8	Toxic Substances Protections (see above)
Hydrology and Water Quality	
MM BIO-6	In-Water Turbidity Protections (see above)
MM BIO-8	Toxic Substances Protections (see above)

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1 **1.0 PROJECT AND AGENCY INFORMATION**

2 **1.1 PROJECT TITLE**

3 Georgia Pacific Gypsum Antioch Wharf Upgrade Project (Project)

4 **1.2 LEAD AGENCY AND PROJECT SPONSOR**

5 California State Lands Commission (CSLC)
6 100 Howe Avenue, Suite 100-South
7 Sacramento, CA 95825

8 Contact person:

9 Afifa Awan, Environmental Scientist
10 Division of Environmental Planning and Management
11 Afifa.Awan@slc.ca.gov
12 (916) 574-1891

13 **Applicant:**

14 Georgia Pacific Gypsum, LLC (GP Gypsum or Applicant)
15 801 Minaker Drive
16 Antioch, CA 94509

17 Contact person:

18 Alexander Hnizdor, Plant Environmental Manager
19 Alexander.Hnizdor@gapac.com
20 (925) 757-2870 ext. 200

21 **1.3 PROJECT LOCATION**

22 The proposed Project is located offshore on the San Joaquin River (River) at 801
23 Minaker Drive, city of Antioch, Contra Costa County, approximately 2 miles west of the
24 Senator John A. Nejedly Bridge (Antioch Bridge), and east of Suisun Bay. (Refer to
25 Section 2, Project Description, for further details on the Project location.)

26 **1.4 ORGANIZATION OF MITIGATED NEGATIVE DECLARATION**

27 This Mitigated Negative Declaration (MND) is intended to provide the CSLC, as lead
28 agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code,
29 § 21000 et seq.), and other responsible agencies with the information required to
30 exercise their discretionary responsibilities with respect to the proposed Project. The
31 document is organized as follows:

- 1 • Section 1 provides the Project background, Agency and Applicant information,
2 Project Objectives and anticipated agency approvals, and a summary of the
3 public review and comment process.
- 4 • Section 2 describes the proposed Project including its location, layout,
5 equipment, and facilities. Section 2 also provides an overview of the Project's
6 operations and schedule.
- 7 • Section 3 provides the Initial Study (IS), including the environmental setting,
8 identification and analysis of potential impacts, and discussion of various Project
9 changes and other measures that, if incorporated into the Project, would mitigate
10 or avoid those impacts, such that no significant effect on the environment would
11 occur. The IS was conducted by the CSLC pursuant to section 15063 of the
12 State CEQA Guidelines.³
- 13 • Section 4 includes an environmental justice analysis and discussion consistent
14 with CSLC Policy.
- 15 • Section 5 presents the Mitigation Monitoring Program (MMP).
- 16 • Section 6 presents information on report preparation and references.
- 17 • Appendices. The appendices include specifications, technical data, and other
18 information supporting the analysis presented in this MND.
 - 19 ○ Appendix A. Air Quality Calculations
 - 20 ○ Appendix B. Special Status Species Tables
 - 21 ○ Appendix C. Explanations of Special Status Species Codes
 - 22 ○ Appendix D. Biological Assessment
 - 23 ○ Appendix E. Underwater Noise Assessment
 - 24 ○ Appendix F. Noise
 - 25 ○ Appendix G. Comment Letters Received

26 **1.5 PROJECT BACKGROUND AND OBJECTIVES**

27 GP Gypsum proposes to structurally upgrade several wharf components at the existing
28 GP Gypsum Antioch wharf (wharf/ship terminal) and meet the berthing requirements of
29 California Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS)
30 (Cal. Code Regs., tit. 24, § 3101F et seq.). Although the wharf is not a marine oil
31 terminal subject to MOTEMS regulations, GP Gypsum proposes to use applicable
32 berthing and mooring provisions of MOTEMS in the design criteria because MOTEMS is
33 considered to be the “state of the art” design code. The wharf is in need of repairs
34 because of damage to the structures from years of use. The upgrades generally include
35 removing existing wooden structures, installing new concrete and steel structures, and

³ The State CEQA Guidelines are found in Title 14 of the California Code of Regulations, commencing with section 15000.

1 repairing the remaining existing wooden structures. Table 1.5-1 below lists the history of
 2 the facility and the events leading to the proposed Project.

Table 1.5-1. Sequence of Events Leading to the Proposed Project

Year	Events
1955	The wharf/ship terminal was built.
1984	The most recent wharf repairs were completed.
2007	CSLC notified GP Gypsum that a condition survey and berthing analysis of the wharf was required for lease renewal.
2008	Sea Engineering, Inc. (SEI) provided a baseline survey and reviews of the existing underwater and above water structures and developed a plan of action for improvements.
2011	The CSLC approved issuance of a new lease to Georgia Pacific Gypsum, LLC that included a requirement that the wharf be rehabilitated.
2012	GP Gypsum submitted plans for the wharf upgrade that were made a condition of the lease approved by the CSLC in 2011.
2013	CSLC staff accepted GP Gypsum's preliminary plan; GP Gypsum submitted an application to amend the existing lease to allow for rehabilitation activities to proceed.
2013/ 2014	A feasibility study was performed to evaluate design alternatives.
2014	GP Gypsum selected the proposed Project design from the recommended design alternatives.

3 The proposed Project would help achieve the following objectives:

- 4
- Rehabilitate the facility by removing, installing, and repairing structures to
 5 maintain the essential and existing use of an industrial wharf facility for the GP
 6 Gypsum Antioch Plant (Plant);
 - Obtain a new CSLC General Lease – Industrial Use, PRC 1589.1, in order to
 7 operate the facility after repairs are completed;
 - Meet MOTEMS requirements;
 - Improve safety and reduce possible risks to public recreational and commercial
 10 uses of the River around the wharf area;
 - Safely accommodate larger vessels (terminal capacity, delivery schedules, or
 11 onshore Plant capacity or operations will not change);
 - Help sustain the economic viability of a major industry and employer in Contra
 12 Costa County.
- 13
14
15

1 **1.6 PUBLIC REVIEW AND COMMENT**

2 Pursuant to State CEQA Guidelines sections 15072 and 15073, a lead agency must
3 issue a proposed MND for a minimum 30-day public review period. Local, regional,
4 State, and federal agencies and the public will have the opportunity to review and
5 comment on the document. Responses to written comments received by the CSLC
6 during the 30-day public review period will be incorporated as appropriate into the MND.

7 In accordance with State CEQA Guidelines section 15074, subdivision (b), the CSLC
8 will review and consider the proposed MND, together with any comments received
9 during the public review process, prior to taking action on approval of the MND and the
10 Project.

11 **1.7 APPROVALS AND REGULATORY REQUIREMENTS**

12 The CSLC's authority is set forth in Division 6 of the California Public Resources Code
13 and it is regulated by the California Code of Regulations, Title 2, sections 1900–2970.
14 The CSLC has authority to issue leases or permits for the use of sovereign lands held in
15 the public trust, including all ungranted tidelands, submerged lands, and the beds of
16 navigable lakes and waterways, as well as certain residual and review authority for
17 tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub.
18 Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or
19 ungranted, as well as navigable lakes and waterways, are subject to the protections of
20 the Common Law Public Trust. As general background, the State of California acquired
21 sovereign ownership of all tidelands and submerged lands and beds of navigable lakes
22 and waterways upon its admission to the U.S. in 1850. The State holds these lands for
23 the benefit of all people of the State for statewide Public Trust purposes, which include
24 but are not limited to waterborne commerce, navigation, fisheries, water-related
25 recreation, habitat preservation and open space. On tidal waterways, the State's
26 sovereign fee ownership extends landward to the mean high tide line, except for areas
27 of fill or artificial accretion. For the proposed Project, the CSLC has received an
28 application for an amendment to Lease No. PRC 1589.1 to authorize GP Gypsum to
29 perform the rehabilitation activities at the wharf/ship terminal.

30 The CSLC must comply with CEQA when it undertakes an activity defined by CEQA as
31 a "project" that must receive some discretionary approval (i.e., the CSLC has the
32 authority to deny the requested lease, permit, or other approval) which may cause either
33 a direct physical change in the environment or a reasonably foreseeable indirect change
34 in the environment. CEQA requires the CSLC to identify the significant environmental
35 impacts of its actions and to avoid or mitigate those impacts, if feasible.

- 1 In addition to the CSLC, the Project is subject to the review and approval of other
- 2 federal, State and local entities with statutory and/or regulatory jurisdiction over various
- 3 aspects of the Project (see Table 1.7-1).

Table 1.7-1. Other Agencies with Review/Approval over Project Activities

Permitting Agency		Anticipated Approvals/Regulatory Requirements
Federal	U.S. Army Corps of Engineers (USACE), Sacramento District	Clean Water Act (CWA) Section 404, Minor Impact Letter of Permission
	U.S. Fish and Wildlife Service (USFWS) National Marine Fisheries Service (NMFS)	Section 7 Consultation under Federal Endangered Species Act (if necessary)
State	California Department of Fish and Wildlife (CDFW)	California Endangered Species Act Fish and Game Code sections 1600-1616 Streambed Alteration Agreement
	Central Valley Regional Water Quality Control Board (CVRWQCB)	Clean Water Act Section 401 Water Quality Certification
Local	City of Antioch	Building Permit

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1 **2.0 PROJECT DESCRIPTION**

2 **2.1 NEED FOR PROJECT**

3 The Georgia Pacific (GP) Gypsum Antioch Wharf Upgrade Project (Project) is
4 necessary due to the deteriorated condition of several facility structures. Among other
5 benefits, after the upgrades, the wharf would provide improved berthing and mooring
6 capacities for the larger vessels that currently deliver gypsum rock product to the GP
7 Gypsum Antioch fiberboard manufacturing plant (Plant) under new shipping contracts.
8 While the ships themselves are larger than ships that were commonly used for delivery
9 in the past, the amount of gypsum rock being delivered and processed is not expected
10 to increase after the Project. The Plant itself is not under the California State Lands
11 Commission (CSLC)'s jurisdiction.

12 As described in Section 1.5, above, the wharf was built in 1955 and was last
13 upgraded/repared in 1984. Subsequent to a survey conducted by Sea Engineering, Inc.
14 (SEI) in 2008, which provided a review of the condition of the existing underwater and
15 above water structures, the CSLC, as a condition of Lease No. PRC 1589.1 approved
16 by the CSLC on October 27, 2011, required GP Gypsum, LLC (GP Gypsum or
17 Applicant) to submit a "wharf rehabilitation plan." The proposed Project is intended to
18 meet this lease requirement.

19 **2.2 PROJECT LOCATION**

20 The Project is located on the San Joaquin River (River), approximately 2 miles west of
21 the Senator John A. Nejedly Bridge (Antioch Bridge), in the city of Antioch, Contra
22 Costa County. The wharf is just offshore of the Plant, which is located at 801 Minaker
23 Drive in Antioch (see Figures 2.2-1 and 2.2.-2).

24 The wharf is situated approximately 90 feet north of the shore, adjacent to the Plant; two
25 units of the Antioch Dunes National Wildlife Refuge (Refuge) are located to the east and
26 west of the Plant near the wharf but on the shore; and West Island is across the main
27 channel of the River, to the north of the wharf. Other industrial uses are spread along
28 the shoreline to the north and south. The nearest residences lie about 1,800 feet to the
29 south of the wharf and the nearest school is about 0.9 mile from the Project site.

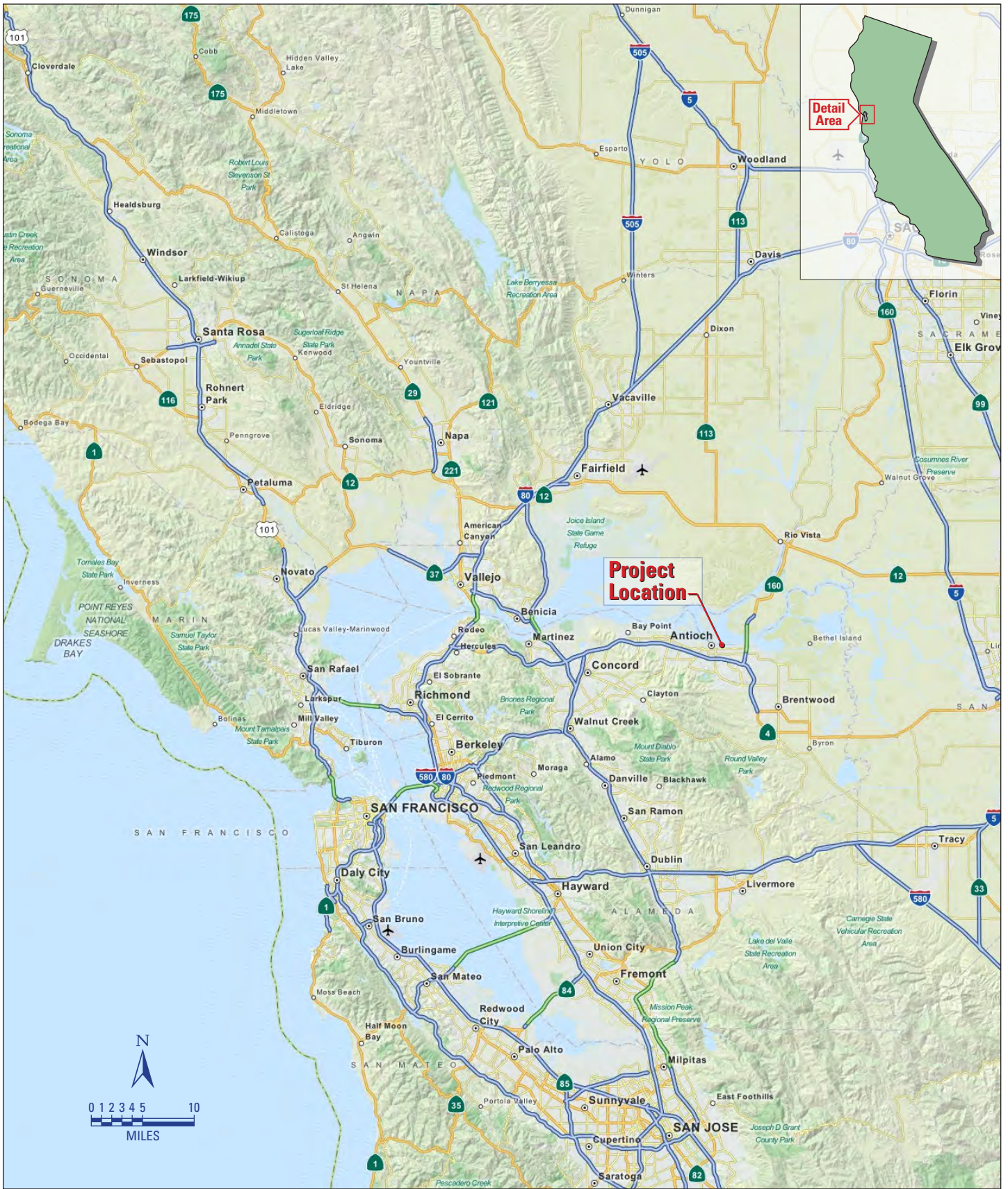


Figure 2.2-1
Project Location

Source: MapQuest/Grassetti Environmental



Figure 2.2-2

Existing Facilities and Surrounding Land Uses

Source: Grasseti Environmental

1 **2.3 EXISTING FACILITIES**

2 The general Project area is about 1.4 acres in size, including the wharf itself and
3 surrounding water areas. The overall 780-foot-long wharf/ship terminal structure
4 includes the 199-foot-long main wharf and dolphins and connecting walkways totaling
5 581 feet in length (see Figure 2.4-1). The wharf is constructed of a total of 303 timber
6 piles, 1,122 linear feet of timber cap beam, 4,332 linear feet of timber stringer, and
7 11,631 square feet of timber decking. The main part of the wharf supports four timber
8 breasting dolphins,⁴ each consisting of twenty-two 14-inch-diameter timber piles, and a
9 hopper/conveyor system for unloading incoming gypsum shipments from ships. Five
10 additional timber dolphins (connected by wooden walkways) extend upstream and
11 downstream from the main wharf platform to provide further mooring and berthing
12 capabilities. A wooden trestle (60-feet-long x 25-feet-wide) connects the main wharf to
13 the shore. Representative photographs of these various features are provided in Figure
14 2.4-2. The hopper on the wharf unloads gypsum rock, generally transported from
15 Mexico, from the ships docking at the terminal approximately once every 4 weeks; each
16 unloading event takes approximately 24 hours to complete.

17 **2.4 DESCRIPTION OF THE PROPOSED PROJECT**

18 The Project would consist of removal, installation, and repair activities at the wharf. No
19 vessel deliveries of gypsum shipments would take place during the construction period.

20 The Project would be carried out entirely from the water and no equipment laydown,
21 staging, or access would be conducted from the Plant property or other upland areas.
22 Instead, barges would be used to carry out Project-related activities; the barges would
23 be anchored during work activities and will be equipped with all necessary cranes and
24 tools. In addition, the materials removed would be carried away from the site by barges.
25 Table 2.4-1 identifies the overall number and type of Project activities. Project features
26 and/or locations are shown on Figures 2.4-1, 2.4-2, and 2.4-3, while representative
27 photographs of the upgraded/improved features are provided in Figure 2.4-4. Table 2.4-
28 2 identifies the disposition of the various dolphins before and after Project
29 implementation. As seen in Table 2.4-2, existing Dolphins A, B, G, H, and I would be
30 demolished; existing Dolphins C, D, E and F would remain in place to structurally
31 support the existing wharf deck.

⁴ Dolphins are generally divided into two types, breasting dolphins and mooring dolphins. Breasting dolphins serve the following purposes: assist in berthing of vessels by taking up some berthing loads; keep the vessel from pressing against the pier structure; and serve as mooring points to primarily restrict the longitudinal movement of the berthing vessel. Mooring dolphins are used for mooring only and for securing the vessels by mooring lines. They also are commonly used near pier structures to primarily control the transverse movement of berthing vessels.

Table 2.4-1. Proposed Project Activities

Structures	Structural Dimensions	Pile Quantities and Sizes	Pile Length Below Mudline
Remove			
Five existing timber breasting and mooring dolphins	21 feet long x 9.5 feet wide	140 14-inch-diameter treated timber piles	About 30 to 40 feet
Two existing wooden walkways connecting dolphins to the wharf and their supporting pilings	East walkway: 280 feet long x 6.67 feet wide West walkway: 200 feet long x 6.67 feet wide	10 14-inch-diameter treated timber piles	About 30 to 40 feet
Install			
Four new breasting dolphins	20 feet long x 13.5 feet wide	Four 72-inch-diameter hollow-core steel monopiles ⁵	About 65 feet
Four new cone fender systems for the four new breasting dolphins	6 feet long x 6 feet wide (center located at 7.5 feet above mean lower low water)	Fender systems would be part of breasting dolphin systems	NA
Three new mooring dolphins	15 feet long x 12 feet wide	Three 42- to 48-inch-diameter hollow-core steel monopiles	55 feet
Nine new walkway segments connecting new mooring dolphins	<ul style="list-style-type: none"> • Two each 66 feet long x 4 feet wide (handrail to handrail) • Two each 56 feet long x 4 feet wide • Two each 84 feet long x 4 feet wide • Two each 40 feet x 4 feet wide • One each 28 feet long x 4 feet wide 	Six 24- to 30-inch-diameter steel-pipe piles	About 40 to 50 feet
Repair			
One timber piling	14 inches diameter	14-inch-diameter timber pile	About 30 to 40 feet
12 stringers (beams/lumbers) on existing wharf	<ul style="list-style-type: none"> • 4 inches long x 12 inches wide • 6 inches long x 12 inches wide • 10 inches long x 12 inches wide • 12 inches long x 12 inches wide 	NA	NA

⁵ A monopile foundation uses a single, generally large-diameter, foundation structural element to support all the loads.



Figure 2.4-1

Overview of Existing and Proposed Project Features and Work Areas

Source: Ben C. Gerwick, Inc.



Dolphin A
(to be demolished)



Dolphin C & D
(to remain)



Dolphin G & Walkway Deck
(to be demolished)



Wharf and Dolphin E
(to remain)



Dolphin G & Walkway Deck
(to be demolished)



Dolphin I Framing and Piles
(to be demolished)

Figure 2.4-2

Photos of Existing Dolphins

Source: Ben C. Gerwick, Inc.

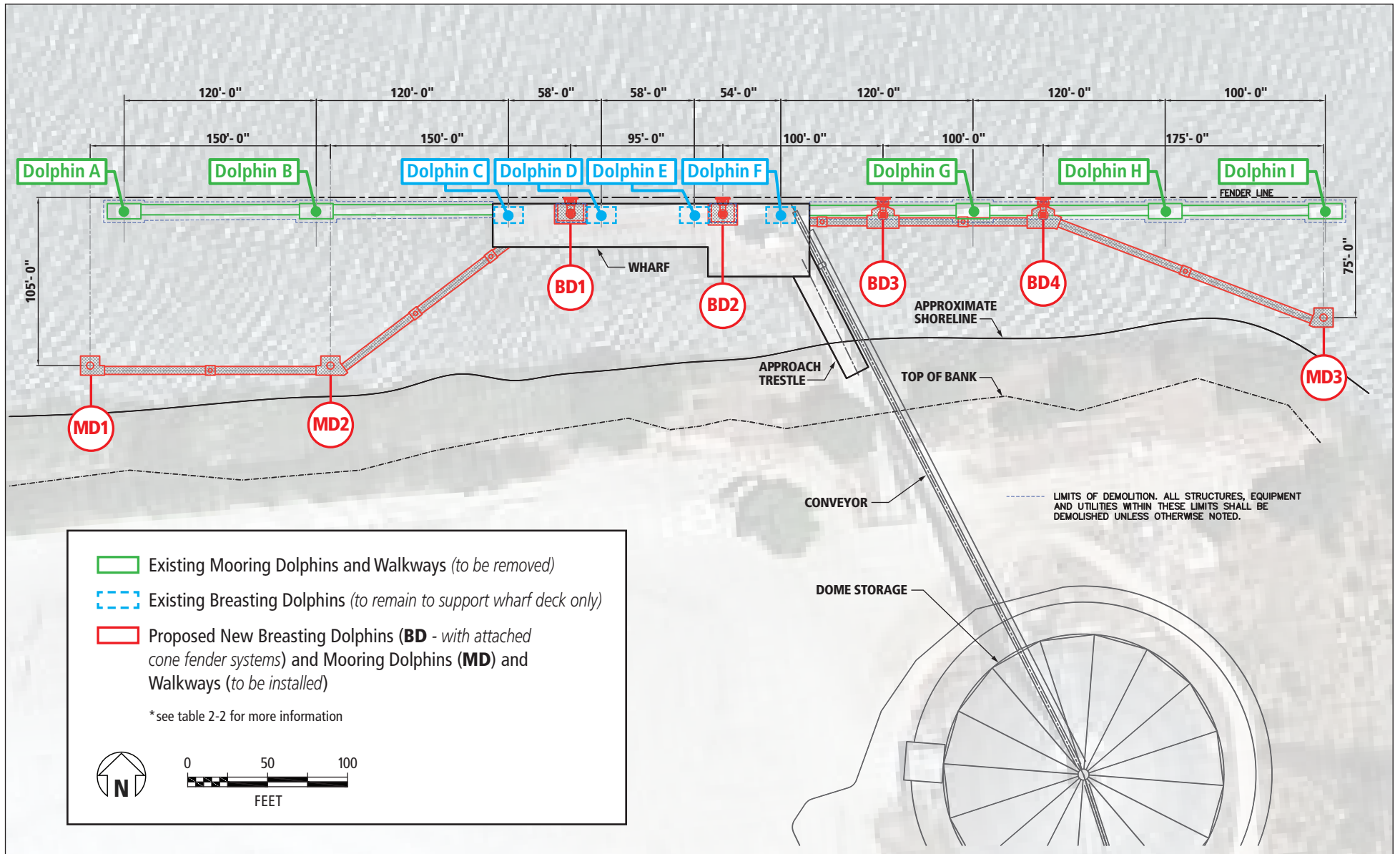


Figure 2.4-3

Proposed New Wharf Features and Dolphins



Breasting Dolphin



Dolphins with Fender Systems



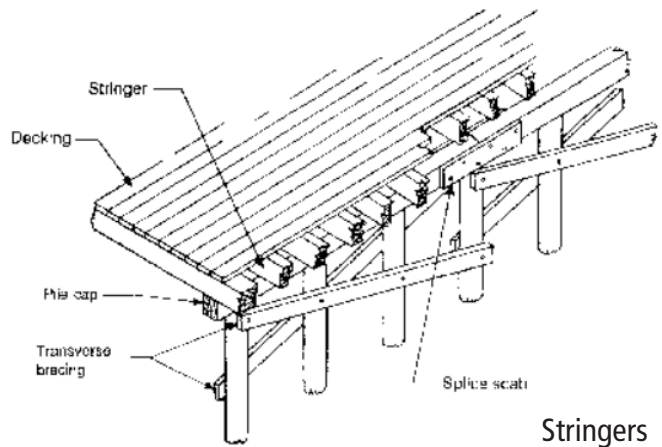
Mono Pile



Mooring Dolphin attached to the walkway (as proposed)



Mooring Dolphin



Stringers

Figure 2.4-4

Photos of Proposed Dolphin Types

Source: Ben C. Gerwick, Inc.

Table 2.4-2. Existing and Proposed Dolphins and their Uses

Structure Designation	Current Uses	After Proposed Project Uses
EXISTING DOLPHINS		
Dolphins A, B	Berthing, mooring, and breasting	None – to be demolished
Dolphin C, D, E, F	Berthing, mooring, breasting, and supports part of wharf deck	Will only continue to be used to support part of wharf deck
Dolphin G, H, I	Berthing, mooring, and breasting	None – to be demolished
PROPOSED BREASTING DOLPHINS (BD) AND MOORING DOLPHINS (MD)		
BD 1, BD 2, BD 3, BD 4	None – not yet built	Berthing, mooring, and breasting
MD 1, MD 2, MD 3	None – not yet built	Mooring

1 **2.4.1 Proposed Construction Area, Equipment, and Personnel**

2 2.4.1.1 Construction Area and Access

3 As stated above, Project construction would be entirely conducted from barges moored
 4 in the water; there would be no land-based equipment or materials staged at the Project
 5 site. Barges are anticipated to be brought to the site from the contractor's yard located
 6 at 200 Cutting Blvd. in Richmond, CA. Tug boats are anticipated to be brought to the
 7 site from Pier 50 in the Port of San Francisco.

8 Warning signs readable at several hundred feet would be posted 30 days prior to the
 9 start of construction activities. Typically, fishing boats or small power boats are visible
 10 along the River 800 to 1,000 feet north of the wharf. Boats can theoretically approach
 11 the construction zone. Signage would deter entry of these boats into the Project
 12 construction area. Google Earth aeriels show that the “shipping lanes” are
 13 approximately 3,325 feet north of the Project site (to the center of the Sacramento River
 14 ship channel location) on the opposite side of West Island. Recreational boating can be
 15 anywhere on the River – there are no marked travel lanes. Project construction activities
 16 are not anticipated to interfere with any other shipping or boating activities because of
 17 the Project’s distance from the shipping lanes, as discussed above.

18 2.4.1.2 Construction Equipment

19 The following construction equipment would be used to carry out the proposed Project-
 20 related activities (see photos in Figure 2.4-5).



Derrick



Diesel Hammer



Harbor Tug



Materials Barge



Vibratory Hammer

Figure 2.4-5

Photos of Marine Construction Equipment

Source: Ben C. Gerwick, Inc.

1 Additional detail describing the major pieces of equipment follows.

- In-water warning signs
- Material Barges
- Derrick barges
- Tugboats
- Vibratory hammer
- Impact hammer
- Chain and rigging
- Small tools
- Welding machines
- Air compressors
- Generators
- Clamshell bucket

2 **Work and Material Barges**

3 The barges used for the Project may vary in size. A small “work barge” is usually about
4 120 feet by 30 feet by 6 feet. A larger “material barge,” for example one that might
5 transport the timber piles, could be 210 feet by 60 feet by 12 feet. Material barges
6 typically have a flat deck for optimal loading of materials. These barges would store
7 construction materials such as timber, steel piles, precast concrete, fenders, and
8 handrails. Work barges and material barges would be secured by tying them to the
9 derrick barges.

10 **Derrick Barges**

11 Derrick barges are large barges equipped with revolving cranes on their decks. The
12 derrick barges would be anchored in place during work. The barges hold themselves in
13 position during operations with winch lines and anchors or with spuds. Spuds are
14 usually steel piles that are raised and lowered by the crane or with winches. Derrick
15 barges would be delivered and maneuvered using tugboats (see below).

16 During a typical work day, two to four barges would be onsite for Project construction
17 (Gerwick, pers. comm.). The barges would be moved around the Project area with
18 winches and cables attached to anchors or by tugboats as required to facilitate
19 construction. For example, they would be located along the face of the wharf for the
20 breasting dolphin construction and closer to the shoreline for the mooring dolphin
21 construction (see Figure 2.4-1 above).

22 **Tugboats**

23 Harbor tugs, generally measuring 60 to 70 feet long, would be used to deliver the
24 barges to the contractor’s marine yard in Richmond for loading and configuration. The
25 tugboats would also be used to move the barges from site to site within the Project area
26 during demolition and construction. During any single work day one tug would likely be
27 at the Project site (Gerwick, pers. comm.).

1 **Vibratory Hammer**

2 A vibratory hammer would be used for both removal and installation of the piles. For pile
3 extraction, a vibratory hammer would be attached to the pile and then the pile would be
4 pulled vertically with a crane or excavator. The vibratory hammer serves to break the
5 seal or suction between the pile and the sediment holding the pile in place. For
6 installation, the vibratory hammer would be used to sink the pile to the extent possible
7 before installation is completed with the impact hammer.

8 **Impact Hammer**

9 A diesel impact hammer would be used to complete the installation of the new steel
10 piles after the vibratory hammer has sunk the piles to the extent possible. The impact
11 hammer would employ a hammer cushion and “soft-start” (slowly increasing the
12 decibels (dB) from the impact strikes) techniques, and a bubble curtain system⁶ would
13 be deployed to minimize noise and underwater vibration effects.

14 2.4.1.3 Construction Personnel

15 The Project design firm (Gerwick Marine Engineers) has estimated that seven workers
16 including supervisors would travel to the Plant site each day to work on/from the moored
17 barges. No significant variation in staffing level is anticipated for any of the Project
18 activities.

19 **2.4.2 Project Components**

20 2.4.2.1 Removal Activities

21 First, the walkways and wharf deck would be disassembled, placed on a barge, and
22 removed from the Project area for disposal. After the walkways have been removed, a
23 barge fitted with cable cranes, hydraulic cranes, or excavators would be used to remove
24 the 150 treated timber pilings (110 pilings from dolphins and 40 pilings from walkways)
25 using one or a combination of the following methods:

- 26 • Vertical Pulling. This method of complete pile removal involves gripping the pile
27 with a chain, cable or collar and pulling up vertically with a cable or hydraulic
28 crane. Vertical pulling is expected to be the preferred method of removal.
- 29 • Vibratory Extraction. Vibratory extraction involves attaching a vibratory hammer
30 to the pile and pulling vertically with a crane or excavator, as described above.

⁶ “Bubble curtains” infuse the area surrounding the pile to be driven with air bubbles, creating a bubble screen that inhibits the propagation of sound from the pile driving action. Air compressors are used to supply compressed air through air hoses to piping, typically polyvinyl chloride (PVC) or steel. The piping is supported by a frame and encircles the pile below water. Holes are predrilled in the piping, which allows the compressed air to escape thus forming the bubble curtain.

1 • Horizontal Snapping and Breaking. This method does not completely remove the
2 pile, and would be employed only if complete removal was infeasible or if the
3 piles break during the removal process due to deterioration. It typically involves
4 pushing or pulling the pile laterally to break the pile off near the mudline.
5 Snapping typically breaks the pile at the weakest point near the mudline which is
6 typically 1 to 3 feet below the mudline, but this technique can leave part of the
7 pile above mudline particularly if the pile is highly degraded, which increases the
8 likelihood of a navigation or safety hazard. Snapping may result in more sunken
9 or floating broken debris than pulling or cutting particularly for degraded piles. In
10 the event a pile breaks during removal, a clamshell and/or chain would be used
11 to grip the remaining broken piece and complete the removal process.

12 While complete removal is preferred, the CSLC recognizes that field conditions and the
13 possible deteriorated state of the piles may necessitate abandonment in place of an
14 unknown number of timber piles. Therefore, if a pile breaks or snaps 3 feet or more
15 below the mudline during the removal attempt, the remaining pile stub would be left in
16 place, and the location recorded. GP Gypsum would monitor the area periodically to
17 ensure any abandoned pile stubs remain buried over time.

18 The pilings and/or piling remnants would be loaded onto a barge and removed from the
19 Project area to an approved disposal facility (Potrero Hills Landfill in Suisun City, CA).
20 As described above, equipment would include a derrick barge, a tug, a material barge to
21 hold the removed piles and debris and one or more smaller craft to move workers,
22 supplies, anchors and other equipment.

23 2.4.2.2 Installation Activities

24 Prior to installing the new permanent steel monopiles, pile templates would be set by
25 stabbing temporary steel piles into the soils and constructing a framework of steel
26 beams. This activity would use a vibratory hammer for the piles and regular rigging for
27 the beams. The beams would be welded into place with a welding machine. After the
28 templates have been set, the new piles would be installed using a vibratory hammer
29 followed by an impact hammer, as described above and in more detail in Section 3.4,
30 Biological Resources. Once the new piles have been installed, the walkways and
31 decking would be constructed and attached, completing the new portions of the wharf.

32 2.4.2.3 Repair Activities

33 Repairs to the existing wharf would be performed concurrently with demolition and/or
34 construction activities and within the in-water work window, and would be performed
35 from a barge moored alongside the wharf. One damaged timber pile will be repaired in
36 place by wrapping it in a fiberglass sleeve approximately 4 inches in diameter larger
37 than the piling and then enclosing it within concrete. In addition, timber stringers, which

1 transfer vertical loads from the decking to the cap beams below, will be reinforced; 12
2 stringers are damaged at the face of the wharf, likely due to contact with ships. To
3 repair these stringers, reinforcing timber 4x12s or “sisters” would be installed adjacent
4 to the existing stringers by sliding them into the deck through the front face of the wharf.
5 (Since they would be adjacent to and bolted to the existing stringers, they are referred
6 to as sisters.) Drift pins would connect the new sisters to the cap beams below. The
7 locations of these repairs are displayed in Figure 2.4-6.

8 **2.4.3 Other Project Design Features and Considerations**

9 2.4.3.1 Seismic Design

10 The wharf improvements to be constructed under the proposed Project (new dolphins
11 and walkways) have been designed in accordance with seismic design requirements set
12 forth in Chapters 16 and 31F of the 2013 California Building Code. The design of the
13 new dolphins considered conservative estimates of potential corrosion loss and ensures
14 that the structures will have functional utility for a minimum of 25 years. With
15 maintenance, the actual life of the dolphins could extend to 50 years, contingent on it
16 remaining in good condition and subject to periodic inspections and analyses during
17 future lease renewal requests.

18 2.4.3.2 Net Displacement and Net Shadow Areas

19 The net water displacement (volume of the new steel monopiles and walkway supports
20 minus the volume of timber piles being removed) would be reduced by approximately 20
21 cubic yards because there would be less material in the water in the Project area after
22 the Project is completed than what is currently present. Similarly, the shadow area
23 (shadow area before and after demolition and construction) is estimated to be reduced
24 by 157 square feet. The total shadow area would be reduced by replacing the existing
25 walkways with narrower walkways because it would have a 4-foot inside-to-inside
26 handrail dimension for dolphin access. While the original structures have solid decks,
27 the new walkway decks would be constructed using grip strut type planking (expanded
28 metal grating) with about 50 percent open area. The reduced-shadow walkway area
29 would extend an estimated 830 square feet (< 0.02 acre) over the River at about 9 feet
30 depth or less. It would extend an estimated total of 1,475 square feet (about 0.03 acre)
31 over the River at about 20 feet depth or less.

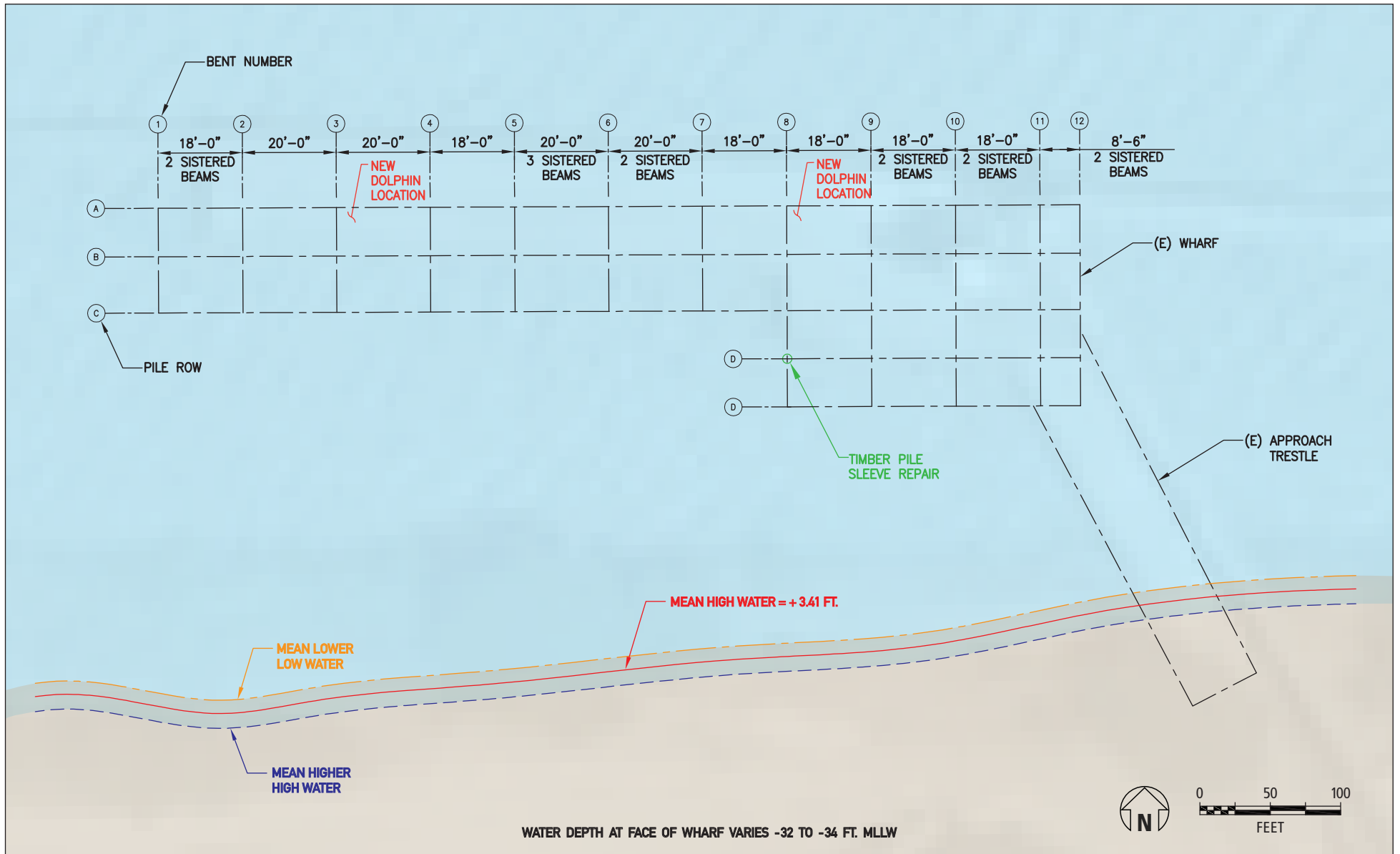


Figure 2.4-6

Proposed Wharf Repairs and Water Levels

Source: Ben C. Gerwick, Inc.

1 2.4.3.3 Sea-Level Rise

2 According to a recent study by the National Research Council (NRC 2012) tide gauge
3 measurements show that global sea level rose by an average of about 1.7 ± 0.5
4 millimeters per year (mm/yr) over the last century. However, the rate of sea-level rise
5 has increased to about 3.1 ± 0.7 mm/yr during the last two to three decades. The NRC
6 report assesses future global sea-level rise and future sea-level rise along the coasts of
7 California, Oregon, and Washington. In California, the presence of a major plate
8 tectonic boundary at Cape Mendocino causes the coastline to behave in different ways
9 on either side of the feature. The NRC report accounts for these differences and the
10 major contributors to global sea-level rise, which are oceanic thermal expansion and
11 melting of glaciers and ice sheets. The NRC report also accounts for the atmospheric
12 and oceanic variables that affect rates of sea-level rise in individual coastal regions.
13 Thus, the NRC projects different values for future sea-level rise on either side of Cape
14 Mendocino. Relative to the year 2000, the NRC report projects the sea level to rise
15 along the California coast south of Cape Mendocino by 5 to 24 inches by the year 2050
16 and 17 to 66 inches by 2100.

17 The wharf is at sea level. The shoreline rises sharply between 1 to 50 feet (above sea
18 level from the water's edge) in the surrounding upland areas for approximately 0.25 mile
19 east and west of the wharf. The wharf improvement design has taken potential sea-level
20 rise into consideration. The CSLC used the 2050 projection of up to 24 inches (2 feet)
21 by 2050 because of the stated design life of the structures and the expected lease term
22 for operating the facility. Upon Project completion, the top of the wharf deck will be
23 approximately 12.5 feet above mean lower low water (MLLW) and approximately 8.6
24 feet above mean higher high water (MHHW). The evaluation also incorporated a 25-
25 year "significant wave height" estimate of 2.5 feet. Under this scenario, there would be
26 approximately 4 feet between the MHHW + significant wave height + 2 feet sea-level
27 rise projection and the top of the deck (see Figure 2.4-7).

28 2.4.4 Timing Considerations and Estimated Schedule

29 2.4.4.1 Work Windows

30 The in-water work window recommended by the National Marine Fisheries Service
31 (NMFS), U.S. Fish and Wildlife Service (USFWS), and California Department of Fish
32 and Wildlife (CDFW) to minimize impacts to sensitive fish species is from August 1
33 through November 30. The in-water construction work is currently anticipated to require
34 approximately 8 weeks of construction activity within a 12-week construction period.⁷

⁷ This approximately 8 weeks of working days would occur within a 12-week "window" - with real-time interferences such as holidays, in-coming ship deliveries to the wharf (for which work is shut down) and normal equipment malfunctions, repairs and/or replacements.

