Joint Aquatic Resources Permit Application (JARPA) for the Tacoma LNG Project

USACE Ref # NWS-2014-1128-WRD

Prepared for

Puget Sound Energy, Inc.

Resubmitted December 2015

Prepared by

CH2MHILL®

2020 SW Fourth Avenue, Suite 300
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Contents

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2]

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

US Army Corps of Engineers
Seattle District

AGENCY USE ONLY

Date received: Received December 3, 2015

Agency reference #: _____

Tax Parcel #(s): _____

_____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
Tacoma LNG Project (Project)

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Larry Tornberg/PSE and Tony Warfield/Port of Tacoma			
2b. Organization (If applicable)			
Puget Sound Energy, Inc., and Port of Tacoma			
2c. Mailing Address (Street or PO Box)			
P.O. Box 97034 EST 09E (PSE) and P.O. Box 1837, 1 E. Sitcum Plaza (Port of Tacoma)			
2d. City, State, Zip			
Bellevue, WA 98009-9734 (PSE) and Tacoma, WA 98401-1837 (Port of Tacoma)			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
(425) 456-2691	(253) 428-8632	( )	larry.tornberg@pse.com twarfield@portoftacoma.com

[1]Additional forms may be required for the following permits:

- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- If your project might affect species listed under the Endangered Species Act, you will need to fill out a Specific Project Information Form (SPIF) or prepare a Biological Evaluation. Forms can be found at http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook/EndangeredSpecies.aspx.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office of Regulatory Assistance at 1-800-917-0043 or help@ora.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
Tornberg, Larry, D			
3b. Organization (If applicable)			
Puget Sound Energy			
3c. Mailing Address (Street or PO Box)			
P.O. Box 97034 EST 09E			
3d. City, State, Zip			
Bellevue, WA 98009-9734			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail
(425) 456-2691	(206) 604-5098	(425) 456-2455	Larry.Tornberg@pse.com

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☒ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☐ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
See JARPA Attachment A, Property Owners and JARPA Figure 1, Vicinity Map.			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
4d. City, State, Zip			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail
( )	( )	( )	

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☒ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

Indicate the type of ownership of the property. (Check all that apply.) [help]
☐ Private ☐ Federal ☒ Publicly owned (state, county, city, special districts like schools, ports, etc.) ☐ Tribal ☐ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)
5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]
901 and 1001 Alexander Avenue East and 3533 E 11th Street
5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]
Tacoma, WA 98421
5d. County [help]
Pierce County
5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
--	26, 27	21 North	3 East

5f. Provide the latitude and longitude of the project location. [help] • Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)
47.27625 N lat. / -122.406 W long.
5g. List the tax parcel number(s) for the project location. [help] • The local county assessor's office can provide this information.
See JARPA Attachment B, Project Locations and JARPA Figures 1 (Vicinity Map) and 2 (Existing Conditions).
5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
See JARPA Attachment C, Adjoining Property Owners.		

5i. List all wetlands on or adjacent to the project location. [help]

No wetlands are located at or directly adjacent to the locations where in-water work would be conducted in the Hylebos and Blair waterways.

The Project does not propose any work in wetlands or their buffers. Wetlands are present adjacent to Taylor Way where a portion of the distribution pipeline would installed within the paved roadway.

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

Name	Pipeline Milepost	USGS Hydrologic Unit Code (HUC)	WRIA	Flow Type	Stream Width (ft)	WDNR Stream Type	Proposed Crossing Method
Hylebos Waterway	NA	17110019	10 Puyallup-White	Tidal	NA	S	None
Blair Waterway	NA	17110019	10 Puyallup-White	Tidal	NA	S	None

5k. Is any part of the project area within a 100-year floodplain? [help]

☒ Yes ☐ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

The sites proposed for the Tacoma LNG Facility and Totem Ocean Trailer Express (TOTE) Marine Vessel LNG Fueling System were created decades ago from dredge and fill material and are situated on what was historically mudflat and salt marsh habitat. The resulting upland, marine tidal, and subtidal habitats have been actively developed, managed, and maintained for industrial and commercial shipping since that time. Consequently, plant and animal habitats are limited or highly disturbed. Photos of the sites are provided in Appendix A for reference.