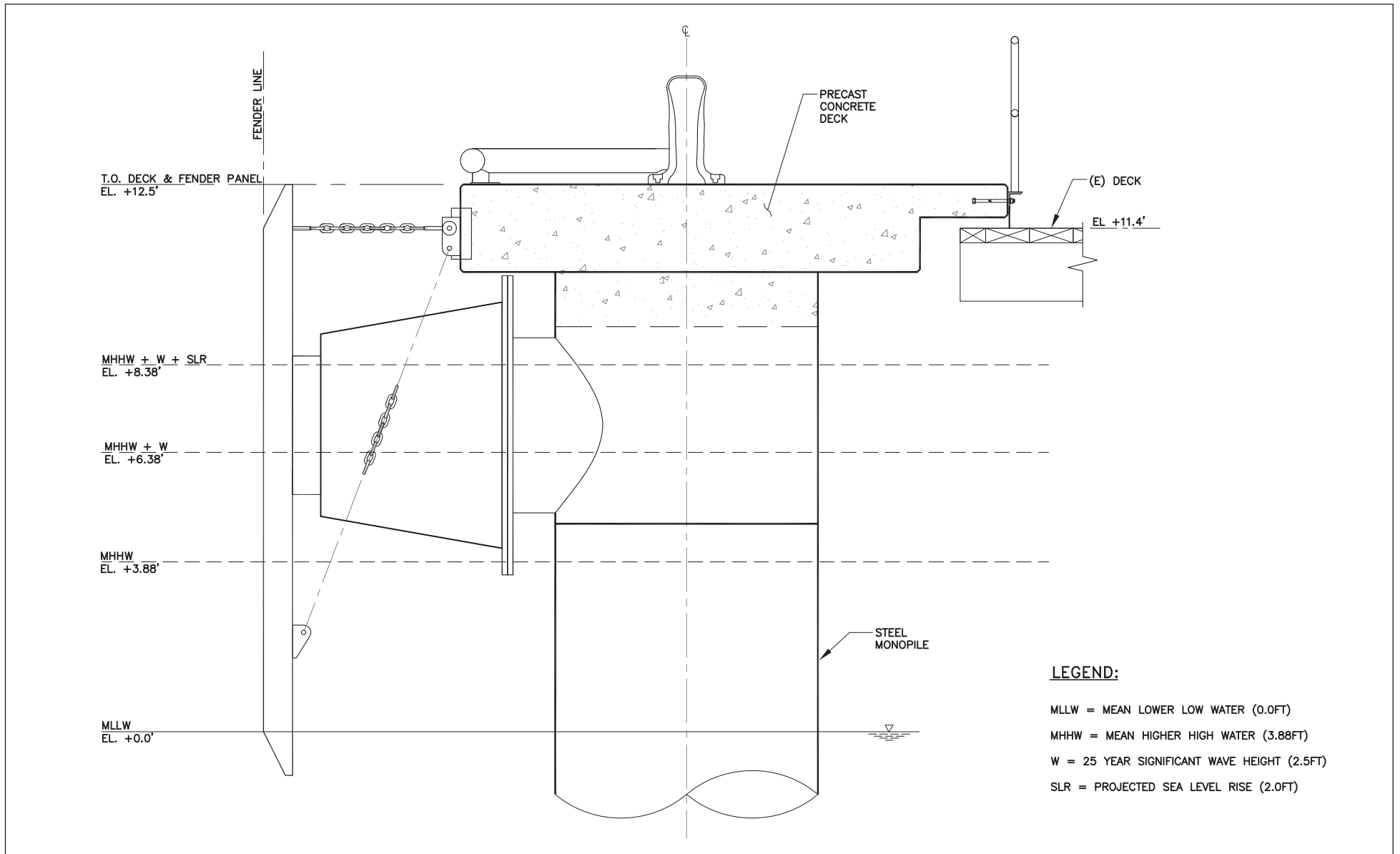


Figure 2.4-7

Dolphin and Deck Elevations Compared to Existing and Projected Tidal Heights

Source: Ben C. Gerwick, Inc.

1 2.4.4.2 Hours of Operation

2 The Project would comply with city of Antioch construction hours, which allow weekday
3 construction hours from 7:00 AM until 6:00 PM, and weekend and holiday construction
4 hours from 9:00 AM until 5:00 PM.⁸

5 2.4.4.3 Work Shifts

6 An 8-hour shift would typically be from 7:00 AM to 3:30 PM. Depending on the specific
7 activities of the day, 10-hour weekday shifts may be warranted, and would usually be
8 from 7:00 AM to 5:30 PM.

9 2.4.4.4 Duration of Construction Activities

10 As noted above, active construction is expected to take approximately 8 weeks, as
11 estimated below (some work would occur concurrently).

- 12 • Demolition – about 5 days;
- 13 • Breasting dolphin construction – about 20 days;
- 14 • Mooring dolphin construction – about 15 days;
- 15 • Walkway construction – about 10 days; and
- 16 • Wharf repairs – about 5 days.

17 2.4.4.5 Specific Timing of Construction Activities

18 GP Gypsum anticipates initiating Project activities in August and completing the Project
19 by the end of November. The following outlines the specific anticipated work timing:

- 20 • Install mooring dolphin and walkway piles with vibratory hammer – currently
21 scheduled for 7 days in September.
- 22 • Install breasting dolphin piles with impact hammer – currently scheduled for 5
23 days in October.
- 24 • Set and weld breasting dolphin caps – currently scheduled for 8 days in October.
- 25 • Install fenders – currently scheduled for 2 days in October.
- 26 • Install mooring dolphin and walkway caps – currently scheduled for 2 days in
27 October and 8 days in November.
- 28 • Install walkways – currently scheduled for 4 days in November.
- 29 • Demolish upstream and downstream dolphins – currently scheduled for about 10
30 days in November.

⁸ Antioch Municipal Code Section 2, Community Noise Ordinance 5-17.060(f).

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3.0 ENVIRONMENTAL CHECKLIST AND ANALYSIS

This section contains the Initial Study (IS) checklist that was completed for the Georgia Pacific (GP) Gypsum LLC (Applicant) GP Gypsum Antioch Wharf Upgrade Project (Project), in accordance with the requirements of California Environmental Quality Act (CEQA). The IS identifies site-specific conditions and impacts, evaluates their potential significance, and discusses ways to avoid or lessen impacts that are potentially significant. The information, analysis and conclusions included in the IS provide the basis for determining the appropriate document needed to comply with CEQA. For the Project, based on the analysis and information contained herein, California State Lands Commission (CSLC) staff has found that the IS shows that there is substantial evidence that the Project may have a significant effect on the environment but revisions to the Project would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur. As a result, the CSLC has concluded that a Mitigated Negative Declaration (MND) is the appropriate CEQA document for the Project.

The evaluation of environmental impacts provided in this IS is based in part on the impact questions contained in Appendix G of the State CEQA Guidelines; these questions, which are included in an impact assessment matrix for each environmental category (Aesthetics, Agriculture/Forest Resources, Air Quality, Biological Resources, etc.), are “intended to encourage thoughtful assessment of impacts.” Each question is followed by a check-marked box with column headings that are defined below.

- **Potentially Significant Impact.** This column is checked if there is substantial evidence that a Project-related environmental effect may be significant. If there are one or more “Potentially Significant Impacts,” a Project Environmental Impact Report (EIR) would be prepared.
- **Less than Significant with Mitigation.** This column is checked when the Project may result in a significant environmental impact, but the incorporation of identified Project revisions or mitigation measures would reduce the identified effect(s) to a less than significant level.
- **Less than Significant Impact.** This column is checked when the Project would not result in any significant effects. The Project’s impact is less than significant even without the incorporation of Project-specific mitigation measures.
- **No Impact.** This column is checked when the Project would not result in any impact in the category or the category does not apply.

The environmental factors checked below would be potentially affected by this Project; a checked box indicates that at least one impact would be a “Potentially Significant Impact” except that the Applicant has agreed to Project revisions, including the

Environmental Checklist and Analysis

- 1 implementation of mitigation measures, that reduce the impact to "Less than Significant
2 with Mitigation."

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agriculture and Forest Resources	<input type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural and Paleontological Resources	<input type="checkbox"/> Geology and Soils
<input type="checkbox"/> Greenhouse Gas Emissions	<input checked="" type="checkbox"/> Hazards and Hazardous Materials	<input checked="" type="checkbox"/> Hydrology and Water Quality
<input type="checkbox"/> Land Use and Planning	<input type="checkbox"/> Mineral Resources	<input type="checkbox"/> Noise
<input type="checkbox"/> Population and Housing	<input type="checkbox"/> Public Services	<input type="checkbox"/> Recreation
<input type="checkbox"/> Transportation/Traffic	<input type="checkbox"/> Utilities and Service Systems	
<input checked="" type="checkbox"/> Mandatory Findings of Significance		
<input type="checkbox"/> Other Major Areas of Concern: Commercial Fishing and Environmental Justice		

- 3 Detailed descriptions and analyses of impacts from Project activities and the basis for
4 their significance determinations are provided for each environmental factor on the
5 following pages, beginning with Section 3.1, Aesthetics. Relevant laws, regulations, and
6 policies potentially applicable to the Project are listed in the Regulatory Setting for each
7 environmental factor analyzed in this IS.

8 **AGENCY DETERMINATION**

- 9 Based on the environmental impact analysis provided by this Initial Study:

- I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

10 Afifa Awan
Signature

06/16/2015
Date

11 Afifa Awan, Environmental Scientist
12 Division of Environmental Planning and Management
13 California State Lands Commission

1 **3.1 AESTHETICS**

AESTHETICS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2 **3.1.1 Environmental Setting**

3 The GP Gypsum Antioch Wharf (wharf/ship terminal) is situated on approximately 1.4
 4 acres adjacent to the southern shore of the San Joaquin River (River), approximately 2
 5 miles west of the Senator John A. Nejedly Bridge (Antioch Bridge), in the city of Antioch,
 6 Contra Costa County. Two units of the Antioch Dunes National Wildlife Refuge (Refuge)
 7 are located to the east and west of the GP Antioch gypsum fiberboard manufacturing
 8 Plant (Plant) near the wharf but on the shore; and West Island is across the main
 9 channel of the River, to the north of the wharf. Other industrial uses are spread along
 10 the shoreline to the north and south. The nearest residences lie about 1,800 feet to the
 11 south of the wharf and the nearest school is about 0.9 mile from the Project site.

12 Boaters, fishermen, and other members of the public traveling on the River between the
 13 wharf and West Island would be able to see the wharf, as would motorists traveling over
 14 the Antioch Bridge. The occasional ship visits and wharf unloading activities on the
 15 wharf are common views for these members of the public. Similarly, members of the
 16 public passing by the Plant traveling on Wilbur Avenue can view both the wharf and the
 17 River. Representative photographs of the wharf and associated structures are provided
 18 in Figures 3.1-1 and 3.1-2.



View of upstream shoreline from east section of wharf



View of shoreline on east side of walkway

Figure 3.1-1

Photos of the Eastern Side of the Site

Source: Wood Biological Consulting, Inc.



View of shoreline on west side of walkway



View of shoreline across from west section of wharf

Figure 3.1-2

Photos of the Western Side of the Site

Source: Wood Biological Consulting, Inc.

1 **3.1.2 Regulatory Setting**

2 Federal and State laws and regulations pertaining to this issue area and relevant to the
 3 Project are identified in Table 3.1-1.

Table 3.1-1. Laws, Regulations, and Policies (Aesthetics)

CA	California Scenic Highway Program	The California Scenic Highway Program, managed by the California Department of Transportation, was created to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. State highways identified as scenic, or eligible for designation, are listed in California Streets and Highways Code section 260 et seq.
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4 Local goals, policies, and/or regulations applicable to this issue area are listed below.
 5 The Project site is within an area of Contra Costa County that was annexed by the city
 6 of Antioch in 2013; however, Contra Costa County information is also provided for
 7 context.

- 8 • City of Antioch lists preserving scenic views of the River from areas accessible to
 9 the public as an important resource in the city of Antioch’s General Plan, Open
 10 Space Element, Section 10.3 (adopted November 24, 2003).
- 11 • Contra Costa County has designated the River as a scenic waterway in Section
 12 9.6 of the County 2005-2020 General Plan (adopted January 18, 2005).

13 Additionally, State Route 160, including the Antioch Bridge, though not officially
 14 designated, is listed as an Eligible State Scenic Highway by the California Department
 15 of Transportation (Caltrans).⁹

16 **3.1.3 Impact Analysis**

17 ***a) Have a substantial adverse effect on a scenic vista?***

18 **Less Than Significant Impact.** Scenic vistas include areas with views of the River,
 19 including the Antioch Bridge and sites across the River. During Project activities, there
 20 would be short-term, temporary impacts to views of the scenic waterway. However,
 21 because barges and tugboats are already common sights in this area of the River, and
 22 all Project-related vessels, equipment and other materials would be removed at the
 23 Project completion, presence of this equipment during the approximately 8 weeks of
 24 construction would not create an adverse impact. After Project completion, views from
 25 publicly accessible viewpoints along the River would remain similar to existing
 26 conditions.

⁹ www.dot.ca.gov/hq/LandArch/scenic_highways/

1 As stated above, preserving publicly accessible scenic views of the River is listed in the
2 Antioch General Plan. Consistent with the Antioch General Plan goals, completing the
3 proposed Project would improve these views by:

- 4 • Creating slightly more open water in the areas of existing walkways;
- 5 • Creating slightly more pier-related development nearer to the shore; and
- 6 • Reducing the number of deteriorated wooden pilings associated with the dolphins
7 proposed to be removed.

8 ***b) Substantially damage scenic resources, including, but not limited to, trees,***
9 ***rock outcroppings, and historic buildings within a state scenic highway?***

10 **No Impact.** While State Route 160 is listed as “eligible” by Caltrans, no officially
11 designated Federal, State or local scenic highway corridors are located in, or are visible
12 from, the Project site. Therefore, the Project would have no impact on scenic resources
13 including, but not limited to, trees, rock outcroppings, and historic buildings within a
14 State scenic highway corridor.

15 ***c) Substantially degrade the existing visual character or quality of the site and its***
16 ***surroundings?***

17 **No Impact.** As noted in the responses to items **a)** and **b)** above, the Project would not
18 substantially alter the Project site’s existing visual quality. The visual character is
19 expected to be improved as compared to the existing wharf, would include slightly more
20 open water (in the areas of the existing walkways), and would concentrate pier-related
21 development nearer to the shore. In addition, the result of the Project would be
22 consistent with the Contra Costa County’s General Plan, Scenic Resource Policy 9-27,
23 which promotes the removal of negative features from scenic areas (e.g., removal of the
24 deteriorated portions of the existing wharf).

25 ***d) Create a new source of substantial light or glare which would adversely affect***
26 ***day or nighttime views in the area?***

27 **No Impact.** No new source of visual glare or substantial light is expected to occur due
28 to the Project. Because removal activities would occur during daylight hours, the U.S.
29 Coast Guard (USCG) does not require any additional substantial lighting. Presence of
30 marine vessels, temporary facilities, and equipment would be short-term and completely
31 removed at Project completion. Therefore, there would be no new impact on visual glare
32 or light.

33 **3.1.4 Mitigation Summary**

34 The Project would not result in significant impacts to Aesthetics; therefore, no mitigation
35 is required.

1 **3.2 AGRICULTURE AND FOREST RESOURCES**

AGRICULTURE AND FOREST RESOURCES¹⁰ - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Natural Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220, subd. (g)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104, subd. (g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2 **3.2.1 Environmental Setting**

3 The Project site is located entirely within the River in Contra Costa County, bordered by
 4 open space and land designated for heavy industrial and commercial use. There is no
 5 land designated for agricultural use within approximately 2 miles of the Project site.

6 **3.2.2 Regulatory Setting**

7 Federal and State laws and regulations pertaining to this issue area and relevant to the
 8 Project are identified in Table 3.2-1.

¹⁰ In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB).

Table 3.2-1. Laws, Regulations, and Policies (Agriculture and Forest Resources)

CA	Williamson Act (Gov. Code, §§ 51200-51207)	This Act enables local governments to enter into contracts with private landowners to restrict specific parcels of land to agricultural or related open space use, and provides landowners with lower property tax assessments in return. Local government planning departments are responsible for the enrollment of land into Williamson Act contracts. Generally, any commercial agricultural use would be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted with a use permit.
-----------	--	--

1 Local goals, policies, and/or regulations applicable to this issue area are listed below.
 2 The Project site is within an area of Contra Costa County that was annexed by the city
 3 of Antioch in 2013; however, Contra Costa County information is also provided for
 4 context.

5 The City of Antioch General Plan has general open space protection policies, but no
 6 specific policies for agricultural lands. The Land Use Element of the Contra Costa
 7 County General Plan 1995-2020 contains policies related to agricultural land use.
 8 During Project review, proposed uses on the edges of land use designations are
 9 required to be evaluated to ensure compatibility with adjacent planned uses. Measure
 10 C, passed in 1990, established a 65/35 Land Preservation Standard to limit urban
 11 development to no more than 35 percent of the land in the County. At least 65 percent
 12 of all land in the County is required to be preserved for agriculture, open space,
 13 wetlands, parks, and other non-urban uses.

14 **3.2.3 Impact Analysis**

15 ***a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide***
 16 ***Importance (Farmland), as shown on the maps prepared pursuant to the***
 17 ***Farmland Mapping and Monitoring Program of the California Natural Resources***
 18 ***Agency, to non-agricultural use?***

19 ***b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?***

20 ***c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined***
 21 ***in Pub. Resources Code, § 12220, subd. (g)), timberland (as defined by Pub.***
 22 ***Resources Code, § 4526), or timberland zoned Timberland Production (as defined***
 23 ***by Gov. Code, § 51104, subd. (g))?***

24 ***d) Result in the loss of forest land or conversion of forest land to non-forest use?***

25 ***e) Involve other changes in the existing environment which, due to their location***
 26 ***or nature, could result in conversion of Farmland, to non-agricultural use or***
 27 ***conversion of forest land to non-forest use?***

28 **a) to e) No Impact.** As noted in the Project Description, all Project activities would be
 29 conducted in and from the water, thus no agricultural or forest lands would be affected.

1 The Project would not conflict with existing zoning for agriculture because the land
2 adjacent to the site, where the Plant is located, is zoned for heavy industrial and
3 commercial use in the Contra Costa County 2005-2020 General Plan. The site is not
4 operated under a Williamson Act contract with any local governments for the purpose of
5 restricting specific parcels of land to agricultural or related open space use. There are
6 no forest lands or timberlands located in the vicinity of the site and the Project would not
7 alter the existing environment such that farmland or forest land would be converted to
8 non-agricultural or non-forest uses.

9 **3.2.4 Mitigation Summary**

10 The Project would not result in significant impacts to Agriculture and Forest Resources;
11 therefore, no mitigation is required.

1 **3.3 AIR QUALITY**

AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2 **3.3.1 Environmental Setting**

3 **Topography, Meteorology, and Climate**

4 The San Francisco Bay Area Air Basin (SFBAAB), in which the Project is located,
 5 covers approximately 5,540 square miles of complex terrain, made up of coastal
 6 mountain ranges, inland valleys, and the San Francisco Bay. The SFBAAB is generally
 7 bordered on the west by the Pacific Ocean, on the north by the Coast Ranges, and on
 8 the east and south by the Diablo Range.

9 Meteorological conditions in the SFBAAB are warm and mainly dry in summers, and
 10 mild and moderately wet in winters. Marine air has a moderating effect on the climate
 11 throughout much of the year. Winds flow through the Golden Gate from the Pacific
 12 Ocean, but direct flow into eastern Alameda County is impeded by the East Bay hills.
 13 Marine air mostly is blocked from the area until late afternoons or on days when deep
 14 marine inversions develop with strong onshore flows.

15 The Project site is located on the River waterfront north of and adjacent to the city of
 16 Antioch in unincorporated Contra Costa County in the Carquinez Strait climatological
 17 sub-region of the Bay Area. Prevailing winds here are from the west during summer and

1 fall months, but occasionally atmospheric conditions can cause the air flow to reverse.
2 East winds usually contain more pollutants from sources in the Central Valley than the
3 cleaner west winds with marine air. The east winds can cause elevated pollutant levels
4 in this sub-region and further west in more central reaches of the Bay Area air basin.¹¹

5 **Local Air Quality Conditions**

6 The determination of whether a region's air quality is healthful or unhealthful is made by
7 comparing contaminant levels in ambient air samples to the California Ambient Air
8 Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS).
9 Both the California Air Resources Board (CARB) and U.S. Environmental Protection
10 Agency (USEPA) ambient air concentrations are monitored at various regions
11 throughout the SFBAAB to designate an area's attainment status with respect to the
12 CAAQS and NAAQS, respectively, for criteria air pollutants. The purpose of these
13 designations is to identify areas with air quality problems and thereby initiate planning
14 efforts for improvement. The three basic designation categories are "nonattainment,"
15 "attainment," and "unclassified." The "unclassified" designation is used in an area that
16 cannot be classified on the basis of available information as meeting or not meeting the
17 standards. The most recent attainment designations with respect to the SFBAAB are
18 shown in Table 3.3-1, below. With respect to the CAAQS, the SFBAAB is designated as
19 a nonattainment area for ozone, particulate matter less than 10 micrometers (PM₁₀),
20 and particulate matter less than 2.5 micrometers (PM_{2.5}), and as an attainment or
21 unclassified area for all other pollutants. With respect to the NAAQS, the SFBAAB is
22 designated as a marginal nonattainment area for ozone and as an attainment or
23 unclassified area for all other pollutants.

24 The Bay Area Air Quality Management District (BAAQMD) maintains a number of air
25 quality monitoring stations that continually measure the ambient concentrations of major
26 air pollutants throughout the Bay Area. The closest such monitoring station to the
27 Project site is on Bethel Island, about 8 miles to the east. Violations of both the ozone
28 and particulate standards have been recorded at Bethel Island and other monitoring
29 stations near the Project site within the last 3 years.¹²

30 Many industrial facilities (e.g., oil refineries, chemical plants, etc.) with significant air
31 pollutant emissions are located within the Carquinez Strait sub-region. The pollution
32 potential of this area is often moderated by the high wind speeds usually associated
33 with prevailing westerly (marine) air flow. Areas downwind of these industrial facilities
34 have higher long-term exposure to air contaminants than upwind areas.

¹¹ For a summary of conditions in the Carquinez Strait climatological sub-region see BAAQMD CEQA Air Quality Guidelines (May 2012; Appendix C, page C-5).

¹² For a county-by-county listing of monitoring stations and then a summary of pollutant monitoring data for each station, see: www.arb.ca.gov/adam/topfour/topfour1.php. For a table of air quality standards and Bay Area Attainment status, see: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm.

Table 3.3-1. National and California Ambient Air Quality Standards and SFBAAB Attainment Status

Pollutant	Averaging Time	California Standards ¹		National Standards ²	
		Concentration	Attainment Status	Primary	Attainment Status
Ozone	1 hour	0.09 ppm (180 µg/m ³)	Nonattainment	—	—
	8 hours	0.070 ppm (137 µg/m ³)	Nonattainment	0.075 ppm (147 µg/m ³)	Nonattainment
Respirable particulate matter (PM ₁₀)	24 hours	50 µg/m ³	Nonattainment	150 µg/m ³	Nonattainment
	Annual arithmetic mean	20 µg/m ³	Nonattainment	—	—
Fine particulate matter (PM _{2.5})	24 hours	—	—	35 µg/m ³ ¹³	Attainment
	Annual arithmetic mean	12 µg/m ³	Nonattainment	12.0 µg/m ³ ⁶	Nonattainment ¹³
Carbon monoxide (CO)	8 hours	9.0 ppm (10 mg/m ³)	Attainment	9 ppm (10 mg/m ³)	Attainment
	1 hour	20 ppm (23 mg/m ³)	Attainment	35 ppm (40 mg/m ³)	Attainment
Nitrogen dioxide (NO ₂) ⁷	Annual arithmetic mean	0.030 ppm (57 µg/m ³)	Attainment	0.053 ppm (100 µg/m ³)	Attainment
	1 hour	0.18 ppm (339 µg/m ³)	Attainment	0.100 ppb (188 µg/m ³)	Unclassified
Sulfur dioxide (SO ₂) ⁸	24 hours	0.04 ppm (105 µg/m ³)	Attainment	—	—
	1 hour	0.25 ppm (655 µg/m ³)	Attainment	0.075 ppm (196 µg/m ³)	Attainment
Lead ^{9,10}	30-day average	1.5 µg/m ³	Attainment	—	—
	Rolling 3-month average	—	—	0.15 µg/m ³	—
Visibility-reducing particles ¹¹	8 hours	See footnote ¹²	Unclassified	No national standards	
Sulfates	24 hours	25 µg/m ³	Attainment		
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m ³)	Unclassified		
Vinyl chloride ¹²	24 hours	0.01 ppm (26 µg/m ³)	No information available		
Notes: mg/m ³ = milligrams per cubic meter PM _{2.5} = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less PM ₁₀ = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less ppb = parts per billion ppm = parts per million µg/m ³ = micrograms per cubic meter					

- ¹ California standards for ozone, CO (except 8-hour Lake Tahoe), SO₂ (1- and 24-hour), NO₂, and particulate matter (PM₁₀, PM_{2.5}, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in California Code of Regulations, Title 17, section 70200.
- ² National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standards.
- ³ Concentration expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and reference pressure of 760 torr; parts per million in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- ⁴ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- ⁶ On January 15, 2013, EPA revised the national annual PM_{2.5} standard to 12.0 µg/m³ to provide increased protection against health risks.
- ⁷ To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
- ⁸ On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
- ⁹ The California Air Resources Board (CARB) has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- ¹⁰ The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.
- ¹¹ In 1989, CARB converted the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and the “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.
- ¹² No information is available to designate the region for vinyl chloride.
- ¹³ EPA lowered the 24-hour PM_{2.5} standard from 65 µg/m³ to 35 µg/m³ in 2006. The EPA designated the BAAQMD as nonattainment of the PM_{2.5} standard on October 8, 2009. The effective date of the designation is December 14, 2009, and the BAAQMD had 5 years to develop an implementation plan that demonstrates how the region will achieve the revised standard by December 14, 2014. On January 9, 2013, the EPA issued a final rule to determine that the SFBAAB has attained the 24-hour PM_{2.5} NAAQS. This action suspended federal State Implementation Policy planning requirements for the Bay Area, but BAAQMD still needs to submit a redesignation request.

1 On occasion, there are accidental releases of air pollutants from the industrial facilities
 2 that can cause short-term pollutant exposures and odor problems. Also, this sub-region
 3 is traversed by major roadways (e.g., I-80 and State Route 4) that cause higher local
 4 concentrations of carbon monoxide (CO) and particulate matter (PM), as well as certain
 5 toxic air contaminants (TACs) such as benzene and diesel particulate matter (DPM).

6 **3.3.2 Regulatory Setting**

7 Federal and State laws and regulations pertaining to this issue area and relevant to the
 8 Project are identified in Table 3.3-2.

Table 3.3-2. Laws, Regulations, and Policies (Air Quality)

U.S.	Federal Clean Air Act (FCAA) (42 USC 7401 et seq.)	<p>The FCAA requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. National standards are established for ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM₁₀ and PM_{2.5}), and lead (Pb). In 2007, the U.S. Supreme Court ruled that carbon dioxide (CO₂) is an air pollutant as defined under the FCAA, and that the USEPA has authority to regulate greenhouse gas (GHG) emissions. Pursuant to the 1990 FCAA Amendments, USEPA classifies air basins (or portions thereof) as in “attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the NAAQS are achieved. The classification is determined by comparing monitoring data with State and Federal standards.</p> <ul style="list-style-type: none"> • An area is classified as in “attainment” for a pollutant if the pollutant concentration is lower than the standard. • An area is classified as in “nonattainment” for a pollutant if the pollutant concentration exceeds the standard. • An area is designated “unclassified” for a pollutant if there are not enough data available for comparisons.
CA	California Clean Air Act of 1988 (CCAA) (Assembly Bill [AB] 2595)	<p>The CCAA requires all air districts in the State to endeavor to achieve and maintain State ambient air quality standards for O₃, CO, SO₂, NO₂, and PM; attainment plans for areas that did not demonstrate attainment of State standards until after 1997 must specify emission reduction strategies and meet milestones to implement emission controls and achieve more healthful air quality. The 1992 CCAA Amendments divide O₃ nonattainment areas into four categories of pollutant levels (moderate, serious, severe, and extreme) to which progressively more stringent requirements apply. State ambient air standards are generally stricter than national standards for the same pollutants; California also has standards for sulfates, hydrogen sulfide (H₂S), vinyl chloride, and visibility-reducing particles.</p>
CA	Other	<ul style="list-style-type: none"> • Under California’s Diesel Fuel Regulations, diesel fuel used in motor vehicles, except harbor craft, has been limited to 500 parts per million (ppm) sulfur since 1993. The sulfur limit was reduced to 15 ppm beginning September 1, 2006, and harbor craft were included starting in 2009. • The California Air Resources Board’s (CARB) Heavy Duty Diesel Truck Idling Rule (Cal. Code Regs., tit. 13, § 2485) prohibits heavy-duty diesel trucks from idling for longer than 5 minutes at a time (except while queuing, provided the queue is located beyond 100 feet from any homes or schools). • The Statewide Portable Equipment Registration Program (PERP) regulates portable engines/engine-driven equipment units. Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts.

1 **Local**

2 The Project site is within an area of Contra Costa County that was annexed by the city
3 of Antioch in 2013; however, Contra Costa County information is also provided for
4 context.

5 The Conservation Element of the Contra Costa County General Plan 2005-2020
6 includes goals and policies that aim to improve local and regional air quality throughout
7 the County. The following air resources policies may be applicable to the Project:

- 8 • Policy 8-103 - When there is a finding that a proposed project might significantly
9 affect air quality, appropriate mitigation measures shall be imposed.
- 10 • Policy 8-104 - Proposed projects shall be reviewed for their potential to generate
11 hazardous air pollutants.

12 **Regional Context**

13 The Project site is located in Contra Costa County, which is part of the SFBAAB. The
14 BAAQMD is the regional agency with jurisdiction over the nine-county SFBAAB, which
15 includes Contra Costa, San Francisco, Alameda, Marin, San Mateo, Santa Clara, Napa,
16 southern portion of Sonoma, and southwestern portion of Solano Counties. The
17 BAAQMD is responsible for attaining and maintaining air quality in the SFBAAB within
18 federal and State air quality standards, as established by the federal Clean Air Act
19 (CAA) and the California Clean Air Act (CCAA), respectively. Specifically, the BAAQMD
20 has the responsibility to monitor ambient air pollutant levels throughout the SFBAAB
21 and to develop and implement strategies to attain applicable federal and State
22 standards. The BAAQMD (2010a) adopted the most recent air quality plan, the 2010
23 Clean Air Plan, on September 15, 2010. The 2010 Clean Air Plan serves to:

- 24 • Update the Bay Area 2005 Ozone Strategy in accordance with the requirements
25 of the CCAA to implement all feasible measures to reduce ozone;
- 26 • Provide a control strategy to reduce ozone, particulate matter, air toxics, and
27 greenhouse gases (GHGs) in a single, integrated plan; and
- 28 • Establish emission-control measures to be adopted or implemented.

29 The 2010 Clean Air Plan contains the following primary goals:

- 30 • Attain air quality standards;
- 31 • Reduce population exposure and protect public health in the SFBAAB; and
- 32 • Reduce GHG emissions and protect the climate.

1 The 2010 Clean Air Plan represents the most current applicable air quality plan for the
 2 SFBAAB. Consistency with this plan is the basis for determining whether the Project
 3 would conflict with or obstruct implementation of air quality plans.

4 *Criteria Air Pollutants*

5 In accordance with the State and federal CAAs, air pollutant standards are identified for
 6 the following six criteria air pollutants: ozone, CO, PM, nitrogen dioxide (NO₂), sulfur
 7 dioxide (SO₂), and lead (Pb). These air pollutants are termed criteria air pollutants
 8 because they are regulated by developing specific public health- and welfare-based
 9 criteria as the basis for setting permissible levels. In general, the SFBAAB experiences
 10 low concentrations of most pollutants when compared to federal or State standards. The
 11 SFBAAB is designated as either in attainment or unclassified for most criteria pollutants
 12 with the exception of ozone, PM_{2.5}, and PM₁₀, for which these pollutants are designated
 13 as non-attainment for either the State or federal standards (see Table 3.3-1, above).

14 By its very nature, regional air pollution is largely a cumulative impact in that no single
 15 project is sufficient in size to, by itself, result in non-attainment of air quality standards.
 16 Instead, a project’s individual emissions contribute to existing cumulative air quality
 17 impacts. If a project’s contribution to cumulative air quality impacts is considerable, then
 18 the project’s impact on air quality would be considered significant.

19 Land use projects may contribute to regional criteria air pollutants during the
 20 construction and operational phases of a project. Table 3.3-3 identifies air quality
 21 significance thresholds followed by a discussion of each threshold, based on the
 22 BAAQMD’s *CEQA Air Quality Guidelines*.

Table 3.3-3. Criteria Air Pollutant Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (pounds/day)	Average Daily Emissions (pounds/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO _x	54	54	10
PM ₁₀	82 (exhaust)	82	15
PM _{2.5}	54 (exhaust)	54	10
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Notes: ROG = reactive organic gases NO _x = oxides of nitrogen PM ₁₀ = particulate matter with aerodynamic diameter less than 10 microns PM _{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns			

1 Projects that would result in criteria air pollutant emissions below these significance
2 thresholds would not violate an air quality standard, contribute substantially to an air
3 quality violation, or result in a cumulatively considerable net increase in criteria air
4 pollutants within the SFBAAB. The BAAQMD *CEQA Air Quality Guidelines* also
5 establish a relevant zone of influence for an assessment of project-level and cumulative
6 health risks to sensitive receptors within 1,000 feet of a project site from exposure to
7 TACs. Project construction-related or operational TAC impacts to sensitive receptors
8 within the zone of influence that exceed any of the following thresholds are considered
9 significant:

- 10 • An excess cancer risk level of more than 10 in one million, or a non-cancer
11 hazard index greater than 1.0.
- 12 • An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)
13 for annual average $\text{PM}_{2.5}$ concentrations.

14 Cumulative impacts from TACs emitted from freeways, state highways or high volume
15 roadways (i.e., the latter defined as having traffic volumes of 10,000 vehicles or more
16 per day or 1,000 trucks per day), and from all BAAQMD-permitted stationary sources
17 sources within the zone to sensitive receptors within the zone that exceed any of the
18 following thresholds are considered cumulatively significant:

- 19 • A combined excess cancer risk levels of more than 100 in one million.
- 20 • A combined non-cancer hazard index greater than 10.0.

21 A combined incremental increase in annual average $\text{PM}_{2.5}$ concentrations greater than
22 $0.8 \mu\text{g}/\text{m}^3$.

23 *Ozone Precursors*

24 The SFBAAB is currently designated as non-attainment for ozone and PM. Ozone is a
25 secondary air pollutant produced in the atmosphere through a complex series of
26 photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen
27 (NO_x). The potential for a project to result in a cumulatively considerable net increase in
28 criteria air pollutants, which may contribute to an existing or projected air quality
29 violation, are based on the CCAA and federal CAA emissions limits for stationary
30 sources. To ensure that new stationary sources do not cause or contribute to a violation
31 of an air quality standard, BAAQMD Regulation 2, Rule 2 requires that any new source
32 that emits criteria air pollutants above a specified emissions limit must offset those
33 emissions. For ozone precursors ROG and NO_x , the offset emissions level is an annual
34 average of 10 tons per year (or 54 pounds per day). These levels represent emissions
35 by which new sources are not anticipated to contribute to an air quality violation or result
36 in a considerable net increase in criteria air pollutants.

1 *Particulate Matter (PM₁₀ and PM_{2.5}) and Fugitive Dust*

2 The federal New Source Review program was created by the CAA to ensure that
3 stationary sources of air pollution are constructed in a manner that is consistent with
4 attainment of federal health-based ambient air quality standards. For PM₁₀ and PM_{2.5},
5 the emissions limit under New Source Review is 15 tons per year (82 pounds per day)
6 and 10 tons per year (54 pounds per day), respectively. These emissions limits
7 represent levels at which a source is not expected to have an impact on air quality.
8 Although the regulations specified above apply to new or modified stationary sources,
9 land use development projects result in ROG, NO_x, PM₁₀, and PM_{2.5} emissions from
10 increases in vehicle trips, architectural coating, and construction activities. Therefore,
11 the above thresholds can be applied to the construction and operational phases of land
12 use projects and those projects that result in emissions below these thresholds would
13 not be considered to contribute to an existing or projected air quality violation or result in
14 a considerable net increase in ozone precursors or particulate matter. Due to the
15 temporary nature of this Project's activities, only the average daily thresholds are
16 applicable to construction-phase emissions.

17 Fugitive dust emissions are typically generated during construction phases. Studies
18 have shown that the application of best management practices (BMPs) at construction
19 sites significantly control fugitive dust. Individual measures have been shown to reduce
20 fugitive dust by anywhere from 10 to 98 percent (Western Regional Air Partnership
21 2006). The BAAQMD has identified a number of BMPs to control fugitive dust emissions
22 from construction activities.

23 **Local Health Risks and Hazards**

24 In addition to criteria air pollutants, individual projects may emit TACs. TACs collectively
25 refer to a diverse group of air pollutants that are capable of causing chronic (i.e., of long
26 duration) and acute (i.e., severe but of short-term) adverse effects to human health,
27 including carcinogenic effects. Human health effects of TACs include birth defects,
28 neurological damage, cancer, and mortality. There are hundreds of different types of
29 TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk
30 they present; at a given level of exposure, one TAC may pose a hazard that is many
31 times greater than another.

32 Unlike criteria air pollutants, TACs do not have ambient air quality standards but are
33 regulated by the BAAQMD using a risk-based approach to determine which sources
34 and pollutants to control as well as the degree of control. A health risk assessment is an
35 analysis in which human health exposure to toxic substances is estimated, and
36 considered together with information regarding the toxic potency of the substances, to
37 provide quantitative estimates of health risks.

1 Air pollution does not affect every individual in the population in the same way, and
2 some groups are more sensitive to adverse health effects than others. Land uses such
3 as residences, schools, children’s day care centers, hospitals, and nursing and
4 convalescent homes are considered to be the most sensitive to poor air quality because
5 the population groups associated with these uses have increased susceptibility to
6 respiratory distress or, as in the case of residential receptors, their exposure time is
7 greater than for other land uses. Therefore, these groups are referred to as sensitive
8 receptors. Exposure assessment guidance typically assumes that residences would be
9 exposed to air pollution 24 hours per day, 350 days per year, for 70 years. Therefore,
10 assessments of air pollutant exposure to residents typically result in the greatest
11 adverse health outcomes of all population groups.

12 Exposures to PM_{2.5} are strongly associated with mortality, respiratory diseases, and
13 lung development in children, and other endpoints such as hospitalization for
14 cardiopulmonary disease. In addition to PM_{2.5}, DPM is also of concern. The CARB
15 (1998) identified DPM as a TAC in 1998, primarily based on evidence demonstrating
16 cancer effects in humans. The estimated cancer risk from exposure to diesel exhaust is
17 much higher than the risk associated with any other TAC routinely measured in the
18 region.

19 *Excess Cancer Risk*

20 The above 100 per one million persons (100 excess cancer risk) criteria is based on
21 USEPA guidance for conducting air toxic analyses and making risk management
22 decisions at the facility- and community-scale level. As described by the BAAQMD, the
23 USEPA considers a cancer risk of 100 per million to be within the “acceptable” range of
24 cancer risk. Furthermore, in the 1989 preamble to the benzene National Emissions
25 Standards for Hazardous Air Pollutants rulemaking, the USEPA states that it

26 *...strives to provide maximum feasible protection against risks to health from*
27 *hazardous air pollutants by (1) protecting the greatest number of persons possible to*
28 *an individual lifetime risk level no higher than approximately one in one million and*
29 *(2) limiting to no higher than approximately one in 10,000 [100 in one million] the*
30 *estimated risk that a person living near a plant would have if he or she were exposed*
31 *to the maximum pollutant concentrations for 70 years.*

32 The 100 per one million excess cancer cases is also consistent with the ambient cancer
33 risk in the most pristine portions of the San Francisco Bay Area based on BAAQMD
34 regional modeling.

1 *Fine Particulate Matter*

2 In April 2011, the USEPA published *Policy Assessment for the Particulate Matter*
3 *Review of the National Ambient Air Quality Standards*, “Particulate Matter Policy
4 Assessment.” In this document, USEPA staff concludes that the current federal annual
5 PM_{2.5} standard of 15 µg/m³ should be revised to a level within the range of 13 to 11
6 µg/m³, with evidence strongly supporting a standard within the range of 12 to 11 µg/m³.
7 The Air Pollutant Exposure Zone for San Francisco is based on the health-protective
8 PM_{2.5} standard of 11 µg/m³, as supported by the USEPA’s Particulate Matter Policy
9 Assessment, although lowered to 10 µg/m³ to account for uncertainty in accurately
10 predicting air pollutant concentrations using emissions modeling programs.

11 Land use projects within the Air Pollutant Exposure Zone require special consideration
12 to determine whether the project’s activities would expose sensitive receptors to
13 substantial air pollutant concentrations or add emissions to areas already adversely
14 affected by poor air quality.

15 **3.3.3 Impact Analysis**

16 ***a) Conflict with or obstruct implementation of the applicable air quality plan?***

17 **Less Than Significant Impact.** The Project would have a less than significant impact
18 on the implementation of BAAQMD’s 2010 Clean Air Plan because ROG, NOx and PM
19 emissions generated during Project construction (i.e., August 1 to November 30) would
20 be less than the BAAQMD CEQA significance thresholds (see estimates and discussion
21 under Item c) below. Therefore, the Project would not have regionally significant
22 impacts impeding the implementation of the control strategies or the attainment of goals
23 set in the BAAQMD’s 2010 Clean Air Plan.

24 Rehabilitation of the wharf would not result in an increase to the cargo handling/storage
25 capacity of the Plant, current terminal gypsum off-loading capacity, on-land gypsum
26 storage, or truck/train loading capacity. Gypsum supplied to the Plant through the
27 upgraded wharf would be used to accommodate housing, employment, and population
28 growth in the SFBAAB within the projections that underlie the Clean Air Plan.

29 ***b) Violate any air quality standard or contribute substantially to an existing or***
30 ***projected air quality violation?***

31 **Less Than Significant Impact.** The Project would not violate any air quality standards
32 or contribute substantially to any existing or projected air quality violation because
33 Project-related emissions are considered short-term and temporary in nature. All work
34 would be carried out from barges, not from any upland areas, and removal, installation,
35 and repair activities for the Project are anticipated to occur over approximately 2

1 months. In addition, Project activity emissions would occur intermittently throughout
 2 Project implementation (i.e., equipment would not operate continuously for 8 hours each
 3 day). Exhaust emissions would be generated from a variety of sources: removal and
 4 installation equipment, commercial marine equipment, and personnel commuting.
 5 These activities would involve the use of diesel- and gasoline-powered equipment that
 6 would generate emissions of criteria pollutants. The Project's emissions would be well
 7 below the BAAQMD's threshold of significance. Emissions calculations for each
 8 category of pollutant are summarized in Table 3.3-4 and included in Appendix A.

Table 3.3-4. Project Construction Criteria Pollutant Emissions

Construction Source	Construction Source Emissions (lbs./day)			
	ROG	NO _x	Exhaust PM ₁₀	Exhaust PM _{2.5}
Construction Equipment	131.5	1,094.6	50.3	47.8
Marine Engines	332.7	2,085.1	65.7	65.7
Haul/Worker Vehicles	0.8	7.8	0.5	0.5
Total Construction	465.0	3,187.5	116.5	113.9
	Average Daily Construction Emissions (lbs./day) (62 days)			
Average Total Construction	7.5	51.4	1.9	1.8
BAAQMD Daily Threshold	54	54	82	54
Exceeds Threshold	No	No	No	No
Source: Emission estimates were based on project construction phasing, equipment use, pile debris transport and worker commute provided by the GP Antioch project design engineers; construction equipment pollutant emission rates provided by the CARB's OFFROAD model as included in the California Emissions Estimator Model (CalEEMod) emission model; the CARB's <i>Emissions Estimation Methodology for Commercial Harbor Craft Operating in California</i> (2007); and motor vehicle pollutant emission rates provided by the CARB's EMFAC2011 model.				

9 **c) Result in a cumulatively considerable net increase of any criteria pollutant for**
 10 **which the Project region is non-attainment under an applicable federal or state**
 11 **ambient air quality standard (including releasing emissions which exceed**
 12 **quantitative thresholds for ozone precursors)?**

13 **Less than Significant Impact.** Project impacts on air quality that are potentially
 14 significant on an individual level may also cause a cumulatively considerable
 15 contribution. Thus, it is reasonable to consider projects that do not have potentially
 16 significant impacts on air quality on an individual level will not have the potential to
 17 cause a cumulatively considerable contribution to air quality impacts. The BAAQMD
 18 currently recommends that for projects not having potentially significant impacts on air
 19 quality on an individual level, the potential cumulative impacts also should be evaluated
 20 for consistency with the local general plan. The Project is not a typical land use project
 21 that can be compared with or evaluated against land use designations or zoning from a

1 general plan; therefore, the second criteria is not applicable to the Project. Thus, the
2 first criterion of whether the Project’s individual or “project-level” emissions are
3 potentially significant has been used to determine its potential cumulative impact.

4 Emissions would be temporary and short-term which would ensure that the Project
5 would not generate a cumulatively considerable contribution to regional air quality
6 pollutants in the Project area that are nonattainment under a State or Federal ambient
7 air quality standard. Therefore, the Project would not result in a cumulatively
8 considerable incremental contribution to a significant cumulative impact on air quality,
9 and this impact would be considered less than significant.

10 ***d) Expose sensitive receptors to substantial pollutant concentrations?***

11 **Less Than Significant Impact.** Project activities would generate DPM exhaust
12 emissions as estimated in Table 3.3-4. DPM has been classified as a TAC by the
13 CARB, and even acute exposure may result in health impacts. Removal, installation,
14 and repair activities for the Project are minimal and short-term, anticipated to occur over
15 8 weeks within a 12-week window. In addition, Project activity emissions would occur
16 intermittently throughout Project implementation (i.e., removal equipment would not
17 operate continuously for 8 hours each day).

18 The exposure of sensitive receptors to ambient TACs would be less than significant
19 because there are no sensitive receptors within the 1,000-foot zone-of-influence around
20 the Project site as recommended by the BAAQMD for screening of project-level and
21 cumulative health risks. The closest sensitive receptors (houses and schools) to the
22 area of construction activity around the wharf are 1,800 feet or more to the south in the
23 city of Antioch.

24 ***e) Create objectionable odors affecting a substantial number of people?***

25 **Less Than Significant Impact.** The occurrence and severity of odor impacts depends
26 on numerous factors, including the nature, frequency, and intensity of the source; wind
27 speed and direction; and the sensitivity of the receptors. Although offensive odors rarely
28 cause any physical harm, they can be very unpleasant, leading to considerable distress
29 among the public and cause citizens to submit complaints to local governments and
30 regulatory agencies. Projects with the potential to frequently expose individuals to
31 objectionable odors are deemed to have a significant impact. Typical facilities that
32 generate odors include wastewater treatment facilities, sanitary landfills, composting
33 facilities, petroleum refineries, chemical manufacturing plants, and food processing
34 facilities.

35 As described above, project equipment would generate DPM exhaust, which can be
36 considered offensive by some individuals; however, these Project activity areas would

1 be located approximately 1,800 feet from residences and other members of the public.
2 Because of this distance, the potential for objectionable odors to reach the nearest
3 sensitive receptor is expected to be negligible. In addition the removal activities are not
4 intensive, occur for a very short duration, and will cease at night. These distant,
5 intermittent, and temporary activities are not expected to cause a significant odor impact
6 on a substantial number of sensitive receptors, nor would they expose a substantial
7 number of receptors to odor emissions, therefore the Project's impact would be less
8 than significant.

9 **3.3.4 Mitigation Summary**

10 The Project would not result in significant impacts to Air Quality; therefore, no mitigation
11 is required.

1 **3.4 BIOLOGICAL RESOURCES**

BIOLOGICAL RESOURCES – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2 **3.4.1 Environmental Setting**

3 The Project site is located on the southern shore of the San Joaquin River (River)
 4 upstream (east) of the confluence with the Sacramento River, and approximately 2
 5 miles west of the Antioch Bridge (see Figure 2.2-1 above). The property is bordered to
 6 the west and east by remnant sand dune systems comprising the Sardis and Stamm
 7 units of the Antioch Dunes National Wildlife Refuge (Refuge), owned and maintained by
 8 the U.S. Fish and Wildlife Service (USFWS) (see Figure 2.2-2 above).

9 The CEQA analysis presented below is based on an October 3, 2014, site visit and
 10 technical reports prepared by Wood Biological Consulting, Inc. (2014) and Weston

1 Solutions, Inc. (2014). The subject property is highly industrialized, supporting paved
2 and dirt lots surrounding the Plant facility. Only scattered vegetation is present, and it is
3 restricted primarily to the perimeter of the property. Fairly dense vegetation is present
4 on the River bank in front of the Plant directly opposite of the existing wharf facility.
5 Based on the site survey literature, and air photo review, no submerged aquatic
6 vegetation was noted along the shoreline immediately across from the wharf; however,
7 such habitat is present to the west.

8 3.4.1.1 Habitats

9 The existing vegetation on the shoreline, River bank and upland portions of the Project
10 study area is characterized as post-disturbance and has been recolonized by native and
11 non-native herbs, forbs, shrubs, vines and trees. Beyond the top of the River bank, the
12 ground is ruderal or barren as a result of routine disturbance. The vegetation types and
13 wildlife habitats in the study area are described below.

14 **Subtidal Zone**

15 The subtidal zone in the Project study area has a substrate consisting of loose rock,
16 sand and sediment. Water depth at the wharf is around 9.8 meters (32 feet) increasing
17 to about 10.7 meters (35 feet) with high tide. No rooted submerged aquatic vegetation is
18 present along the shoreline directly opposite of the wharf. However, patches of
19 emergent shoreline vegetation are present near the Refuge at the western end of the
20 study area, and beyond the plant's western and eastern boundaries. This vegetation is
21 comprised predominantly of hardstem bulrush (also known as common tule).

22 The vegetation type conforms to the Hardstem Bulrush Marsh (*Schoenoplectus acutus*)
23 herbaceous alliance as described in Sawyer et al. (2009; CA vegetation code number
24 52.122.01). The Hardstem Bulrush Marsh alliance has been assigned a rarity ranking of
25 G5/S4,¹³ indicating that this alliance may or may not be endemic to California and is
26 presumed to be secure statewide (Sawyer et al. 2009). It would be classified as riverine,
27 aquatic bed, permanently flooded wetland following Cowardin et al. (1979).

28 Although tidally influenced, the aquatic habitat of the River in the Project area is
29 predominantly a freshwater environment, especially during the winter months when
30 Delta outflows are around 32,000 cubic feet per second (USFWS 2002). Salt-water
31 intrusion occurs during the summer months, making the system somewhat brackish.
32 However, the shoreline vegetation is indicative of freshwater conditions.

33 The River supports a wide range of wildlife species. A total of 32 fish species have been
34 collected during sampling conducted at the adjacent Refuge, including the special-

¹³ For an explanation of global and state rarity rankings, see Appendix C.

1 status species Delta smelt, longfin smelt, Sacramento splittail, Chinook salmon,
2 steelhead, hardhead (USFWS 2002). Other special-status fish species known from the
3 Project vicinity include North American green sturgeon and Sacramento perch
4 (California Natural Diversity Database [CNDDDB] 2014).

5 Wildlife known to inhabit the aquatic environment in the Project vicinity include such
6 mammals as northern river otter, common muskrat, mountain beaver, harbor seal and
7 California sea lion, and reptile species such as Pacific pond turtle. A wide variety of
8 resident and migratory waterfowl are also commonly encountered in the open water
9 habitat of the River.

10 **Littoral Zone**

11 The littoral zone is the near-shore environment of seas, lakes or rivers. In areas subject
12 to tidal action, it extends from the high water mark, which is only briefly inundated, to the
13 shoreline, which is permanently submerged. It includes the intertidal zone.

14 In the Project study area, the littoral zone is very narrow to absent due to the steepness
15 of the River bank and armoring. Directly opposite the wharf, the littoral zone is armored
16 with loose rock and is mostly unvegetated. A small area (approximately 2,500 square
17 feet) supporting littoral species is present immediately east of the walkway; native
18 species detected include soft rush, large leather-root, whorled marsh-pennywort, arroyo
19 willow, sneezeweed, and the special-status species Suisun marsh aster; it is also the
20 habitat in which the special-status species Mason's lilaeopsis and Delta mudwort may
21 occur. Vegetation in the littoral zone is better developed west of the western end of the
22 wharf.

23 Vegetation in the littoral zone on site does not conform to any particular natural
24 association described in Sawyer et al. (2009). However, marsh vegetation at the water's
25 edge would be considered as riverine emergent non-persistent wetland following
26 Cowardin et al. (1979).

27 Wildlife expected to occur, at least periodically, in this habitat include northern river
28 otter, common muskrat, mountain beaver, Pacific tree frog, garter snake, California
29 legless lizard, and Pacific pond turtle. Herons and egrets such as great blue heron,
30 great egret, snowy egret, black-crowned night heron, and green-backed heron may
31 perch in trees near open water and forage on the shoreline.

32 **River Bank**

33 Within the Project study area, the River bank has a substrate consisting of exposed
34 loose imported rock and sand of local sources. Situated just above the high-tide line are

1 dense patches of the invasive species giant reed; several clumps of the invasive
2 species pampas grass are present at the western end of the study area.

3 The upper reaches of the River bank on the site are covered with sandy earthen fill,
4 which supports a moderate canopy of young to middle-aged trees with an understory of
5 non-native annual grasses and forbs. The dominant tree canopy is comprised of coast
6 live oaks. Other native woody plants present include black walnut, Oregon ash,
7 California rose, and toyon, along with the native vine wild cucumber. Dense patches of
8 the invasive non-native species Himalayan blackberry and Hottentot fig are also present
9 on the River bank. Open areas of the River bank are dominated by non-native annual
10 grasses and forbs such as ripgut brome, wild oats, wild lettuce, white sweetclover,
11 yellow starthistle, English plantain, sweet fennel, and summer mustard, among others.

12 Historically, the vicinity of the study area supported oak woodland (USFWS 2002).
13 However, currently, due to the highly modified nature of the vegetation on the River
14 bank, the vegetation does not conform to any particular natural association described in
15 Sawyer et al. (2009). Vegetation on the River bank would be regarded as upland, and
16 has no status as a special-status natural community.

17 Despite the highly industrialized nature of the study area, the presence of open water
18 and adjacent natural marshland and upland habitats greatly increases the potential for
19 wildlife species to use the shoreline vegetation. Trees on site are likely to provide cover,
20 foraging and nesting habitat for a variety of birds. Large diameter oak trees provide
21 excellent nesting habitat for raptors, including red-tailed hawk, red-shouldered hawk,
22 and American kestrel. A variety of passerine species can be expected to occur and nest
23 in trees, shrubs and vines on site such as black phoebe, white-crowned sparrow,
24 western scrub-jay, Anna's hummingbird, song sparrow, yellow-rumped warbler, house
25 finch, and other passerine species. Mammals expected to move through this habitat in
26 the study area include raccoon, Virginia opossum, striped skunk, red fox, and coyote.

27 **Uplands**

28 Extending from the top of the River bank inward are areas devoid of vegetation and
29 ruderal habitat. Ruderal habitat is that from which the native vegetation has been
30 completely removed by grading, cultivation, or other surface disturbances. Left
31 undeveloped, such areas typically become recolonized by invasive exotic species.
32 Scattered native species might recolonize such sites after disturbances have ceased.
33 Ruderal sites are typically dominated by herbaceous species, although scattered woody
34 shrubs and trees may also begin to appear if left undisturbed long enough. Ruderal
35 sites are characteristic of road-sides, fallow agricultural fields, vacant lots, and
36 landslides.

1 Ruderal habitat is dominated by the same suite of non-native herbaceous annual
2 grasses and forbs found on the River bank. Additional species detected include Russian
3 thistle, telegraph weed, horseweed, Bermuda grass, and hairy vetch, among others. A
4 native shrub, silver lupine, grows in patches of long-fallow ground at the top of the River
5 bank, east of the walkway to the wharf and at the western end of the property. A row of
6 silk-oak trees forms a linear screen along the top of the River bank.

7 Wildlife species commonly encountered in ruderal habitats include reptiles such as
8 southern alligator lizard, northern alligator lizard, and western fence lizard. Passerines
9 (perching birds) that may forage on disturbed ground or among the scattered trees and
10 shrubs include mourning dove, European starling, Brewer's blackbird, house finch,
11 northern mockingbird, and western scrub-jay, among others. Burrowing mammals such
12 as Botta's pocket gopher and California ground squirrel are also expected in the area,
13 along with other rodents such as California vole, deer mouse, brush rabbit, and Norway
14 rat. Mammals that are naturally inured to human habitation and activities include
15 Virginia opossum, raccoon, striped skunk, and mule deer.

16 **Wildlife Movement Corridors**

17 Wildlife corridors (i.e., linear habitats that naturally connect and provide passage
18 between two or more large habitats or habitat fragments) are important for persistence
19 of wildlife over time. The shoreline in the Project study area would be considered part of
20 an extensive wildlife movement corridor. Although over-land movement is restricted by
21 fencing, barren ground, and moderately intense human disturbance in the form of
22 vehicles, pedestrians, and noise, the shoreline is somewhat protected from these
23 limitations. Vegetation on the River bank provides abundant cover for dispersing wildlife,
24 forming a corridor between more extensive areas of undeveloped, natural habitats.
25 Open water also facilitates the movement of numerous aquatic species such as
26 mountain beaver, common muskrat and northern river otter. The River also serves as
27 an important corridor for anadromous fish.

28 3.4.1.2 Special-Status Biological Resources

29 An evaluation of the presence or potential for occurrence of special-status plant and
30 animal species¹⁴ and natural communities within or near the Project site was performed
31 by Wood Biological Consulting, Inc. (2014). An evaluation of potential Project impacts
32 on special-status fish species was performed by Weston Solutions Inc. (2014).

¹⁴ For purposes of this analysis, the term species includes all taxa of the species, subspecies or variety taxonomic levels.

1 **Special-Status Natural Communities**

2 Special-status natural communities are those that are considered rare in the region,
3 support special-status plant or wildlife species, or receive regulatory protection under
4 the Federal Clean Water Act (CWA), California Lake and Streambed Alteration Program
5 (LSAP), and/or the Porter-Cologne Water Quality Control Act (Porter-Cologne). A
6 number of plant associations have been designated as rare and these communities are
7 given the highest inventory priority (CNDDDB 2014; CDFG 2010). Vegetation alliances
8 given a rarity ranking of G1, G2, or G3 are considered to be of high inventory priority;
9 alliances ranked as G4 or G5 are generally considered common enough to not be of
10 concern (Sawyer et al. 2009; CDFG 2010).

11 Waters of the U.S. / Waters of the State

12 One special-status natural community, Hardstem Bulrush Marsh, occurs in the study
13 area. However, Hardstem Bulrush Marsh habitat is not present either in the construction
14 area or along the shoreline immediately opposite of the wharf.

15 Work in the channel of the River is regulated under the CWA, Rivers and Harbors Act
16 (RHA) and California Fish and Game Code; authorization for the proposed Project must
17 be obtained from the U.S. Army Corps of Engineers (USACE), California Department of
18 Fish and Wildlife (CDFW) and Central Valley Regional Water Quality Control Board
19 (CVRWQCB) prior to the initiation of work.

20 Eelgrass Habitat

21 Impacts to eelgrass habitat in the subtidal zone within the Project area are regulated
22 under the CWA, Magnuson-Stevens Fishery Conservation and Management Act (MSA),
23 and Title 14 of the California Code of Regulations. According to these laws and
24 regulations, any activities which may potentially impact eelgrass habitat must mitigate
25 for those impacts. This requires mitigation for harmful impacts to existing eelgrass beds
26 as well as potential eelgrass habitat. The presence of eelgrass beds is not expected at
27 the Project location; eelgrass has been fully replaced by the native species widgeon
28 grass east of the Carquinez Bridge (Merkel & Associates Inc. 2004).

29 Essential Fish Habitat

30 The maintenance of healthy fisheries is dependent on the protection of those habitats
31 essential for the growth and reproduction of fish species. The National Marine Fisheries
32 Service (NMFS) and regional fishery management councils are charged with ensuring
33 that fishing activities have a minimal impact on fish habitat. Essential fish habitat (EFH)
34 includes those waters and substrate necessary to fish for spawning, breeding, feeding,
35 or growth to maturity. The San Joaquin Delta, including the Project site, is designated

1 Pacific salmon freshwater EFH (U.S. Geological Survey [USGS] Hydrologic Unit
2 1804003; PFMC 1999), West Coast Groundfish EFH, and Coastal pelagic species EFH
3 (PFMC 2005 and 2011).

4 Critical Habitat

5 Critical habitat is a term defined under Federal Endangered Species Act (FESA). Critical
6 habitat designations affect only federal agency actions or federally funded or permitted
7 activities. Critical habitat designations do not affect activities by private landowners if
8 there is no federal “nexus”—that is, no federal funding or authorization. Federal
9 agencies are required to avoid “destruction” or “adverse modification” of designated
10 critical habitat. In areas where the species is not present, some Project modifications
11 that would not have occurred without the critical habitat designation may be required.

12 Based on a review of records maintained by the USFWS (USFWS October 16, 2014)
13 and CDFW (CNDDDB 2014), the Project site is located in or near designated critical
14 habitat for North American green sturgeon, Delta smelt, spring-run Chinook, and Central
15 Valley steelhead. In addition, designated critical habitat for two federally listed plant
16 species, Contra Costa wallflower and Antioch Dunes evening primrose overlaps some
17 of the lands on the GP property along the shore and uplands; critical habitat for these
18 species does not overlap the Project construction area.

19 Locally Protected Trees

20 Pursuant to the City of Antioch Municipal Code, certain trees are designated as
21 protected. Protected trees include all established indigenous trees with a diameter at
22 breast height (dbh) measuring 25 centimeters (10 inches) or larger, or any other tree
23 species with a dbh measuring 66 centimeters (26 inches) or larger. A protected tree
24 may not be removed without a tree removal permit. Trees meeting the city of Antioch’s
25 definition of a protected tree are expected to be present on site. However, because all
26 Project activities are proposed to be carried out from and in the water, with no activities
27 or staging areas occurring on land, the Project would not require the removal or
28 significant pruning of any protected trees.

29 **Special-Status Plant Species**

30 For purposes of this MND, special-status plant species include those that are listed
31 under the FESA or the California Endangered Species Act (CESA), those that are
32 designated as candidates for listing, those that are listed as rare under the California
33 Native Plant Protection Act, and those that are not listed but would meet the definition of
34 rare or endangered under CEQA. A total of 80 special-status plant species have been
35 recorded from the Project region (California Native Plant Society [CNPS] 2014). The
36 potential for occurrence on site for each of the target species was evaluated. Based on

1 site conditions and geographic location, the potential for occurrence of 68 special-status
2 plant species can be completely ruled out due to a lack of suitable habitat or substrate,
3 geographic isolation from known populations, or, if suitable habitat is present, they
4 would have been identified during the site survey. Seven target species are not
5 expected to occur on site due to geographic isolation, the presence of only marginally
6 suitable habitat, and/or because they would have been identified during the site survey.

7 Special-status plant species that could occur on the River bank or subtidal zone in or
8 near the Project site are depicted on Figure 3.4-1. Two special-status species, Delta
9 tulle pea and Suisun marsh aster, were detected within the Project study area (see
10 Figure 3.4-2) during the site visit. Special-status plant species detected or potentially
11 occurring within the study area are described below.

12 Federal/State-Listed, Proposed, or Candidate Plant Species

13 **Antioch Dunes Evening Primrose** (Federal/State: Endangered; CNPS: List 1B.1).
14 Antioch Dunes evening primrose (*Oenothera deltoides* ssp. *howellii*) is a perennial herb
15 in the primrose family (Onagraceae). Flowering occurs March through September. A
16 native species endemic to California, it is restricted to remnant river bluffs and inland
17 dunes and is found only in Contra Costa and Sacramento counties, growing from sea
18 level to 30 meters (0 to 100 feet) in elevation. The USFWS has designated critical
19 habitat for Antioch Dunes evening primrose.

20 The eastern and western ends of the study area above the top of bank in the Project
21 study area include marginally suitable habitat for Antioch Dunes evening primrose.
22 There are six records of Antioch Dunes evening primrose within an 8 kilometer (km) (5
23 mile) radius of the Project site (CNDDDB 2014). The nearest records for the species are
24 from both units of the Refuge adjacent to the western and eastern boundaries of the
25 Project study area. Although the eastern portion of the Project study area above the top
26 of bank is located within designated critical habitat, the limits of the proposed activity do
27 not overlap with designated critical habitat for the species. The species was not
28 detected during the present survey and its potential for occurrence is considered low
29 due to the high level of surface disturbance evident.

30 **Contra Costa Wallflower** (Federal/State: Endangered; CNPS: List 1B.1). Contra Costa
31 wallflower (*Erysimum capitatum* var. *angustatum*¹⁵) is a biennial or short-lived perennial
32 herb in the mustard family (Brassicaceae). Flowering occurs March through July. Contra
33 Costa wallflower is a native species endemic to California. It is restricted to inland dunes
34 and is known only from the Antioch dunes of Contra Costa County, growing at 3 to 20
35 meters (10 to 65 feet) in elevation.

¹⁵ This taxon has been deemed invalid and is now considered a synonym for the common and widespread taxon *E.c.* var. *capitatum*. Nonetheless, is still covered under FESA and CESA until formally delisted.

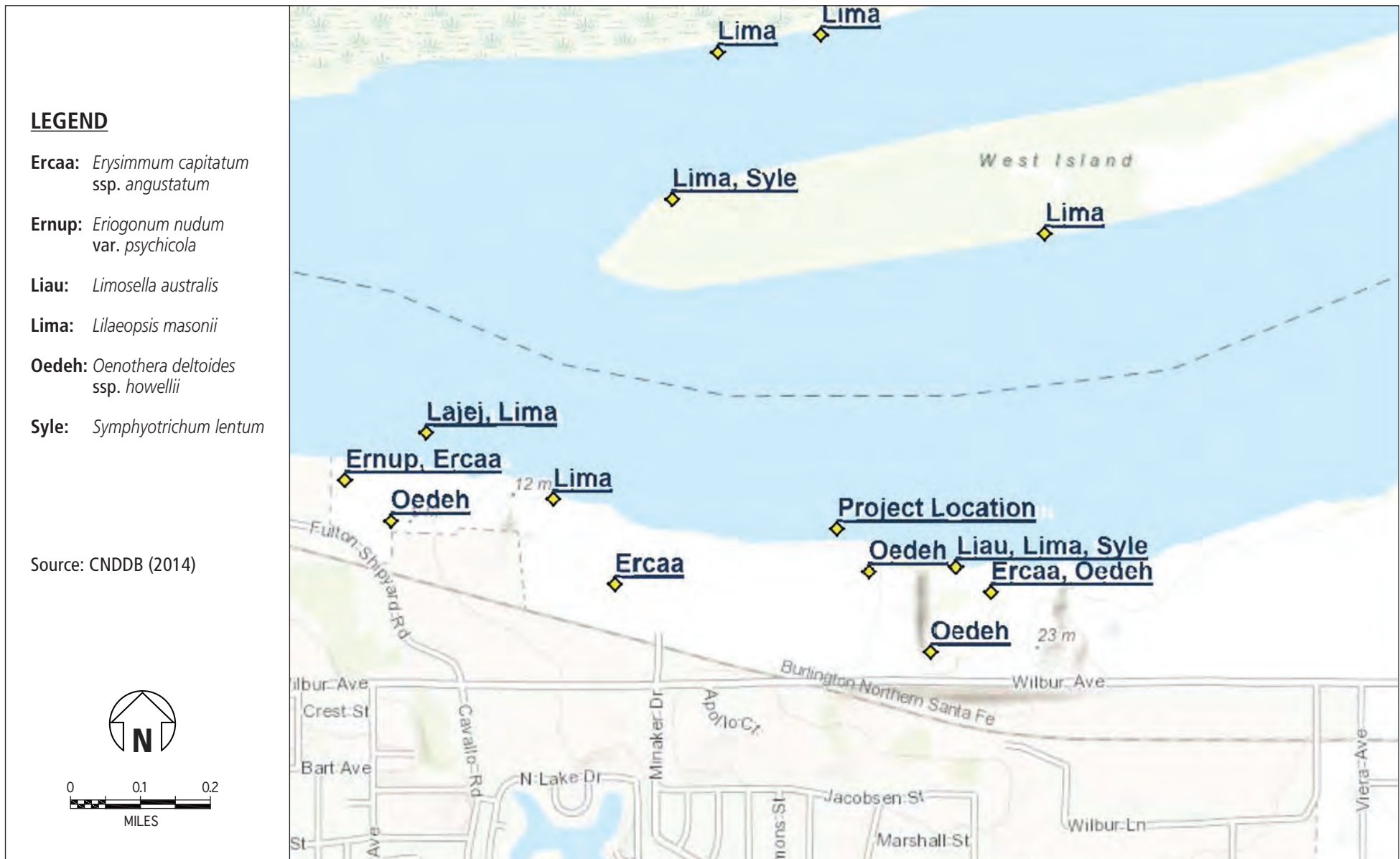


Figure 3.4-1

Potentially Occurring Special Status Plants

Source: Wood Biological Consulting, Inc.



Figure 3.4-2

Observed Special Status Plants

Source: Wood Biological Consulting, Inc.

1 The eastern and western ends of the study area above the top of bank study area
2 include marginally suitable habitat for Contra Costa wallflower. There are four records of
3 Contra Costa wallflower within an 8 km (5 mile) radius of the Project site (CNDDDB
4 2014). The nearest records for the species are from both units of the Refuge adjacent to
5 the western and eastern boundaries of the study area. The species was not detected
6 during the present survey and its potential for occurrence is considered low due to the
7 high level of surface disturbance evident.

8 Other Special-Status Plant Species

9 **Suisun Marsh Aster** (Federal/State: none; CNPS: List 1B.2). Suisun Marsh aster
10 (*Symphyotrichum lentum*¹⁶) is a perennial, rhizomatous herb belonging to the sunflower
11 family (Asteraceae). Flowering occurs May through November. Suisun marsh aster is a
12 native species endemic to California and found only in Contra Costa, Napa,
13 Sacramento, San Joaquin and Solano counties. It is associated with freshwater and
14 brackish marshes around Suisun Bay, growing from sea level to 3 meters (0 to 10 feet)
15 in elevation. Suitable habitat for Suisun marsh aster is present within the littoral zone of
16 the Project study area. There are 21 records of Suisun marsh aster within an 8 km (5
17 mile) radius of the Project site (CNDDDB 2014); it has been recorded from the shoreline
18 just to the west and east of the Project site. Three populations with a total number of 19
19 plants were detected in the Project study area during the October 2014 site survey; the
20 locations of these plants are illustrated in Figure 3.4-2.

21 **Delta Tule Pea** (Federal/State: none; CNPS: List 1B.2). Delta tule pea (*Lathyrus*
22 *jepsonii* var. *jepsonii*) is a robust perennial vine belonging to the pea family. Delta tule
23 pea is a native species endemic to California and found only in Contra Costa, Napa,
24 Sacramento, San Joaquin, Solano, Sonoma, and Yolo counties. It is associated with
25 freshwater and brackish marshes around Suisun Bay, growing from sea level to 4
26 meters (0 to 13 feet) in elevation.

27 Suitable habitat for Delta tule pea is present within the littoral zone of the Project study
28 area. There are 13 records of Delta tule pea within an 8 km (5 mile) radius of the Project
29 site (CNDDDB 2014); it has been recorded from the southern shoreline of Sherman
30 Island on the opposite side of the River from the Project site. A single individual was
31 detected at the western end of the Project study area; the location of this plant is
32 illustrated on Figure 3.4-2.

33 **Mason's Lilaopsis** (Federal/State: none; CNPS: List 1B.1). Mason's lilaopsis
34 (*Lilaopsis masonii*) is a diminutive member of the carrot family (Apiaceae). It is a native
35 species endemic to California and is found only in Alameda, Contra Costa, Marin, Napa,
36 Sacramento, San Joaquin, Solano, and Yolo counties. It forms dense to sparse colonies

¹⁶ Formerly known as *Aster lentus*.

1 on exposed muddy streambanks and levees associated with freshwater and intertidal
2 marshes of the Napa, Sacramento, and San Joaquin rivers and the Point Reyes
3 Peninsula, growing from sea level to 10 meters (0 to 33 feet) in elevation.

4 Suitable habitat for Mason's lilaepsis is present within the littoral zone of the Project
5 study area. There are 30 records of Mason's lilaepsis within an 8 km (5 mile) radius of
6 the Project site (CNDDDB, 2014); it has been recorded from the shoreline just to the west
7 and east of the Project site, on the shoreline of West Island and the northern shore of
8 the San Joaquin River. The species was not detected during the site survey;
9 nonetheless, Mason's lilaepsis has a potential for occurrence on the shoreline area of
10 the site.

11 **Delta Mudwort** (Federal/State: none; CNPS: List 1B.2). Delta mudwort (*Limosella*
12 *australis*; formerly known as *L. subulata*) is a tufted annual belonging to the figwort
13 family (Scrophulariaceae). Delta mudwort has been regarded as a rare native species in
14 California, although recent treatments indicate that it may actually have been
15 accidentally imported in the ballast of ships from the east coast of North America. Here,
16 it is found in the San Joaquin-Sacramento River Delta, occurring in Contra Costa,
17 Sacramento, San Joaquin, and Solano counties.

18 Suitable habitat for Delta mudwort is present within the littoral zone of the Project study
19 area. There are ten records of Delta mudwort within an 8 km (5 mile) radius of the
20 Project site (CNDDDB 2014); it has been recorded from the shoreline just to the west of
21 the Project site and on the northern shore of the San Joaquin River near the Antioch
22 Bridge. The species was not detected during the present survey; a focused survey for
23 this diminutive, difficult to find species was beyond the scope of this effort. Delta
24 mudwort has a potential for occurrence on shoreline areas of the site.

25 **Eel-Grass Pondweed** (Federal/State: none; CNPS: List 2B.2). Eel-grass pondweed
26 (*Potamogeton zosteriformis*) is an annual aquatic herb belonging to the pondweed
27 family (Potamogetonaceae). Flowering occurs June through July. Eel-grass pondweed
28 is a native species but is not endemic to California. It is found only in Contra Costa,
29 Lake, Lassen, Modoc, and Shasta counties as well as through the western and mid-
30 western states. It grows in muddy soil of ponds, lakes and streams, growing from sea
31 level to 1,300 meters (0 to 4,264 feet) in elevation.

32 Marginally suitable habitat for eel-grass pondweed is present in the subtidal zone of the
33 Project study area. Eel-grass pondweed has not been recorded from within an 8 km (5
34 mile) radius of the Project site (CNDDDB 2014), and is not expected to occur on site due
35 to the strength of the prevailing currents in the San Joaquin River channel.

1 **Special-Status Animal Species**

2 Special-status animal species include those listed as Endangered, Threatened, Rare, or
3 as Candidates for listing under FESA or CESA (CDFW 2014a). Other species regarded
4 as having special status include those listed as Special Animals by the CDFW (2014a).
5 Pursuant to the California Fish and Game Code, the following species are protected:
6 golden eagles, migratory birds, non-game birds, raptors, fully protected birds, fully
7 protected mammals, fully protected reptiles and amphibians, and fully protected fish.
8 The California Code of Regulations prohibits the take of fully protected fish, certain fur-
9 bearing mammals, and restricts the taking of amphibians and reptiles. Additionally,
10 marine mammals receive protection under the Marine Mammal Protection Act (MMPA),
11 regardless of whether they are also listed under FESA. The MSA, as amended by the
12 Sustainable Fisheries Act of 1996, established procedures designed to identify,
13 conserve, and enhance EFH for those species regulated under a federal fisheries
14 management plan. The MSA requires federal agencies to consult with NMFS on all
15 actions, or proposed actions, authorized, funded, or undertaken by the agency, that may
16 adversely affect EFH.

17 In addition, animal species have been assigned global and state rarity rankings (for a
18 definition of these rankings, see Appendix C). Species ranked as S1, S2, or S3 are
19 considered to be critically imperiled, imperiled or vulnerable to extinction within the
20 boundaries of the state (CDFW 2014a). As such, these species may be considered for
21 CEQA purposes to meet the criteria for listing as endangered, threatened or rare under
22 CESA, even if they are not officially designated. Species ranked as S4 or S5 are
23 generally considered common enough to be secure and not at risk of extinction.

24 A total of 51 special-status animal species have been recorded from the USGS
25 topographic quadrangle maps including and surrounding the Project site (CNDDDB 2014;
26 USFWS 2014). The potential for occurrence on site for each of the target species was
27 evaluated. Based on site conditions and geographic location, the potential for
28 occurrence of 13 of the species can be completely ruled out due to a lack of suitable
29 habitat and/or geographic isolation from known populations. Another 22 species are not
30 expected to occur on site due to geographic isolation or the presence of only marginally
31 suitable habitat.

32 Although not detected during 2014 surveys, 14 of the species could occur within the
33 Project study area. Ten of these are fish species and include North American green
34 sturgeon, Delta smelt, steelhead (Central Valley distinct population segment [DPS] and
35 Central California Coast DPS), Chinook salmon (Central Valley spring-run evolutionarily
36 significant unit [ESU] and Sacramento River winter-run ESU), longfin smelt, Sacramento
37 perch, Sacramento splittail, and hardhead. Also potentially occurring within the study
38 area are Pacific pond turtle, white-tailed kite, song sparrow “Modesto population,”

1 Suisun song sparrow, and a wide variety of migratory bird species. Two marine
2 mammals, harbor seal and California sea lion, are known to move through the Project
3 vicinity. These species are discussed in more detail below.

4 All of the target special-status animal species evaluated as part of this assessment are
5 summarized in the Biological Assessment prepared for the USACE as part of the
6 Section 7 FESA consultation for the Project (Appendix D).

7 Federal/State-Listed, Proposed, Candidate, or Fully Protected Fish and Wildlife Species

8 **Lange's metalmark butterfly** (Federal: Endangered; State: none). The USFWS listed
9 Lange's metalmark butterfly (*Apodemia mormo langei*) (LMB) as endangered on June 1,
10 1976 (41 Federal Register [FR] 22041-22044). LMB is endemic to California, persisting
11 in the wild only in the 67-acre Refuge. LMB inhabits stabilized dunes and the species'
12 life cycle is closely tied to its larval food plant, naked stemmed buckwheat (*Erigonum*
13 *nudum auriculatum*). Adults begin to emerge in early August and the mating flight
14 season can last until mid to late September, a period of approximately 7 weeks
15 (USFWS 1984, Johnson et al. 2007). Peak flight season usually occurs in the last week
16 of August and first week of September (Johnson et al. 2007). Butterflies of both sexes
17 live for approximately 1 week, and feed on the nectar of the buckwheat as well as on
18 butterweed (*Senecio flaccidus var. douglasii*), San Joaquin snakeweed (*Gutierrezia*
19 *californica*), and silver lupine (*Lupinus albifrons*). During the flight season, eggs are laid
20 on buckwheat stems. The eggs remain dormant until the rainy season and then the
21 hatched larvae feed on new buckwheat growth during winter and spring. The caterpillars
22 pupate in mid-summer at the base of the buckwheat.

23 The aquatic-based Project area does not contain suitable habitat for LMB. Additionally,
24 the area adjacent to the Project area owned by Georgia-Pacific (GP) is heavily
25 disturbed, does not contain the larval host plants for LMB, and does not support the
26 species (Wood Biological Consulting, Inc. 2014). The Project area parcel falls between
27 the two Refuge units – approximately 300 meters (984 feet) from the eastern boundary
28 of the Stamm Unit (western portion of Refuge) and approximately 125 meters (410 feet)
29 from the western boundary of the Sardis Unit (eastern portion of the Refuge). The only
30 known occurrence of LMB is from within the Refuge.

31 **North American Green Sturgeon** (Federal: Threatened; State: Species of Special
32 Concern). The Southern DPS¹⁷ of the North American green sturgeon (*Acipenser*
33 *medirostris*) was listed as Threatened under FESA in 2006. Critical habitat for the
34 species was designated by the NMFS in 2009. It is listed as a California Species of
35 Special Concern and is regarded as Vulnerable by the American Fisheries Society

¹⁷ NMFS has relied on the Evolutionarily Significant Unit (ESU) concept and considers DPSs to represent ESUs if the population is reproductively isolated and represents an important component in the evolutionary legacy of the species.

1 (CDFW 2014a). It has been assigned a global and state ranking of G3/S1S2; species
2 assigned a ranking of S1 are considered critically imperiled in the state because of their
3 extreme rarity or due to factors making them especially vulnerable to extirpation (CDFW
4 2014a).

5 The Southern DPS consists of the population segment of green sturgeon that uses the
6 Sacramento River and tributaries for spawning; the Sacramento River contains the only
7 known spawning population in the DPS. Mature fish enter and migrate rapidly up the
8 Sacramento River in March and April, where they spawn and then either return to the
9 estuary or over-summer and migrate out of the River with the first fall flow event. They
10 may be found in San Francisco Bay throughout the year, though numbers increase in
11 summer with the return of migrants moving into the estuary for feeding, holding, and
12 spawning.

13 The Project site is located within critical habitat designated for the Southern DPS of
14 North American green sturgeon by the NMFS. No nearby occurrences of this DPS have
15 been recorded in the CNDDDB (2014). Nonetheless, due to the presence of suitable
16 aquatic habitat on site and given that the Project site is located within designated critical
17 habitat, the presence of sturgeon is assumed.

18 **Steelhead (Central California Coast and Central Valley DPS** (Federal: Threatened;
19 State: Special Animal). There are two populations of steelhead in the Project region.
20 The Central California Coast DPS and the Central Valley DPS of steelhead
21 (*Oncorhynchus mykiss*) were both listed as Threatened under FESA in 2006; a 5-year
22 review of these DPS's was completed in 2011 (NMFS 2011a,b). Critical habitat for
23 these DPS's was designated by the NMFS in 2005. Steelhead is considered a Special
24 Animal in California and is regarded as Threatened by the American Fisheries Society
25 (CDFW 2014a). It has been assigned a global and state ranking of G5T2Q/S2; species
26 assigned a ranking of S2 are considered imperiled in the state due to their very
27 restricted range, very few populations, or other factors making them very vulnerable to
28 extirpation (CDFW 2014a). Impacts to species with such a ranking may be regarded as
29 significant pursuant to CEQA and should be addressed in environmental review
30 documents.

31 The steelhead is a native, pelagic, anadromous fish that spawns in freshwater and
32 migrates to the open ocean. The Central California Coast DPS includes all naturally
33 spawned populations of steelhead (and their progeny) in California streams from the
34 Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San
35 Francisco, San Pablo and Suisun Bays eastward to Chipps Island at the confluence of
36 the Sacramento and San Joaquin Rivers; and tributary streams to Suisun Marsh
37 including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia
38 Slough (commonly referred to as Red Top Creek), exclusive of the Sacramento-San
39 Joaquin River Basin.

1 Critical habitat has been designated for the Central California Coast DPS of steelhead
2 by the NMFS, the nearest of which is the San Pablo Hydrologic Unit 2206; the Project
3 site is not located in or near designated critical habitat. However the Project site is
4 located within suitable habitat for the Central California Coast DPS of steelhead. No
5 occurrences for the Central California Coast DPS of steelhead have been recorded from
6 within an 8 km (5 mile) radius of the Project site (CNDDDB 2014). Nonetheless, due to
7 the presence of suitable aquatic habitat on site, the presence of Central California Coast
8 DPS steelhead is assumed.

9 Critical habitat has been designated for the Central Valley DPS of steelhead by the
10 NMFS. The Project site is located within suitable habitat for the Central Valley DPS of
11 steelhead. One occurrence for the Central Valley DPS of steelhead is recorded from
12 within an 8 km (5 mile) radius of the Project site (CNDDDB 2014). This record is a 2012
13 sighting from the Bouldin Island quadrangle. Due to the presence of suitable habitat on
14 site and given that the Project site is located within designated critical habitat, the
15 presence of Central Valley DPS steelhead is assumed.

16 **Chinook Salmon (Central Valley Spring-Run Fall ESU and Sacramento River**
17 **Winter-Run ESU)** (Federal: Threatened; State: Threatened/Endangered). The Chinook
18 salmon (*Oncorhynchus tshawytscha*) Central Valley Spring-Run ESU was listed as
19 Threatened under FESA in 2005; a 5-year review of this ESU was completed in 2011
20 (NMFS 2011e). Critical habitat for this ESU was designated by the NMFS in 2005. This
21 ESU was listed as Threatened under CESA in 1999 (CDFW 2014b). It is regarded as
22 Threatened by the American Fisheries Society. It has been assigned a global and state
23 ranking of G5/S1; species assigned a ranking of S1 are considered imperiled in the
24 state due to its very restricted range, very few populations, or other factors making it
25 very vulnerable to extirpation (CDFW 2014a).