In-water Sites Subject to this Application

Hylebos Waterway—Tacoma LNG Facility

The majority of the Hylebos Waterway shoreline in this area is constructed of gravel and soil fill material supported by a timber bulkhead. The western end of the shoreline at the site is a riprapped bank. Shoreline and aquatic vegetation is very sparse. Sparse weedy vegetation is along the top of the shoreline bank, including Himalayan blackberry (*Rubus discolor*), Scot's broom (*Cytisus scoparius*), Japanese knotweed (*Fallopia japonica*), and butterfly bush (*Buddleia davidii*). Macroalgae coverage in the intertidal zone is sparse, consisting primarily of sea lettuce (*Ulva fenestrata*). At approximately +1 foot mean lower low water (mllw), sea lettuce, sugar kelp (*Laminaria saccharina*), *Gracilaria* spp., and *Ceramium* spp. were observed during the December 6, 2012, biological survey. Subtidal substrate in the Hylebos Waterway is generally a mix of riprap, small cobbles or other fine-grained sediments and consists of sand and silty sand as well as organic sediments that enter the waterway from Hylebos Creek and the Puyallup River.

Blair Waterway—TOTE Marine Vessel LNG Fueling System

The shoreline along the Blair Waterway adjacent to the proposed in-water work is developed with wharves, piers, and riprap armored slopes. It is generally sloped at approximately 40 to 60 percent and is covered with various slope-protection materials, including riprap, concrete and asphalt pieces. In general, riprap extends from the top of the bank down to approximately +1 feet mllw. Several existing in-water structures in the Blair Waterway are associated with existing TOTE operations: one timber T-pier, three concrete piers, and one concrete breasting dolphin. Upland and aquatic vegetation along Blair Waterway is very sparse. Macroalgae along the shoreline consists solely of sea lettuce (*Ulva fenestrata*). Sea lettuce, sugar kelp (*Saccharina latissima*), *Gracilaria* spp., and *Ceramium* spp. are present near the surface. Subtidal substrate

in the Blair Waterway is generally a mix of riprap, small cobbles or other fine-grained sediments and consists of sand and silty sand as well as organic sediments that enter the waterway from Wapato Creek and the Puyallup River.

Upland Sites

Tacoma LNG Facility

The upland portion of the Tacoma LNG Facility site consists of existing infrastructure such as the container offload/staging areas, warehouse and various associated buildings, and impervious parking lots. Nearly the entire approximately 30-acre site is developed, paved, or graveled. In total, these undeveloped areas cover less than 1 percent of the total upland portion of the site.

TOTE Marine Vessel LNG Fueling System

The general character of the upland portions of the TOTE Marine Vessel LNG Fueling System site reflects previous and ongoing industrial activity. The section of the parcel that would be crossed by the underground cryogenic pipeline is developed and paved. The TOTE site consists of loading and unloading ramps, a few buildings, and a paved trailer yard.

5m. Describe how the property is currently used. [help]

In-water Sites Subject to this Application

Hylebos Waterway—Tacoma LNG Facility

SAFE Boats International, LLC leases the existing pier on the Hylebos Waterway at the Tacoma LNG Facility site for testing new vessels.

Blair Waterway—TOTE Marine Vessel LNG Fueling System

TOTE operates two roll-on/roll-off cargo ships per week from the existing in-water structures located in the Blair Waterway.

Upland Sites

The Tacoma LNG Facility site contains a warehouse, two office buildings and dispersed storage facilities. Tenants that currently occupy space within the site are PCC Logistics, EHW Constructors, and Safe Boats. PCC Logistics is a logistics, warehousing, trucking, distribution, and freight services company. EHW Constructors uses the site for construction, fabrication and storage. The Port of Tacoma Maintenance Department utilizes some areas for equipment storage.

The TOTE Marine Vessel LNG Fueling System site is currently leased by TOTE, a marine transportation company. The site contains administration, maintenance, and warehouse buildings.

5n. Describe how the adjacent properties are currently used. [help]

Properties adjacent to both the Tacoma LNG Facility and Totem Ocean Trailer Express (TOTE) Marine Vessel LNG Fueling System are previously developed and in industrial use or vacant.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

In-water Sites Subject to this Application

Hylebos Waterway—Tacoma LNG Facility

The Hylebos Waterway shoreline in this area is covered with slope-protection materials including a timber bulkhead and riprap. Two piers extend into the Hylebos Waterway. One of the piers is approximately 40-foot by 15-foot, with an approximately 90-foot walkway, located on the northeast corner of Parcel 2275200532. This creosote-treated timber pier is abandoned and in disrepair. The second pier is a creosote-treated timber structure measuring roughly 600 feet by 25 feet, located on Parcel 2275200502.