26 The Sacramento River Winter-Run ESU of Chinook salmon (*Oncorhynchus*
27 *tshawytscha*) was listed as Threatened under FESA in 1994 and its status was
28 confirmed in 2014; a 5-year review of this ESU was completed in 2011 (NMFS 2011c).
29 Critical habitat for this ESU was designated by the NMFS in 1993. The ESU was listed
30 as Endangered under CESA in 1989 (CDFW 2014b). It is regarded as Endangered by
31 the American Fisheries Society. It has been assigned a global and state ranking of
32 G5/S1; species assigned a ranking of S1 are considered imperiled in the state due to
33 their very restricted range, very few populations, or other factors making them very
34 vulnerable to extirpation (CDFW 2014a).

35 Chinook are anadromous, with adults migrating from the ocean into the freshwater
36 streams and rivers of their birth in order to mate. There are different seasonal “runs”
37 (e.g., spring, summer, fall, or winter) in the migration of Chinook from the ocean to
38 freshwater, even within a single river system. These runs have been identified on the
39 basis of the season in which the adult Chinook enter freshwater to begin their spawning

1 migration. However, distinct runs also differ in the degree of maturation at the time of
2 river entry, the temperature and flow characteristics of their spawning site, and their
3 actual time of spawning.

4 The Central Valley spring-run Chinook migrate as immature adults between February
5 and early July, with the peak run occurring in April or May. They spend the summer in
6 deep pools of their natal rivers and spawn in early fall. Spawning females prepare redds
7 (i.e., nest) in gravelly substrate. The emerged fry may spend a few months in their natal
8 stream then outmigrate from December through March with the peak downstream
9 migration occurring November to December.

10 The Sacramento River winter-run Chinook ESU includes all naturally spawned
11 populations of winter-run Chinook salmon in the Sacramento River and its tributaries in
12 California, as well as two artificial propagation programs. These fish begin their
13 upstream migration in the Sacramento River as immature adults between January and
14 May, with the peak run occurring in March. The young fish appear between July and
15 mid-October, remaining there for five to ten months before moving downstream.
16 Juvenile fish typically enter the Sacramento-San Joaquin Delta from January to April.

17 Critical habitat has been designated for the Central Valley Spring-Run ESU of Chinook
18 by the NMFS. The Project site is located within suitable habitat for the Central Valley
19 Spring-Run ESU of Chinook. No occurrences for the Central Valley Spring-Run ESU of
20 Chinook have been recorded from within an 8 km (5 mile) radius of the Project site
21 (CNDDDB 2014). Nonetheless, due to the presence of suitable habitat on site and given
22 that the Project site is located within designated critical habitat, the presence of Central
23 Valley Spring-Run ESU Chinook is assumed.

24 The Project site is not located in designated critical habitat for Sacramento River winter-
25 run ESU but is located within suitable habitat. No occurrences for the Sacramento River
26 winter-run ESU of Chinook have been recorded from within an 8 km (5 mile) radius of
27 the Project site (CNDDDB 2014). Nonetheless, due to the presence of suitable habitat on
28 site, the presence of Sacramento River winter-run ESU Chinook is assumed.

29 **Delta Smelt** (Federal: Threatened; State: Endangered). The Delta smelt (*Hypomesus*
30 *transpacificus*) was listed as Threatened under FESA in 1993 and was uplisted from
31 Threatened to Endangered under CESA in 2010 (CDFW 2014b). Critical habitat for the
32 species was designated by the USFWS in 1994. It is also regarded as Threatened by
33 the American Fisheries Society. It has been assigned a global and state ranking of
34 G1/S1; species assigned a ranking of S1 are considered critically imperiled in the state
35 because of their extreme rarity or due to factors making them especially vulnerable to
36 extirpation (CDFW 2014a). Delta smelt are found only from the Suisun Bay upstream
37 through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo

1 Counties. Historically, they occurred from Suisun Bay to Sacramento on the
2 Sacramento River and to Mossdale on the San Joaquin River.

3 The Project site is located within designated critical habitat and is within suitable habitat
4 for Delta smelt. Two occurrences for Delta smelt have been recorded with an 8 km (5
5 mile) radius of the Project site. The nearest record is a 2004 sighting at Sherman Island
6 (CNDDDB 2014). Due to the presence of suitable aquatic habitat on site and given that
7 the Project site is located within designated critical habitat, the presence of Delta smelt
8 is assumed.

9 **Longfin Smelt** (Federal: Candidate; State: Threatened). Although it was determined
10 that the longfin smelt (*Spirinchus thaleichthys*) did not warrant federal listing by the
11 USFWS in 2008, it remains a candidate for listing under FESA. It was listed as
12 Threatened under CESA in 2009 is regarded as Endangered by the American Fisheries
13 Society (CDFW 2014b). It has been assigned a global and state ranking of G5/S1;
14 species assigned a ranking of S1 are considered imperiled in the state due to their very
15 restricted range, very few populations, or other factors making them very vulnerable to
16 extirpation (CDFW 2014a).

17 Longfin smelt inhabit the Sacramento-San Joaquin River Delta, San Francisco Estuary
18 and scattered bays and inlets of the Pacific Coast from Monterey to Alaska. In the San
19 Francisco Bay and Delta system, longfin smelt typically spend their first year of life in
20 Suisun Bay and Suisun Marsh. In their second winter, longfin smelt return to the Bay
21 and migrate upstream to spawn. The furthest downstream longfin have been known to
22 spawn is in the upper Suisun Bay around Pittsburg and Montezuma Slough in Suisun
23 Marsh.

24 Critical habitat for the longfin smelt has not been designated. The Project site is located
25 within suitable habitat for the longfin smelt. Two occurrences for the longfin smelt have
26 been recorded from within an 8 km (5 mile) radius of the Project site (CNDDDB 2014).
27 These include 2012 records from near Rio Vista and Chipps Island. Due to the
28 presence of suitable habitat on site, the presence of longfin smelt is assumed.

29 **White-Tailed Kite** (Federal: Migratory Bird Treaty Act (MBTA); State: Fully Protected
30 Species). The white-tailed kite (*Elanus leucurus*) is designated as fully protected under
31 the California Fish and Game Code. This species receives additional protection under
32 the MBTA (USFWS 2013). It has been assigned a global and state ranking of G5/S3;
33 species assigned a ranking of S3 are considered vulnerable in the state due to their
34 restricted range, relatively few populations, or other factors making them very
35 vulnerable to extirpation (CDFW 2014a).

1 White-tailed kites inhabit open grasslands and savannas. They breed in a variety of
2 habitats including grasslands, cultivated fields, oak woodlands and suburban areas
3 where prey is abundant.

4 The white-tailed kite is not listed under FESA; as such, no critical habitat has been
5 designated. White-tailed kites are confirmed nesters in Contra Costa County (CNDDDB
6 2014). Marginally suitable nesting habitat is present among the trees on site and in the
7 immediate Project vicinity and there are abundant foraging opportunities in the
8 surrounding undeveloped lands. A nesting occurrence was reported in 2005 from near
9 Pittsburg (CNDDDB 2014). Due to the presence of marginally suitable nesting sites,
10 white-tailed kites could occur on or near the site.

11 Other Sensitive and Locally Rare Wildlife Species

12 **Pacific Pond Turtle** (Federal: none; State: Species of Special Concern). The Pacific
13 pond turtle (also known as western pond turtle; *Emys marmorata*) is a California
14 Species of Special Concern (CDFW 2014a). It has been assigned a global and state
15 ranking of G3G4/S3 (CDFW 2014a); species assigned a ranking of S3 are considered
16 vulnerable in California due to their restricted range and relatively few populations.

17 It is the only fresh-water turtle native to greater California. Pacific pond turtles are
18 habitat generalists, and have been observed in slow-moving rivers and streams (e.g., in
19 oxbows), lakes, reservoirs, permanent and ephemeral wetlands, stock ponds, and
20 sewage treatment plants. It prefers aquatic habitat with refugia such as undercut banks
21 and submerged vegetation, and require emergent basking sites such as mud banks,
22 rocks, logs, and root wads to thermoregulate their body temperature. Pacific pond
23 turtles regularly use upland terrestrial habitats, most often during the summer and
24 winter, especially for oviposition (females), overwintering, seasonal terrestrial habitat
25 use, and overland dispersal. Females have been reported ranging as far as 500 meters
26 (1,640 feet) from a watercourse to find suitable nesting habitat.

27 Pacific pond turtle is not listed under FESA; as such, no critical habitat has been
28 designated for the species. Marginally suitable aquatic habitat is present on site
29 although no suitable basking or nesting habitat is present. The nearest record is a 1998
30 sighting from the Dow Chemical wetland mitigation site at the border between Pittsburg
31 and Antioch, approximately 5 km (3.1 miles) west of the Project site. Pacific pond turtle
32 could transit through the Project site along the shoreline.

33 **Suisun Song Sparrow** (Federal: MBTA; State: Species of Special Concern). The
34 Suisun song sparrow (*Melospiza melodia maxillaris*) is a California Species of Special
35 Concern (CDFW 2014a) and is protected under the MBTA. The species has been
36 assigned a global and state ranking of G5T2/S2 (CNDDDB 2014); species assigned a
37 ranking of S2 are considered imperiled in the state due to their very restricted range,

1 very few populations, or other factors making them very vulnerable to extirpation
2 (CDFW 2014a).

3 The Suisun song sparrow is restricted to Suisun Marsh from the Carquinez Strait east to
4 the confluence of the Sacramento and San Joaquin Rivers. Suisun song sparrow is not
5 listed under FESA; as such, no critical habitat has been designated for the species. The
6 Project area is considered to provide marginally suitable nesting habitat for Suisun song
7 sparrow consisting of blackberry tangles and dense vegetation. Suisun song sparrow is
8 known from four records within an 8 km (5 mile) radius of the Project area. The nearest
9 record is a 1998 sighting from the Dow Chemical wetland mitigation site, approximately
10 4.5 km (2.8 miles) west of the Project site. It is also known from south Sherman Island
11 on the opposite side of the River from the Project site. Due to the presence of
12 marginally suitable habitat on site, its presence cannot be ruled out.

13 **Song Sparrow “Modesto Population”** (Federal: MBTA; State: Species of Special
14 Concern). The Modesto population of the song sparrow (*Melospiza melodia*¹⁸) is a
15 California Species of Special Concern (CDFW 2014a) and is protected under the
16 MBTA. The species has been assigned a global and state ranking of G5/S3 (CNDDDB
17 2014); species assigned a ranking of S3 are considered vulnerable in the state due to
18 their restricted range, relatively few populations, or other factors making them very
19 vulnerable to extirpation (CDFW 2014a).

20 Distinct from the three subspecies that are endemic to the San Francisco Bay region,
21 the Modesto population inhabits the Central Valley. The Modesto population of song
22 sparrow is not listed under FESA; as such, no critical habitat has been designated. The
23 Project area is considered to provide marginally suitable nesting habitat for Suisun song
24 sparrow in the form of adjacent tules and blackberry brambles. Suisun song sparrow is
25 known from two records within an 8 km (5 mile) radius of the study area. The nearest
26 record is a 1901 sighting from the Refuge, approximately 0.8 km (0.5 mile) west of the
27 Project site. Due to the presence of marginally suitable habitat on site, its presence
28 cannot be ruled out.

29 **Special-status and Other Migratory Birds.** In addition to the white-tailed kite and the
30 two song sparrows discussed above, the Project area supports suitable nesting habitat
31 for a variety of other special-status and migratory raptors (birds of prey) and passerines
32 (perching birds). Migratory birds are protected under the MBTA; needless destruction of
33 nests is generally prohibited under the California Fish and Game Code.

34 No bird nests were observed on site during the site survey, although a pair of black
35 phoebes was exhibiting site fidelity at the western end of the wharf; these birds may be

¹⁸ The Modesto population is considered by some to belong to the subspecies *M. m. mailliardi*.

1 nesting on the underside of the dock. Based on the amount of vegetative cover on site,
2 there is a high potential for the use of this habitat for breeding.

3 **Sacramento Splittail** (Federal: Candidate; State: Species of Special Concern). The
4 Sacramento splittail (*Pogonichthys macrolepidotus*) is Species of Special Concern in
5 California and is regarded as Vulnerable by the American Fisheries Society (CDFW
6 2014a). Although it was determined that the species did not warrant federal listing by
7 the USFWS in 2010, it remains a candidate for listing under FESA. It has been assigned
8 a global and state ranking of G2/S2; species assigned a ranking of S2 are considered
9 imperiled in the state due to their very restricted range, very few populations, or other
10 factors making them very vulnerable to extirpation (CDFW 2014a).

11 Splittail are generally restricted to brackish waters of the San Francisco estuary and its
12 tributaries and are found most often in slow moving sections of rivers and sloughs
13 including dead end sloughs and shallow edge habitats. Splittail are frequently found in
14 areas subject to flooding because they require flooded vegetation for spawning and
15 rearing in waters at least 1 meter (3.3 feet) deep.

16 Sacramento splittail is not listed under FESA; as such, no critical habitat has been
17 designated for the species. The Project site is located within suitable habitat for the
18 Sacramento splittail, and the species is considered to potentially occur on site.
19 Sacramento splittail has not been recorded from within an 8 km (5 mile) radius of the
20 Project site (CNDDDB 2014). Due to the presence of suitable habitat on site, the
21 presence of Sacramento splittail is assumed.

22 **Sacramento Perch** (Federal: none; State: Species of Special Concern). The
23 Sacramento perch (*Archoplites interruptus*) is listed as a California Species of Special
24 Concern and is regarded as Threatened by the American Fisheries Society (CDFW
25 2014a). It has been assigned a global and state ranking of G2G3/S1; species assigned
26 a ranking of S1 are considered imperiled in the state due to its very restricted range,
27 very few populations, or other factors making it very vulnerable to extirpation (CDFW
28 2014a).

29 The Sacramento perch is endemic California, known from 28 localities in the Central
30 Valley, including tributaries to the San Francisco Estuary. Sacramento perch is not
31 listed under FESA; as such, no critical habitat has been designated for the species. The
32 Project site is located within suitable habitat for the Sacramento perch. It has been
33 reported from a single record within an 8 km (5 mile) radius of the Project site. That
34 record is an undated collection of a juvenile fish taken at the intake screens of the
35 Contra Costa Power Plant on the south shore of the San Joaquin River 2.2 km (1.4
36 miles) east of the Project site. Due to the presence of suitable habitat on site, the
37 presence of Sacramento perch is assumed.

1 **Hardhead** (Federal: none; State: Species of Special Concern). The hardhead
2 (*Mylopharodon conocephalus*) is listed as a California Species of Special Concern and
3 is regarded as Sensitive by the U.S. Forest Service (CDFW 2014a); it is not listed under
4 FESA. It has been assigned a global and state ranking of G2/S3; species assigned a
5 ranking of S3 are considered vulnerable in the state due to their restricted range,
6 relatively few populations, or other factors making them very vulnerable to extirpation
7 (CDFW 2014a).

8 Hardhead is a large minnow that is widely distributed in small to large streams at low to
9 mid-elevations in the Sacramento-San Joaquin, Russian, and Napa River drainages.
10 Hardhead is not listed under FESA; as such, no critical habitat has been designated for
11 the species. The Project site is located within suitable habitat for the hardhead. It has
12 not been reported from within an 8 km (5 mile) radius of the Project site. Nonetheless,
13 due to the presence of suitable habitat on site, the presence of hardhead is assumed.

14 **California Sea Lion** (Federal: MMPA; State: none). The California sea lion (*Zalophus*
15 *californianus*) is not listed under either FESA or CESA; however, it is protected under
16 the MMPA.

17 California sea lions are found from Vancouver Island, British Columbia to the southern
18 tip of Baja California, Mexico. They breed mainly on offshore islands, ranging from
19 southern California's Channel Islands south to Mexico, although a few pups have been
20 born on Año Nuevo and the Farallon Islands on the central Californian coast (National
21 Oceanic and Atmospheric Administration [NOAA] 2014).

22 Sandy beaches are preferred for haul out sites, although in California they haul out on
23 marina docks as well as jetties and buoys. California sea lions feed mainly in upwelling
24 areas on a variety of prey such as squid, anchovies, mackerel, rockfish, and sardines.
25 They also take fish from commercial fishing gear, sport-fishing lines, and at fish
26 passage facilities at dams and rivers. Breeding season lasts from May to August while
27 most pups are born from May through July (NOAA 2014). Preferred breeding habitat,
28 haul out sites, are located in shallow coastal waters and estuaries with sandy beaches
29 for pupping.

30 The California sea lion is not listed under FESA; as such, no critical habitat has been
31 designated for the species. The Project area is located in aquatic habitat in which
32 California sea lion could occur. Occurrence data are not maintained by the CNDDDB
33 (2014), and there are no known California sea lion haul out locations within several
34 miles of the Project area. The species may, however, move through or opportunistically
35 forage within the lower San Joaquin River. Due to the periodic presence of California
36 sea lions in the San Joaquin River, their presence in or near the work area is assumed.

1 **Harbor Seal** (Federal: MMPA; State: not listed). The harbor seal (*Phoca vitulina*) is not
2 listed under either FESA or CESA; however, it is protected under the MMPA.

3 Harbor seals are fairly common, non-migratory pinnipeds inhabiting coastal and
4 estuarine waters from Alaska to Baja California, Mexico. They are a year-round resident
5 in the San Francisco Bay Area (Codde et al. 2012). They haul out on rocks, reefs, and
6 beaches, and feed in marine, estuarine, and occasionally fresh waters (Zeiner et al.
7 1990). Harbor seals are present in estuaries and coastal regions where there is a viable
8 food supply from Central Mexico to Alaska (The Marine Mammal Center [TMMC] 2015).
9 Seal pups are born between February and April on sandy beaches or rocky outcrops
10 (TMMC 2015).

11 The harbor seal is not listed under FESA; as such, no critical habitat has been
12 designated for the species. The Project site is located in aquatic habitat in which harbor
13 seal could occur. Occurrence data are not maintained by the CNDDDB (2014), and there
14 are no known harbor seal haul out locations within several miles of the Project area.
15 The species may however move through or opportunistically forage within the lower San
16 Joaquin River. Due to the periodic presence of harbor seal in the San Joaquin River,
17 their presence in or near the work area is assumed.

18 3.4.1.3 Invasive Species

19 Many “non-native” species have been imported for their food, fiber or ornamental
20 values. Most cannot grow without human cultivation. However, some imported plants
21 and animals, no longer constrained by the conditions that keep their populations in
22 check at home, rapidly reproduce and quickly spread. Such species are called invasive.
23 Invasive species threaten the diversity or abundance of native species through
24 competition for resources, predation, parasitism, interbreeding with native populations,
25 transmitting diseases, or causing physical or chemical changes to the invaded habitat.
26 Through their impacts on natural ecosystems, agricultural and other developed lands,
27 and water delivery and flood protection systems, invasive species may also negatively
28 affect human health and/or the economy. Examples of direct impact to human activities
29 include the clogging of navigable waterways and water delivery systems, weakening
30 flood control structures, damaging crops, introducing diseases to animals that are raised
31 or harvested commercially, and diminishing sportfish populations.

32 Several invasive aquatic species have rapidly spread in California’s waterways and
33 have become a great concern to the State’s aquatic resources. Three freshwater
34 mollusks are of great concern in California. These include the Quagga mussel
35 (*Dreissena rostriformis bugensis*) and Zebra mussel (*Dreissena polymorpha*), which
36 belong to the Drissenidae family, and the New Zealand mudsnail (*Potamopyrgus*
37 *antipodarum*), a member of the Hydrobiidae family.

1 In addition to moving downstream with the flow of water, these mollusks are transported
 2 by humans moving equipment and objects from one waterbody to another. Adults attach
 3 to hulls of watercraft, persist in mud caked on tires, tractor treads, and equipment, and
 4 the microscopic larvae can be transported on waders and boots, nets and other fishing
 5 gear, bilges, ballasts, live wells, or any equipment that holds water. They can survive
 6 out of water for a week or longer.

7 **3.4.2 Regulatory Setting**

8 Federal and State laws and regulations pertaining to this issue area and relevant to the
 9 Project are identified in Table 3.4-1.

Table 3.4-1. Laws, Regulations, and Policies (Biological Resources)

U.S.	Endangered Species Act (FESA) (7 USC 136, 16 USC 1531 et seq.)	<p>The FESA, which is administered in California by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), provides protection to species listed as threatened or endangered, or proposed for listing as threatened or endangered. Section 9 prohibits the “take” of any member of a listed species.</p> <ul style="list-style-type: none"> • Take is defined as “...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” • Harass is “an intentional or negligent act or omission that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering.” • Harm is defined as “...significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.” <p>When applicants are proposing projects with a Federal nexus that “may affect” a federally listed or proposed species, the Federal agency is required to consult with the USFWS or NMFS, as appropriate, under Section 7, which provides that each Federal agency must ensure that any actions authorized, funded, or carried out by the agency are not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of areas determined to be critical habitat.</p>
U.S.	Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 USC 1801 et seq.)	<p>The MSA is the primary law governing marine fisheries management in U.S. Federal waters. The MSA was first enacted in 1976 and amended in 1996. Amendments to the 1996 MSA require the identification of Essential Fish Habitat (EFH) for federally managed species and the implementation of measures to conserve and enhance this habitat. Any project requiring Federal authorization, such as a USACE permit, is required to complete and submit an EFH Assessment with the application and either show that no significant impacts to the essential habitat of managed species are expected or identify mitigations to reduce those impacts. Under the MSA, Congress defined EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (16 USC 1802(10)). The EFH provisions of the MSA offer resource managers a means to heighten consideration of fish habitat in resource management. Pursuant to section 305(b)(2), Federal agencies shall consult with the NMFS regarding any action they authorize, fund, or undertake that might adversely affect EFH.</p>
U.S.	Marine Mammal	<p>The MMPA is designed to protect and conserve marine mammals and their habitats. It prohibits takes of all marine mammals in the U.S. with few</p>

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	Protection Act (MMPA) (16 USC 1361 et seq.)	exceptions. The NMFS may issue a take permit under section 104 if the activities are consistent with the purposes of the MMPA and applicable regulations at 50 Code of Federal Regulations (CFR), Part 216. The NMFS must also find that the manner of taking is “humane” as defined in the MMPA. If lethal taking of a marine mammal is requested, the applicant must demonstrate that using a non-lethal method is not feasible.
U.S.	Migratory Bird Treaty Act (MBTA) (16 USC 703-712)	The MBTA was enacted to ensure the protection of shared migratory bird resources. The MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase, or barter, of any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit. The responsibilities of Federal agencies to protect migratory birds are set forth in EO 13186. The USFWS is the lead agency for migratory birds. The USFWS issues permits for takes of migratory birds for activities such as scientific research, education, and depredation control, but does not issue permits for incidental take of migratory birds.
U.S.	Rivers and Harbors Act (RHA) (33 USC 403)	<ul style="list-style-type: none"> Section 10 of the RHA prohibits the creation of any obstruction not affirmatively authorized by Congress to the navigable capacity of any of the waters of the United States. Except where recommended by the Chief of Engineers and authorized by the Secretary of War, it is unlawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor of refuge, or enclosure within the limits of any breakwater, or of any channel of any navigable waters of the United States.
U.S.	Federal Water Pollution Control Act (AKA Clean Water Act - CWA) (33 USC 1251-1376)	<ul style="list-style-type: none"> Section 401 (33 USC 1341) of the CWA specifies that any applicant for a federal permit to conduct any activity which may result in any discharge into the navigable waters of the United States to obtain a certification or waiver thereof from the state in which the discharge originates that such a discharge will comply with state water quality standards. Section 404 (33 USC 1344) of the CWA authorizes the USACE to issue permits for the discharge of dredged or fill material into waters of the United States, including wetlands, streams, rivers, lakes, coastal waters or other water bodies or aquatic areas that qualify as waters of the United States.
U.S.	Other	<ul style="list-style-type: none"> The Bald and Golden Eagle Protection Act makes it illegal to import, export, take (including molest or disturb), sell, purchase or barter any bald eagle or golden eagle or parts thereof. Executive Order 13112 requires Federal agencies to use authorities to prevent introduction of invasive species, respond to and control invasions in a cost-effective and environmentally sound manner, and provide for restoration of native species and habitat conditions in invaded ecosystems. Executive Order 13158 requires Federal agencies to identify actions that affect natural or cultural resources within a Marine Protected Area (MPA) and, in taking such actions, to avoid harm to the natural and cultural resources that are protected by a MPA.
CA	California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.)	The CESA provides for the protection of rare, threatened, and endangered plants and animals, as recognized by the California Department of Fish and Wildlife (CDFW), and prohibits the taking of such species without its authorization. Furthermore, the CESA provides protection for those species that are designated as candidates for threatened or endangered listings. Under the CESA, the CDFW has the responsibility for maintaining a list of threatened species and endangered species (Fish & G. Code, § 2070). The CDFW also maintains a list of candidate species, which are species that the CDFW has formally noticed as under review for addition to the threatened or endangered species lists. The CDFW also maintains lists of Species of Special Concern that

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		serve as watch lists. Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present in the project site and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may affect a candidate species. The CESA also requires a permit to take a State-listed species through incidental or otherwise lawful activities (§ 2081, subd. (b)).
CA	Lake and Streambed Alteration Program (LSAP; Fish & G. Code, §§ 1600-1616)	The CDFW regulates activities that would interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. These regulations require notification of the CDFW for lake or stream alteration activities. If, after notification is complete, the CDFW determines that the activity may substantially adversely affect an existing fish and wildlife resource, the CDFW has authority to issue a Streambed Alteration Agreement.
CA	Other relevant California Fish and Game Code sections	<ul style="list-style-type: none"> • The California Native Plant Protection Act (Fish & G. Code, § 1900 et seq.) is intended to preserve, protect, and enhance endangered or rare native plants in California. This Act includes provisions that prohibit the taking of listed rare or endangered plants from the wild and a salvage requirement for landowners. The Act directs the CDFW to establish criteria for determining what native plants are rare or endangered. Under section 1901, a species is endangered when its prospects for survival and reproduction are in immediate jeopardy from one or more causes. A species is rare when, although not threatened with immediate extinction, it is in such small numbers throughout its range that it may become endangered. • Fish and Game Code sections 3503 & 3503.5 prohibit the taking and possession of native birds' nests and eggs from all forms of needless take. These regulations also provide that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nests or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto. • Fish and Game Code sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) designate certain species as "fully protected." Fully protected species, or parts thereof, may not be taken or possessed at any time without permission by the CDFW. • Fish and Game Code section 3513 does not include statutory or regulatory mechanism for obtaining an incidental take permit for the loss of non-game, migratory birds.
CA	Other	<ul style="list-style-type: none"> • Porter-Cologne Water Quality Control Act (Porter-Cologne; Cal. Water Code, § 13000 et seq.)

- 1 Local goals, policies, and/or regulations applicable to this issue area are listed below.
- 2 Although the Project site itself, which is situated on state lands, is not subject to the
- 3 policies of the Antioch General Plan, the Plant, located on uplands, is. An overview of
- 4 the General Plan policies relevant to biological resources is presented below. As stated
- 5 in the General Plan (City of Antioch 2003), it is the objective of the City of Antioch to
- 6 preserve natural streams and habitats supporting rare and endangered species of
- 7 plants and animals. The city of Antioch has established certain policies to support this
- 8 objective.

General Plan Policies	Project Consistency
<p>10.42 Biological Resources Policies</p> <p><i>a. Comply with the Federal policy of no net loss of wetlands through avoidance and clustered development. Where preservation in place is found not to be feasible (such as where a road crossing cannot be avoided, or where shore stabilization or creation of shoreline trails must encroach into riparian habitats), require 1) on-site replacement of wetland areas, 2) off-site replacement, or 3) restoration of degraded wetland areas at a minimum ratio of one acre of replacement/restoration for each acre of impacted onsite habitat, such that the value of impacted habitat is replaced.</i></p>	<p>The proposed Project would not impact wetlands.</p>
<p><i>b. Preserve in place and restore existing wetlands and riparian resources along the San Joaquin River and other natural streams in the Planning Area, except where a need for structural flood protection is unavoidable.</i></p>	<p>Existing wetlands and riparian habitat within the study area would not be affected by Project implementation.</p>
<p><i>c. Require appropriate setbacks adjacent to natural streams to provide adequate buffer areas ensuring the protection of biological resources, including sensitive natural habitat, special-status species habitats and water quality.</i></p>	<p>Not applicable: no new development is proposed in the vicinity of wetlands or riparian habitat.</p>
<p><i>d. Through the project approval and environmental review processes, require new development projects to protect sensitive habitat areas, including but not limited to, oak woodlands, riparian woodland, vernal pools, and native grasslands. Ensure the preservation in place of habitat areas found to be occupied by state and federally protected species.</i></p>	<p>No new development is proposed; existing wetlands, riparian habitat and woodland habitat on site would not be affected by Project implementation.</p>
<p><i>e. Limit uses within preserve and wilderness areas to resource-dependent activities and other uses compatible with the protection of natural habitats (e.g., passive recreation and public trails).</i></p>	<p>The proposed Project would not affect any preserves or wilderness areas.</p>
<p><i>f. Through the project review process, review, permit the removal of healthy, mature oak trees on a case-by-case basis only where it is necessary to do so.</i></p>	<p>The proposed Project would not affect any native oak trees.</p>
<p><i>g. Preserve heritage trees throughout the Planning Area.</i></p>	<p>The proposed Project would not affect any heritage trees.</p>
<p><i>h. Within areas adjacent to preserve habitats, require the incorporation of native vegetation and avoid the introduction of invasive species in the landscape plans for new development.</i></p>	<p>The proposed Project is adjacent to the Antioch Dunes National Wildlife Refuge. No landscaping is proposed as part of the Project.</p>
<p><i>i. Design drainage within urban areas so as to avoid creating perennial flows within intermittent streams to prevent fish and bullfrogs from becoming established within a currently intermittent stream.</i></p>	<p>The proposed Project would not increase impervious surfaces and would not contribute to dry-season runoff into any intermittent streams.</p>
<p><i>j. Whenever a biological resources survey is undertaken to determine the presence or absence of a threatened or endangered species, or of a species of special concern identified by the U.S. Fish and Wildlife Service or the California Department of Fish and Wildlife, require the survey to follow established protocols for the species in question prior to any final determination that the species is absent from the site.</i></p>	<p>No focused biological surveys have been performed as part of the proposed Project. The presence of federally and or state protected fish species has been presumed and appropriate impact avoidance, minimization and mitigation measures are proposed, consistent with federal and state laws.</p>

1 **3.4.3 Impact Analysis**

2 ***a) Have a substantial adverse effect, either directly or through habitat***
3 ***modifications, on any species identified as a candidate, sensitive, or special-***
4 ***status species in local or regional plans, policies, or regulations, or by the***
5 ***California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?***

6 Project implementation could result in significant adverse effects on 10 special-status
7 fish species, including North American green sturgeon, steelhead (Central Valley DPS
8 and Central California Coast DPS), chinook salmon (Central Valley spring-run ESU and
9 Sacramento River winter-run ESU), Delta smelt, longfin smelt, Sacramento perch,
10 Sacramento splittail, and hardhead.

11 Project implementation could result in significant adverse effects on special-status
12 mammals, reptiles, and birds, including harbor seal, California sea lion, Pacific pond
13 turtle, white-tailed kite, song sparrow “Modesto population,” Suisun song sparrow, and a
14 wide variety of migratory bird species, as described below and in the Biological
15 Assessment (Appendix D).

16 The closest occurrence of LMB to the Project site is from within the Refuge (over 400
17 feet away), and there is no suitable habitat for LMB on the uplands directly adjacent to
18 the wharf. Nonetheless, GP Gypsum proposes to conduct all pile-driving activities
19 between October 1 and November 30 to ensure adult LMB are not affected during their
20 flight season (August 1-September 29). Additional information regarding LMB is
21 contained in Appendix D, Biological Assessment.

22 No special-status plant species occur within the Project work area; however, two
23 special-status species, Suisun Marsh aster and Delta tule pea, occur on the shoreline.
24 Two special-status plant species, Mason’s lilaepsis and Delta mudwort, could also
25 occur here but were not documented during the site visit. Project implementation would
26 have no direct adverse effects on special-status plant species because all Project work
27 will take place in and from the water, and measures to prevent incidental impacts that
28 could result during the positioning of barges, tugboats or other equipment near the
29 shoreline will be implemented.

30 The primary impacts to marine mammals and fish are likely to occur from shock or
31 acoustic waves generated from pile removal and installation. Potential impacts to
32 marine species are dependent on sound source levels and frequencies, animal hearing
33 sensitivity, proximity to the sound source, noise duration, and time of operation.

34 The Project would use both vibratory and impact hammers to drive the piles. Each pile
35 would require approximately 15 minutes of vibratory driving and 100 to 700 blows with
36 an impact hammer to drive the piles to their final elevation (Illingworth & Rodkin 2014). It

1 is anticipated that an APE 400 vibratory hammer and a Delmag D160 diesel impact
2 hammer would be required to drive the 42-inch, 48-inch, and the 72-inch piles; while the
3 24-inch and the 30-inch walkway piles would be installed using an ICE 44 vibratory
4 hammer and a Delmag D62 diesel impact hammer (Illingworth & Rodkin 2014). For the
5 vibratory hammer, each pile is estimated to be driven 30 feet in approximately 15
6 minutes. Impact hammer driving would then be used until the pile reaches its required
7 depth, and is anticipated to result in 20 blows per foot. The Project is anticipated to
8 install one pile per day for the 72-inch piles and up to two piles per day for all other
9 piles. An estimated 24 days of in-water construction is planned.

10 Hearing sensitivities of marine species vary depending upon their anatomy and
11 physiology. For example, some species, such as marine mammals, seem to be more
12 sensitive to the sound pressure component of sound, while some fish appear to be
13 more sensitive to the particle motion component of sound. Additionally, a species'
14 hearing sensitivity to sound also varies depending upon the frequency of the sound
15 since not all marine species hear equally well at all frequencies. The Project would be
16 carried out using a combination of vibratory and impact hammers, both of which create
17 underwater impacts. Under typical pile driving conditions, impact hammer driven steel
18 piles may be expected to generate peak sound pressure levels (SPL) within a range of
19 about 180 decibels (dB) to 210 dB, while piles driven by a vibratory hammer may
20 reduce the levels by about 10 dB to 30 dB (Caltrans 2012). Impact hammers may
21 produce higher sound levels than vibratory hammers, but vibratory hammers distribute
22 the sound over a wider range of frequencies due to their non-impulsive nature. Impact
23 pile driving can generally be expected to produce frequencies in the 100 hertz (Hz) to 2
24 kilohertz (kHz) range, while vibratory hammers are generally in the 400 Hz to 2.5 kHz
25 frequency range (Blackwell 2005).

26 The NMFS has identified acoustic threshold (received sound level) criteria which marine
27 mammals are predicted to experience changes in their hearing sensitivity, either
28 permanent or temporary hearing threshold shifts. Physiological responses such as
29 auditory or non-auditory tissue injuries are known as Level A Harassment in the MMPA
30 and harm in the FESA. Level A Harassment becomes a concern when the sound levels
31 from man-made sounds reach or exceed the acoustic threshold associated with auditory
32 injury in marine species. A permanent threshold shift (PTS) is a permanent, irreversible
33 increase in an animal's auditory threshold within a given frequency band or range of the
34 animal's normal hearing. A temporary threshold shift (TTS) is a temporary, reversible
35 increase in the threshold of audibility at a specific range of frequencies. While TTS is
36 not an injury, it is considered Level B Harassment by the MMPA and harassment by the
37 FESA. Along with TTS, Level B Harassment also includes behavioral impacts. For
38 pinnipeds, NMFS has specified Level A SPL thresholds as 190 dB referenced to (re) 1

1 micropascal (μPa)¹⁹ (root mean squared [rms]²⁰). The Level B SPL threshold for all
2 marine mammals is 160 dB re 1 μPa (rms).

3 Generally, the hearing ranges for both the harbor seal (75 Hz to 100 kHz) and California
4 sea lion (100 Hz to 40 kHz) overlap the entire expected frequency range of the pile
5 drivers. Furthermore, the highest sound levels for pile driving would overlap frequencies
6 at which pinniped hearing is most sensitive. The current NMFS acoustic threshold
7 levels, used for most sound sources, do not take into account exposure, duration, sound
8 frequency composition, repetition rate, and a species' hearing sensitivity. In 2013,
9 NMFS proposed new acoustic threshold levels (that may be finalized and implemented
10 in 2015) that take into account some of these factors, including dividing marine
11 mammals into functional hearing groups.

12 Hearing capabilities vary considerably between fish species and within fish groups. Fish
13 species within a group may also differ substantially in terms of their hearing structures.
14 Fishes hear when hair cells are directly stimulated by particle motion in the water. Some
15 fishes also have swim bladders or other air sacs that can detect and convert the
16 pressure component of a sound field into particle motion, which directly stimulates the
17 inner ear, allowing the fishes to detect sound. The majority of fishes are hearing
18 generalists, which usually only hear sounds up to 1.5 kHz. As described in Weston
19 Solutions, Inc. (2014), acoustic shock waves from pile driving have been known to
20 cause damage and mortality to fish but relatively little is known about the effects of pile
21 driving on wild fish populations. Studies have shown damage to fish auditory tissues,
22 swim bladder function, and blood vessels in caged specimens when exposed to SPLs
23 greater than 180 dB re 1 μPa (rms).

24 Investigators have extrapolated from reduced capture rates that unrestrained pelagic
25 species would avoid areas of high SPLs, while video documentation of reef species with
26 greater site fidelity showed only minor behavioral response. Damage to larvae and eggs
27 is of some concern since these are planktonic with little or no ability for avoidance.
28 Effects on planktonic stages have been less studied than effects on adult fish, but
29 evidence points to some potential mortality in the immediate vicinity of high SPLs.
30 Investigators have also concluded that the extent of larval and egg mortality from high
31 SPLs would be less than the loss through natural causes. Injury thresholds for fish are
32 variable, depending on species, size and/or age of the individual. There is insufficient
33 evidence in the literature to establish noise exposure criteria for fish. However, in 2008
34 the Fisheries Hydroacoustic Working Group devised an Agreement in Principle for
35 Interim Criteria for Injury to Fish from Pile Driving Activities that established SPLs of 206
36 dB-peak and 187 dB-accumulated for all listed fish and 183 dB-accumulated for fish
37 less than 2 grams (Caltrans 2009). The Project's pile-driving noise impacts to marine

¹⁹ 1 μPa is the reference sound pressure for sound in water.

²⁰ Root-mean-square (rms) is the average of the squared sound pressure over some duration.

- 1 mammals and fish were modeled by Illingsworth and Rodkin (2014), which is included
 2 as Appendix E and summarized in Tables 3.4-2 and 3.4-3.

Table 3.4-2. Modeled Extent of SPL from Impact Driving of One Pile

Modeling Scenario	Distance to Marine Mammal Acoustic Criteria in Meters			Distance to Fish Acoustic Criteria in Meters			Distance to Behavioral Zone
	RMS (dB re: 1uPa)			Peak (dB re: 1uPa)	Cumulative SEL ¹ (dB re:1uPa-sec ²)	RMS (db re:1uPa)	
	Level B Harassment	Level A Injury					
	160	180	190	206	187	183	150
72-inch Piles (Pile ID: BD 1-4) Estimated 700 Pile Strikes per Pile							
Modeled Unattenuated	1,970 ²	130	35	30	620 ²	1,065 ²	7,630 ¹
Assuming a 10 dB Reduction with Attenuation	510	35	<10	<10	160	275	1,970 ²
48-inch Pile (Pile ID: MD 3) Estimated 520 Pile Strikes							
Modeled Unattenuated	765 ²	50	15	15	155	265	2,955 ²
Assuming a 10 dB Reduction with Attenuation	200	15	<10	<10	40	70	765 ²
42-inch Piles (Pile ID: MD 1&2) Estimated 420 Pile Strikes per Pile							
Modeled Unattenuated	765 ²	50	15	15	135	235	2,955 ²
Assuming a 10 dB Reduction with Attenuation	200	15	<10	<10	35	60	765 ²
30-inch Piles (Pile ID: WB 3-5) Estimated 100 Pile Strikes per Pile							
Modeled Unattenuated	580	40	<10	15	40	70	2,255 ²
Assuming a 10 dB Reduction with Attenuation	150	<10	<10	<10	10	20	580
24-inch Piles (Pile ID: WB 2&6) Estimated 360 Pile Strikes per Pile							
Modeled Unattenuated	510	35	<10	<10	95	160	1,970 ²
Assuming a 10 dB Reduction with Attenuation	130	<10	<10	<10	25	40	510
24-inch Pile (Pile ID: WB 1) Estimated 160 Pile Strikes							
Modeled Unattenuated	510	35	<10	<10	60	100	1,970 ²
Assuming a 10 dB Reduction with Attenuation	130	<10	<10	<10	15	25	510
Notes:							
¹ Based on driving of one pile. SEL criteria apply to impact pile driving events that occur during 1 day.							
² Distance to underwater noise thresholds is constrained by river topography.							

Table 3.4-3. Modeled Cumulative SEL Under Various Pile Driving Scenarios

	Total Strikes	Attenuation	Cumulative SEL (dB) at 10 Meters	Distance to 187 dB Cumulative SEL (Meters)	Distance to 183 dB Cumulative SEL (Meters)
One 72-inch pile	700	Unattenuated	217	620	1,065
		Attenuated	207	160	275
MD1 (42-inch) & WB1 (24-inch)	580	Unattenuated	207	145	245
		Attenuated	197	40	65
MD2 (42-inch) & WB2 (24-inch)	780	Unattenuated	208	170	290
		Attenuated	198	45	75
BD1 (72-inch) & WB3 (30-inch)	800	Unattenuated	217	585	1,005
		Attenuated	207	150	260
WB4 (30-inch) & WB5 (30-inch)	200	Unattenuated	200	60	100
		Attenuated	190	15	25
WB6 (24-inch) & MD3 (48-inch)	880	Unattenuated	209	180	315
		Attenuated	198	50	80
WB5 (30-inch) & WB6 (24-inch)	460	Unattenuated	204	95	165
		Attenuated	194	25	40

1 In addition, The NMFS defined the Hydroacoustic Action Area as the maximum distance
 2 around the Project site subject to 150 dB using attenuation, and defined the Acoustic
 3 Impact Area as the maximum distance to the 187 dB cumulative SEL level using
 4 attenuation. These areas are depicted in Figure 3.4-3.