Blair Waterway—TOTE Marine Vessel LNG Fueling System

The TOTE site shoreline along the Blair Waterway is developed with wharves, piers, and riprap armored slopes. It is generally sloped at approximately 40 to 60 percent and is covered with slope protection materials including riprap, concrete and asphalt pieces. Several existing in-water structures in the Blair Waterway are associated with existing TOTE operations: one timber T-pier, three concrete piers, and one concrete breasting dolphin. TOTE's existing operations, including use of these in-water structures would continue and are not subject to any modifications under this application.

Upland Sites

The upland portion of the Tacoma LNG Facility site contains a warehouse, two office buildings and dispersed storage facilities.

The upland portion of the TOTE site consists of loading/unloading ramps, a few buildings, and a paved trailer yard.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

See Figures 1 and 2.

Tacoma LNG Facility/TOTE Marine Vessel LNG Fueling System: From Interstate 5, take Exit 137, proceed north on 54th Avenue East, which becomes Taylor Way; proceed southwest on 11th Street East, and northwest on Alexander Avenue East, from which each of the sites can be accessed.

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

Overview

The Tacoma LNG Project (Project) consists of a small-scale facility for producing liquefied natural gas (LNG) to fuel marine vessels and to provide LNG fuel to various industries in the Pacific Northwest via LNG bunkering barges and tanker trucks. The Project would also have the capability to convert LNG back into natural gas for reinjection into the PSE natural gas distribution system during periods of high demand (referred to as peak shaving).

The components of the Project that include in-water facilities are as follows:

- **Tacoma LNG Facility** to produce and store the LNG and transfer LNG to tanker trucks onsite or barges in the Hylebos Waterway. The Tacoma LNG Facility is proposed at a site on the Blair-Hylebos peninsula at the Port of Tacoma. The Tacoma LNG Facility would chill natural gas to a liquid state and store it for delivery to a public- and private-sector customer base. The upland portion of the Tacoma LNG Facility site is approximately 30 acres and the aquatic/submerged lands are approximately 3 acres. The in-water Project improvements related to the Tacoma LNG Facility site would include replacing the pier in Hylebos Waterway and stabilizing the Hylebos Waterway shoreline.
- **TOTE Marine Vessel LNG Fueling System** to convey LNG to Totem Ocean Trailer Express for direct fueling of marine vessels in the Blair Waterway via an in-water trestle, loading platform, and breasting dolphin.

The in-water structures are proposed in the Hylebos and Blair Waterways, which are part of the Puget Sound Commencement Bay watershed. No wetland impacts would occur as a result of either the Tacoma LNG Facility or TOTE Marine Vessel LNG Fueling System components.

PSE requests that the Section 404 and 10 permits issued by the U.S. Army Corps of Engineers be authorized to cover a period of 10 years. The Project is important for providing a fuel for both marine transportation and other potential industries in the Pacific Northwest, that is cleaner (that is, has fewer air emissions) than traditional fuels (e.g., diesel) used by these industries. As the market for LNG as a fuel continues to develop, PSE fully anticipates the need for the in-water infrastructure as proposed in this application for both the Hylebos and Blair waterways. However, this is an emerging market place and the exact timing for when additional customers will develop the technology for utilizing LNG as a fuel continues to evolve.

Additionally, the timing of construction and the necessity of adequate time to address sediment contaminant measures further suggests that the Section 404 and 10 permits should be authorized for a 10-year period. PSE initially intends to construct the in-water fueling pier in the Blair Waterway at the TOTE site with PHMSA/UTC approval of a cryogenic pipeline structure to the TOTE site. Construction would occur during the authorized fish window but no sooner than August 1, 2016.

PSE also plans to later develop a pier and loading facility on the Hylebos Waterway. This requires removal of the existing pier, which is supported by creosote-treated timber pilings. In-water construction will not occur within the Hylebos Waterway without concurrence from EPA on appropriate sediment contaminants measures. The time necessary to carefully develop and implement the appropriate sediment contaminants measures following completion of the in-water work in the Blair Waterway at the TOTE site merits the 10-year time period sought so that an adequate program of successful measures is undertaken.

In-water Facilities and Components Subject to this Application

Hylebos Waterway—Tacoma LNG Facility

The in-water infrastructure proposed in the Hylebos Waterway for the Tacoma LNG Facility would include a new pier and associated dolphins.

Pier and Dolphins. To accommodate LNG bunkering operations at the Project site, a new concrete pier would replace an existing creosote-treated timber pier in the Hylebos Waterway. The proposed location for the new pier is shown in Figure 3. Preliminary design details of the pier are shown in Figures 7 through 10.

Information about the piles that would be used to construct the new pier and associated dolphins is summarized in Table 1 and discussed below.

TABLE 1
Tacoma LNG Facility Pier and Dolphin Piles

Component	Number	Construction Material and Dimensions
Trestle and loading Platform	26	30-inch-diameter steel pipe piles
Fender system	16[a]	18-inch-diameter steel pipe piles
Breasting dolphins	40[b]	18-inch-diameter steel pipe piles
Catwalks	4	18-inch-diameter steel pipe piles
Bulkhead	1	600-foot-long steel sheet pile
Total	86[c]	Steel pipe piles; dimensions various

[a]Two groups of four on the platform, four on each of two breasting dolphins.

[b]Four dolphins, each consisting of 10 piles (not including fender piles).

[c]Does not include the steel *sheet* pile.

The new pier is proposed to replace the existing creosote-treated timber pier, as shown in Figures 4 and 5. The new pier would be constructed within the footprint of the existing timber structure. The existing timber pier would be removed as described in the Part 6e Construction Procedures section below. The new concrete pier is proposed to be 60 feet long by 25 feet wide (1,500 square feet [ft^2]) and would include a 68-foot-long by 33-foot-wide (2,244 ft^2) concrete access trestle extending from the upland portion of the site. In addition to a 20-foot-wide access lane for fire vehicles, the access trestle would have an 8-foot-wide combination spill channel and pipe support area. The height of the walls of the spill channel would be set to accommodate the design-level spill and the entire trestle would be sloped to convey the spill to the containment area on shore. The pier and access trestle would be constructed of pre-cast concrete panels or poured-in-place concrete. Concrete is required to meet the requirements of 49 CFR Part 193, *Liquefied Natural Gas Facilities* and National Fire Protection Association Standard 59A, *Standard for the Production, Storage, and Handling of Liquefied Natural Gas*. This code and standard requires solid concrete decking for marine loading areas in order to allow vehicle access and spill impoundment.

The new pier and trestle would be constructed with twenty-six 30-inch-diameter steel pipe piles. The fender system at the face of the pier would consist of two groups of four 18-inch-diameter steel pipe piles with an ultra-high molecular weight polyethylene rub strip on the breasting face of each fender pile. Rubber fender elements would help absorb berthing energy.

The berthing system would also include four 15-foot by 15-foot (225 ft^2 each) dolphins, positioned at either end of the pier. The dolphins would each be supported by up to ten 18-inch-diameter steel pipe piles. The two inner dolphins would be used for both breasting and mooring and would each have four 18-inch-diameter steel pipe fender piles with an ultra-high molecular weight polyethylene rub strip on the breasting face of each fender pile. The outer dolphins would be for mooring only and would not have fenders. Access to the dolphins would be provided by aluminum or steel grated catwalks having a total surface area of 1,450 ft^2.

Additional information on construction of the pier is provided in the Part 6e Construction Procedures section below.

Shoreline Improvement. The existing shoreline along the Hylebos Waterway at the Project site is constructed of gravel and soil fill material supported by a timber bulkhead, which is located at about elevation 11.8 feet mllw (see Figure 6). A new steel sheet pile bulkhead approximately 600 feet in length would be installed approximately 9 feet shoreward of the existing bulkhead, as shown in Figure 6. The new sheet pile bulkhead would help reduce the amount of lateral spreading expected during the design earthquakes and removes an existing source of creosote. The existing bulkhead and supported fill material would be removed and replaced with light, loose riprap varying in size from 3 inches to ½ cubic yard, constructed at a 2:1 slope similar to the existing shoreline slope below elevation 11.8 feet mllw.

Additional information on construction of the shoreline improvements is provided in the Part 6e Construction

Procedures section below.