5 **Special-Status Marine Mammals: Less than Significant with Mitigation.** As
 6 indicated in Table 3.4-2 above, harbor seals and California sea lions that may be
 7 transiting near the wharf during pile extraction and installation activities could be
 8 exposed to SPLs exceeding the NMFS Level A (e.g., within a 35 meter radius for the
 9 72-inch piles) and Level B (e.g., within a 1,970 meter radius for the 72-inch piles) take
 10 thresholds. Both the sound level and duration of exposure to pile driving would affect
 11 the magnitude of effect on these pinnipeds. As a result, the Project could result in a
 12 potentially significant impact to harbor seals and California sea lions absent measures
 13 to avoid and minimize this potential impact. Informal consultation between the Applicant
 14 and NMFS has been ongoing since approximately October 2014. In addition to
 15 consultation under FESA, the federal action agency, USACE, recommended the
 16 Applicant submit an application for a Minor Impact Letter of Permission (LOP) under
 17 Section 10 of the Rivers and Harbors Act. As a requirement of the LOP, the Project
 18 must have an overall minimal impact, both individually and cumulatively, on aquatic
 19 resources.




Georgia-Pacific
Antioch Wharf
Breasting Dolphins
Replacement Project

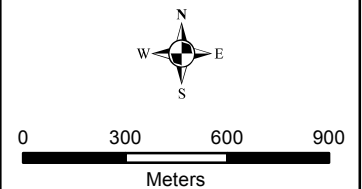
Contra Costa County,
CA

Supplemental Figure 1.

NMFS Hydroacoustic
Action Area



-  Project Area
 -  Acoustic Impact Area* (160 meters)
 -  Action Area (1,970 meters)
- *Cumulative SEL of 187dB



Map Date: February 2014
Map By: Chris Zumwalt
Base Source: ESRI Streaming 11/02/2010

Figure 3.4-3 NMFS Hydroacoustic Action Area

1 To avoid Level A take, sound attenuation techniques, including a “soft-start” procedure
2 and use of a cushion block and bubble curtain, as described in **Mitigation Measure**
3 **(MM) BIO-7**, below, would be employed. In particular, the soft-start would gradually
4 ramp up the intensity of the pile strikes such that any pinnipeds in the area would have
5 a chance to leave prior to experiencing hearing damage. A small number of animals, if
6 present, could still be subjected to sounds exceeding 160 dB; however, this level of
7 exposure would not involve physical injury, instead only resulting in behavioral
8 avoidance (Level B take). Implementation of **MM BIO-10**, below, would reduce the
9 potential exposure by marine mammals to sounds exceeding 160 dB by monitoring an
10 “exclusion zone” around the pile driving and ceasing such activities if marine mammals
11 are detected within the exclusion zone. Additionally, the duration of pile driving activities
12 would be limited (see Section 2, Project Description) and temporary, and the presence
13 of harbor seals and California sea lions in the area is expected to be unlikely due to the
14 absence of suitable haul-out sites.

15 Given the information above, potential impacts to pinnipeds found near the Project
16 would be less than significant with implementation of **MM BIO-7** and **MM BIO-10**, below.

17 **Special-Status Fish: Less than Significant with Mitigation.** Potentially significant
18 adverse impacts on the special-status fish species and EFH listed above may result
19 from pile driving, re-suspension of contaminants entrained in the sediment, disruption of
20 benthic prey organisms, increased turbidity, potential increased predation on migrating
21 salmonids due to structure shadow effects, and contact with construction equipment.

22 Pile Driving Impacts to Fish: The SPLs generated during unattenuated impact driving of
23 all piles except the 24-inch piles would exceed the adopted 206 dB peak acoustic
24 criteria for injury to fish at a distance of 10 meters. With implementation of the sound
25 attenuation measures described in **MM BIO-7**, however, the distance to the 206 dB
26 level would be reduced to less than 10 meters for all pile sizes. Even with
27 implementation of sound attenuation, fish that may be present in the Project vicinity
28 could experience cumulative sound exposure levels (SEL) if they were within 275
29 meters (to the 183 dB threshold) from the sound source, which would be considered a
30 significant impact. Implementation of a work window restriction and soft-start procedure,
31 however, would reduce this potential impact. Specifically, limiting the construction
32 period to between August 1 and November 30 would ensure that non-mobile life stages
33 (eggs and larvae) of special-status fish species would not be present, and
34 implementation of the soft start (slowly increasing the dB from the impact strikes) would
35 allow the mobile phase (juvenile or adult) of any of the special-status species to move
36 out of the area before they would encounter the potentially injurious exposure levels.
37 Finally, hydroacoustic and biological monitoring would be conducted during pile driving
38 to document acoustic field distances and any observable biological effects to fish.
39 Consequently, the impact would be less than significant with implementation of **MM**
40 **BIO-1** and **MM BIO-7**, which are described in detail below.

1 Impacts to fish spawning and rearing habitats: The Project would not result in any
2 impacts to spawning or rearing habitat, would not impair migration or reproduction, and
3 is unlikely to cause injury or mortality to special-status fish because it would take place
4 during recommended in-water work windows. Therefore, this impact is considered to be
5 less than significant with implementation of **MM BIO-1**.

6 Re-suspension of Contaminants Entrained in the Sediment: Pile driving and equipment
7 operations and movement could stir up contaminants entrained in the sediment,
8 releasing them into the water column and making them available for uptake by aquatic
9 organisms. Sediment contamination in the vicinity of the wharf was investigated in 2009
10 (Weston 2010 and 2011). Results of vibracore sample analysis indicated that there
11 were no constituents of concern above benchmark levels for toxicity. Therefore, this
12 impact is considered to be less than significant.

13 Disruption of Benthic Prey Organisms: Disruption of benthic prey organisms may occur
14 in the area of pile removal and replacement. However, the area of effect of the dolphin
15 replacements would be relatively small and unlikely to reduce food resources to a
16 substantial level. Therefore, this impact is considered to be less than significant.

17 Increased Turbidity: Turbidity in the construction zone is likely to temporarily increase
18 during demolition and pile driving activities due to re-suspension of fine sediments. The
19 amount and extent is difficult to predict, but would likely be limited to the 24 days of in-
20 water work. Turbidity plumes are likely to disperse relatively quickly at the site due to
21 tidal currents in the channel. To reduce this impact, turbidity monitoring would be
22 conducted and work would cease if turbidity was excessive, as described below in **MM**
23 **BIO-6**. After mitigation, this impact would be less than significant.

24 Contact with Construction Equipment: Fish could potentially be injured or killed by
25 contact with construction equipment, especially in shallow, vegetated areas where
26 escape/avoidance would be difficult. This impact would be reduced to a less than
27 significant level by implementation of **MMs BIO-1, BIO-2, BIO-3, BIO-5, and BIO-6**.

28 **Special-Status Reptiles: Less than Significant with Mitigation.** Due to the presence
29 of marginally suitable aquatic habitat in the Project area and the occurrence of the
30 species in the vicinity, the potential exists for the occurrence of resident or transient
31 Pacific pond turtles on site. If present during construction, direct mortality, injury and/or
32 harassment of individuals could result. Significant impacts on special-status reptiles
33 may result from acoustic shock waves generated from pile driving, increased noise and
34 human activity, contact with construction equipment, as discussed above for special
35 status fish. The nature and significance of these impacts would be similar to those for
36 fish. These impacts would be mitigated to a less than significant level with the
37 implementation of **MMs BIO-2, BIO-3, BIO-5, BIO-6, BIO-7, and BIO-8**.

1 **Special-Status Birds: Less than Significant with Mitigation.** As currently proposed,
2 the Project would not require the removal or significant pruning of any trees and
3 therefore would not result in direct impacts on white-tailed kite, Modesto song sparrow,
4 Suisun song sparrow, or other special status bird species. However, Project
5 implementation could have adverse effects on white-tailed kite, if present, by causing
6 nest abandonment, harassment of individual special-status birds, or disruption of
7 breeding activities during project construction. Such impacts are not expected to occur,
8 however, due to the proposed work schedule of August 1 through November 30, which
9 is outside the breeding, nesting, and rearing season. Implementation of **MMs BIO-1,**
10 **BIO-3, BIO-4, BIO-5,** and **BIO-9** would ensure impacts to birds remain less than
11 significant.

12 **Special-Status Plant Species: Less than Significant with Mitigation.** The proposed
13 Project would not require work on the shoreline or upland areas within the Project
14 vicinity, where special-status plants may be found. Incidental impacts of the shoreline
15 and special-status plant populations could occur from wave scour due to equipment,
16 tugboat, and barge operations in the project area. This impact can be mitigated to a less
17 than significant level with the implementation of **MMs BIO-2, BIO-3,** and **BIO-4.**

18 **Mitigation Measures:**

19 **MM BIO-1: Timing of Work.** All in-water work shall be performed within the
20 environmental work window between August 1 and November 30.

21 **MM BIO-2: Restriction on Equipment Movements.** To avoid potential impacts
22 to sensitive plants that may occur along the shoreline, boats, barges and any
23 floating or submerged equipment shall be prevented from contacting the
24 shoreline to avoid crushing native vegetation or wildlife.

25 **MM BIO-3: Designation of an Agency-Approved Project Biologist.** At least
26 30 days before initiating Project activities, the Project proponent shall obtain the
27 California Department of Fish and Wildlife's written approval for a designated
28 Project Biologist. The Project Biologist shall be on site during initial Project
29 activities and as necessary to oversee activities described for pile-driving
30 acoustic monitoring (MM BIO-7) and monitoring of sensitive migratory birds (MM
31 BIO-9).

32 **MM BIO-4: Worker Environmental Awareness Program (WEAP).** A WEAP
33 shall be developed and presented by the Project Biologist. The WEAP shall
34 cover the ecology, identification, legal protections afforded all potentially
35 occurring special-status plant and animal species as well as the identified
36 protective measures and implications of non-compliance. All persons employed

1 or otherwise working on the Project sites shall attend a WEAP presentation prior
2 to performing any work on site.

3 **MM BIO-5: Wildlife Protections.** If any wildlife is encountered during the course
4 of construction, said wildlife shall be allowed to leave the construction area
5 unharmed and shall not be flushed, hazed, or herded away from the Project site.

6 **MM BIO-6: In-Water Turbidity Protections.** During pile removal activities,
7 turbidity monitoring shall be monitored daily during an ebb tide, at 31 meters (100
8 feet) upstream and 92 meters (300 feet) downstream of the work site. If
9 downstream turbidity measures are more than 15 Nephelometric Turbidity Units
10 (NTU) above the upstream level, activities shall cease until turbidity levels drop
11 below 15 NTUs above the upstream measurement. All incidents of exceedance
12 of the turbidity standard shall be reported to the California Department of Fish
13 and Wildlife (CDFW) within 24 hours. A turbidity-monitoring log shall be
14 maintained and provided to the CDFW and the State Lands Commission staffs
15 within 5 days from the completion of work.

16 **MM BIO-7: Minimize Underwater Sound From Pile Driving.** Underwater sound
17 monitoring shall be performed during pile driving for all piles unless monitoring of
18 the first pile of each size and type demonstrates that the accumulated sound
19 exposure levels (SEL) do not exceed the cumulative exposure threshold of 183
20 decibels at 10 meters. A hydroacoustic monitoring log shall be kept and a
21 monitoring report shall be submitted to the State Lands Commission staff upon
22 completion of pile driving activities. In addition, underwater sound reduction
23 measures shall be implemented, as follows:

- 24 a) Use of an impact hammer cushion block;
25 b) Use of impact hammers only during daylight hours;
26 c) Implementation of “soft start” procedures, in which impact strikes gradually
27 increase in energy and frequency of impacts to permit wildlife to vacate
28 the surroundings; and
29 d) Use of a bubble curtain surrounding piles during pile driving operations.

30 **MM BIO-8: Toxic Substances Protections.** To ensure toxic substances are not
31 released into the aquatic environment, the following measures shall be followed:

- 32 a) all engine-powered equipment shall be well-maintained and free of leaks of
33 fuel, oil, hydraulic fluid or any other potential contaminant;
34 b) all engine-powered equipment used and operated from the decks of barges,
35 boats or the wharf shall be positioned over drip-pans;

- 1 c) a spill prevention and response plan shall be prepared in advance of the
2 commencement of work; a spill kit with appropriate clean-up supplies shall
3 be kept on hand during operations. The kit shall include a floating oil-
4 absorbent sock that could be immediately deployed and maintained around
5 the work barges in the event of a spill or any accidental leakage of fuel or
6 hydraulic fluids;
- 7 d) refueling and maintenance of mobile equipment shall not be performed
8 directly over the waters of the River. Only approved and certified fuel cans
9 with “no-spill” spring-loaded nozzles shall be used; and
- 10 e) All spill cleanup materials or other liquid or solid wastes shall be securely
11 containerized and labeled in the field during transport by barge to the
12 contractor’s yard.

13 **MM BIO-9: Protection of Migratory Birds.** To ensure special-status and other
14 migratory birds are not harmed during construction, the following measures shall
15 be followed:

- 16 a) If construction activities are scheduled to occur outside of the breeding
17 season (i.e., September 1 through January 31), no preconstruction
18 surveys or other mitigation measures are necessary.
- 19 b) If construction activities are scheduled to occur during the breeding
20 season (i.e., February 1 through August 31), a preconstruction nesting
21 bird survey shall be conducted of the wharf structures, the identified work
22 area and a buffer zone (see below). The survey should be performed by a
23 qualified biologist no more than two weeks prior to the initiation of work. If
24 no active nest is observed, work may proceed without restrictions. An
25 active nest is one that contains eggs, chicks, or young birds that have not
26 fledged from the nest.
- 27 c) For any active nests found near the construction limits (76 meters [250
28 feet] for raptors and 33 meters [100 feet] for passerines), the Project
29 biologist shall map their location and make a determination as to whether
30 or not construction activities are likely to disrupt the nest or cause nest
31 failure. If it is determined that construction is unlikely to disrupt incubation,
32 rearing, or fledging, construction may proceed. If it is determined that
33 construction may disrupt these behaviors, the no-construction buffer zone
34 shall be implemented. In general, the buffer zone shall be a minimum of
35 300 feet from the drip line of the nest tree or nest for raptors and 50 feet
36 for passerines. The ultimate size of the no-construction buffer zone may
37 be adjusted by the Project biologist based on the species involved,
38 topography, lines of sight between the work area and the nest, physical
39 barriers, and the ambient level of human activity. The buffer zone may be
40 reduced after consultation and with concurrence from the California

1 Department of Fish and Wildlife and/or the U.S. Fish and Wildlife Service
2 Division of Migratory Bird Management. If it is determined that
3 construction activities are likely to disrupt an active nest, construction
4 activities within the no-construction buffer zone shall not proceed until the
5 Project biologist determines that the young have left the nest and are
6 foraging independently or the nest is no longer active.

7 d) If maintenance of a no-construction buffer zone is not practicable, active
8 nests should be monitored by a qualified biologist to document breeding
9 and rearing behavior of the adult birds. If it is determined that construction
10 activities might cause nest abandonment, work shall cease until the young
11 have left the nest and are foraging independently or the nest is no longer
12 active.

13 **MM BIO-10: Protection of Marine Mammals.** To ensure potential impacts to
14 harbor seals and California sea lions are minimized, the Project Biologist shall
15 monitor for the presence of marine mammals during impact pile driving activities.
16 The following acoustic “exclusion zone” shall be enforced around a pile being
17 driven with an impact hammer:

- 18 • 510 meters for 72-inch piles
- 19 • 200 meters for 48 and 42-inch piles
- 20 • 150 meters for 30 and 24-inch piles

21 If a harbor seal or California sea lion is observed within the exclusion zone during
22 impact hammer driving, pile driving will stop until the individual(s) moves beyond
23 the limit of the exclusion zone on its own volition. Once the individual(s) moves
24 outside of the exclusion zone, impact pile driving may resume.

25 ***b) Have a substantial adverse effect on any riparian habitat or other sensitive***
26 ***natural community identified in local or regional plans, policies, regulations or by***
27 ***the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?***

28 **Less than Significant Impact.** No riparian habitat or sensitive natural communities
29 occur within the proposed work area. The proposed Project would require the use of
30 barges, tugboats, and other equipment and clothing that could potentially transfer
31 invasive aquatic organisms and diseases between unrelated water bodies. To ensure
32 that impacts to riparian or other sensitive natural communities, including aquatic
33 communities, are minimized, the Applicant would ensure that all barges, tugboats and
34 other equipment would originate from, ports or facilities in the San Francisco Bay
35 Estuary. Currently, the barges anticipated for use on the Project have a home port at
36 the contractor’s yard, 200 Cutting Boulevard, Richmond, CA; the tug boats anticipated
37 for use on the Project are expected to come from Pier 50 in the Port of San Francisco.

1 **c) Have a substantial adverse effect on federally protected wetlands as defined by**
2 **section 404 of the Clean Water Act (including, but not limited to, marsh, vernal**
3 **pool, coastal, etc.) through direct removal, filling, hydrological interruption, or**
4 **other means?**

5 **Less than Significant with Mitigation.** The proposed Project does not require work in
6 or directly adjacent to any wetlands. Incidental impacts to wetlands on the shoreline
7 would be reduced to a less than significant level with the implementation of **MMs BIO-2,**
8 **BIO-3, BIO-4,** and **BIO-5,** above. One wetland habitat, Hardstem Bulrush Marsh, occurs
9 nearby, but Project implementation would have no direct adverse effects on special-
10 status plant species occurring or potentially occurring there. In addition, work in the
11 channel of the San Joaquin River is regulated under the Clean Water Act, Rivers and
12 Harbors Act and the California Fish and Game Code; authorization for the proposed
13 Project must be obtained from the USACE, CDFW and CVRWQCB prior to the initiation
14 of work.

15 **d) Interfere substantially with the movement of any native resident or migratory**
16 **fish or wildlife species or with established native resident or migratory wildlife**
17 **corridors, or impede the use of native wildlife nursery sites?**

18 **Less than Significant with Mitigation.** Project implementation is not expected to
19 interfere substantially with the local or regional movement of any native resident or
20 migratory fish or wildlife species or with established native resident or migratory wildlife
21 corridors, or impede the use of native wildlife nursery sites; therefore, impacts would not
22 be considered significant. However, during construction activities, the non-migratory
23 movements of special-status fish and marine mammal species, as well as Pacific
24 salmon freshwater EFH could be temporarily affected by the movement of barges,
25 tugboats and equipment as well as by underwater sound during pile driving, water
26 turbidity, and accidental release of contaminants, as described in detail in the impact
27 analysis for item **a)**, above.

28 Impacts on the movement of any native resident or migratory fish or wildlife species
29 would be less-than significant with the implementation of **MMs BIO-1, BIO-2, BIO-3,**
30 **BIO-4, BIO-5, BIO-6, BIO-7, BIO-8,** and **BIO-9.**

31 **e) Conflict with any local policies or ordinances protecting biological resources,**
32 **such as a tree preservation policy or ordinance?**

33 **No Impact.** The Project would be consistent with the goals and policies of the City of
34 Antioch General Plan.

35 **f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural**
36 **Community Conservation Plan, or other approved local, regional, or State habitat**
37 **conservation plan?**

1 **No Impact.** The only approved habitat conservation plan in the vicinity of the proposed
2 Project is the East Contra Costa County Habitat Conservation Plan/Natural Community
3 Conservation Plan (Plan). The Project site is located on sovereign land within the limits
4 of the city of Antioch; neither the city of Antioch nor the CSLC is a participant in that
5 Plan. In addition, none of the activities associated with the proposed Project would
6 conflict with the provisions of the Plan, and therefore there would be no impact. No
7 other habitat conservation plans apply to the Project area.

8 **3.4.4 Mitigation Summary**

9 Implementation of the following mitigation measures would reduce the potential for
10 Project-related impacts to Biological Resources to less than significant.

- 11 • MM BIO-1. Timing of Work
- 12 • MM BIO-2. Restriction on Equipment Movements
- 13 • MM BIO-3. Designation of an Agency-Approved Project Biologist
- 14 • MM BIO-4. Worker Environmental Awareness Program
- 15 • MM BIO-5. Wildlife Protections
- 16 • MM BIO-6. In-Water Turbidity Protections
- 17 • MM BIO-7. Minimize Underwater Sound From Pile Driving
- 18 • MM BIO-8. Toxic Substances Protections
- 19 • MM BIO-9. Protection of Migratory Birds
- 20 • MM BIO-10. Protection of Marine Mammals

1 3.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

CULTURAL AND PALEONTOLOGICAL RESOURCES - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2 3.5.1 Environmental Setting

3 The California Historic Resources Information System (CHRIS), Northwest Information
4 Center (NWIC) at Sonoma State University maintains site records for known cultural
5 resource locations and related technical studies in Contra Costa County. CHRIS staff
6 conducted a search for information regarding cultural resource studies and
7 archaeological sites in the GP wharf area on February 28, 2011 (CHRIS 2011). The
8 CHRIS records search of the wharf site (Northwest Information Center File No. 10-
9 0805) used a 0.5-mile radius around the Project area. Sources reviewed included all
10 known and recorded archaeological and historic sites and cultural resource reports.
11 Additional resources consulted for relevant information included the Contra Costa
12 County Historic Resources Inventory in January 2011. A search of the County's
13 inventory reported that no documentation could be found to substantiate that there are
14 historic sites or structures on the property (Christine Louie, email to W. Ellen Sweet,
15 January 26, 2011). The NWIC review found two cultural resource studies that included
16 all of the Project area. These studies found that the Project area contains no recorded
17 archeological resources, and that local, state and federal inventories include no
18 recorded Buildings or structures within the proposed Project area. The State Historic
19 Preservation Officer (SHPO) Historic Properties Directory indicated two properties
20 within the area studied – Property #122956 (P-07-002457) and Property #122955 (P-
21 07-002542) – both unnamed properties on Wilbur Avenue. Both properties have a
22 status of 6Y, meaning these properties have been determined ineligible for the National
23 Register. In addition to the above named properties within the Project area, there is also
24 a segment of the Atchison, Topeka and Santa Fe Railroad in proximity to the Project
25 area (P-07-000806) (CHRIS 2011).

1 3.5.1.1 Ethnography and History

2 The local archaeological record can be divided into the pre-historic, ethnographic, and
3 historic areas, which include the Lower Archaic Period (10000-6000 Before Present
4 [BP]), the early Middle Archaic Period (7000-4500 BP), the terminal Middle
5 Archaic/Early Period (4500-2500 BP), the Upper Archaic/Middle Period (2500-1300 BP),
6 the Emergent/Late Period (1300-200 BP), and the overlapping Ethnographic and
7 Historic Periods (approximately 200-100 BP).

8 In the period shortly before the arrival of non-native explorers and missionaries, the San
9 Joaquin River Delta region was home to Miwok and Patwin peoples. Prehistoric
10 settlements tended to be located near the edge of the San Joaquin River Delta,
11 principally on naturally occurring high spots not subject to annual flooding. Additionally,
12 the Project lies within the territory that was likely occupied by the Native American group
13 known to the Spanish as the Costanoan, the contemporary descendants of which are
14 members of the Ohlone Indian Tribe. The Costanoan group occupied the coast of
15 California from San Francisco to Monterey and inland to include the coastal mountains
16 from the southern side of the Carquinez Strait to the eastern side of the Salinas River
17 south of the Chalone Creek.

18 Current knowledge of the native peoples of this area has been gained from the diaries
19 of early Spanish explorers and priests who journeyed through these areas in the late
20 18th and early 19th centuries. This included the Pedro Fages expedition in 1772, which
21 traveled through Contra Costa County in search of a land route to Point Reyes. The
22 expedition camped near the San Joaquin River in the vicinity of Antioch in March 1772.
23 In 1776, Juan Bautista de Anza and Pedro Font, a Franciscan priest, led another
24 expedition through the Antioch area, camping in the present day Antioch Bridge area in
25 the spring of 1776, before continuing on southeastwardly past present-day Oakley. With
26 the introduction of the Spanish missions, secularization, and disease, the traditional
27 lives of native people living in the Delta region were decimated by the 1840s. During the
28 1850s, American settlers spread further through the state, and the Delta region's rivers
29 and sloughs served as important transportation corridors between San Francisco and
30 the Central Valley.

31 Based on an evaluation of the environmental setting and features associated with
32 known sites, Native American resources in this part of Contra Costa County have been
33 found on lands marginal to the San Joaquin River and Delta area and inland on hillside
34 terraces and in valleys near intermittent and perennial watercourses. However, given
35 that the Project site is open water that does not include any of these features, the NWIC
36 recommended that there is a low potential of identifying unrecorded Native American
37 resources in the proposed Project area (CHRIS 2011).

1 3.5.1.2 Shipwrecks

2 The title to all abandoned shipwrecks, archeological sites and historical and cultural
 3 resources on or in the submerged tidelands of California is vested in the State and
 4 under the jurisdiction of the CSLC (Pub. Resources Code, § 6313). The CSLC-
 5 maintained shipwreck database lists shipwrecks by county and is based primarily on
 6 historical accounts of these incidents of known and potential vessels. On November 17,
 7 2014, the database was searched by the County; no known shipwrecks appear within
 8 the Project footprint or within 0.5 mile of the Project; however, the locations of many
 9 shipwrecks remain unknown.

10 **3.5.2 Regulatory Setting**

11 Federal and State laws and regulations pertaining to this issue area and relevant to the
 12 Project are identified in Table 3.5-1.

Table 3.5-1. Laws, Regulations, and Policies (Cultural Resources)

U.S.	Archaeological and Historic Preservation Act (AHPA)	The AHPA provides for the preservation of historical and archaeological data that might be irreparably lost or destroyed as a result of (1) flooding, the building of access roads, the erection of workmen’s communities, the relocation of railroads and highways, and other alterations of terrain caused by the construction of a dam by an agency of the U.S. or by any private person or corporation holding a license issued by any such agency; or (2) any alteration of the terrain caused as a result of a Federal construction project or federally licensed project, activity, or program. This Act requires Federal agencies to notify the Secretary of the Interior when they find that any federally permitted activity or program may cause irreparable loss or destruction of significant scientific, prehistoric, historical, or archaeological data. The AHPA built upon the national policy, set out in the Historic Sites Act of 1935, "...to provide for the preservation of historic American sites, buildings, objects, and antiquities of national significance...."
U.S.	Archaeological Resources Protection Act (ARPA)	<p>The ARPA states that archaeological resources on public or Indian lands are an accessible and irreplaceable part of the nation’s heritage and:</p> <ul style="list-style-type: none"> • Establishes protection for archaeological resources to prevent loss and destruction due to uncontrolled excavations and pillaging; • Encourages increased cooperation and exchange of information between government authorities, the professional archaeological community, and private individuals having collections of archaeological resources prior to the enactment of this Act; • Establishes permit procedures to permit excavation or removal of archaeological resources (and associated activities) located on public or Indian land; and • Defines excavation, removal, damage, or other alteration or defacing of archaeological resources as a “prohibited act” and provides for criminal and monetary rewards to be paid to individuals furnishing information leading to the finding of a civil violation or conviction of a criminal violator. <p>ARPA has both enforcement and permitting components. The enforcement provision provides for the imposition of both criminal and civil penalties against violators of the Act. The ARPA’s permitting component allows for recovery of certain artifacts consistent with the standards and requirements of the National</p>

U.S.	National Historic Preservation Act (NHPA) (16 USC 470 et seq.)	<p>Park Service (NPS) Federal Archeology Program.</p> <p>This applies only to Federal undertakings. Archaeological resources are protected through the NHPA, as amended, and its implementing regulation, Protection of Historic Properties (36 CFR 800), the AHPA, and the ARPA. This Act presents a general policy of supporting and encouraging the preservation of prehistoric and historic resources for present and future generations by directing Federal agencies to assume responsibility for considering the historic resources in their activities. The State implements the NHPA through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), within the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level and advises Federal agencies regarding potential effects on historic properties. The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State's jurisdictions, including commenting on Federal undertakings.</p>
	U.S.	Other
CA	CEQA (Pub. Resources Code, § 21000 et seq.)	<p>As the CEQA lead agency, the CSLC is responsible for complying with all provisions of the CEQA and State CEQA Guidelines that relate to "historical resources." A historical resource includes: (1) a resource listed in, or eligible for listing in, the California Register of Historic Resources (CRHR); (2) a resource included in a local register of historical or identified as significant in an historical resource surveys; and (3) any resource that a lead agency determines to be historically significant for the purposes of CEQA, when supported by substantial evidence in light of the whole record. The CRHR was created to identify resources deemed worthy of preservation on a State level and was modeled closely after the National Register. The criteria, which are nearly identical to those of the National Register but focus on resources of statewide significance (see State CEQA Guidelines, § 15064.5, subd. (a)(3)), are defined as any resource that meets any of the following criteria: (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; (2) Is associated with lives of persons important in our past; (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or (4) Has yielded, or may be likely to yield, information important in prehistory or history. Properties listed, or formally designated as eligible for listing, on the National Register are automatically listed on the CRHR, as are certain State Landmarks and Points of Interest. A lead agency is not precluded from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1, subdivision (j), or 5024.1 (State CEQA Guidelines, § 15064.5, subd. (a)(4)).</p>

CA	Public Resources Code section 5097.98	States protocol for notifying the most likely descendent from the deceased if human remains are determined to be Native American in origin. It also provides mandated measures for appropriate treatment and disposition of exhumed remains.
CA	Health and Safety Code § 7050.5	This code states that if human remains are exposed during construction, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code section 5097.998. The Coroner has 24 hours to notify the Native American Heritage Commission (NAHC) if the remains are determined to be of Native American descent. The NAHC will contact most likely descendants, who may recommend how to proceed.

1 Local goals, policies, and/or regulations applicable to this issue area are listed below.

2 The City of Antioch General Plan, Resource Management Element, Section 10.9
 3 includes cultural resources objectives and policies “to preserve archaeological,
 4 paleontological, and historic resources within the Antioch Planning Area” (Objective
 5 10.9.1) (City of Antioch 2003). Section 10.9.2 of the General Plan specifies detailed
 6 CEQA review and mitigation policies if sensitive cultural resources are identified (with
 7 preference of avoidance and/or preservation of resources).

8 **3.5.3 Impact Analysis**

9 ***a) Cause a substantial adverse change in the significance of a historical resource***
 10 ***pursuant to § 15064.5?***

11 **Less than Significant Impact.** As described in the Environmental Setting discussion,
 12 above, there are no known historic resources in the Project area that could potentially
 13 be affected by construction or operation of the Project. Given the site’s location, the
 14 NWIC concluded that there is a low possibility of identifying Native American and
 15 historic period archeological resources and further study is not recommended at this
 16 time (CHRIS 2011).

17 ***b) Cause a substantial adverse change in the significance of an archaeological***
 18 ***resource pursuant to § 15064.5?***

19 **Less than Significant with Mitigation.** As described in the Environmental Setting
 20 discussion, above, there are no known archaeologically significant resources located
 21 within or adjacent to the Project site. Additionally, the Project would not increase the
 22 potential for disruption of a site or increase the potential for vandalism or trespassing.
 23 Impacts would be less than significant, therefore, based on what is known; however, the
 24 possibility exists that previously unidentified cultural resources could be discovered
 25 during Project implementation, which would be potentially significant. If this occurred,
 26 the **MM CUL-1** would ensure potential impacts to cultural resources remain less than
 27 significant.

1 **MM CUL-1: Discovery of Previously Unknown Cultural Resources.** Should
2 additional cultural materials be uncovered during Project implementation, Project
3 activities shall cease within 100 feet of the find and a Cultural Resources
4 Specialist and California State Lands Commission (CSLC) staff shall be
5 contacted immediately. The location of any such finds must be kept confidential
6 and measures should be taken to ensure that the area is secured to minimize
7 site disturbance and potential vandalism. Additional measures to meet these
8 requirements, after a qualified Cultural Resources Specialist has been notified,
9 include assessment of the nature and extent of the resource, including its
10 possible eligibility for listing in the National Register of Historic Places, and
11 subsequent recordation and notification of relevant parties based upon the
12 results of the assessment. Title to all abandoned shipwrecks, archaeological
13 sites, and historic or cultural resources on or in the tide and submerged lands of
14 California is vested in the State and under the jurisdiction of the CSLC. The final
15 disposition of archaeological, historical, and paleontological resources recovered
16 on State lands under the jurisdiction of the CSLC must be approved by the
17 Commission.

18 ***c) Directly or indirectly destroy a unique paleontological resource or site or***
19 ***unique geologic feature?***

20 **Less than Significant Impact.** The only ground disturbing during Project activities
21 would occur in the upper layers of sediment within the River during the removal of the
22 deteriorated pilings and installation of new pilings; this area was previously disturbed by
23 wharf installation activities in the relatively recent past. Project construction would be in
24 soft, recent sediments in the active channel of the River, where no paleontological
25 resources or unique geologic features are likely to be encountered. Therefore, it is
26 unlikely that such resources would be destroyed by the Project and the impact would be
27 less than significant.

28 ***d) Disturb any human remains, including those interred outside of formal***
29 ***cemeteries?***

30 **Less than Significant with Mitigation.** Project activities are largely confined to work
31 within waters of the River, with no shoreline activities proposed. There are no known
32 existing cemeteries, previously recorded Native American or other human remains
33 within or directly adjacent to the Project. The Project work would also occur in areas
34 already disturbed by the existing structures, during which construction no human
35 remains were found. Therefore, the potential for the inadvertent discovery of Native
36 American or other human remains during subsurface activity associated with the Project
37 is considered extremely low. However, if previously unidentified human remains were
38 discovered during Project activities, the impact would be potentially significant.

1 Implementation of **MM CUL-2**, however, would ensure this potential impact remains less
2 than significant.

3 **MM CUL-2: Unanticipated Discovery of Human Remains.** If human remains
4 are encountered during implementation of the Project, all provisions provided in
5 California Health and Safety Code section 7050.5 and California Public
6 Resources Code section 5097.98 shall be followed. Work shall stop within 100
7 feet of the discovery and a qualified Cultural Resources Specialist must be
8 contacted immediately, who shall consult with the County Coroner. In addition,
9 California State Lands Commission (CSLC) staff shall be notified. If human
10 remains are of Native American origin, the County Coroner shall notify the Native
11 American Heritage Commission within 24 hours of this determination and a Most
12 Likely Descendent shall be identified. No work is to proceed in the discovery area
13 until consultation is complete and procedures to avoid and/or recover the
14 remains have been implemented.

15 **3.5.4 Mitigation Summary**

16 Implementation of the following MMs would reduce the potential for Project-related
17 impacts to Cultural and Paleontological Resources to less than significant.

- 18 • MM CUL-1. Discovery of Previously Unknown Cultural Resources
- 19 • MM CUL-2. Unanticipated Discovery of Human Remains

1 **3.6 GEOLOGY AND SOILS**

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

2 **3.6.1 Environmental Setting**

3 The wharf is situated at approximately sea level (with water level about 32 feet above
 4 the soil/mudline), and the surrounding uplands rise abruptly from 3 to 5 feet at the
 5 shoreline to approximately 30 to 40 feet above sea level on the surrounding, mostly flat
 6 upland properties.

7 Based on the results of the subsurface exploration performed by Treadwell and Rollo
 8 (2014), the site is underlain by river deposits to the maximum depth explored (elevation
 9 -134 feet mean lower low water). The River deposits generally consist of stiff to hard
 10 clays with varying amounts of sand and medium dense to very dense sand with varying

1 amounts of silt and clay. At the face of the wharf, the top layer consists of stiff to very
2 stiff clay and sandy clay. A bathymetric survey was not available at the time the
3 geotechnical analysis was prepared; however, based on the available information the
4 mudline is anticipated to have a fairly constant slope up to the existing shoreline, and it
5 is unlikely that a landslide of significant soil erosion would occur at the Project site.

6 **Seismic Activity**

7 The major active faults in the Project area are the Hayward, San Andreas, Calaveras,
8 Concord, and Green Valley. Since 1800, four major earthquakes have been recorded
9 on the San Andreas Fault. In 1836, an earthquake with an estimated maximum intensity
10 of VII on the Modified Mercalli scale (MMS) occurred east of Monterey Bay on the San
11 Andreas Fault. The estimated Richter magnitude (Mw) for this earthquake is about 6.25.
12 In 1838, an earthquake occurred with an estimated intensity of about VIII-IX MMS,
13 corresponding to an Mw of about 7.5. The San Francisco Earthquake of 1906, which
14 created a surface rupture along the San Andreas Fault from Shelter Cove to San Juan
15 Bautista approximately 292 miles in length, had a maximum intensity of XI MMS, a Mw
16 of about 7.9, and was felt 348 miles away in Oregon, Nevada, and Los Angeles. The
17 most recent major earthquake to affect the Bay Area was the 1989 Loma Prieta
18 Earthquake in the Santa Cruz Mountains with a Mw of 6.9, approximately 71 miles from
19 the Project site.

20 In 1868, an earthquake with an estimated maximum intensity of X (MMS) occurred on
21 the southern segment (between San Leandro and Fremont) of the Hayward Fault. The
22 estimated Mw for the earthquake is 7.0. In 1861, an earthquake of unknown magnitude
23 (probably a Mw of about 6.5) was reported on the Calaveras Fault. The most recent
24 significant earthquake on this fault was the 1984 Morgan Hill earthquake (Mw = 6.2).
25 The 2007 Working Group on California Earthquake Probabilities (WGCEP) at the U.S.
26 Geologic Survey (USGS) predicted a 63 percent chance of a magnitude 6.7 or greater
27 earthquake occurring in the San Francisco Bay Area in 30 years (WGCEP 2007).

28 The Project site would be subject to strong seismic shaking in the event of an
29 earthquake. Using current analytical techniques, the geotechnical assessment
30 concluded that the potential for liquefaction-induced ground surface movement or
31 damage is low (Langan Treadwell Rollo 2014). Though the Project is in relative close
32 proximity to active faults, a search of the Alquist-Priolo Earthquake Fault Zone Maps
33 indicates that the Project does not lie within an Alquist-Priolo Earthquake zone. No
34 known active faults cross the Project site; therefore, fault rupture is not considered a
35 potential geologic hazard that could affect the Project.

1 **3.6.2 Regulatory Setting**

2 Federal and State laws and regulations pertaining to this issue area and relevant to the
 3 Project are identified in Table 3.6-1.

Table 3.6-1. Laws, Regulations, and Policies (Geology and Soils)

CA	Alquist-Priolo Earthquake Fault Zoning Act (Pub. Resources Code, §§ 2621-2630)	This Act requires that "sufficiently active" and "well-defined" earthquake fault zones be delineated by the State Geologist and prohibits locating structures for human occupancy across the trace of an active fault.
	California Seismic Hazards Mapping Act (Pub. Resources Code, § 2690 and following as Division 2, Chapter 7.8)	This Act and the Seismic Hazards Mapping Regulations (Cal. Code Regs., tit. 14, Div. 2, Ch. 8, Art. 10) are designed to protect the public from the effects of strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes. The Act requires that site-specific geotechnical investigations be conducted identifying the hazard and formulating mitigation measures prior to permitting most developments designed for human occupancy. Special Publication 117, <i>Guidelines for Evaluating and Mitigating Seismic Hazards in California</i> (California Geological Survey 2008), constitutes guidelines for evaluating seismic hazards other than surface fault rupture and for recommending mitigation measures as required by section 2695, subdivision (a).

4 The Project site is within an area of Contra Costa County that was annexed by the city
 5 of Antioch in 2013; therefore, the pertinent local goals, policies, and/or regulations
 6 applicable to this issue area lie with the City.

7 The City of Antioch General Plan, Environmental Hazards Element, Section 11.3.1
 8 includes the geologic and seismic objective to “Minimize the potential for loss of life,
 9 physical injury, property damage, and social disruption resulting from seismic
 10 groundshaking and other geologic events.” Section 11.3.2 of the Environmental
 11 Hazards Element requires detailed geologic and soils reports for proposed development
 12 sites, and incorporation of appropriate design considerations in geologically hazardous
 13 areas.

14 **3.6.3 Impact Analysis**

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

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

21 ***(ii) Strong seismic ground shaking?***

1 **(iii) Seismic-related ground failure, including liquefaction?**

2 **(iv) Landslides?**

3 **Less than Significant Impact.** The wharf would be subject to strong seismic shaking in
4 a major earthquake on any of the regional faults. The geotechnical evaluation for the
5 Project used the available subsurface data to perform engineering analyses and to
6 develop geotechnical recommendations to guide the Project design. The design
7 recommendations address the primary geotechnical issues which are:

- 8 • potential strong ground shaking due to an earthquake on a nearby fault;
- 9 • the presence of potentially liquefiable River deposit;
- 10 • additional lateral loads due to lateral displacement of the River deposits during a
11 strong earthquake; and
- 12 • the ability to adequately embed piles into the River deposits to resist these
13 potential lateral loads.

14 For seismic design criteria, site-specific response spectra were developed for the
15 Project in accordance with Chapter 16 of the 2013 California Building Code (CBC), as
16 well as Chapter 31F of the 2013 CBC for marine oil terminals (MOTEMS). Since the
17 spectral acceleration of the spectra developed in accordance with Chapter 16 was
18 larger, it was used in the Project design basis to be conservative. As the Project has
19 been designed in accordance with current construction codes and guidelines, the
20 upgraded wharf facility would not be expected to experience major damage or failure in
21 the event of a major earthquake. The Project is not located within an Alquist-Priolo
22 Special Study zone, and is not expected to be subject to fault rupture (City of Antioch
23 2003 [p. 11-1]). The site is on gently sloping subsurface lands and therefore is not
24 subject to landsliding hazards. Therefore the Project would not expose people or
25 structures to potential substantial adverse effects, including the risk of loss, injury, or
26 death from geologic hazards.

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

28 **Less than Significant Impact.** The Project would be located in the active channel of
29 the San Joaquin River, where large-scale erosion and deposition are a constant and
30 natural feature of the hydrologic system. Removal of the old pilings and installation of
31 new ones would add slightly to the generation of sediment for short periods (hours)
32 during those activities, which would occur intermittently over the 8-week construction
33 period. Due to the small construction footprint and brief time window, these activities
34 and the associated erosion would have a minimal contribution to overall erosion and
35 deposition occurring in the River during those periods. Following construction, the
36 upgraded wharf facility would have no increased potential for erosion than under current

1 conditions. Therefore the Project would not result in substantial soil erosion or loss of
2 topsoil.

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

6 **Less than Significant Impact.** See discussion under item a), above. The Project is not
7 located within an Alquist-Priolo Special Study zone, and is not expected to be subject to
8 fault rupture (City of Antioch 2003 [p. 11-1]). The site is on gently sloping subsurface
9 lands and therefore is not subject to landsliding hazards. The River deposits in the
10 Project area generally consist of stiff to hard clays with varying amounts of sand and
11 medium dense to very dense sand with varying amounts of silt and clay. At the face of
12 the wharf, the top layer consists of stiff to very stiff clay and sandy clay. Therefore, the
13 Project is not located on an unstable geologic unit and the potential for the Project to be
14 subject to resulting hazards is less than significant.

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

17 **No Impact.** Soils underlying the wharf are completely saturated and under water at all
18 times; therefore, the wetting/drying that causes shrinking and swelling of expansive soils
19 could not occur on the Project site and no impacts due to expansive soils would occur.

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

23 **No Impact.** The Project is a wharf renovation that does not include any septic systems;
24 therefore, no waste water disposal impacts would occur.

25 **3.6.4 Mitigation Summary**

26 The Project would not result in significant impacts to Geology and Soils; therefore, no
27 mitigation is required.

1 **3.7 GREENHOUSE GAS EMISSIONS**

GREENHOUSE GAS EMISSIONS –Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2 **3.7.1 Environmental Setting**

3 Greenhouse gases (GHGs), are defined as any gas that absorbs infrared radiation in
 4 the atmosphere, include, but are not limited to, water vapor, carbon dioxide (CO₂),
 5 methane (CH₄), nitrous oxide (N₂O), and fluorocarbons. These GHGs lead to the
 6 trapping and buildup of heat in the atmosphere near the earth’s surface, commonly
 7 known as the Greenhouse Effect. The atmosphere and the oceans are reaching their
 8 capacity to absorb CO₂ and other GHGs without significantly changing the earth’s
 9 climate. Unlike criteria pollutants and TACs, which are pollutants of regional and local
 10 concern; GHGs and climate change are a local, regional, and global issue.

11 As stated on California’s Climate Change Portal (www.climatechange.ca.gov):

12 *Climate change is expected to have significant, widespread impacts on California's*
 13 *economy and environment. California's unique and valuable natural treasures -*
 14 *hundreds of miles of coastline, high value forestry and agriculture, snow-melt fed*
 15 *fresh water supply, vast snow and water fueled recreational opportunities, as well as*
 16 *other natural wonders - are especially at risk.*

17 In addition, the Intergovernmental Panel on Climate Change (IPCC), in the section of its
 18 Fifth Assessment Report by Working Group II, Climate Change 2014: Impacts,
 19 Adaptation, and Vulnerability (IPCC 2014) specific to North America (Chapter 26),
 20 stated in part:

21 *North American ecosystems are under increasing stress from rising temperatures,*
 22 *CO₂ concentrations, and sea-levels, and are particularly vulnerable to climate*
 23 *extremes (very high confidence). Climate stresses occur alongside other*
 24 *anthropogenic influences on ecosystems, including land-use changes, non-native*
 25 *species, and pollution, and in many cases would exacerbate these pressures (very*
 26 *high confidence). [26.4.1; 26.4.3]. Evidence since the Fourth Assessment Report*
 27 *(IPCC 2014) highlights increased ecosystem vulnerability to multiple and interacting*

1 *climate stresses in forest ecosystems, through wildfire activity, regional drought, high*
2 *temperatures, and infestations (medium confidence) [26.4.2.1; Box 26-2]; and in*
3 *coastal zones due to increasing temperatures, ocean acidification, coral reef*
4 *bleaching, increased sediment load in run-off, sea level rise, storms, and storm*
5 *surges (high confidence) [26.4.3.1].*

6 Climate change is having widespread impacts on California's economy and
7 environment, and will continue to affect communities across the state in the future.
8 Many impacts, including increased fires, floods, severe storms and heat waves are
9 occurring already (California Climate Change Center 2014). Documented effects of
10 climate change in California include increased average, maximum, and minimum
11 temperatures; decreased spring run-off to the Sacramento River; shrinking glaciers in
12 the Sierra Nevada; a rise in sea level at the Golden Gate; warmer temperatures in major
13 lakes such Lake Tahoe, Clear Lake, and Mono Lake; and changes in elevations for
14 plant and animal species (Office of Environmental Health Hazard Assessment] 2013).

15 According to the IPCC, the concentration of CO₂, the primary GHG, has increased from
16 approximately 280 ppm in pre-industrial times to well over 380 ppm. The current rate of
17 increase in CO₂ concentrations is about 1.9 ppm/year; present CO₂ concentrations are
18 higher than any time in at least the last 650,000 years. To meet the statewide GHG
19 reduction target for 2020, requiring California to reduce its total statewide GHG
20 emissions to the level they were in 1990 (Health & Saf. Code, § 38550), and the 2050
21 goal of 80 percent below 1990 levels (Executive Order S-3-05), not only must projects
22 contribute to slowing the increase in GHG emissions, but, ultimately, projects should
23 contribute to reducing the State's output of GHGs. To reach California's GHG reduction
24 targets, it is estimated that per capita emissions would need to be reduced by slightly
25 less than 5 percent per year during the 2020 to 2030 period, with continued reductions
26 required through midcentury.

27 In its 2008 "Report on Climate Change: Evaluating and Addressing Greenhouse Gas
28 Emissions from Projects Subject to the California Environmental Quality Act," the
29 California Air Pollution Control Officers Association (CAPCOA 2008) stated:

30 *[w]hile it may be true that many GHG sources are individually too small to make any*
31 *noticeable difference to climate change, it is also true that the countless small*
32 *sources around the globe combine to produce a very substantial portion of total*
33 *GHG emissions.*

34 The quantification of GHG emissions associated with a project can be complex and
35 relies on a number of assumptions. GHG emissions are generally classified as direct
36 and indirect. Direct emissions are associated with the production of GHG emissions
37 from the immediate Project area. These include the combustion of natural gas as well
38 as the combustion of fuel in engines and construction vehicles used on the site. In

1 addition, direct emissions include fugitive emissions from valves and connections of
 2 equipment used during implementation or throughout the project life. Indirect emissions
 3 include the emissions from vehicles (both gasoline and diesel) delivering materials and
 4 equipment to the site (e.g., haul trucks).

5 CO₂ is the most common reference gas for climate change. To account for the warming
 6 potential of GHG, their emissions are often quantified and reported as CO₂ equivalents
 7 (CO₂e). With the warming potential of CO₂ set at a reference value of 1, CH₄ has a
 8 warming potential of 21 (i.e., one ton of methane has the same warming potential as 21
 9 tons of CO₂ [USEPA 2013a,b]), while N₂O has a warming potential of 310. There is
 10 widespread international scientific consensus that human-caused increases in GHG
 11 have and will continue to contribute to climate change, although there is uncertainty
 12 concerning the magnitude and rate of the warming.

13 The San Francisco Bay Area as a whole emitted an estimated 95.8 million metric tons
 14 (MT) of CO₂e in 2007 (BAAQMD 2010b), and the estimated emissions in
 15 unincorporated County were 1,667,070 MT of CO₂e in 2005 (Contra Costa County
 16 2012).

17 **3.7.2 Regulatory Setting**

18 Federal and State laws and regulations pertaining to this issue area and relevant to the
 19 Project are identified in Table 3.7-1.

Table 3.7-1. Laws, Regulations, and Policies (GHGs)

U.S.	Federal Clean Air Act (FCAA) (42 USC 7401 et seq.)	In 2007, the U.S. Supreme Court ruled that carbon dioxide (CO ₂) is an air pollutant as defined under the FCAA, and that the USEPA has authority to regulate GHG emissions.
CA	California Global Warming Solutions Act of 2006 (AB 32)	Under AB 32, CARB is responsible for monitoring and reducing GHG emissions in the State and for establishing a statewide GHG emissions cap for 2020 that is based on 1990 emissions levels. CARB (2009) has adopted the AB 32 Climate Change Scoping Plan (Scoping Plan), which contains the main strategies for California to implement to reduce CO ₂ equivalent (CO ₂ e) emissions by 169 million metric tons (MMT) from the State's projected 2020 emissions level of 596 MMT CO ₂ e under a business-as-usual scenario. The Scoping Plan breaks down the amount of GHG emissions reductions the CARB recommends for each emissions sector of the State's GHG inventory, but does not directly discuss GHG emissions generated by construction activities.
CA	Senate Bills (SB) 97 and 375	<ul style="list-style-type: none"> Pursuant to SB 97, the State Office of Planning and Research prepared and the Natural Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. Effective as of March 2010, the revisions to the CEQA Environmental Checklist Form (Appendix G) and the Energy Conservation Appendix (Appendix F) provide a framework to address global climate change impacts in the CEQA process; State CEQA Guidelines section 15064.4 was also added to provide an approach to assessing impacts from GHGs.

		<ul style="list-style-type: none"> • SB 375 (effective January 1, 2009) requires CARB to develop regional reduction targets for GHG emissions, and prompted the creation of regional land use and transportation plans to reduce emissions from passenger vehicle use throughout the State. The targets apply to the regions covered by California's 18 metropolitan planning organizations (MPOs). The 18 MPOs must develop regional land use and transportation plans and demonstrate an ability to attain the proposed reduction targets by 2020 and 2035.
CA	Executive Orders	Executive Order B-30-15 (Governor Brown, April 2015) established a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It additionally directed all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve GHG emissions reductions to meet the 2030 and 2050 targets.
		Executive Order S-01-07 (Governor Schwarzenegger, January 2007) established a low carbon fuel standard for California, and directs the carbon intensity of California's transportations fuels to be reduced by at least 10 percent by 2020.
		Executive Order S-3-05 (Governor Schwarzenegger, June 2005) directed the state to reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 level by 2050.

1 The Project site is within an area of Contra Costa County that was annexed by the city
 2 of Antioch in 2013; however, because the City does not have specific policies for GHG,
 3 Contra Costa County information is provided here.

4 In December 2012, Contra Costa County released a Draft Climate Action Plan for the
 5 unincorporated parts of the County for public review and comment. This Draft Climate
 6 Action Plan identifies specific measures on how the County can achieve a GHG
 7 reduction target of 15 percent below baseline levels by the year 2020. In addition to
 8 reducing GHG, the Draft Climate Action Plan includes proposed policies and actions to
 9 improve public health and provide additional community benefits, and it lays the
 10 groundwork for achieving long-term greenhouse reduction goals for 2020 and 2035
 11 (Contra Costa County 2012).

12 **3.7.3 Impact Analysis**

13 With the exception of very large projects, GHG from individual projects are typically less
 14 than significant at the project scale; however, GHG emissions cumulatively have a
 15 substantial environmental impact. The revisions to the State CEQA Guidelines adopted
 16 December 30, 2009 (§ 15064, subd. (h)(3)) provide the basis for assessing cumulative
 17 impacts of GHG emissions. Section 15064 indicates that a

18 *...lead agency may determine that a project's incremental contribution to a*
 19 *cumulative effect is not cumulatively considerable if the project will comply with the*
 20 *requirements in a previously approved plan or mitigation program (including, but not*

1 *limited to, water quality control plan, air quality attainment or maintenance plan,*
2 *integrated waste management plan, habitat conservation plan, natural community*
3 *conservation plan, plans or regulations for the reduction of greenhouse gas*
4 *emissions) that provides specific requirements that will avoid or substantially lessen*
5 *the cumulative problem within the geographic area in which the project is located.*

6 The guidance also encourages lead agencies to quantify GHG emissions where
7 possible.

8 **a) Generate greenhouse gas emissions, either directly or indirectly, that may have**
9 **a significant impact on the environment?**

10 **b) Conflict with an applicable plan, policy or regulation adopted for the purpose**
11 **of reducing the emissions of greenhouse gases?**

12 **Less than Significant Impact.** The CARB AB 32 Climate Change Scoping Plan (2008)
13 establishes GHG reduction strategies and goals for California’s future. The plan
14 primarily aims to deal with large contributors to California’s GHG emissions such as
15 power generation and transportation. This is in large part due to the global nature of
16 climate change where significant contributors are on a much larger scale than the
17 Project. Although the BAAQMD has adopted 1,100 MT/year as a GHG operational
18 emissions significance criterion for development projects, there is no similar adopted
19 threshold for project construction emissions. Construction of the Project would generate
20 about 145.6 MT of GHGs during its 3-month construction period, as indicated in
21 Appendix A. After Project construction is completed, there would be no sources of
22 operational or ongoing GHG emissions that would undermine or conflict with the
23 established GHG reduction targets. Because construction emissions would be short-
24 term and would cease upon completion, GHGs from construction activities would not
25 substantially contribute to the global GHG emissions burden. Additionally, construction
26 of this Project would not conflict with any County or State policy to reduce GHG
27 emissions, including Executive Orders S-3-05, S-01-07, and B-30-15. Therefore, GHG
28 emissions from the Project would not have a significant impact on the environment or
29 conflict with applicable plans, policies, or regulations.

30 **3.7.4 Mitigation Summary**

31 The Project would not result in significant impacts to GHG Emissions; therefore, no
32 mitigation is required.

1 3.8 HAZARDS AND HAZARDOUS MATERIALS

HAZARDS AND HAZARDOUS MATERIALS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2 3.8.1 Environmental Setting

3 The Project site is located approximately 90 feet from the southern shore of the San
 4 Joaquin River and about 2 miles downstream from the Antioch Bridge. The wharf has
 5 been in active use for 50 years for offloading raw gypsum material for a wallboard
 6 manufacturing plant. As gypsum is unloaded from an arriving ship, it is transported via
 7 covered conveyors to the large storage barn at the eastern end of the Plant site until
 8 removed for processing. The covers on the conveyors and dust control features on the

1 hopper limit the risk of spill of gypsum materials or generation of hazardous levels of
 2 dust. The wharf site is at approximately sea level (with water level about 32 feet above
 3 the soil/mudline), with surrounding uplands rising quickly from 3 to 5 feet at the
 4 shoreline to about 30 to 40 feet above sea level on the surrounding, mostly flat upland
 5 properties.

6 The land uses in the area of the Plant are predominantly heavy industrial, with the
 7 exception of the wildlife preserves adjacent to the Plant, with surrounding commercial
 8 facilities and a bus storage and maintenance garage nearby. Land use within 0.25 to
 9 0.5 mile of the Project site consists of mixed-use commercial facilities and some older
 10 residential developments south of Wilbur Avenue running along the south border of the
 11 Plant. The Plant has an adopted emergency response and evacuation plan that
 12 includes the wharf area.

13 Sediment sampling at the wharf aimed at providing data necessary to generate a
 14 preliminary assessment of substrate composition and the level of potential sediment
 15 contamination in the Project area was conducted in 2009 (Weston 2011). A single
 16 composite sediment sample (GP-COMP) was prepared using a number of surface
 17 sediment samples along the dockline (<2 feet below mudline) and analyzed for physical
 18 properties, concentrations of pollutants of environmental concern, and leaching
 19 potential. Results of this preliminary investigation showed that contaminants were not
 20 present in surface sediments at concentrations of concern. The site is not on or
 21 adjacent to any property listed under the state Cortese List compiled according to
 22 Government Code section 65962.5.²¹ Two remediation sites are listed as located in
 23 upland areas on the northeast corner of the GP property; however, the Project would
 24 have no effect on these sites or their cleanup.²²

25 **3.8.2 Regulatory Setting**

26 Federal and State laws and regulations pertaining to this issue area and relevant to the
 27 Project are identified in Table 3.8-1.

Table 3.8-1. Laws, Regulations, and Policies (Hazards and Hazardous Materials)

U.S.	Clean Water Act (CWA) (33 USC 1251 et seq.)	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. (see <i>below and in Section 3.9, Hydrology and Water Quality</i>).
U.S.	California Toxics Rule (40 CFR 131)	In 2000, the USEPA promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards provisions to be applied to waters in the State of California. USEPA promulgated this rule based on the

²¹ envirostor.dtsc.ca.gov/public; geotracker.waterboards.ca.gov/map/?global_id=L10001309503#

²² *ibid*

		Administrator's determination that the numeric criteria are necessary in the State of California to protect human health and the environment. Under CWA section 303(c)(2)(B), the USEPA requires states to adopt numeric water quality criteria for priority toxic pollutants for which the USEPA has issued criteria guidance, and the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses. These Federal criteria are legally applicable in California for inland surface waters, enclosed bays, and estuaries.
U.S.	Hazardous Materials Transportation Act (HMTA) (49 USC 5901)	The HMTA delegates authority to the U.S. Department of Transportation (DOT) to develop and implement regulations pertaining to the transport of hazardous materials and hazardous wastes by all modes of transportation. Additionally, the USEPA's Hazardous Waste Manifest System is a set of forms, reports, and procedures for tracking hazardous waste from a generator's site to the disposal site. Applicable Federal regulations are contained primarily in CFR Titles 40 and 49.
U.S.	National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR 300)	Authorized under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 USC 9605, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99 through 499; and by CWA section 311(d), as amended by the Oil Pollution Act of 1990 (OPA), Pub. L. 101 through 380. The NCP outlines requirements for responding to both oil spills and releases of hazardous substances. It specifies compliance, but does not require the preparation of a written plan. It also provides a comprehensive system for reporting, spill containment, and cleanup. The U.S. Coast Guard (USCG) and USEPA co-chair the National Response Team. In accordance with 40 CFR 300.175, the USCG has responsibility for oversight of regional response for oil spills in "coastal zones," as described in 40 CFR 300.120.
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.	Resource Conservation and Recovery Act (RCRA) (42 USC 6901 et seq.)	The RCRA authorizes the USEPA to control hazardous waste from "cradle-to-grave," which encompasses its generation, transportation, treatment, storage, and disposal. RCRA's Federal Hazardous and Solid Waste Amendments from 1984 include waste minimization and phasing out land disposal of hazardous waste as well as corrective action for releases. The Department of Toxic Substances Control is the lead State agency for corrective action associated with RCRA facility investigations and remediation.
U.S.	Toxic Substances Control Act (TSCA) (15 USC 2601–2692)	The TSCA authorizes the USEPA to require reporting, record-keeping, testing requirements, and restrictions related to chemical substances and/or mixtures. It also addresses production, importation, use, and disposal of specific chemicals, such as polychlorinated biphenyls (PCBs), asbestos-containing materials, lead-based paint, and petroleum.
U.S.	Other	<ul style="list-style-type: none"> • Act of 1980 to Prevent Pollution from Ships requires ships in U.S. waters, and U.S. ships wherever located, to comply with International Convention for the Prevention of Pollution from Ships (MARPOL). • Convention on the International Regulations for Preventing Collisions at Sea (COLREGS). These regulations establish "rules of the road" such as rights-of-way, safe speed, actions to avoid collision, and procedures to observe in narrow channels and restricted visibility. • Inspection and Regulation of Vessels (46 USC Subtitle II Part B). Federal

		<p>regulations for marine vessel shipping are codified in 46 CFR parts 1 through 599 and are implemented by the USCG, Maritime Administration, and Federal Maritime Commission. These regulations provide that all vessels operating offshore, including those under foreign registration, are subject to requirements applicable to vessel construction, condition, and operation. All vessels (including motorboats) operating in commercial service (e.g., passengers for hire, transport of cargoes, hazardous materials, and bulk solids) on specified routes (inland, near coastal, and oceans) are subject to requirements applicable to vessel construction, condition, and operation. These regulations also allow for inspections to verify that vessels comply with applicable international conventions and U.S. laws and regulations.</p> <ul style="list-style-type: none"> • Navigation and Navigable Waters regulations (33 CFR) include requirements pertaining to prevention and control of releases of materials (including oil spills) from vessels, traffic control, and restricted areas, and general ports and waterways safety.
CA	Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (Gov. Code, § 8574.1 et seq.; Pub. Resources Code, § 8750 et seq.)	<p>This Act and its implementing regulations seek to protect State waters from oil pollution and to plan for the effective and immediate response, removal, abatement, and cleanup in the event of an oil spill. The Act requires vessel and marine facilities to have marine oil spill contingency plans and to demonstrate financial responsibility, and requires immediate cleanup of spills, following the approved contingency plans, and fully mitigating impacts on wildlife. The Act assigns primary authority to the Office of Spill Prevention and Response (OSPR) division within the CDFW to direct prevention, removal, abatement, response, containment, and cleanup efforts with regard to all aspects of any oil spill in the marine waters of the State. The CSLC assists OSPR with spill investigations and response.</p>
CA	Other	<ul style="list-style-type: none"> • California Clean Coast Act (SB 771) establishes limitations for shipboard incinerators, and the discharge of hazardous material—including oily bilgewater, graywater, and sewage—into State waters or a marine sanctuary. It also provides direction for submitting information on visiting vessels to the CSLC and reporting of discharges to the State water quality agencies. • California Harbors and Navigation Code specifies a State policy to “promote safety for persons and property in and connected with the use and equipment of vessels,” and includes laws concerning marine navigation that are implemented by local city and county governments. This Code also regulates discharges from vessels within territorial waters of the State of California to prevent adverse impacts on the marine environment. This Code regulates oil discharges and imposes civil penalties and liability for cleanup costs when oil is intentionally or negligently discharged to the State waters. • California Seismic Hazards Mapping Act (Pub. Resources Code, § 2690) and Seismic Hazards Mapping Regulations (Cal. Code Regs., tit. 14, Div. 2, Ch. 8, Art. 10) (See Section 3.6, <i>Geology and Soils</i>). • Hazardous Waste Control Act (Cal. Code Regs., tit. 26) defines requirements for proper management of hazardous materials. • Porter-Cologne Water Quality Control Act (Cal. Water Code, § 13000 et seq.) (See Section 3.9, <i>Hydrology and Water Quality</i>).

- 1 Local goals, policies, and/or regulations applicable to this issue area are listed below.
- 2 The Project site is within an area of Contra Costa County that was annexed by the city
- 3 of Antioch in 2013; however, Contra Costa County information is provided in the
- 4 absence of specific City policies for this issue area.

1 The following goals and policies regarding hazardous materials uses from the Contra
2 Costa County General Plan 2005-2020 (Contra Costa County 2005) were considered in
3 this analysis.

4 Chapter 7: Public Facilities/Services Element - Section 7.12, Hazardous Waste
5 Management

- 6 • Goal 7-AM: To eliminate the generation and disposal of hazardous waste
7 materials to the maximum extent feasible by:
 - 8 ○ Reducing the use of hazardous substances and the generation of
9 hazardous wastes at their source;
 - 10 ○ Recovering and recycling the remaining waste for reuse;
 - 11 ○ Treating those waste not amenable to source reduction or recycling so that
12 the environment and community health are not threatened by their ultimate
13 disposal;
 - 14 ○ Incinerating those wastes amenable to this technology; and
 - 15 ○ Properly disposing of treated residuals in approved residual repositories.

16 Chapter 10: Safety Element

- 17 • Goal 10-I: To provide public protection from hazards associated with use,
18 transport, treatment, and disposal of hazardous substances.
 - 19 ○ Policy 10-61: Hazardous waste releases from both private companies and
20 from public agencies shall be identified and eliminated.
 - 21 ○ Policy 10-62: Storage of hazardous materials and wastes shall be strictly
22 regulated.
 - 23 ○ Policy 10-63: Secondary containment and periodic examination shall be
24 required for all storage of toxic materials.
 - 25 ○ Policy 10-68: When an emergency occurs in the transportation of hazardous
26 materials, the County Office of Emergency Services shall be notified as
27 soon as possible.

28 **3.8.3 Impact Analysis**

29 ***a) Create a significant hazard to the public or the environment through the routine***
30 ***transport, use, or disposal of hazardous materials?***

31 **Less than Significant with Mitigation.** Following Project construction, the wharf facility
32 would operate in the same manner as under current conditions and there would be no
33 increase in the hazards to the public or environment. The only potential for such
34 hazards would be during Project construction. The Project includes the routine
35 transport, use, and disposal of hazardous materials that could create a significant
36 hazard to the public or environment absent measures to avoid or reduce this potential

1 impact. Specifically, Project-related removal, installation, and repair activities could
2 generate debris from pilings and associated construction materials, some of which may
3 be hazardous. Additionally, the Project would use a barge and marine construction
4 equipment, which would require the routine use of hazardous materials including fuel
5 (diesel and gasoline) and marking paint.

6 The Harbor Tugboats that would transport the material and work barges from the
7 contractor's yard to the wharf site must be certified under the 1990 California Oil Spill
8 Prevention and Response Act (OSPRA)'s San Francisco Bay Harbor Safety Plan to
9 operate in compliance with both state laws and with the U.S. Coast Guard under the
10 Code of Federal Regulations (CFR) Title 33 *Navigation and Navigable Waters*. Part 151
11 of the federal law requires compliance with International Convention for the Prevention
12 of Pollution from Ships (MARPOL): the international convention for pollution prevention
13 from ships. MARPOL includes having an Oil Pollution Emergency Plan that outlines
14 steps to control operational spills (removal and containment) and to properly dispose of
15 oil spill cleanup materials onshore.

16 The routine transport, use, or disposal of hazardous materials described above could
17 have a potentially significant impact to the public or the environment. However,
18 implementation of **MM BIO-6** and **MM BIO-8**, including turbidity monitoring, availability
19 of a floating boom, and use of drip pans to contain any leaks of hazardous materials
20 from the barge, will reduce impacts to less than significant.

21 **MM BIO-6: In-Water Turbidity Protections.** During pile removal activities,
22 turbidity monitoring shall be monitored daily during an ebb tide, at 31 meters (100
23 feet) upstream and 92 meters (300 feet) downstream of the work site. If
24 downstream turbidity measures are more than 15 Nephelometric Turbidity Units
25 (NTU) above the upstream level, activities shall cease until turbidity levels drop
26 below 15 NTUs above the upstream measurement. All incidents of exceedance
27 of the turbidity standard shall be reported to the California Department of Fish
28 and Wildlife (CDFW) within 24 hours. A turbidity-monitoring log shall be
29 maintained and provided to the CDFW and the State Lands Commission staffs
30 within 5 days from the completion of work.

31 **MM BIO-8: Toxic Substances Protections.** To ensure toxic substances are not
32 released into the aquatic environment, the following measures shall be followed:

- 33 a) all engine-powered equipment shall be well-maintained and free of leaks of
34 fuel, oil, hydraulic fluid or any other potential contaminant;
- 35 b) all engine-powered equipment used and operated from the decks of barges,
36 boats or the wharf shall be positioned over drip-pans;
- 37 c) a spill prevention and response plan shall be prepared in advance of the
38 commencement of work; a spill kit with appropriate clean-up supplies shall

- 1 be kept on hand during operations. The kit shall include a floating oil-
2 absorbent sock that could be immediately deployed and maintained around
3 the work barges in the event of a spill or any accidental leakage of fuel or
4 hydraulic fluids;
- 5 d) refueling and maintenance of mobile equipment shall not be performed
6 directly over the waters of the River. Only approved and certified fuel cans
7 with “no-spill” spring-loaded nozzles shall be used; and
- 8 e) All spill cleanup materials or other liquid or solid wastes shall be securely
9 containerized and labeled in the field during transport by barge to the
10 contractor’s yard.

11 ***b) Create a significant hazard to the public or the environment through***
12 ***reasonably foreseeable upset and accident conditions involving the release of***
13 ***hazardous materials into the environment?***

14 **Less than Significant with Mitigation.** The work barges and transporting tugboats
15 associated with the Project are expected to be traveling on familiar routes, according to
16 an approved travel plan, and carrying less than 200 gallons of fuel and lubricants. They
17 would be operating under the San Francisco Bay Harbor Safety Plan for marine vessel
18 traffic as well as USCG requirements.

19 The largest Project waste stream expected to be generated would be composed of
20 treated-wood piles and fragments resulting from demolition activities. The treated wood
21 waste would be collected and contained on an attendant material barge and transported
22 back to the contractor’s yard, from where it would be transported to the Potrero Hills
23 Landfill in Suisun City, CA. The contractor would be subject to requirements of the
24 County Hazardous Materials Storage Ordinance. Aside from wood waste, all other liquid
25 and solid waste (e.g., excess grout, metals, motor oils and filters, solvents, antifreeze,
26 and batteries) would be collected in covered and secured containers on the material
27 barges and transported to the contractor’s yard for subsequent disposal or recycling.
28 Any wastes that can be recycled would be processed according to Contra Costa County
29 rules and recordkeeping requirements. These measures would be included in project
30 standard operating procedures and would provide protection and preservation of the
31 existing land and water uses in the area.

32 Any liquid, solid or gaseous wastes connected with the Project would be managed by
33 the construction contractor under the oversight of GP Antioch, as specified in the GP
34 Antioch Wharf Project Waste Management Plan. The Project would also have a spill
35 prevention response plan. Wastes would be captured and contained at the time and
36 location at which they are generated. Debris barriers would be routinely used
37 surrounding work areas to capture and contain any unintentional migration of solid
38 material into the River.

1 Because work is proposed on and near the water, an upset or accidental release of
2 these hazardous materials has the potential to adversely affect surface water and
3 nearby ecological receptors. However, implementation of **MM BIO-8**, above, will reduce
4 impacts to less than significant.

5 ***c) Emit hazardous emissions or handle hazardous or acutely hazardous***
6 ***materials, substances, or waste within one-quarter mile of an existing or***
7 ***proposed school?***

8 **No Impact.** The nearest schools to the Project site are Cornerstone Christian School,
9 4,000 feet southeast of the site, and Kimball Elementary School, 4,800 feet to the
10 southwest. Therefore there is no potential for impact on schools located within 0.25 mile
11 of the site.

12 ***d) Be located on a site which is included on a list of hazardous materials sites***
13 ***compiled pursuant to Government Code section 65962.5 and, as a result, would it***
14 ***create a significant hazard to the public or the environment?***

15 **No Impact.** The Project site properties are not listed under the state Cortese List
16 compiled according to Government Code section 65962.5, therefore construction at the
17 wharf site would not create a significant hazard to the public or to the environment
18 (State Water Resources Control Board [SWRCB] 2014, Department of Toxic
19 Substances Control [DTSC] 2014).

20 ***e) For a project located within an airport land use plan or, where such a plan has***
21 ***not been adopted, within 2 miles of a public airport or public use airport, would***
22 ***the project result in a safety hazard for people residing or working in the project***
23 ***area?***

24 **No Impact.** The Project is not located within an airport land use plan, or within 2 miles
25 of a public airport or public use airport. The closest public use airport is Buchanan Field
26 in Concord, approximately 14.5 miles from the Project site. The Project would therefore
27 not result in an airport-related safety hazard for people residing or working in the Project
28 area.

29 ***f) For a project within the vicinity of a private airstrip, result in a safety hazard for***
30 ***people residing or working in the project area?***

31 **No Impact.** There is no known private airstrip in the Project vicinity. Therefore, the
32 Project would not result in an airstrip-related safety hazard for people residing or
33 working in the Project area.

34 ***g) Impair implementation of or physically interfere with an adopted emergency***
35 ***response plan or emergency evacuation plan?***

1 **Less than Significant Impact.** The Plant has an adopted emergency response and
2 evacuation plan that includes the Project area. As part of the Project, the plan would be
3 amended to incorporate the construction activities and workers present during the 8-
4 week construction period. Therefore, the Project would have a less than significant
5 impact on implementation and would not physically interfere with the adopted
6 emergency response plan or emergency evacuation plan of which it would be a part.

7 ***h) Expose people or structures to a significant risk of loss, injury or death***
8 ***involving wildland fires, including where wildlands are adjacent to urbanized***
9 ***areas or where residences are intermixed with wildlands?***

10 **No Impact.** The wharf construction would be conducted entirely on areas permanently
11 under water. There are no wildlands within the Project site. Therefore there would be no
12 impact from the Project that could expose people or structures to a significant risk of
13 loss, injury or death involving wildland fires.

14 **3.8.4 Mitigation Summary**

15 Implementation of the following measure will reduce Project-related impacts associated
16 with Hazards and Hazardous Materials to less than significant.

- 17 • MM BIO-6. In-Water Turbidity Protections.
- 18 • MM BIO-8. Toxic Substances Protections.

1 **3.9 HYDROLOGY AND WATER QUALITY**

HYDROLOGY AND WATER QUALITY – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2 **3.9.1 Environmental Setting**

3 The Project site is located in the San Joaquin River, which flows northward through the
 4 San Joaquin Valley to the Sacramento-San Joaquin Delta and westward before
 5 discharging into the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

1 (Estuary), which begins a few miles west of the Project site. The Estuary, which
 2 includes San Francisco and San Pablo Bays, is used extensively for both recreational
 3 and commercial purposes and supports a diverse community of plants and animals.

4 Water from about 40 percent of the land in California drains into the San Francisco Bay
 5 and is the source for most of California’s agricultural and urban water supplies (Contra
 6 Costa County 2005). All of Contra Costa County’s water drains either directly or
 7 indirectly into the Bay-Delta system. Water from the western, urbanized portion of the
 8 County drains directly into San Francisco Bay or San Pablo Bay, while that from the
 9 northern and eastern portions drain into Suisun Bay and the delta river channels,
 10 eventually flowing into San Pablo and San Francisco Bays. Annual precipitation in the
 11 Project area averages about 15 inches.

12 The wharf facility extends into the River near its confluence with the Estuary, and is
 13 subject to tidal currents and wave wash from the Estuary, as well as flows down the
 14 River.

15 Water quality and salinity in the Project area vary depending on flows and tides. Existing
 16 wharf facilities and use have a minimal effect on water currents and quality.

17 There is water supplied to the wharf for general cleaning (garden hose), which is fed
 18 from the GP Plant’s water tower. Additionally there is a fire protection system that
 19 consists of sprinkler heads and an emergency fire-protection water pump that can draw
 20 water off of the River in the event of a system pressure drop.

21 **3.9.2 Regulatory Setting**

22 Federal and State laws and regulations pertaining to this issue area and relevant to the
 23 Project are identified in Table 3.9-1.

Table 3.9-1. Laws, Regulations, and Policies (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"> • <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. • <u>National Pollution Discharge Elimination System (NPDES)</u>. Section 402 (33 USC 1342) establishes conditions and permitting for discharges of pollutants
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		<p>under the NPDES.</p> <ul style="list-style-type: none"> • <u>Ocean Discharges</u>. Section 403 (33 USC 1343) addresses criteria and permits for discharges into the territorial seas, the contiguous zone, and the oceans. • <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.
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"> • <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. • 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.

CA	Sections 1601 to 1603 of the Fish and Game Code	Under Sections 1601 to 1603 of the Fish and Game Code, the California Department of Fish and Wildlife (CDFW) must be notified prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. The term “stream” can include perennial, intermittent, and ephemeral streams; rivers; creeks; dry washes; sloughs; and watercourses with subsurface flows. The CDFW has issued a Draft Streambed Alteration Agreement for the GP Antioch wharf project, which would become final after the CEQA MND has been approved.
CA	Other	<ul style="list-style-type: none"> • 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. • 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.

1 The Project site is within an area of Contra Costa County that was annexed by the city
 2 of Antioch in 2013; therefore, the pertinent local goals, policies, and/or regulations
 3 applicable to this issue area lie with the City.

4 The following goals and policies relevant to hydrology and water quality are included in
 5 the City of Antioch’s General Plan (2003):

- 6 • Require public and private development projects to be in compliance with
 7 applicable National Pollution Discharge Elimination System (NPDES) permit
 8 requirements, and require the implementation of best management practices to
 9 minimize erosion and sedimentation resulting from new development (Policy
 10 10.7.2(g)).
- 11 • Prohibit all development within the 100-year floodplain, unless mitigation
 12 measures consistent with the National Flood Insurance Program are provided
 13 (Policy 11.4.2(a)).
- 14 • Minimize the encroachment of development adjacent to the floodway in order to
 15 convey flows without property damage and risk to public safety. Require such
 16 development to be capable of withstanding flooding and to minimize use of fill
 17 (Policy 10.7.2(b)).

18 **3.9.3 Impact Analysis**

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

20 **Less than Significant With Mitigation.** During certain portions of the Project (removal
 21 of existing timber dolphin piles) re-suspension of some subsurface sediments is

1 anticipated. There would be an increase in turbidity due to resuspension of fine silt and
2 sand in the upstream and downstream areas of the wharf where 150 14-inch-diameter
3 wooden piles would be pulled out of the mud (this activity is planned for 2 work days in
4 August, one work day in September, and 2 work days in October). In addition, as
5 discussed in Section 3.8, Hazards and Hazardous Materials, no unusual
6 constituents/contamination were encountered at the Project site during sediment
7 sampling. During pile removal activities, turbidity monitoring would be conducted,
8 measurement records maintained, and increased turbidity impacts controlled according
9 to requirements of CVRWQCB's Section 401 Water Quality Certification and the CDFW
10 Streambed Alteration Agreement. There is minimal potential of lasting turbidity impacts
11 due to high background turbidity and the briskly moving current (1.5 to 2 nautical miles
12 per hour [knots]); however, because the Project could result in localized turbidity
13 increases affecting water quality, **MM BIO-6** and **MM BIO-8** would be implemented to
14 ensure impacts remain less than significant.

15 **MM BIO-6: In-Water Turbidity Protections.** During pile removal activities,
16 turbidity monitoring shall be monitored daily during an ebb tide, at 31 meters (100
17 feet) upstream and 92 meters (300 feet) downstream of the work site. If
18 downstream turbidity measures are more than 15 Nephelometric Turbidity Units
19 (NTU) above the upstream level, activities shall cease until turbidity levels drop
20 below 15 NTUs above the upstream measurement. All incidents of exceedance
21 of the turbidity standard shall be reported to the California Department of Fish
22 and Wildlife (CDFW) within 24 hours. A turbidity-monitoring log shall be
23 maintained and provided to the CDFW and the State Lands Commission staffs
24 within 5 days from the completion of work.

25 **MM BIO-8: Toxic Substances Protections.** To ensure toxic substances are not
26 released into the aquatic environment, the following measures shall be followed:

- 27 a) all engine-powered equipment shall be well-maintained and free of leaks of
28 fuel, oil, hydraulic fluid or any other potential contaminant;
- 29 b) all engine-powered equipment used and operated from the decks of barges,
30 boats or the wharf shall be positioned over drip-pans;
- 31 c) a spill prevention and response plan shall be prepared in advance of the
32 commencement of work; a spill kit with appropriate clean-up supplies shall
33 be kept on hand during operations. The kit shall include a floating oil-
34 absorbent sock that could be immediately deployed and maintained around
35 the work barges in the event of a spill or any accidental leakage of fuel or
36 hydraulic fluids;
- 37 d) refueling and maintenance or mobile equipment shall not be performed
38 directly over the waters of the River. Only approved and certified fuel cans
39 with "no-spill" spring-loaded nozzles shall be used; and

1 e) All spill cleanup materials or other liquid or solid wastes shall be securely
2 containerized and labeled in the field during transport by barge to the
3 contractor's yard.

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

9 **No Impact.** The Project would not use or otherwise affect groundwater supplies or
10 aquifers. Work would cover a very small footprint (which would be offset by removal of
11 old piles), and would be conducted in the saturated sediments of the alluvial channel
12 bottom. No groundwater withdrawal would occur. No increased use of groundwater from
13 normal facility operations would occur after Project implementation. Therefore no impact
14 would occur.

15 ***c) Substantially alter the existing drainage pattern of the site or area, including***
16 ***through the alteration of the course of a stream or river, in a manner which would***
17 ***result in substantial erosion or siltation on- or off-site?***

18 **Less than Significant with Mitigation.** The Project would not alter any drainage
19 patterns, but would slightly alter existing structures in the channel of the San Joaquin
20 River. Both during and after installation of the four new breasting dolphins along the
21 dock line at the wharf, and the three new mooring dolphins between the wharf and the
22 shoreline, the normal tidal currents of the River would flow around these structures
23 without alteration or restraint.

24 Although the Project would not alter the existing drainage pattern of the site or
25 surrounding area, the Project's removal of the old piles could result in potential erosion,
26 and increased turbidity near the shore. Implementation of **MM BIO-6**, above, will ensure
27 that Project activities do not produce substantial erosion or siltation by requiring turbidity
28 monitoring to prevent increased turbidity during pile replacement activities.
29 Implementation of **MM BIO-6** will reduce potential erosion or siltation impacts to less
30 than significant.

31 ***d) Substantially alter the existing drainage pattern of the site or area, including***
32 ***through the alteration of the course of a stream or river, or substantially increase***
33 ***the rate or amount of surface runoff in a manner which would result in flooding***
34 ***on- or off-site, or place structures within a 100-year flood hazard area which***
35 ***would impede or redirect flood flows?***

36 **No Impact.** Project activities would not alter the drainage pattern of the site, place
37 structures in the floodplain that might impede or redirect flood waters, or create new

1 impervious surfaces that might alter the rate of surface runoff. No permanent change
2 from normal, existing, wave wash conditions at the GP Antioch wharf is anticipated as a
3 result of the proposed upgrade Project. Temporary modification of normal, undisturbed
4 wave wash conditions at the wharf facility may result from construction activities,
5 including the presence of barges, but these temporary flow modifications would not
6 impede or substantively change the overall tidal flow and current of the San Joaquin
7 River at this location. No impacts are expected.

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

11 **No Impact.** The Project would occur in the San Joaquin River, and all runoff from the
12 facility would otherwise fall either on the current facility (and drain directly to the River)
13 or fall as rain directly into the River. The wharf itself is not serviced by a stormwater
14 drainage system, nor is such a system included in the Project. Therefore the Project
15 would not alter the quantity or quality of runoff to the River and there would be no
16 impact.

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

18 **Less than Significant with Mitigation.** As mentioned above, polluted water could
19 potentially run off the barge and other marine construction equipment during Project
20 activities. Implementation of **MM BIO-8**, including the availability of a hydrocarbon
21 containment boom and use of drip pans for equipment on the barge will ensure that
22 Project activities do not produce significant sources of polluted runoff during Project
23 activities. No other elements of the Project would generate contaminants that would
24 cause substantial degradation of water quality. Implementation of **MM BIO-8** will reduce
25 potential impacts to less than significant.

26 ***g) Place housing within a 100-year flood hazard area as mapped on a federal***
27 ***Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard***
28 ***delineation map?***

29 **No Impact.** The Project does not involve the construction of any housing, resulting in no
30 impact.

31 ***h) Place within a 100-year flood hazard areas structures which would impede or***
32 ***redirect flood flows?***

33 **Less than Significant Impact.** The Project would place structures (dolphins and
34 walkways) within the 100-year floodplain of the San Joaquin River, however those
35 structures would be designed to withstand anticipated river currents (Contra Costa

1 County General Plan p. 10-29 (Contra Costa County 2005). The temporary use of a
2 barge, equipment and materials in Suisun Bay and within the 100-year floodplain would
3 not impede or redirect flood flows, therefore no impacts are expected.

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

6 **Less than Significant Impact.** The Project would place structures (dolphins and
7 walkways) within the 100-year floodplain of the San Joaquin River, however those
8 structures would be designed to withstand anticipated river currents (Contra Costa
9 County General Plan p. 10-29 (Contra Costa County 2005). No changes to uses of the
10 wharf are proposed compared to existing conditions, so there would be no increased
11 risk of loss, injury, or death from flooding following Project implementation. Therefore
12 this impact would be less than significant.