Loading Bunkering Barges at Pier in Hylebos Waterway. LNG from the storage tank would be loaded onto the bunkering barges within the Hylebos Waterway using in-tank LNG loading pumps by way of the loading pipeline. The aboveground cryogenic pipeline would route to the pier on a trestle and extend along the pier to the loading platform at the end of the pier.

The LNG transfer pipeline would end at an articulated loading arm or hose situated on the loading platform. The marine loading arm or hose would transfer LNG to the barge. A concrete spillway installed down the trestle below the transfer pipeline would provide for conveyance of any released liquid to a purpose-built containment basin located onshore, in the unlikely event of a liquid release.

Blair Waterway—TOTE Marine Vessel LNG Fueling System

The proposed in-water infrastructure for the TOTE Marine Vessel LNG Fueling System is shown in Figures 12 through 16. Mooring fenders, piles, and dolphins would also be installed to stabilize the barge during fueling operations.

Trestle, Loading Platform, and Dolphins. A concrete, steel pile-supported access trestle would extend from shore to the LNG loading platform. This 81-foot-long by 33-foot-wide (2,673-square-foot) trestle would be constructed adjacent to the existing aft loading platform for the TOTE vessel. It would provide a roadway section for fire truck access to the loading platform, pipeway and utility corridor for all required piping and utilities, and a walkway for personnel. Twelve 30-inch-diameter steel pipe piles would support the trestle. The proposed in-water infrastructure is shown in Figures 12 through 16. Information about the piles that would be used to construct the new access trestle, LNG loading platform, and associated dolphins is summarized in Table 2 and discussed below.

TABLE 2
TOTE Marine Vessel LNG Fueling System Access Trestle and LNG Loading Platform Piles

Component	Number	Construction Material and Dimensions
Trestle	12	30-inch-diameter steel pipe piles
Loading platform	20	30-inch-diameter steel pipe piles (includes 5 extra just in case)
Catwalk	2	Two 18-inch-diameter piles at intermediate support
Fender system	10	14-inch-diameter steel pipe piles
TOTE vessel breasting dolphin	4	30-inch-diameter, load-bearing, steel pipe piles
Total	48	Steel pipe; dimensions various

In addition, the access trestle would include a trough for conveying LNG from the loading platform to an onshore containment sump in the event of a spill. The trough and containment sump would be sized for the maximum credible spill event.

The steel pile-supported loading platform at the end of the trestle would be 69 feet long by 32 feet wide (2,208 square feet). The platform would be similar to the one proposed for the Tacoma LNG Facility in Hylebos Waterway. Twenty 30-inch-diameter steel pipe piles would be installed to support the platform. The fender system may include up to ten 14-inch-diameter, steel pipe piles with an ultra-high molecular weight polyethylene rub strip on the breasting face of each fender pile. Rubber fender elements may be placed between the loading platform and each fender pile to absorb berthing energy.

The trestle and loading platform would be concrete to meet the requirements of 49 CFR Part 193, *Liquefied Natural Gas Facilities* and National Fire Protection Association Standard 59A, *Standard for the Production, Storage, and Handling of Liquefied Natural Gas*. This code and standard requires solid concrete decking for marine loading areas in order to allow vehicle access and spill impoundment.

The loading platform would be outfitted with cryogenic marine hoses or loading arms to facilitate the transfer of LNG from the TOTE Marine Vessel LNG Fueling System into the fueling system of TOTE cargo ships.

A steel pipe pile-supported, catwalk would provide line-handlers access to the onshore mooring point and capstan from the aft loading ramp. This open steel grated catwalk with pipe hand railing would connect the

loading platform to the onshore mooring point and capstan. Two 18-inch-diameter pipe piles would be used at the intermediate support to support the catwalk.

One breasting dolphin would be installed north of the existing aft loading pier to protect that pier and the LNG platform from impact by the TOTE vessel. Four 30-inch-diameter steel pipe piles would be used for this dolphin.

Upland Facilities and Components—No Wetland or Waterbody Impacts

Tacoma LNG Facility

The Tacoma LNG Facility would be constructed on an approximately 33-acre site located along the northern half of the Blair-Hylebos peninsula and bordered by the Hylebos Waterway to the northeast, the TOTE facility to the northwest and southwest, and East 11th Street to the southeast (see Figures 1 and 2). The Tacoma LNG Facility site is located in an area zoned as Port Maritime Industrial.

The Tacoma LNG Facility would be sized to produce 250,000 to 500,000 gallons of LNG per day (approximately 146,000 metric tons per annum) from pipeline-quality natural gas.

The facility process systems would convert natural gas into LNG and LNG back into natural gas. The main process systems and associated equipment, which would occur in upland areas and out of the Hylebos Waterway, are summarized as follows:

- Natural Gas to LNG:
  - Pretreatment. Natural gas arriving at the Tacoma LNG Facility would be pretreated to make it suitable for liquefaction. An amine pretreatment system would remove carbon dioxide (CO_2) and sulfur compounds, which could freeze or jell and result in fouling of various internal processes. The CO_2 would be flared and other compounds collected for sale or reuse offsite or reused in the Facility as process fuel gas.
  - Liquefaction. The natural gas would be liquefied using a mixed refrigerant liquefier (MRL) cycle with an adjustable mixture of methane, ethylene, propane, isopentane, and nitrogen as the refrigerant. The refrigerant system would be a closed loop system consisting of a compressor, condenser and receiver, and other components.
  - LNG Storage. LNG from liquefaction would be stored in one aboveground storage tank having a working capacity of 8 million gallons and design pressure of 3 pounds per square inch gauge (psig). The LNG storage tank is considered a full-containment tank with an outer concrete wall storage. The tank is composed of a 9 percent nickel steel inner tank with an aluminum suspended deck, a prestressed concrete outer tank wall, a concrete outer tank mat foundation with base isolation, and a reinforced concrete outer tank dome roof. Instrumentation and safety systems would be included for proper, long-term, safe operation and control.
  - LNG Transfer Facilities. LNG would be pumped from the LNG storage tank to (1) a cryogenic pipeline to the Tacoma LNG Facility pier in Hylebos Waterway for loading to a bunkering barge, which would then be towed for fueling of marine vessels; (2) an underground cryogenic pipeline to the TOTE Marine Vessel LNG Fueling System for fueling of TOTE ships in Blair Waterway; and (3) a truck loading station for loading tractor trailers (tanker trucks) to transport LNG for use elsewhere.
- LNG to Natural Gas:
  - LNG Vaporization for Peak Shaving. When needed to supply peak system demands, LNG would be pumped from the LNG storage tank, gasified, and injected back into the PSE natural gas distribution system.

Support Facilities. The Tacoma LNG Facility would have additional upland support facilities including various buildings, access and parking facilities, electrical systems and various utility systems including water, sewer and firewater. Material support facilities are summarized below.

Impoundment Facilities. Various impoundment facilities would be constructed to address incidental spills of LNG, mixed refrigerant, water propylene-glycol, amine, and oil within the Tacoma LNG Facility boundary. The impoundment systems would include grading, paving and curbing, trenching, temporary containment/process areas (sumps), sump pumps, and valves. All impoundment facilities would have adequate capacity to prevent incidental spills from entering the waterways.

Stormwater. The stormwater management system would be designed to meet the water quality requirements of the Port of Tacoma's 2014 Stormwater Management Plan and any additional applicable requirements from the Western Washington Stormwater Manual.

TOTE Marine Vessel LNG Fueling System

LNG would be conveyed from the LNG storage tank via an underground cryogenic pipeline as part of the proposed TOTE Marine Vessel Fueling System to be located on the existing TOTE Terminal on Blair Waterway, southwest of the Tacoma LNG Facility. The TOTE Marine Vessel LNG Fueling System would be constructed on a parcel bordered by the Blair Waterway to the southwest, East Alexander Avenue and the Tacoma LNG Facility on the other side of East Alexander Avenue to the northeast, and East 11th Street to the east (see Figures 1 and 2).

The cryogenic pipeline from the Tacoma LNG Facility to the TOTE Marine Vessel LNG Fueling System would be designed for a normal flow of 550 cubic meters per hour. The new pipeline would extend approximately 800 feet underground from the Tacoma LNG Facility until reaching the underground/ aboveground transition near the pier, where it would connect to an LNG transfer pipeline.

The LNG transfer pipeline would extend along a trestle to a loading arm or hose on an LNG loading platform offshore in Blair Waterway.

Offsite Project Components—No Wetland or Waterbody Impact

The Project also would include improvements to the existing PSE natural gas distribution system to facilitate supply of natural gas to the Project. These improvements would include the construction of two new underground natural gas distribution pipeline segments, a new natural gas limit station, and modifications to an existing natural gas gate station. These improvements would be located in the City of Tacoma, the City of Fife and unincorporated Pierce County. PSE specifically selected locations for these improvements where wetlands and waterbodies are not present or could be avoided. Thus, construction and operation of the two new distribution pipeline segments, new limit station, and modifications to an existing gate station would not result in impacts to wetlands or waterbodies.