13 ***j) Inundation by seiche, tsunami, or mudflow?***

14 **Less than Significant Impact.** The Project would place structures (dolphins and
15 walkways) within areas of the San Joaquin River that could flood in the event of a major
16 dam failure upstream, however those structures would be designed to withstand
17 anticipated River currents. No significant seiche or mudflow impacts would occur
18 because the site is not in an area that would be subject to either hazard substantial
19 (seiche hazards require confined water bodies, and substantial mudflow hazards require
20 long, steep slopes). Tsunami runoff in this area would be within the 100-year flood
21 elevation (Contra Costa County General Plan, Chapter 10, Safety Element, Section
22 10.8, Flood Hazards, and Figure 10.8, 100 Year Flood Plain) (Contra Costa County
23 2005). No changes to uses of the wharf are proposed compared to existing conditions.
24 Therefore this impact would be less than significant.

25 **3.9.4 Mitigation Summary**

26 Implementation of the following mitigation measures would reduce the potential for
27 Project-related impacts to Hydrology and Water Quality to less than significant:

- 28 • MM BIO-6. In-Water Turbidity Protections.
29 • MM BIO-8. Toxic Substances Protections.

1 **3.10 LAND USE AND PLANNING**

LAND USE AND PLANNING – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2 **3.10.1 Environmental Setting**

3 The City of Antioch General Plan land use designation and zoning designation of the
 4 GP Plant site (including the wharf) are General Industrial and M-2 (Heavy Industrial),
 5 respectively (City of Antioch 2003). These designations permit the existing wharf and
 6 industrial uses.

7 Surrounding land uses include commercial facilities and a bus storage and maintenance
 8 garage directly south of the site. On the western and eastern borders of the Plant site –
 9 from the shoreline on the north side up to Wilbur Avenue on the south side - are two
 10 units of the Antioch Dunes National Wildlife Refuge. A Pacific Gas & Electric utility
 11 corridor runs along the eastern property line, between the Plant and the Refuge.

12 Land uses within 0.25 to 0.5 mile of the Project site consist of mixed-use commercial
 13 facilities and some residential development on the south side of Wilbur Avenue, to the
 14 south and southwest of the Plant. An area of single-family residences, the nearest
 15 located about 1,800 feet to the south of the industrial and commercial area, occurs
 16 along Wilbur Avenue.

17 **3.10.2 Regulatory Setting**

18 No Federal or State laws and regulations pertaining to this issue area and relevant to
 19 the Project have been identified.

20 The Project site is within an area of Contra Costa County that was annexed by the city
 21 of Antioch in 2013; therefore, the pertinent local goals, policies, and/or regulations
 22 applicable to this issue area lie with the City.

1 The Land Use Element of the City of Antioch General Plan (Chapter 4) contains the
2 following goals, policies, and measures that are relevant to and consistent with the
3 proposed Project (City of Antioch 2003):

4 *The General Plan promotes expansion of the local employment base and*
5 *achievement of a balance between local employment and housing. The Land Use*
6 *Element provides for a wide variety of office based and industrial employment,*
7 *including heavier industrial uses along the San Joaquin River, rail-served industries,*
8 *light industrial uses, commercial services, and retail businesses, and mixed use*
9 *business and office parks. Specific applicable policies include:*

- 10 • *Focus the use of employment-generating lands on high-employment-*
11 *generating uses (e.g., office environments, manufacturing and assembly)*
12 *(Policy 4.4.4.1 a)*
- 13 • *Provide an appropriate mix of employment generating uses. (Policy 4.4.4.1 b)*
- 14 • *Take advantage of existing rail facilities...by permitting the development of*
15 *rail-served industrial uses (Policy 4.4.4.1 c)*
- 16 • *Ensure appropriate separation and buffering of manufacturing and industrial*
17 *uses from residential land uses (Policy 4.4.4.1 d)*
- 18 • *All manufacturing uses shall be adequately screened to reduce glare, noise,*
19 *dust, and vibration (Policy 4.4.4.1 e)*

20 **3.10.3 Impact Analysis**

21 ***a) Physically divide an established community?***

22 **No Impact.** The Project would rehabilitate an existing industrial wharf located 90 feet
23 offshore in the San Joaquin River. Construction of the Project would not physically abut
24 to any upland residential area, nor would it divide an established community; therefore,
25 there would be no impact.

26 ***b) Conflict with any applicable land use plan, policy, or regulation of an agency*** 27 ***with jurisdiction over the Project (including, but not limited to the general plan,*** 28 ***specific plan, local coastal program, or zoning ordinance) adopted for the*** 29 ***purpose of avoiding or mitigating an environmental effect?***

30 **No Impact.** The operation of the Plant and its wharf (where incoming shipments of raw
31 material are received) is in conformance with the permitted uses of General
32 Industrial/Manufacturing and assembly (M-1) section of the city of Antioch zoning
33 ordinance as well as the General Plan's General Industrial designation and applicable
34 polices identified above. The purpose of the Project is to meet current marine terminal
35 engineering standards. Thus, this Project is not in conflict with the city of Antioch's land
36 use plan for the area and there would be no impact.

1 **c) Conflict with any applicable habitat conservation plan or natural community**
2 **conservation plan?**

3 **No Impact.** Due to annexation by the City of Antioch in 2013, the GP Antioch Plant and
4 wharf upgrade Project site do not fall within the boundaries of the East Contra Costa
5 County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP),
6 and are therefore not subject to its provisions. In addition, none of the Project activities
7 or the resulting rehabilitated wharf structure would conflict with the provisions of the
8 HCP/NCCP. Therefore, there would be no impact.

9 **3.10.4 Mitigation Summary**

10 The Project would not result in significant impacts to Land Use and Planning; therefore,
11 no mitigation is required.

1 **3.11 MINERAL RESOURCES**

MINERAL RESOURCES – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2 **3.11.1 Environmental Setting**

3 Mineral resources in Contra Costa County include aggregate and stone for commercial,
 4 industrial, and construction uses. In addition, Contra Costa County is one of the leading
 5 counties in the State in terms of natural gas production and also has a small volume of
 6 oil production (County of Contra Costa 2010). For many years, Antioch sand dunes in
 7 the area provided sand from two pits. There also were two sandstone beds with one
 8 quarry located in Antioch (California Geological Survey Digital Archive). There are no
 9 commercial mineral resources (with the exception of the imported gypsum rock) on the
 10 Project site or on the adjacent GP Plant.

11 **3.11.2 Regulatory Setting**

12 Federal and State laws and regulations pertaining to this issue area and relevant to the
 13 Project are identified in Table 3.11-1.

Table 3.11-1. Laws, Regulations, and Policies (Mineral Resources)

CA	Surface Mining and Reclamation Act (SMARA) (Pub. Resources, §§ 2710-2796)	In accordance with SMARA, the California Geological Survey classifies the regional significance of mineral resources and assists in the designation of lands containing significant aggregate resources. Mineral Resource Zones (MRZs) have been designated to indicate the significance of mineral deposits. The MRZ categories are: <ul style="list-style-type: none"> • MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence. • MRZ-2: Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence. • MRZ-3: Areas containing mineral deposits the significance of which cannot be evaluated from available data. • MRZ-4: Areas where available information is inadequate for assignment to any other MRZ.
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1 The City of Antioch's General Plan Resource Management Element (City of Antioch
2 2003) does not identify any important mineral areas within the city of Antioch, or have
3 any policies relevant to mineral resources.

4 **3.11.3 Impact Analysis**

5 ***a) and b) Result in the loss of availability of (a) a known mineral resource that***
6 ***would be of value to the region and the residents of the State, OR (b) a locally***
7 ***important mineral resource recovery site delineated on a local general plan,***
8 ***specific plan or other land use plan?***

9 **No Impact.** The Project site is not located within any Mineral Resource Areas identified
10 in the City of Antioch General Plan (2003) or in the California Geological Survey Digital
11 Archive (accessed December 2014). The Project would not result in the loss of
12 availability of a known mineral resource of value to the region and the residents of the
13 State, or a locally important mineral resource recovery site delineated on a local general
14 plan, specific plan, or other land use plan. Therefore, there would be no impact.

15 **3.11.4 Mitigation Summary**

16 The Project would not result in significant impacts to Mineral Resources; therefore, no
17 mitigation is required.

1 **3.12 NOISE**

NOISE – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2 **3.12.1 Environmental Setting**

3 Sound is created when vibrating objects produce pressure variations that move rapidly
 4 outward into the surrounding air. The more powerful the pressure variations, the louder
 5 the sound perceived by a listener. The decibel (dB) is the standard measure of loudness
 6 relative to the human threshold of perception. Noise is a sound or series of sounds that
 7 are intrusive, objectionable or disruptive to daily life. Many factors influence how a
 8 sound is perceived and whether it is considered disturbing to a listener; these include
 9 the physical characteristics of sound (e.g., loudness, pitch, duration, etc.) and other
 10 factors relating to the situation of the listener (e.g., the time of day when it occurs, the
 11 acuity of a listener’s hearing, the activity of the listener during exposure). Environmental
 12 noise has many documented undesirable effects on human health and welfare both
 13 psychological (e.g., annoyance and speech interference) and physiological (e.g.,
 14 hearing impairment and sleep disturbance).

15 The City of Antioch General Plan (2003) identifies two categories of noise sources that
 16 substantially impact the people of Antioch: “mobile,” including major roadways

1 (especially State Routes 4 and 160) and rail lines; and “stationary,” including industrial
 2 sources (especially in northern Antioch where heavy industry is concentrated, including
 3 the GP Plant), commercial sources (particularly in the zones of contact/overlap between
 4 commercial and residential areas), and construction activities. The residential areas in
 5 Antioch closest to the Project site were surveyed (see Appendix F) to identify noise-
 6 sensitive uses that could be adversely impacted by Project construction. During this
 7 survey, short-term noise measurements were taken during the weekday, daytime off-
 8 commute-peak, as shown in Table 3.12-1 and Appendix F, to establish baseline noise
 9 levels that affect existing noise-sensitive uses and that could be increased by Project
 10 construction, particularly during the pile-driving phase. This time-of-day was selected
 11 because it represents the time that Project construction activities would be at their
 12 maximum.

Table 3.12-1. Project Site Vicinity Noise Measurements

Location	Time Period	Noise Levels (dBA)*	Observations of Contributing Noise Sources
Measurement #1 Residential area in Antioch (near 904 Minaker Drive), about 1,800 feet southwest of the project site, and about 80 feet south of Wilbur Avenue	Mid-Day Off-Commute-Peak Tues. 11/25/14 1 PM – 3 PM	Leq: 64.9 CNEL: 63** Max: 81.9 Min: 49.7	Dominant source: traffic on Wilbur Avenue and Minaker Drive. Highest noise peaks (> 70 dBA) are from motor vehicles traveling at or above the speed limit or accelerating from stop light on Wilbur Avenue.
Measurement #2 Residential area in Antioch (near 1417 Jacobsen Street) about 1900 feet south of the project site	Mid-Day Off-Commute-Peak Tues. 11/25/14 1 PM – 3 PM	Leq: 56.0 CNEL: 54** Max: 74.3 Min: 44.1	Dominant source: traffic on Jacobsen Street. Highest noise peaks (> 60 dBA) are from motor vehicles traveling on Jacobsen Street. GP Plant visible from measurement location and faint noise (45 – 50 dBA) noticeable probably from mechanical equipment operating there.
<p>* Decibels are said to be A-weighted (dBA), when corrections are made to the measurement values to reflect the known, varying sensitivity of the human ear to sounds of different frequencies. The Equivalent Sound Level (L_{eq}) is a constant sound level that carries the same sound energy as the actual time-varying sound over the duration of the measurement period (the project L_{eq} values tabulated above apply to 1-hour-average intervals within the indicated time period). The Day-Night Average Sound Level (L_{dn}), is a 24-hour average, A-weighted L_{eq} with a 10-decibel penalty added to sound levels occurring at night between 10:00 p.m. and 7:00 a.m. The Community Noise Equivalent Level (CNEL) is similar to L_{dn} with an additional 5-decibel penalty added to sound levels occurring in the evening between 7:00 p.m. and 10:00 p.m.</p> <p>** According to Federal Transit Administration (FTA) methodology, L_{dn} or CNEL can be adequately estimated by subtracting 2 dBA from the measured value of the daytime hourly L_{eq}; see <i>Transit Noise and Vibration Impact Assessment, Appendix D, Determining Existing Noise</i> (FTA, May 2006).</p>			

1 **3.12.2 Regulatory Setting**

2 Federal and State laws and regulations pertaining to this issue area and relevant to the
 3 Project are identified in Table 3.12-2.

Table 3.12-2. Laws, Regulations, and Policies (Noise)

U.S.	<ul style="list-style-type: none"> • The Noise Control Act (42 USC 4910) required the USEPA to establish noise emission criteria, as well as noise testing methods (40 CFR Chapter 1, Subpart Q). These criteria generally apply to interstate rail carriers and to some types of construction and transportation equipment. The USEPA published a guideline (USEPA 1974) containing recommendations for acceptable noise level limits affecting residential land use of 55 dBA L_{dn} for outdoors and 45 dBA L_{dn} for indoors. • The Department of Housing and Urban Development Environmental Standards (24 CFR Part 51) set forth the following exterior noise standards for new home construction (for interior noise levels, a goal of 45 dBA is set forth and attenuation requirements are geared to achieve that goal): <ul style="list-style-type: none"> ○ 65 L_{dn} or less – Acceptable ○ 65 L_{dn} and < 75 L_{dn} – Normally unacceptable, appropriate sound attenuation measures must be provided ○ > 75 L_{dn} – Unacceptable • Federal Highway Administration Noise Abatement Procedures (23 CFR Part 772) are procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways. It establishes five categories of noise sensitive receptors and prescribes the use of the Hourly L_{eq} as the criterion metric for evaluating traffic noise impacts. • Federal Energy Regulatory Commission (FERC) Guidelines On Noise Emissions From Compressor Stations, Substations, And Transmission Lines (18 CFR 157.206(d)(5)) require that “the noise attributable to any new compressor stations, compression added to an existing station, or any modification, upgrade or update of an existing station, must not exceed a L_{dn} of 55 dBA at any pre-existing noise sensitive area (such as schools, hospitals, or residences).” • NTIS 550\9-74-004, 1974 (“Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety”). In response to a Federal mandate, the USEPA provided guidance in this document, commonly referenced as the, “Levels Document,” that establishes an L_{dn} of 55 dBA as the requisite level, with an adequate margin of safety, for areas of outdoor uses including residences and recreation areas. The USEPA recommendations contain a factor of safety and do not consider technical or economic feasibility (i.e., the document identifies safe levels of environmental noise exposure without consideration for achieving these levels or other potentially relevant considerations), and therefore should not be construed as standards or regulations.
CA	<p>State regulations for limiting population exposure to physically and/or psychologically significant noise levels include established guidelines and ordinances for roadway and aviation noise under California Department of Transportation as well as the now defunct California Office of Noise Control. The California Office of Noise Control land use compatibility guidelines provided the following:</p> <ul style="list-style-type: none"> • An exterior noise level of 60 to 65 dBA CNEL is considered "normally acceptable" for residences. • A noise level of 70 dBA CNEL is considered to be "conditionally acceptable" (i.e., the upper limit of "normally acceptable" noise levels for sensitive uses such as schools, libraries, hospitals, nursing homes, churches, parks, offices, and commercial/professional businesses). • A noise level of greater than 75 dBA CNEL is considered "clearly unacceptable" for residences.

1 The Project site is within an area of Contra Costa County that was annexed by the city
2 of Antioch in 2013; therefore, the pertinent local goals, policies, and/or regulations
3 applicable to this issue area lie with the City.

4 The following goals and policies from the City of Antioch General Plan (City of Antioch
5 2003) and Antioch Municipal Code may be applicable to the proposed Project:

6 **General Plan**

7 *Noise Objective (Section 11.6.1)*

8 Achieve and maintain exterior noise levels appropriate to planned land uses throughout
9 Antioch, as described below.

10 Residential

- 11 ○ Single Family: 60 dBA Community Noise Equivalent Level (CNEL) within
12 rear yards
- 13 ○ Multi-Family: 60 dBA CNEL within interior open space

14 *Noise Policies (Section 11.6.2)*

15 Noise Analysis and Mitigation

- 16 • When new development incorporating a potentially significant noise generator is
17 proposed, require noise analyses to be prepared by a qualified acoustical
18 engineer. Require the implementation of appropriate noise mitigation when the
19 proposed Project will cause new exceedances of General Plan noise objectives,
20 or an audible (3 dBA) increase in noise in areas where General Plan noise
21 objectives are already exceeded as the result of existing development.

22 Temporary Construction

- 23 • Ensure that construction activities are regulated as to hours of operation [see
24 Municipal Code restrictions below] in order to avoid or mitigate noise impacts on
25 adjacent noise-sensitive land uses.
- 26 • Require proposed development adjacent to occupied noise-sensitive land uses to
27 implement a construction-related noise mitigation plan. This plan would depict
28 the location of construction equipment storage and maintenance areas, and
29 document methods to be employed to minimize noise impacts on adjacent noise
30 sensitive land uses.
- 31 • Require that all construction equipment utilize noise reduction features (e.g.,
32 mufflers and engine shrouds) that are no less effective than those originally
33 installed by the manufacturer.

- 1 • The construction-related noise mitigation plan required shall also specify that
2 haul truck deliveries be subject to the same hours specified for construction
3 equipment. Additionally, the plan shall denote any construction traffic haul routes
4 where heavy trucks would exceed 100 daily trips (counting those both to and
5 from the construction site). To the extent feasible, the plan shall denote haul
6 routes that do not pass sensitive land uses or residential dwellings.

7 **Municipal Code**

8 *Specific Prohibitions (Section 5.17.050)*

9 Where construction activities on a construction project which is adjacent to any noise
10 sensitive use(s) are anticipated to last for a year or more, temporary noise barriers shall
11 be constructed that break the line of sight between the noise-sensitive use(s) and the
12 construction project, and that minimize noise impacts.

13 *Prohibited Persistent Noises (Section 5.17.060)*

14 Use of heavy construction equipment when the noise or sound from such equipment
15 can be heard beyond the perimeter of the premises where such heavy construction
16 equipment is being used shall not be permitted during the following times:

- 17 • On weekdays prior to seven (7:00) a.m. and after six (6:00) p.m.
18 • On weekdays within three hundred (300) feet of any occupied dwelling, prior to
19 eight (8:00) a.m. and after five (5:00) p.m.
20 • On weekends and City holidays, prior to nine (9:00) a.m. and after five (5:00)
21 p.m. regardless of the distance from occupied dwellings. Use of pile drivers,
22 sources of impulsive sound and jackhammers shall be prohibited on Sundays
23 and City holidays, except for emergencies and as approved in advance by the
24 Building Official.

25 **3.12.3 Impact Analysis**

26 The following analysis addresses noise impacts to humans. Noise impacts to wildlife are
27 addressed in Section 3.4 – Biological Resources.

28 ***a) Result in exposure of persons to or generation of noise levels in excess of***
29 ***standards established in the local general plan or noise ordinance, or applicable***
30 ***standards of other agencies?***

31 **Less than Significant Impact.** The Project would not increase the cargo ship handling
32 capacity (as measured by annual tonnage of gypsum delivered, or other similar metric),
33 the wharf's gypsum off-loading capacity, or the on-land gypsum storage, material

1 processing, and/or truck/train loading capacity of the Plant. Thus, after Project
2 construction is complete, the day-to-day Plant operational profile, with consequent
3 operational noise emissions, would continue at pre-Project levels. Any Project-related
4 noise exposure impacts would be due to construction activities. The total Project
5 construction window would be 3 months, with active construction activities lasting
6 approximately 8 weeks.

7 City of Antioch General Plan (2003) policies require that potential noise impacts to
8 existing noise-sensitive local uses be addressed as they relate to appropriate noise
9 exposure standards with mitigations imposed if necessary to attain the standards or
10 achieve feasible reductions. Within the Project site boundaries there are only the
11 industrial uses of the Plant, which are not noise-sensitive. The closest noise-sensitive
12 receptors are the residential areas of Antioch that begin just south of Wilbur Avenue,
13 1,800 feet or more from the locus of Project construction activity (i.e., the wharf). Motor
14 vehicle traffic activity on Wilbur Avenue and other local streets is the dominant local
15 noise source in these areas.

16 Pre-project (background) ambient noise measurements taken during the Project site
17 vicinity survey found an off-commute-peak daytime equivalent sound level (L_{eq}) of about
18 65 dBA (corresponding to an estimated daily average 63 dBA CNEL) at existing
19 residential uses close to Wilbur Avenue. Daytime instantaneous noise levels there
20 ranged from 50 dBA to 82 dBA during this period. This noise exposure intensity is
21 borderline with respect to the General Plan's Noise Objective of an ideal exterior CNEL
22 of 60 dBA or less for residential uses in Antioch. However, noise measurements taken
23 in the residential neighborhoods further south, where the influence of Wilbur Avenue
24 traffic noise is negligible, found an off-commute-peak daytime L_{eq} of about 56 dBA
25 (corresponding to an estimated 54 dBA CNEL) with instantaneous noise levels ranging
26 from 44 dBA to 74 dBA. This is well within the General Plan's acceptable range for
27 residential noise exposure.

28 The Federal Highway Administration (FHWA) Roadway Construction Noise Model
29 (RCNM) was used to estimate the maximum and average outdoor noise levels that the
30 closest residences would experience during the Project pile-driving construction phase,
31 with results as presented in Table 3.12-3. Two types of pile drivers, impact-hammer and
32 vibratory-hammer (both of which would be used for the Project, but not simultaneously),
33 were modeled. Since noise levels from impact-hammer pile drivers are always higher
34 than those from vibratory-hammer pile drivers, the Project "worst-case" scenario
35 analyzed below considers only impact-hammer pile drivers.

36 For residential receptors near Wilbur Avenue, where the existing daytime noise
37 background level is already relatively high (i.e., about 65 dBA daytime average, with
38 frequent peak noise events from passing cars exceeding 65-70 dBA), the average pile-
39 driving noise level (63 dBA) would be less than the existing background level, while the

1 maximum pile-driving noise level (70 dBA), which is produced momentarily each time
 2 the hammer hits the pile, would be comparable to the peak noise levels at the receptor
 3 location produced by passing cars on Wilbur Avenue.

Table 3.12-3. Modeled Construction Noise Levels Nearest Residential Uses

Receptor/Construction Noise Source	Distance from Construction Activity (feet)	Maximum Construction Daytime Noise Level (dB)	Average Construction Daytime Noise Level During Equipment Operation (dB)
Residence #904 Minaker Drive/ <u>Vibratory-Hammer</u> Pile Driver	1,800	69.7	62.7
Residence #904 Minaker Drive/ <u>Impact-Hammer</u> Pile Driver	1,800	70.1	63.2
Residence #1417 Jacobsen Street/ <u>Vibratory-Hammer</u> Pile Driver	1,900	69.2	62.2
Residence #1417 Jacobsen Street/ <u>Impact-Hammer</u> Pile Driver	1,900	69.7	62.7

Source: Federal Highway Administration, Roadway Construction Noise Model (RCNM).

4 For residential receptors further back from Wilbur Avenue, the existing daytime noise
 5 background level is lower (i.e., about 56 dBA daytime average, with occasional peak
 6 noise events from passing cars on the local street exceeding 65 dBA), the average pile-
 7 driving noise level (63 dBA) would be greater than the existing background level, while
 8 the maximum pile-driving noise level (70 dBA), which is produced momentarily each
 9 time the hammer hits the pile, would be higher than most of the peak noise levels
 10 produced by passing cars on local residential streets.

11 In addition to the loudness of a noise produced, the noise impact severity of a particular
 12 source is also dependent on the temporal pattern of its emission. Project pile driving
 13 would occur only during weekday, daytime periods, not during evenings, nights and
 14 early mornings, nor anytime at all during weekend days or holidays. Project pile driving
 15 would not occur continuously over every workday of the total 3-month Project
 16 construction phase, but rather only during two short-duration, sub-periods consisting of
 17 five weekdays in the mid-weeks of August and six weekdays in the mid-weeks of
 18 September. Pile driving would be required to install 13 piles for the new wharf. Thus, on
 19 average, only one to two piles would be driven during each of the 11 workdays
 20 scheduled for pile driving. Two types of pile drivers would be used in driving each and
 21 every pile: a vibratory-hammer pile driver and an impact-hammer pile driver. The driving
 22 of each pile would start (for at least the first 15 minutes) with the vibratory-hammer pile
 23 driver, which is the quieter of the two, and then continue with the impact-hammer pile
 24 driver until the pile is set in its final position, each taking between 100 to 700 pile strikes
 25 by the hammer.

1 With these temporal considerations taken into account, Project pile-driving noise would
2 have no impact on any residential receptors in Antioch during weekday evenings and
3 nights, nor anytime on weekends and holidays (because pile driving would not occur
4 then). When Project pile driving does occur, potential noise impacts would be limited to
5 the residential areas in Antioch within a few thousand feet of the Project construction
6 site during the weekday, daytime hours on the 11 days over which all of the 13 piles
7 would be driven. During these times, the short-term local average noise levels would be
8 elevated by a few dBAs compared to existing background levels in residential areas not
9 adjacent to Wilbur Avenue, and the peak noise events from pile driver hammer strikes
10 would be audible at about the momentary loudness levels produced by passing cars on
11 local streets. Since pile-driving noise would be limited to short, daytime periods, and
12 would not occur at all during evenings and nights, it would have a negligible effect on
13 the residential areas' daily-average (CNEL) noise levels, which is the General Plan's
14 primary indicator of noise impact.

15 Thus, Project construction activities would not expose nearby residential uses south of
16 Wilbur Avenue to excessive noise levels and Project construction noise impacts would
17 be less than significant.

18 ***b) Result in exposure of persons to or generation of excessive ground-borne***
19 ***vibration or ground-borne noise levels?***

20 **Less than Significant Impact.** Just as vibrating objects radiate sound through the air, if
21 they are in contact with the ground they also radiate acoustical energy through the
22 ground. If such an object is massive enough and/or close enough to an observer, the
23 ground vibrations can be perceptible and, if the vibrations are strong enough (as
24 measured in vibration decibels [VdB]), they can cause annoyance to the observer
25 and/or damage to buildings. Background ground vibration levels in most inhabited areas
26 are usually 50 VdB or lower, well below the threshold of perception (i.e., typically about
27 65 VdB).

28 There are no policies or standards in the City of Antioch General Plan for
29 avoiding/reducing structural damage or annoyance from vibration impacts. However, it
30 is most common for many government agencies to rely on assessment methodologies,
31 impact standards and vibration-reduction strategies developed by the Federal Transit
32 Administration (FTA) in *Transit Noise and Vibration Impact Assessment* (2006).
33 According to the FTA, limiting vibration levels to 94 VdB or less would avoid structural
34 damage to wood and masonry buildings (which are typical of most residential
35 structures), while limiting vibration levels to 72 VdB²³ or less at residential locations
36 would avoid significant annoyance to the occupants.

²³ FTA vibration annoyance impact criteria vary with the number of vibration events that a receptor is expected to be exposed to daily. The 72 VdB criterion is appropriate to residential receptors that are

1 There would be no increase in noise generating activities from wharf operations after
2 Project implementation, so any such impacts would only occur during Project
3 construction. The most vibration-intensive piece of construction equipment is a pile
4 driver; other types of construction equipment are far less vibration-intensive. Using FTA
5 methodology and impact criteria appropriate to Project construction equipment type
6 (i.e., an impact-hammer pile driver), the expected daily number of vibration events (i.e.,
7 > 70), and the sensitive receptor type (i.e., residential, housed in single-family, wood-
8 frame structures) the radii of potential significant Project construction impact based on
9 resident annoyance and structural damage criteria were estimated to be 1,000 feet and
10 60 feet, respectively. Since the nearest residential uses are almost twice this distance
11 from the locus of Project pile driving activity, the Project's construction vibration impact
12 severity would be less than significant.

13 ***c) Result in a substantial permanent increase in ambient noise levels in the***
14 ***project vicinity above levels existing without the project?***

15 **Less than Significant Impact.** Once Project construction is complete, the day-to-day
16 Plant operational profile, with consequent operational noise emissions, would continue
17 at pre-Project levels. Thus, Project operational noise impacts would be less than
18 significant.

19 ***d) Result in a substantial temporary or periodic increase in ambient noise levels***
20 ***in the project vicinity above levels existing without the project?***

21 **Less than Significant Impact.** The incremental noise impacts in the closest residential
22 areas from on-site Project construction activity are discussed above. The only other
23 potential Project source of temporary incremental noise impacts to off-site sensitive
24 receptors would be from haul trucks taking treated timber pile debris (originating from
25 the partial wharf demolition) from the contractor's yards in Richmond to the disposal
26 landfill in Suisun City. After transport by barge from the Project site to the contractor's
27 marine yard, treated timber debris disposal trips would occur periodically during August,
28 September, and October of 2015, but the amount of debris to be disposed of is
29 relatively small. Approximately 21 truck trips would be needed to haul all of the wood
30 material to the landfill. Thus, there would be an average of less than one Project-related
31 haul truck trip per day during the total Project construction phase. All such debris haul
32 truck trips to the Potrero Hills Landfill would be limited to regularly used truck routes
33 from the contractor's marine yard in Richmond, including highways and freeways, and
34 would not travel along local residential streets in Antioch. Therefore, all Project
35 temporary, incremental construction noise impacts would be less than significant.

exposed to 70 or more daily vibration events. This best fits Project circumstances where the pile driver is expected to strike each pile between 100 and 700 times before it is set.

1 **e) For a project located within an airport land use plan or, where such a plan has**
2 **not been adopted, within 2 miles of a public airport or public use airport, would**
3 **the project expose people residing or working in the project area to excessive**
4 **noise levels?**

5 **Less than Significant Impact.** The Project site is about 14.5 miles east of the closest
6 public use airport, Buchanan Field Airport in Concord. The Project site is well outside
7 the airport's aviation noise impact contours (i.e., typically 65 dBA CNEL for residential
8 uses). Additionally, no major influence on noise levels on or near the Project site was
9 noted from aircraft overflights observed during the Project noise survey. Thus, aircraft
10 noise impacts as a result of the Project are less than significant.

11 **f) For a project within the vicinity of a private airstrip, would the project expose**
12 **people residing or working in the project area to excessive noise levels?**

13 **No Impact.** The proposed Project site is not located in the vicinity of a private airstrip.
14 There would be no impact.

15 **3.12.4 Mitigation Summary**

The Project would not result in significant Noise impacts; therefore, no mitigation is required.

1 3.13 POPULATION AND HOUSING

POPULATION AND HOUSING – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2 3.13.1 Environmental Setting

3 Contra Costa County is one of nine counties in the San Francisco Bay Area and covers
 4 733 square miles. The County is the Bay Area’s third most populous county, with 14.6
 5 percent of the Bay Area’s population in 2010 (Association of Bay Area Governments
 6 [ABAG] 2012). Population estimates of 1,049,025 in 2010 represented an increase of
 7 more than 9.5 percent from the 2000 County population estimate of 948,816. ABAG
 8 estimates that the population of Contra Costa County will continue to increase in the
 9 next two decades, with projections of an estimated 1,157,000 people by 2020 and
 10 1,255,300 people by 2030. As of 2010, there were approximately 400,263 housing units
 11 in Contra Costa County, an increase of 11.4 percent since 2000. Household size is
 12 about the same; it was 2.72 persons per household in 1990 and 2.77 persons in 2010.
 13 The housing vacancy rate increased from 2.9 percent in 2000 to 6.2 percent in 2010
 14 (ABAG 2012).

15 There are no residences at the GP Plant or Project site, or along the nearby shoreline of
 16 the San Joaquin River. The closest residential housing is located between 1,800 feet to
 17 2,400 feet from the Project site, directly south of the Plant site along Wilbur Avenue. No
 18 increased housing is associated with the Proposed Project.

19 3.13.2 Regulatory Setting

20 No Federal or State laws relevant to this issue area are applicable to the Project. The
 21 Project site is within an area of Contra Costa County that was annexed by the city of
 22 Antioch in 2013; therefore, the pertinent local goals, policies, and/or regulations
 23 applicable to this issue area lie with the City.

1 The Housing Element of the City of Antioch General Plan establishes goals and policies
2 to assist the County in meeting its housing needs (City of Antioch 2010). No housing
3 goals or policies are applicable to the Project or the Project site.

4 **3.13.3 Impact Analysis**

5 ***a) Induce substantial population growth in an area, either directly (for example, by***
6 ***proposing new homes and businesses) or indirectly (for example, through***
7 ***extension of roads or other infrastructure)?***

8 **No Impact.** The Project would not add new homes or businesses that could induce an
9 increase in housing or population growth in the area. It would not involve construction of
10 any upland buildings or infrastructure such as roads. The construction period would be
11 only 8 weeks and involve a small barge-based construction crew drawn from the Bay
12 Area, so it is unlikely to induce any substantial local economic growth. Therefore, no
13 increase in population growth, either directly or indirectly, would result from the Project
14 and there would be no impact.

15 ***b) Displace substantial numbers of existing housing, necessitating the***
16 ***construction of replacement housing elsewhere?***

17 **No Impact.** The Project would not involve displacing any existing housing structures
18 and requiring construction of replacement housing elsewhere. There would be no
19 impact

20 ***c) Displace substantial numbers of people, necessitating the construction of***
21 ***replacement housing elsewhere?***

22 **No impact.** The Project involves rehabilitation of an industrial wharf to allow improved
23 berthing of ships. The Project would not result in displacing people from their homes
24 and requiring construction of replacement housing. Therefore, no displacement of
25 population in the area, either directly or indirectly, would result from the Project and
26 there would be no impact.

27 **3.13.4 Mitigation Summary**

28 The Project would not result in significant impacts to Population and Housing; therefore,
29 no mitigation is required.

1 **3.14 PUBLIC SERVICES**

PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2 **3.14.1 Environmental Setting**

3 The Project site consists of an industrial wharf located 90 feet off the southern shore of
 4 the San Joaquin River. The Project site is in a geographic area recently annexed by the
 5 city of Antioch in Contra Costa County. The Project would be implemented entirely
 6 within the waters of the River, with material and equipment staging from barges brought
 7 to the Project site.

8 **Fire Protection**

9 The Project is located in navigable waters served by the Contra Costa County Sheriff
 10 Marine Unit, and the USCG. The Sheriff Marine Unit responds to fire incidents on
 11 County waterways with vessels that are equipped with water pumps. The Marine Unit
 12 also transports fire department personnel to an incident on request. The Marine Unit
 13 patrols the waterways along the Contra Costa County coast based out of three stations
 14 - the closest one at Rio Vista on the northeast side of the Antioch Bridge. The USCG
 15 responds to incidents involving injuries, loss of life or damage to vessels. The USCG
 16 responds to fire incidents on waterways for rescue and lifesaving, but not for the
 17 purposes of fire suppression. The local Contra Costa County Fire Station serving the
 18 Project area is in the city of Antioch.

19 **Police Protection**

20 The Contra Costa County Sheriff's Department serves the city of Antioch, a community
 21 of 7 square miles and over 20,000 people. The closest Sheriff's office to the Project site

1 is the Antioch Police Department in the city of Antioch. The waterways of Contra Costa
 2 County are served by the Contra Costa County Sheriff 4 Marine Unit, located in the city
 3 of Oakley. The Marine Services Unit responds to crimes that occur within Contra Costa
 4 waterways, boating accidents, rescues, and missing persons reports (Contra Costa
 5 Sheriff’s Office 2014).

6 **Schools**

7 There are no schools in the immediate vicinity of the Project. The closest schools are at
 8 a distance of 4,000 feet southeast (Cornerstone Christian) and 4,800 feet southwest
 9 (Kimball Elementary School) from the Project site.

10 **Parks**

11 The closest park is the City Park located at Park Lane in the city of Antioch,
 12 approximately 2 miles Southwest of the Project site. The short duration of the proposed
 13 Project would have no impact on and no interface with parks in the area.

14 **3.14.2 Regulatory Setting**

15 Federal and State laws and regulations pertaining to this issue area and relevant to the
 16 Project are identified in Table 3.14-1.

Table 3.14-1. Laws, Regulations, and Policies (Public Services)

U.S.	Code of Federal Regulations	<ul style="list-style-type: none"> • Under 29 CFR 1910.38, whenever an Occupational Safety and Health Administration (OSHA) standard requires one, an employer must have an Emergency Action Plan that must be in writing, kept in the workplace, and available to employees for review. An employer with 10 or fewer employees may communicate the plan orally to employees. Minimum elements of an emergency action plan are: <ul style="list-style-type: none"> ○ Procedures for reporting a fire or other emergency; ○ Procedures for emergency evacuation, including type of evacuation and exit route assignments; ○ Procedures to be followed by employees who remain to operate critical plant operations before they evacuate; ○ Procedures to account for all employees after evacuation; ○ Procedures to be followed by employees performing rescue or medical duties; and ○ The name or job title of every employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan. • Under 29 CFR 1910.39, an employer must have a Fire Prevention Plan (FPP). A FPP must be in writing, be kept in the workplace, and be made available to employees for review; an employer with 10 or fewer employees may communicate the plan orally to employees. Minimum elements of a FPP are: <ul style="list-style-type: none"> ○ A list of all major fire hazards, proper hazardous material handling and storage procedures, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard; ○ Procedures to control accumulations of flammable and combustible waste
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		<p>materials;</p> <ul style="list-style-type: none"> ○ Procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials; ○ The name or job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires; and ○ The name or job title of employees responsible for the control of fuel source hazards. ○ An employer must inform employees upon initial assignment to a job of the fire hazards to which they are exposed and must also review with each employee those parts of the FPP necessary for self-protection. <ul style="list-style-type: none"> ● Under 29 CFR 1910.155, Subpart L, Fire Protection, employers are required to place and keep in proper working order fire safety equipment within facilities.
CA	California Code of Regulations	Under Title 19, Public Safety , the California State Fire Marshal (CSFM) develops regulations relating to fire and life safety. These regulations have been prepared and adopted to establish minimum standards for the prevention of fire and for protection of life and property against fire, explosion, and panic. The CSFM also adopts and administers regulations and standards necessary under the California Health and Safety Code to protect life and property.

1 In keeping with Federal and State laws and regulations, the Plant maintains an
 2 Emergency Response Plan (including a fire protection plan) for the entire industrial
 3 facility, including the offshore wharf.

4 The Project site is within an area of Contra Costa County that was annexed by the city
 5 of Antioch in 2013; therefore, the pertinent local goals, policies, and/or regulations
 6 applicable to this issue area lie with the City.

7 The following state and local regulations, plans, programs, and guidelines are
 8 applicable to the proposed Project.

- 9 ● Antioch Emergency Response Plan; and
- 10 ● Antioch General Plan, which includes many policies aimed at ensuring adequate
 11 delivery of public services, including the Public Services and Facilities Element
 12 (Policy 8.10.2 for fire protection and Policy 8.11.2 for police protection) and the
 13 Environmental Hazards Element (Policy 11.5.2 for fire hazards).

14 **3.14.3 Impact Analysis**

15 ***a) Would the Project result in substantial adverse physical impacts associated***
 16 ***with the provision of new or physically altered governmental facilities, need for***
 17 ***new or physically altered governmental facilities, the construction of which could***
 18 ***cause significant environmental impacts, in order to maintain acceptable service***
 19 ***ratios, response times or other performance objectives for any of the public***
 20 ***services: fire, police, schools, parks, or other public facilities?***

1 **Less than Significant Impact.** The Project would involve construction of a new
2 berthing system for incoming ships at the industrial facility wharf and would not involve
3 construction of any new buildings or other government services facilities. There would
4 be no increase in facility operations after Project implementation that would require
5 additional public services or facilities. Over the approximately 8-week Project
6 construction period, there may be a temporary potential demand for fire or emergency
7 response services; however, the Project would not require any additional fire, police, or
8 emergency medical services outside of those services already available. Therefore, the
9 Project would not require new or physically altered governmental facilities to deliver fire
10 protection, police protection, schools, parks, or other public services and the impact
11 would be less than significant.

12 **3.14.4 Mitigation Summary**

13 The Project would not result in significant impacts to Public Services; therefore, no
14 mitigation is required.

1 **3.15 RECREATION**

RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2 **3.15.1 Environmental Setting**

3 Recreational use of the San Joaquin River is primarily recreational boating and fishing.
 4 There is no public access to the River across the Project site. In addition, public use of
 5 the shoreline on both the east and west sides of the Plant site is prohibited to protect
 6 endangered species at the Antioch Dunes National Wildlife Refuge. There is no
 7 permitted public use of West Island directly north of the wharf across the River.

8 There is public recreation in the River near the wharf because there are no marked
 9 travel lands for recreational boating. Fishing boats or small motor-boats are seen along
 10 the River 800 to 1,000 feet north of the wharf. The members of the public boating,
 11 kayaking, fishing, etc. may even come to the wharf. The Antioch Dunes (see Figure 2.2-
 12 2) may also be an attraction for the public because it is closed from uplands.

13 **3.15.2 Regulatory Setting**

14 There are no Federal or State laws or regulations pertaining to the issue of recreation.
 15 The Project site is within an area of Contra Costa County that was annexed by the city
 16 of Antioch in 2013; therefore, the pertinent local goals, policies, and/or regulations
 17 applicable to this issue area lie with the City.

18 City of Antioch General Plan Section 8, Recreation and Open Space Element, includes
 19 the following potentially relevant policies:

20 *General Goal:*

21 *Objectives and Policies of the Antioch General Plan Resource Management Element*
 22 *is to conserve and enhance the unique natural beauty of Antioch’s physical setting,*
 23 *and control the expansion of urban development by protecting open space where it*
 24 *is important to preserve natural environmental processes and areas of cultural and*

1 *historical value. Open space provides a variety of community benefits, including*
2 *recreation use, visual enjoyment, protection of habitat areas, and hazard protection.*
3 *In Antioch, this means protecting the San Joaquin and natural creeks, as well as*
4 *their adjoining natural beaches and shorelines. It also means opening up views of*
5 *the River, and preserving views of Mt. Diablo and its foothills to protect the beauty of*
6 *the physical setting of the City.*

7 *Specific Policies:*

8 *d. Secure and develop a shoreline park along the San Joaquin River consisting of*
9 *recreational trails, viewing areas, and natural habitat protection so as to ensure*
10 *availability of the waterfront in the City for public enjoyment.*

11 **3.15.3 Impact Analysis**

12 ***(a) Would the project increase the use of existing neighborhood and regional***
13 ***parks or other recreational facilities such that substantial physical deterioration***
14 ***of the facility would occur or be accelerated?***

15 **No Impact.** The Project would not result in any increased use or visitation to existing
16 neighborhood or regional recreational facilities. There would be no physical
17 deterioration of recreational facilities or reduction in opportunities for recreational use of
18 the San Joaquin River at this location that would occur as a result of the Project. There
19 would be no change in recreation access or use restrictions in the Project area following
20 Project implementation. Project construction activities would be limited to an 8 week
21 period, during which public access would not be available in the immediate vicinity of
22 the wharf.