The new pipeline segments would be constructed entirely within the paved portion of existing road rights-of-way. The general construction technique where new pipeline is proposed would consist of open-cut trenching. The entire width of the footprint for construction and installation would be accommodated within one paved travel lane for the new pipeline segments in their entirety and no vegetation clearing would be required. All four waterbodies that would be crossed by the new pipeline segments are streams located within culverts and would be crossed perpendicularly by the proposed pipeline segments. The pipeline would be installed under existing culverts by using a horizontal bore or directional drill without disturbing the culverts. Pipeline crossings under the existing culverts would maintain at least 36 inches vertical separation from the bottom of the culverts to prevent damage during the installation. No other waterbodies or wetlands would be crossed. As proposed these activities do not trigger Corps jurisdiction and are not discussed further.

The new limit station and modified gate station would allow for changes in pipeline pressure as needed in PSE's existing distribution pipeline system. No waterbodies or wetlands occur on the sites proposed for the new limit station and gate station. The limit station would occur entirely on area previously developed as a building and gravel parking area. Modifications to the existing gate station would occur entirely on previously developed area and within the existing fenceline for the Frederickson gate station. As proposed these activities do not trigger Corps jurisdiction and are not discussed further.

6b. Describe the purpose of the project and why you want or need to perform it. [help]

The purpose of the Tacoma LNG Project is to construct and operate a facility to provide LNG for both marine transportation and other potential industries in the Pacific Northwest. The Project would also constitute a peak-shaving resource, thereby strengthening the distribution system and providing more reliable service to existing PSE natural gas customers especially during periods of peak winter demand. The purpose of the proposed in-water structures is to provide locations for bunkering barges and TOTE ships to load or fuel with LNG.

The need for an LNG fueling facility is consistent with regional and state efforts of the Puget Sound Clean Air Agency, the U.S. Environmental Protection Agency (EPA), and the Washington State Department of Ecology (Ecology), to establish strategies and programs aimed at reducing impacts on the Puget Sound air

shed. Locally, the Ports of Tacoma, Seattle, and Vancouver jointly adopted goals to reduce seaport-related air emission in the region as part of the Northwest Ports Clean Air Strategy. The strategy is multifaceted and includes the use of cleaner fuels to meet goals, with evaluation of LNG as a clean fuel type specifically listed in the 2007 strategy and 2010 Clean Air Strategy report evaluation. The Tacoma LNG Facility would be sized to serve the needs of the regional transportation industry and PSE's peak shaving needs. The proposed in-water structures and shoreline improvement are needed to support the water-oriented activities of the Tacoma LNG Project.

6c. Indicate the project category. (Check all that apply) [help]

☒ Commercial ☐ Residential ☐ Institutional ☐ Transportation ☐ Recreational
☐ Maintenance ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☐ Culvert	☐ Float	☐ Retaining Wall (upland)
☒ Bank Stabilization	☐ Dam / Weir	☐ Floating Home	☐ Road
☐ Boat House	☐ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☐ Ditch	☐ Land Clearing	☐ Stairs
☐ Boat Lift	☒ Dock / Pier	☐ Marina / Moorage	☐ Stormwater facility
☐ Bridge	☐ Dredging	☐ Mining	☐ Swimming Pool
☒ Bulkhead	☐ Fence	☐ Outfall Structure	☐ Utility Line
☐ Buoy	☐ Ferry Terminal	☒ Piling/Dolphin	
☐ Channel Modification	☐ Fishway	☐ Raft	

☐ Other:

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

In-water Construction Subject to this Application

Hylebos Waterway—Tacoma LNG Facility

This section describes the procedures for construction of the in-water components of the Tacoma LNG Facility. Demolition and construction activities to occur below elevation 11.8 feet mllw (pile removal and installation) in the Hylebos Waterway would occur during the in-water work window for Commencement Bay. No dredging would be required during construction. In water construction would consist of the following main phases: demolition and removal of existing in-water structures, construction of proposed in-water and above water structures, and shoreline improvements.