23 ***(b) Does the project include recreational facilities or require the construction or***
24 ***expansion of recreational facilities, which might have an adverse physical effect***
25 ***on the environment?***

26 **Less than Significant Impact.** Although the Project would temporarily occupy
27 approximately 1.4 acres of the River surrounding the Project site, it would not include
28 any recreational facilities or require the construction or expansion of recreational
29 facilities. There is sufficient area within the River span at the Project location to
30 accommodate existing recreational uses of the waterway during and after the
31 construction period with little or no conflict between use of the wharf and use of the
32 River for recreational purposes.

33 Because of the distance of the Project from the shipping lanes and normal recreational
34 boating routes, Project-related activities are not anticipated to interfere with any other
35 shipping or boating activities. There might be a slight possibility that it might interfere

1 with access, interruptions to use of kayaks, fishing boats, etc.; however, as described in
2 Section 2.4.1.1, Construction Area and Access, large warning signs readable at several
3 hundred feet will be posted at the wharf and around the construction-related equipment
4 in the water before starting work to keep the public safe.

5 **3.15.4 Mitigation Summary**

6 The Project would not result in significant impacts to Recreation; therefore, no mitigation
7 is required.

1 **3.16 TRANSPORTATION/TRAFFIC**

TRANSPORTATION/TRAFFIC – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2 **3.16.1 Environmental Setting**

3 The wharf is currently accessed by ships coming from Mexico heading to the wharf via
 4 the Golden Gate and San Francisco and San Pablo Bays. The wharf is accessible from
 5 land via the Plant. Vehicles coming to the site via State Route 4 would likely exit at
 6 Hillcrest Avenue and take Hillcrest to Wilbur Avenue to the Plant on Minaker Drive.

7 **3.16.2 Regulatory Setting**

8 Federal and State laws and regulations pertaining to this issue area and relevant to the
 9 Project are identified in Table 3.16-1.

Table 3.16-1. Federal and/or State Laws, Regulations, and Policies Potentially Applicable to the Project (Transportation/Traffic)

U.S.	Ports and Waterways Safety Act	This Act provides the authority for the USCG's program to increase vessel safety and protect the marine environment in ports, harbors, waterfront areas, and navigable waters, including by authorizing the Vessel Traffic Service, controlling vessel movement, and establishing requirements for vessel operation.
CA	California Vehicle Code	Chapter 2, Article 3 of the Vehicle Code defines the powers and duties of the California Highway Patrol, which has enforcement responsibilities for the vehicle operation and highway use in the State.
CA	Other	The California Department of Transportation is responsible for the design, construction, maintenance, and operation of the California State Highway System and the portion of the Interstate Highway System in California.

1 Local goals, policies, and/or regulations applicable to this issue area are listed below.

2 The Contra Costa Transportation Authority (CCTA) is a public agency formed in 1988
 3 that is responsible for Countywide transportation planning. Its mission is to deliver a
 4 comprehensive transportation system that enhances mobility and accessibility while
 5 promoting a healthy environment and strong economy. One of the CCTA's duties is to
 6 develop and implement the Congestion Management Plan, which identifies strategies
 7 necessary for the development of appropriate responses to transportation needs. The
 8 Congestion Management Plan includes the following:

- 9 • Traffic level of service (LOS) standards for State highways and principal arterials
 10 within the County;
- 11 • Multi-modal performance measures to evaluate current and future systems;
- 12 • A 7-year capital improvement program to maintain or improve the system or to
 13 mitigate any regional impacts of land use projects;
- 14 • A travel demand element that promotes transportation alternatives to the single-
 15 occupant vehicle.

16 The objectives of Antioch General Plan Section 7.3.2 (Vehicular Circulation Patterns)
 17 include promoting the design of roadways to optimize safe traffic flow within established
 18 roadway configurations by minimizing driveways and intersections, uncontrolled access
 19 to adjacent parcels, on-street parking, and frequent stops to the extent consistent with
 20 the character of adjacent land uses.

21 The San Francisco Bay Harbor Safety Plan (HSP) was formed to implement the
 22 OSPRA and to reduce vessel accidents and spills. The HSP requires reporting and
 23 monitoring of vessel traffic on Bay area waterways under a "Vessel Traffic Service,"
 24 regulates acceptable speed and routes, and requires communications underway.
 25 Vessel inspections and regulation enforcement are conducted by the USCG (federal)
 26 and the CDFW and include ensuring that tugboats are registered and that operating
 27 personnel are trained and certified.

1 **3.16.3 Impact Analysis**

2 **a) Conflict with an applicable plan, ordinance or policy establishing measures of**
3 **effectiveness for the performance of the circulation system, taking into account**
4 **all modes of transportation including mass transit and non-motorized travel and**
5 **relevant components of the circulation system, including but not limited to**
6 **intersections, streets, highways and freeways, pedestrian and bicycle paths, and**
7 **mass transit?**

8 **Less than Significant Impact.** Project site access for all materials and construction
9 equipment would be via barges that would be transported to the in-water Project area
10 by registered Harbor Tugboats. Consequently, during Project mobilization and
11 demobilization, and the anticipated 8-week demolition and construction period, there
12 would be an increase in barge and tugboat traffic in the Project area. This tugboat route
13 plan and schedule must be filed with the HSP for marine vessel traffic. There are no
14 traffic or transportation ordinances, plans or goals within the City of Antioch General
15 Plan relevant to the barge traffic.

16 Over the course of the Project there would be an estimated 274 hours of tugboat
17 operation. Tug trips pulling barges are estimated at approximately 12 hours per round
18 trip to/from the contractor's marine yard to carry materials and equipment to and from
19 the Project site. The type, number, and duration of use of these tugs and barges for
20 project construction would not impact the capacity for vessel traffic on the River.
21 Following Project construction, vessel traffic associated with facility operations would
22 return to pre-Project levels.

23 In addition to the marine traffic described above, an estimated seven project workers
24 would access the wharf work site each day using public roads that connect the Plant to
25 the city of Antioch. Project construction would generate fewer than 20 daily trips from
26 construction workers accessing the site. No truck deliveries to or from the Project area
27 are anticipated.

28 Haul trucks would transport treated timber pile debris (originating from the partial wharf
29 demolition) from the contractor's marine yard in Richmond to the Suisun City Landfill
30 would occur. After transport by barge from the Project site to the contractor's marine
31 yard, treated timber debris disposal trips would occur periodically during August,
32 September, and October of 2015. Approximately 21 truck trips would be needed to haul
33 all of the wood material to the landfill. Thus, there would be an average of less than one
34 Project-related haul truck trip per day during the total Project construction phase of 62
35 work days. All such debris haul truck trips to the Suisun City Landfill would be limited to
36 regularly used truck routes from the contractor's marine yard in Richmond, including
37 highways and freeways, and would not travel along local residential streets in Antioch.
38 The contractor will be subject to requirements of the County Hazardous Materials

1 Storage Ordinance. The contractor (under Applicant's oversight) will maintain all waste
2 management transactions, including transportation and disposal.

3 Aside from wood waste, all other liquid and solid waste (excess grout, metals, motor oils
4 and filters, solvents, antifreeze, and batteries, etc.) will also be collected in covered and
5 secured containers on the material barges and transported to the contractor's marine
6 yard for subsequent disposal or recycling. Any wastes that can be recycled will be
7 processed according to Contra Costa County rules and recordkeeping requirements.

8 This projected increase in daily road traffic in the Project area is minimal and well within
9 the traffic deviation allowance of the CCTA Congestion Management Plan and within
10 the objectives of the Antioch General Plan Vehicular Circulation Element (Chapter 7).
11 The Project would not affect mass transit, non-motorized travel, intersections, streets,
12 highways and freeways, pedestrian and bicycle paths.

13 The minor increase in vessel and vehicle traffic during Project construction would not
14 conflict with an applicable plan, ordinance or policy establishing measures of
15 effectiveness for the performance of the circulation system, resulting in a less than
16 significant impact.

17 ***b) Conflict with an applicable congestion management program, including, but***
18 ***not limited to level of service standards and travel demand measures, or other***
19 ***standards established by the county congestion management agency for***
20 ***designated roads or highways?***

21 **Less than Significant Impact.** As discussed under item **a)**, above, the Project would
22 generate fewer than 20 daily trips per day from construction workers during the 8-week
23 construction period, and no new trips after completion of construction. Therefore, the
24 Project would not result in any potential for significant impacts, either individually or
25 cumulatively, on any LOS standard or travel demand measures established by the
26 CCTA or city of Antioch to reduce congestion on local roads or highways.

27 ***c) Result in a change in air traffic patterns, including either an increase in traffic***
28 ***levels or a change in location that results in substantial safety risks?***

29 **No Impact.** The Project activities would be limited to upgrading an existing low-lying
30 wharf, which would not change the air traffic patterns. There would be no impact.

31 ***d) Substantially increase hazards due to a design feature (e.g., sharp curves or***
32 ***dangerous intersections) or incompatible uses (e.g., farm equipment)?***

33 **No Impact.** No changes to existing roadways would occur as a result of the Project in
34 the water, and the movement and operation of large equipment and any hazardous

1 materials would be performed in compliance with appropriate Federal, State, and local
2 regulations. There would be no impact.

3 ***e) Result in inadequate emergency access?***

4 **No Impact.** The Project would not affect emergency access. Project activities would not
5 change or otherwise adversely affect emergency access routes to and from the Project
6 area from Wilbur Avenue and upland areas. There would be no impact

7 ***f) Conflict with adopted policies, plans or programs regarding public transit,
8 bicycle, or pedestrian facilities, or otherwise decrease the performance or safety
9 of such facilities?***

10 **No impact.** The Project would not conflict, directly or indirectly, with adopted policies,
11 plans, or programs that support public transportation or alternate modes such as bicycle
12 or pedestrian facilities. The Project site and contractor's marine yard would be accessed
13 via barge on the San Joaquin River, and by workers arriving each day via existing
14 roadways. There would be no impact.

15 **3.16.4 Mitigation Summary**

16 The Project would not result in significant impacts to Transportation/Traffic; therefore,
17 no mitigation is required.

1 3.17 UTILITIES AND SERVICE SYSTEMS

UTILITIES AND SERVICE SYSTEMS – Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2 3.17.1 Environmental Setting

3 With respect to utilities and services, the primary needs of the Project include the ability
 4 to recycle or dispose of non-hazardous solid waste associated with the removal of the
 5 outfall pipe, including treated wood, and other solid piping. There may also be
 6 hazardous materials and wastes to dispose of including creosote-treated timber pilings,
 7 petroleum based residues, and hydraulic fluids. In addition, hazardous materials will be
 8 used and generated during removal activities. All associated hazardous materials will be
 9 removed from the Project site for proper disposal (see Section 3.8, Hazards and
 10 Hazardous Materials).

11 There are existing water and electrical lines extending onto the wharf from the Plant
 12 area for maintenance use and for the hopper and conveyor system. No shore power is
 13 available to docking ships.

1 **3.17.2 Regulatory Setting**

2 No Federal or State laws relevant to this issue area are applicable to the Project.

3 The Project site is within an area of Contra Costa County that was annexed by the city
4 of Antioch in 2013; therefore, the pertinent local goals, policies, and/or regulations
5 applicable to this issue area lie with the City.

6 The goals of the Public Facilities and Services Element of the City of Antioch General
7 Plan are to provide for the timely expansion of high quality public services and
8 infrastructure to serve existing and future residents, businesses, recreational facilities,
9 and other facilities within the city of Antioch consistent with the service levels set forth in
10 the Growth Management Element.

11 **3.17.3 Impact Analysis**

12 The Project would not use public utilities, sewers and/or water lines during Project
13 implementation, which would be conducted entirely from barges located in the water at
14 and near the wharf location. All equipment power and any auxiliary lighting that may be
15 required would be independently supplied from the work barges by the construction
16 contractor.

17 ***a), e) Exceed wastewater treatment requirements of the applicable Regional Water
18 Quality Control Board OR Result in a determination by the wastewater treatment
19 provider which serves or may serve the Project that it has adequate capacity to
20 serve the Project's projected demand in addition to the provider's existing
21 commitments?***

22 **No impact.** The Project would not generate any wastewater and therefore would not
23 involve or exceed the applicable wastewater treatment requirements of the CVRWQCB.
24 There would be no impact.

25 ***b) Require or result in the construction of new water or wastewater treatment
26 facilities or expansion of existing facilities, the construction of which could cause
27 significant environmental effects?***

28 **No impact.** The Project would not require or result in construction of new wastewater
29 treatment facilities or the expansion of existing facilities. Portable and on-boat toilets
30 would be available for Project workers. There would be no impact.

31 ***c) Require or result in the construction of new storm water drainage facilities or
32 expansion of existing facilities, the construction of which could cause significant
33 environmental effects?***

1 **No impact.** The Project would not involve the construction of new storm water drainage
2 facilities or expansion of existing facilities. There would be no impact.

3 ***d) Have sufficient water supplies available to serve the Project from existing***
4 ***entitlements and resources, or are new or expanded entitlements needed?***

5 **No impact.** The Project would require small amounts of water for work crews and
6 certain operations (such as concrete mixing and washing of equipment). Sufficient water
7 supplies are available at the dock to serve the Project. There would be no impact.

8 ***f, g) Be served by a landfill with sufficient permitted capacity to accommodate the***
9 ***Project's solid waste disposal needs OR Comply with federal, state, and local***
10 ***statutes and regulations related to solid waste?***

11 **Less Than Significant Impact.** As described in Section 3.16, Transportation/Traffic,
12 two or three truck-loads of pilings would need to be disposed of at a local landfill,
13 currently anticipated to be the Potrero Hills Landfill in Suisun City. This small amount of
14 material would have a less than significant impact on landfill capacity or compliance with
15 federal, state, and local statutes.

16 **3.17.4 Mitigation Summary**

17 The Project would not result in significant impacts to Utilities and Service Systems;
18 therefore, no mitigation is required.

1 **3.18 MANDATORY FINDINGS OF SIGNIFICANCE**

2 The lead agency shall find that a project may have a significant effect on the
 3 environment and thereby require an Environmental Impact Report (EIR) to be prepared
 4 for the Project where there is substantial evidence, in light of the whole record, that any
 5 of the following conditions may occur. Where prior to commencement of the
 6 environmental analysis a project proponent agrees to mitigation measures or project
 7 modifications that would avoid any significant effect on the environment or would
 8 mitigate the significant environmental effect, a lead agency need not prepare an EIR
 9 solely because without mitigation the environmental effects would have been significant
 10 (per State CEQA Guidelines, § 15065):

MANDATORY FINDINGS OF SIGNIFICANCE –	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11 **3.18.1 Impact Analysis**

12 ***a) Does the project have the potential to degrade the quality of the environment,***
 13 ***substantially reduce the habitat of a fish or wildlife species, cause a fish or***
 14 ***wildlife population to drop below self-sustaining levels, threaten to eliminate a***
 15 ***plant or animal community, reduce the number or restrict the range of a rare or***
 16 ***endangered plant or animal, or eliminate important examples of the major periods***
 17 ***of California history or prehistory?***

1 **Less than Significant with Mitigation.** As described in Section 3.4, Biological
2 Resources, with the implementation of MMs, the proposed Project would not result in
3 significant impacts to sensitive marine resources and would not have a significant effect
4 on listed species or habitat used by those species. The Project could potentially
5 increase suspended sediments and disturb habitat and thus degrade the quality of the
6 environment within the Project area. However, these impacts can be avoided or
7 minimized as described in Sections 2, Project Description, and 3, Environmental
8 Analysis, and would be inherently limited due to the temporary and short duration (8
9 weeks) of the Project. The Project would not be expected to substantially reduce the
10 habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-
11 sustaining levels, threaten to eliminate a plant or animal community, or reduce the
12 number or restrict the range of rare or endangered plants or animals.

13 As described in Section 3.5, Cultural Resources, the proposed Project would not result
14 in significant impacts to any known cultural resources and implementation of the MMs
15 described in that section ensure that if previously undetected resources are
16 encountered during the Project, the potential impacts would be avoided/minimized.

17 With implementation of the Project MMs, impacts associated with the proposed Project
18 would be less than significant.

19 ***b) Does the project have impacts that would be individually limited, but***
20 ***cumulatively considerable? (“Cumulatively considerable” means that the***
21 ***incremental effects of a project are considerable when viewed in connection with***
22 ***the effects of past projects, the effects of other current projects, and the effects***
23 ***of probable future projects.)***

24 **Less Than Significant Impact.** A review of CSLC and Contra Costa County project
25 lists shows no projects with potentially overlapping impacts that would occur coincident
26 with Project construction impacts. Two projects are planned in the city of Antioch within
27 2 miles of the GP wharf that are currently underway and scheduled to be completed in
28 late 2015. The final tasks of these projects may overlap in time with the GP Antioch
29 wharf construction schedule. A summary of these projects and schedules is as follows:

30 Lone Tree Way/A Street—State Highway 4 Interchange

31 The Lone Tree Way/A Street segment is the fourth construction segment along the
32 Highway 4 widening project corridor, between Contra Loma Boulevard/L Street and
33 Hillcrest Avenue in Antioch. The project is within 2 miles of the GP Antioch wharf
34 upgrade project. It will expand Highway 4 from four to eight lanes, including three mixed
35 flow lanes and one High Occupancy Vehicle (HOV) lane, from just west of Lone Tree
36 Way/A Street to just west of Hillcrest Avenue. The project includes reconstruction of the
37 Lone Tree Way/A Street Interchange and widening the highway median to

1 accommodate mass transit (East Contra Costa BART extension or eBART). Upcoming
2 construction is projected to include the following:

- 3 • Complete construction of the foundation for the Lone Tree Way/A Street bridge;
- 4 • Complete the construction of the foundation for the Cavallo Road bridge;
- 5 • Construct various drainage improvements on the project;
- 6 • Construct the westbound Highway 4 interior lanes and median between Hillcrest
7 Avenue and Cavallo Road;
- 8 • Complete the construction of the interior portion of the Pedestrian Undercrossing
9 east of Lone Tree Way/A Street.

10 Project construction began in August 2012 and the segment is expected to be open to
11 traffic in late 2015. The final construction tasks of this project (in late summer of 2015)
12 may overlap in time with the planned Project construction period from August 1 through
13 November 30, 2015.

14 Hillcrest Avenue—Highway 4/ eBART Project

15 Construction on the Hillcrest Avenue segment of the Highway 4 widening project is less
16 than 2 miles from the GP Antioch wharf upgrade project. It is the fifth and final
17 construction segment along the main project corridor, ending in the city of Antioch. The
18 project would widen the highway from four to eight lanes, including three mixed flow
19 lanes and one HOV lane. The project includes a median wide enough to accommodate
20 mass transit (eBART), as well as provisions for a new eBART station just east of
21 Hillcrest Avenue. Construction began in March 2013 and the segment is expected to be
22 open to traffic in late 2015. Upcoming construction that is currently projected includes
23 the following:

- 24 • Continue construction of retaining walls at various locations on the project;
- 25 • Continue electrical work at various locations on the project;
- 26 • Begin construction of the public overcrossing;
- 27 • Continue demo of old roadway alignment.

28 The final segments of the Hillcrest Avenue/ Highway 4 project (in late summer of 2015)
29 may overlap in time with the planned Project construction period from August 1 through
30 November 30, 2015.

31 The compliance of the Project with the regional Air Quality Management Plan combined
32 with the short-term, construction-only air emissions that are less than significant, would
33 ensure that there are no potentially significant cumulative construction impacts to air
34 quality in the region as a result of the Project.

1 Because the Project would not have any post-construction impacts, it would not
2 contribute to any cumulative impacts from other projects proposed nearby that are not
3 coincident with the proposed Project's construction period.

4 ***c) Does the project have environmental effects that would cause substantial***
5 ***adverse effects on human beings, either directly or indirectly?***

6 **Less Than Significant with Mitigation.** As described in Section 3.8, Hazards and
7 Hazardous Materials, implementation of Project MMs would ensure potential impacts
8 are less than significant. In addition, the Project would not result in environmental
9 effects related to air quality or noise, or any other impacts that would cause substantial
10 adverse effects on human beings, either directly or indirectly due to its short duration
11 and limited Project area.

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1 **4.0 OTHER MAJOR AREAS OF CONCERN**

2 **4.1 COMMERCIAL FISHING**

3 **4.1.1 Environmental Setting**

4 Commercial fishing in California is primarily in ocean waters. There is a small amount of
5 commercial fishing in the Sacramento-San Joaquin Delta, consisting primarily of
6 crayfish (approximately 100,000 pounds/year), Threadfin shad (approximately 54,000
7 pounds/year), and bay shrimp (approximately 10,000 pounds/year).²⁴

8 **4.1.2 Regulatory Setting**

9 Federal and State laws and regulations pertaining to this issue area and relevant to the
10 Project are identified in Table 4.1-1.

**Table 4.1-1. Federal and/or State Laws, Regulations, and Policies Potentially
Applicable to the Project (Commercial Fishing)**

CA	Other	
		California Commercial Fishing Laws and Licensing Requirements. Commercial fishing is regulated by a series of laws passed by the Fish and Game Commission and issued each year in a summary document. Seasonal and gear restrictions within the various California Department of Fish and Wildlife (CDFW) Districts, licensing instructions and restrictions, and species-specific fishing requirements are provided in the document. Most of the MPAs have commercial fishing restrictions (based on the designation of each area), which are also listed in the summary document.

11 There are no local policies regarding commercial fishing in the Project area.

12 **4.1.3 Impact Analysis**

13 The Project would be constructed in the area of an existing wharf, outside of the main
14 channel of the San Joaquin River. The construction period would be approximately 8
15 weeks. There is no known commercial fishery in the vicinity of the wharf. As described
16 in the Biological Resources, Hydrology and Water Quality, and Hazardous Materials
17 sections, above, the Project would have no significant effects to fisheries after
18 mitigation. Therefore, the Project would have no impact to commercial fisheries.

19 **4.1.4 Mitigation Summary**

20 The Project would not result in significant impacts to Commercial Fisheries; therefore,
21 no mitigation is required.

²⁴www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/delta_hg/staff_report_jun06/delta_hg_tmdl_app_a_c.pdf.

1 **4.2 CSLC ENVIRONMENTAL JUSTICE POLICY**

2 Environmental justice is defined by California law as “the fair treatment of people of all
3 races, cultures, and incomes with respect to the development, adoption,
4 implementation, and enforcement of environmental laws, regulations, and policies
5 (Senate Bill 115 [Chapter 690, Statutes of 1999]).” This definition is consistent with the
6 Public Trust Doctrine principle that the management of trust lands is for the benefit of all
7 of the people. The California State Lands Commission (CSLC) adopted an
8 environmental justice policy in October 2002 to ensure that environmental justice is an
9 essential consideration in the agency’s processes, decisions, and programs. Through its
10 policy, CSLC reaffirms its commitment to an informed and open process in which all
11 people are treated equitably and with dignity, and in which its decisions are tempered by
12 environmental justice considerations.

13 As part of the CSLC environmental justice policy, the CSLC pledges to continue and
14 enhance its processes, decisions, and programs with environmental justice as an
15 essential consideration by:

- 16 1) Identifying relevant populations that might be adversely affected by CSLC
17 programs or by projects submitted by outside parties for its consideration.
- 18 2) Seeking out community groups and leaders to encourage communication and
19 collaboration with the CSLC and its staff.
- 20 3) Distributing public information as broadly as possible and in multiple languages,
21 as needed, to encourage participation in the CSLC’s public processes.
- 22 4) Incorporating consultations with affected community groups and leaders while
23 preparing environmental analyses of projects submitted to the CSLC for its
24 consideration.
- 25 5) Ensuring that public documents and notices relating to human health or
26 environmental issues are concise, understandable, and readily accessible to the
27 public, in multiple languages, as needed.
- 28 6) Holding public meetings, public hearings, and public workshops at times and in
29 locations that encourage meaningful public involvement by members of the
30 affected communities.
- 31 7) Educating present and future generations in all walks of life about public access
32 to lands and resources managed by the CSLC.
- 33 8) Ensuring that a range of reasonable alternatives is identified when siting facilities
34 that may adversely affect relevant populations and identifying, for the CSLC’s
35 consideration, those that would minimize or eliminate environmental impacts
36 affecting such populations.

- 1 9) Working in conjunction with federal, State, regional, and local agencies to
2 ensure consideration of disproportionate impacts on relevant populations, by
3 instant or cumulative environmental pollution or degradation.
- 4 10) Fostering research and data collection to better define cumulative sources of
5 pollution, exposures, risks, and impacts.
- 6 11) Providing appropriate training on environmental justice issues to staff and the
7 CSLC so that recognition and consideration of such issues are incorporated into
8 its daily activities.
- 9 12) Reporting periodically to the CSLC on how environmental justice is a part of the
10 programs, processes, and activities conducted by the CSLC and by proposing
11 modifications as necessary.

12 **4.2.1 Methodology**

13 The CSLC environmental justice policy does not specify a methodology for conducting
14 programmatic-level analysis of environmental justice issues. This analysis focuses
15 primarily on whether the Project's impacts have the potential to affect areas of high-
16 minority populations and/or low-income communities disproportionately and thus would
17 create an adverse environmental justice effect. For the purpose of the environmental
18 analysis, the Project's inconsistency with the CSLC's Environmental Justice Policy
19 would occur if the Project would:

- 20 • Have the potential to disproportionately affect minority and/or low-income
21 populations adversely; or
- 22 • Result in a substantial, disproportionate decrease in employment and economic
23 base of minority and/or low-income populations residing in immediately adjacent
24 communities.

25 **4.2.2 Project Analysis**

26 The Project's limited impact on the human environment is established in various
27 sections of this document, including Sections 3.1 (Aesthetics), 3.3 (Air Quality), 3.7
28 (Greenhouse Gas Emissions), 3.8 (Hazards and Hazardous Materials), 3.9 (Hydrology
29 and Water Resources), 3.12 (Noise), 3.15 (Recreation) and 3.16
30 (Traffic/Transportation). The Project would be located in the active channel of the San
31 Joaquin River, adjacent to industrial and open space areas, and approximately 1,800
32 feet from the closest residents. Project activities would be limited to an 8-week period,
33 and noise, hazardous materials, and air quality effects to local residents would be less
34 than significant. The Project would have minor positive employment impacts, with seven
35 new workers on average at the site during the construction period. Therefore, the
36 Project would not adversely affect any populations, including minority or low-income
37 populations.

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5.0 MITIGATION MONITORING PROGRAM

The California State Lands Commission (CSLC) is the lead agency under the California Environmental Quality Act (CEQA) for the Georgia Pacific (GP) Gypsum Antioch Wharf Upgrade Project (Project). In conjunction with approval of this Project, the CSLC adopts this Mitigation Monitoring Program (MMP) for implementation of mitigation measures (MMs) for the Project to comply with Public Resources Code section 21081.6, subdivision (a) and State CEQA Guidelines sections 15091, subdivision (d), and 15097.

The Project authorizes GP Gypsum, LLC (GP Gypsum or Applicant) to remove, install, and repair structures on the wharf to upgrade the wharf in accordance with the terms and conditions of its existing CSLC Lease No. PRC 1589.

5.1 PURPOSE

It is important that significant impacts from the Project are mitigated to the maximum extent feasible. The purpose of a MMP is to ensure compliance and implementation of MMs; this MMP shall be used as a working guide for implementation, monitoring, and reporting for the Project's MMs.

5.2 ENFORCEMENT AND COMPLIANCE

The CSLC is responsible for enforcing this MMP. The Project Applicant is responsible for the successful implementation of and compliance with the MMs identified in this MMP. This includes all field personnel and contractors working for the Applicant.

5.3 MONITORING

The CSLC staff may delegate duties and responsibilities for monitoring to other environmental monitors or consultants as necessary. Some monitoring responsibilities may be assumed by other agencies, such as affected jurisdictions, cities, and/or the California Department of Fish and Wildlife (CDFW). The CSLC and/or its designee shall ensure that qualified environmental monitors are assigned to the Project.

Environmental Monitors. To ensure implementation and success of the MMs, an environmental monitor must be on site during all Project activities that have the potential to create significant environmental impacts or impacts for which mitigation is required. For the Project, a qualified biologist will be the environmental monitor; he/she will conduct the Worker Environmental Awareness Program (WEAP) training and be on-call during the conduct of all Project activities. Among other duties, the qualified biologist shall have the authority to halt work to ensure impacts to species are minimized and/or avoided. If a listed species is detected, the qualified biologist will also notify CSLC and CDFW staff. Along with the CSLC staff, the qualified biologist is responsible for:

- 1 • Ensuring that the Applicant has obtained all applicable agency reviews and
2 approvals;
- 3 • Coordinating with the Applicant to integrate the mitigation monitoring procedures
4 during Project implementation (for this Project, many of the monitoring
5 procedures shall be conducted during the deconstruction phase); and
- 6 • Ensuring that the MMP is followed.

7 The qualified biologist shall immediately report any deviation from the procedures
8 identified in this MMP to the CSLC staff or its designee. The CSLC staff or its designee
9 shall approve any deviation and its correction.

10 Workforce Personnel. Implementation of the MMP requires the full cooperation of
11 Project personnel and supervisors. Many of the MMs require action from the site
12 supervisor(s) and the crew. The following actions shall be taken to ensure successful
13 implementation.

- 14 • Relevant mitigation procedures shall be written into contracts between the
15 Applicant and any contractors.
- 16 • For this Project, a WEAP (under MM BIO-4) shall be implemented and all
17 personnel would be required to participate.

18 General Reporting Procedures. A monitoring record form shall be submitted to the
19 Applicant, and once the Project is complete, a compilation of all the logs shall be
20 submitted to the CSLC staff. The CSLC staff or its designated environmental monitor
21 shall develop a checklist to track all procedures required for each MM and shall ensure
22 that the timing specified for the procedures is followed. The environmental monitor shall
23 note any issues that may occur and take appropriate action to resolve them.

24 Public Access to Records. Records and reports are open to the public and would be
25 provided upon request.

26 **5.4 MITIGATION MONITORING TABLE**

27 This section presents the Mitigation Monitoring Table (Table 5-1) for the following
28 environmental disciplines: Biological Resources, Cultural and Paleontological
29 Resources, Hazards and Hazardous Materials, and Hydrology and Water Quality. All
30 other environmental disciplines were found to have less than significant or no impacts
31 and are therefore not included below. The table lists the following information, by
32 column:

- 33 • Potential Impact;
- 34 • Mitigation Measure (full text of the measure);

- 1 • Location (where impact occurs and mitigation measure should be applied);
- 2 • Monitoring/Reporting Action (action to be taken by monitor or Lead Agency);
- 3 • Timing (before, during, or after construction; during operation, etc.);
- 4 • Responsible Party; and
- 5 • Effectiveness Criteria (how the agency can know if the measure is effective).

Table 5.4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring / Reporting Action	Timing	Responsible Party	Effectiveness Criteria
Biological Resources						
Construction-Related Impacts to Special-Status Fish and Birds	MM BIO-1. Timing of Work. All in-water work shall be performed within the environmental work window between August 1 and November 30.	In-water work areas	Submit all final in-work plans to CSLC at least 30 days before starting work	Before and during work	Applicant/ Contractors/ CSLC	Perform all in-water work between August 1 and November 30
	MM BIO-2. Restriction on Equipment Movements. To avoid potential impacts to sensitive plants that may occur along the shoreline, boats, barges and any floating or submerged equipment shall be prevented from contacting the shoreline to avoid crushing native vegetation or wildlife.	In-water work areas	Submit map of restricted area to CSLC at least 30 days before starting work	Before and during work	Applicant/ Contractors/ CSLC	Impacts to shoreline habitats are prevented
	MM BIO-3. Designation of an Agency-Approved Project Biologist. At least 30 days before initiating Project activities, the Project proponent shall obtain the California Department of Fish and Wildlife's written approval for a designated Project Biologist. The Project Biologist shall be on site during initial Project activities and as necessary to oversee activities described for pile-driving acoustic monitoring (MM BIO-7) and monitoring of sensitive migratory birds (MM BIO-9).	Sensitive habitat areas	Submit name and contact information of Biologist, and any monitoring records to CSLC before starting work	Before and during work	Applicant/ Contractors/ CDFW/ CSLC	Project biologist is approved on time
	MM BIO-4. Worker Environmental Awareness Program (WEAP). A WEAP shall be developed and presented by the Project Biologist. The WEAP shall cover the ecology, identification, legal protections afforded all potentially occurring special-status plant and animal species as well as the identified protective measures and implications of non-compliance. All persons employed or otherwise working on the Project sites shall attend a WEAP presentation prior to performing any work on site.	Not applicable	Submit a copy of the training material, duration of training, attendees sign-in sheet to CSLC before starting work	Before work	Applicant/ Contractors/ CSLC	Avoid sensitive species and habitats

Potential Impact	Mitigation Measure (MM)	Location	Monitoring / Reporting Action	Timing	Responsible Party	Effectiveness Criteria
	MM BIO-5. Wildlife Protections. If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed and shall not be flushed, hazed, or herded away from the Project site.	All work areas	Submit reports of wildlife encounters and measures taken to protect them to CDFW and CSLC within 24 hours	During work	Applicant/ Contractors/ CDFW/ CSLC	Minimize wildlife harmed or harassed during work
	MM BIO-6: In-Water Turbidity Protections. During pile removal activities, turbidity monitoring shall be monitored daily during an ebb tide, at 31 meters (100 feet) upstream and 92 meters (300 feet) downstream of the work site. If downstream turbidity measures are more than 15 Nephelometric Turbidity Units (NTU) above the upstream level, activities shall cease until turbidity levels drop below 15 NTUs above the upstream measurement. All incidents of exceedance of the turbidity standard shall be reported to the California Department of Fish and Wildlife (CDFW) within 24 hours. A turbidity-monitoring log shall be maintained and provided to the CDFW and the State Lands Commission staffs within 5 days from the completion of work.	In-water work areas	Submit turbidity monitoring logs to CDFW and CSLC within 24 hours for exceeding turbidity standards and all turbidity logs within 5 days of completing the work	During and after work	Applicant/ Contractors/ CDFW/ CSLC	Minimize exceedances of 15 NTU turbidity criterion
	MM BIO-7. Minimize Underwater Sound From Pile Driving. Underwater sound monitoring shall be performed during pile driving for all piles unless monitoring of the first pile of each size and type demonstrates that the accumulated sound exposure levels (SEL) do not exceed the cumulative exposure threshold of 183 decibels at 10 meters. A hydroacoustic monitoring log shall be kept and a monitoring report shall be submitted to the State Lands Commission staff upon completion of pile driving activities. In addition, underwater sound reduction measures shall be implemented, as follows: a) Use of an impact hammer cushion block;	In-water work areas	Submit plans to CSLC 30 days before starting work and incidents of exceeding SEL standards to CDFW and CSLC within 24 hours	Before, during, and after work	Applicant/ Contractors/ CDFW/ CSLC	Minimize exceedances of SEL standards

Potential Impact	Mitigation Measure (MM)	Location	Monitoring / Reporting Action	Timing	Responsible Party	Effectiveness Criteria
	b) Use of impact hammers only during daylight hours; c) Implementation of “soft start” procedures, in which impact strikes gradually increase in energy and frequency of impacts to permit wildlife to vacate the surroundings; and d) Use of a bubble curtain surrounding piles during pile driving operations.					
	<p>MM BIO-8. Toxic Substances Protections. To ensure toxic substances are not released into the aquatic environment, the following measures shall be followed:</p> a) All engine-powered equipment shall be well-maintained and free of leaks of fuel, oil, hydraulic fluid or any other potential contaminant; b) All engine-powered equipment used and operated from the decks of barges, boats or the wharf shall be positioned over drip-pans; c) A spill prevention and response plan shall be prepared in advance of the commencement of work; a spill kit with appropriate clean-up supplies shall be kept on hand during operations. The kit shall include a floating oil-absorbent sock that could be immediately deployed and maintained around the work barges in the event of a spill or any accidental leakage of fuel or hydraulic fluids; d) Refueling and maintenance or mobile equipment shall not be performed directly over the waters of the river. Only approved and certified fuel cans with “no-spill” spring-loaded nozzles shall be used; and e) All spill cleanup materials or other liquid or solid wastes shall be securely containerized and labeled in the field during transport by barge to the contractor’s yard.	All work areas	Submit all plans to CSLC 30 days before starting work	Before and during work	Applicant/ Contractors/ CSLC	Minimize environmental contamination from toxic substances

Potential Impact	Mitigation Measure (MM)	Location	Monitoring / Reporting Action	Timing	Responsible Party	Effectiveness Criteria
	<p>MM BIO-9. Protection of Migratory Birds. To ensure special-status and other migratory birds are not harmed during construction, the following measures shall be followed:</p> <p>a) If construction activities are scheduled to occur outside of the breeding season (i.e., September 1 through January 31), no preconstruction surveys or other MMs are necessary.</p> <p>b) If construction activities are scheduled to occur during the breeding season (i.e., February 1 through August 31), a preconstruction nesting bird survey shall be conducted of the wharf structures, the identified work area and a buffer zone (see below). The survey should be performed by a qualified biologist no more than two weeks prior to the initiation of work. If no active nest is observed, work may proceed without restrictions. An active nest is one that contains eggs, chicks, or young birds that have not fledged from the nest.</p> <p>c) For any active nests found near the construction limits (76 meters [250 feet] for raptors and 33 meters [100 feet] for passerines), the Project biologist shall map their location and make a determination as to whether or not construction activities are likely to disrupt the nest or cause nest failure. If it is determined that construction is unlikely to disrupt incubation, rearing, or fledging, construction may proceed. If it is determined that construction may disrupt these behaviors, the no-construction buffer zone shall be implemented. In general, the buffer zone shall be a minimum of 300 feet from the drip line of the nest tree or nest for raptors and 50 feet for passerines. The ultimate size of the no-construction buffer zone may be adjusted by the Project biologist based on the species involved, topography, lines of sight between the work area and the nest, physical</p>	Project site and vicinity	Submit all plans to CSLC 30 days before starting work and consult with the appropriate CDFW or USFW staff	Before and during work	Applicant/ Contractors/ CDFW/ USFW/ CSLC	Minimize construction impacts to migratory birds

Potential Impact	Mitigation Measure (MM)	Location	Monitoring / Reporting Action	Timing	Responsible Party	Effectiveness Criteria
	<p>barriers, and the ambient level of human activity. The buffer zone may be reduced after consultation and with concurrence from the California Department of Fish and Wildlife and/or the U.S. Fish and Wildlife Service Division of Migratory Bird Management. If it is determined that construction activities are likely to disrupt an active nest, construction activities within the no-construction buffer zone shall not proceed until the Project biologist determines that the young have left the nest and are foraging independently or the nest is no longer active.</p> <p>d) If maintenance of a no-construction buffer zone is not practicable, active nests should be monitored by a qualified biologist to document breeding and rearing behavior of the adult birds. If it is determined that construction activities might cause nest abandonment, work shall cease until the young have left the nest and are foraging independently or the nest is no longer active.</p>					
	<p>MM BIO-10: Protection of Marine Mammals. To ensure potential impacts to harbor seals and California sea lions are minimized, the Project Biologist shall monitor for the presence of marine mammals during impact pile driving activities. The following acoustic “exclusion zone” shall be enforced around a pile being driven with an impact hammer:</p> <ul style="list-style-type: none"> • 510 meters for 72-inch piles • 200 meters for 48 and 42-inch piles • 150 meters for 30 and 24-inch piles <p>If a harbor seal or California sea lion is observed within the exclusion zone during impact hammer driving, pile driving will stop until the individual(s) moves beyond the limit of the exclusion zone on its own volition. Once the individual(s) moves outside of the exclusion zone, impact pile driving may resume.</p>	Project site and vicinity	Comply	During work	Applicant/ Contractors/ CSLC	Minimize construction impacts to marine mammals

Potential Impact	Mitigation Measure (MM)	Location	Monitoring / Reporting Action	Timing	Responsible Party	Effectiveness Criteria
Cultural and Paleontological Resources						
Construction-Related Impacts to Cultural Resources	<p>MM CUL-1: Discovery of Previously Unknown Cultural Resources. Should additional cultural materials be uncovered during Project implementation, Project activities shall cease within 100 feet of the find and a Cultural Resources Specialist and California State Lands Commission (CSLC) staff shall be contacted immediately. The location of any such finds must be kept confidential and measures should be taken to ensure that the area is secured to minimize site disturbance and potential vandalism. Additional measures to meet these requirements, after a qualified Cultural Resources Specialist has been notified, include assessment of the nature and extent of the resource, including its possible eligibility for listing in the National Register of Historic Places, and subsequent recordation and notification of relevant parties based upon the results of the assessment. Title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the CSLC. The final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the CSLC must be approved by the Commission.</p>	In-water work areas	Comply and coordinate with CSLC	During work	Applicant/ Contractors/ CSLC	Minimize construction impacts to cultural resources
	<p>MM CUL-2: Unanticipated Discovery of Human Remains. If human remains are encountered during implementation of the Project, all provisions provided in California Health and Safety Code section 7050.5 and California Public Resources Code section 5097.98 shall be followed. Work shall stop within 100 feet of the discovery and a qualified Cultural Resources Specialist must be contacted immediately, who shall consult with the County</p>	In-water work areas	Comply and coordinate with CSLC	During work	Applicant/ Contractors/ CSLC	Minimize construction impacts to cultural resources

Potential Impact	Mitigation Measure (MM)	Location	Monitoring / Reporting Action	Timing	Responsible Party	Effectiveness Criteria
	Coroner. In addition, California State Lands Commission (CSLC) staff shall be notified. If human remains are of Native American origin, the County Coroner shall notify the Native American Heritage Commission within 24 hours of this determination and a Most Likely Descendent shall be identified. No work is to proceed in the discovery area until consultation is complete and procedures to avoid and/or recover the remains have been implemented.					
Hazards and Hazardous Materials						
Accidental Spill of Construction-Related Hazardous Materials (Fuels, Lubricants, etc.)	MM BIO-6 In-Water Turbidity Protections (see above)					
	MM BIO-8 Toxic Substances Protections (see above)					
Hydrology and Water Quality						
Turbidity and Resuspension of Bay Sediments in Water Column	MM BIO-6 In-Water Turbidity Protections (see above)					
	MM BIO-8 Toxic Substances Protections (see above)					

1 **6.0 MND PREPARATION SOURCES AND REFERENCES**

2 This Mitigated Negative Declaration (MND) was prepared by the staff of the California
3 State Lands Commission's (CSLC) Division of Environmental Planning and
4 Management (DEPM), with the assistance of GECO Grassetti Environmental
5 Consulting. The analysis in the MND is based on information identified, acquired,
6 reviewed, and synthesized based on DEPM guidance and recommendations.

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1 APPENDICES