Demolition of In-water Structures. The existing 13,300 ft^2 creosote-treated timber main pier in the Hylebos Waterway adjacent to the Tacoma LNG Facility site would be demolished by water-borne equipment and transported offsite. The existing 1,274 ft^2 dock off the northwest corner of the site would also be removed. Following mobilization and staging, the main steps in demolition and removal of the two existing in-water structures includes: removal of fender system, utilities, and other appurtenances; removal of the decking including creosote-treated timbers and pavement; and removal of the creosote-treated timber piles.

Creosote-treated wood and piles would be disposed of at an appropriate upland facility, which meets the liner and leachate standards of the Minimum Functional Standards, Chapter 173-304 *Washington Administrative Code* (WAC). Five hundred and eight creosote-treated timber piles would be removed from the Hylebos Waterway associated with the two existing structures. These piles would be removed with a vibratory hammer. Based on the type of sediment and results from other pile removal projects along the Hylebos and Blair waterways, it is anticipated that the majority of holes would immediately fill themselves upon pile extraction. However, holes remaining from vibratory removal would be filled with clean sand or other habitat mix approved by the WDFW. It is conservatively estimated that 25 percent of the piles to be removed in the Hylebos Waterway would have some portion of a hole remaining following extraction (127 holes). It is estimated that the total quantity of clean sand or other habitat mix needed to fill pile holes for the Project in both the Hylebos and Blair waterways would be no more than 360 cubic yards including up to 340 cubic yards in the Hylebos Waterway and the remaining balance in the Blair Waterway.

It is also assumed that up to 10 percent of the existing piles in the Hylebos Waterway (up to 51 piles total) would break during extraction with the vibratory hammer. Piles that break would be cut off 2 feet below the mud line and capped with clean sand or other habitat mix approved by the WDFW to an elevation flush with the existing mud line. Under the assumption that up to 51 piles would need to be cut off in the Hylebos Waterway, this would result in up to 4.3 cubic yards of clean sand added to the waterway to fill the various 2-foot holes, which is included in the 340 total cubic yards in the Hylebos Waterway.

Construction of In-water Structures. All support and fender piles would be installed by a barge-mounted crane (derrick), using a vibratory and hydraulic or diesel impact hammer. Before installation, the piles would be transported to the site and staged on a support barge. Installation of the 86 piles would require approximately 16 to 24 working days. The pile driving sequence would be as follows: first, vibratory drive the piles to 90 percent plus of their design depth (within 10 feet of design tip elevation); second, proof the installation with an impact hammer until load-bearing or pile tip elevation specifications are reached. It is anticipated that up to 80 blows per foot may be required for proofing. No temporary piling would be used for construction purposes. Once pile installation is complete, all other pier construction would be above the mean higher-high water elevation. This subsequent construction includes cast-in-place concrete pile caps, installation of concrete decking, and construction of a cast-in-place concrete topping slab, including curbs, and bull rails. Cast-in-place concrete would be delivered to the site by ready-mix trucks and pumped from land into watertight forms. Over-water construction equipment would include a barge-mounted crane (derrick), a support barge, a diesel or hydraulic impact hammer, and various small work boats. A tug boat may also be used to position the barges.

Once the concrete decking is in place, the requisite equipment would be installed on top of the decking to

include LNG transfer pipeline and articulated loading arm or hose.

Shoreline Improvements. The existing creosote-treated timber bulkhead structure (fabricated with used timber piles) would be demolished by land-based equipment, which would remain above elevation 11.8 feet mllw and the ordinary high water mark (ohwm) when conducting the work. Waste would be disposed of at an appropriate upland facility. Shoreline work quantities below elevation 11.8 feet mllw would be as follows:

- Excavation: 1,900 cubic yards
- Backfill: 690 cubic yards (light, loose riprap varying in size from 3 inches to ½ cubic yard)
- Disturbance area: 5,440 square feet

A new steel sheet pile bulkhead approximately 600 feet in length would be installed above elevation 11.8 feet mllw to support the existing pavement. No other specific disturbances to the existing shoreline are planned.

The existing bulkhead would remain in place while the work behind it is completed (see sequencing notes provided in Figure 6). The existing bulkhead would provide a measure of erosion and sediment control during construction of the new cleaner bulkhead and regrading of the resulting shoreline.

Any disturbed areas resulting from removal of the timber bulkhead or pier demolition and construction would be repaired with riprap similar to what currently exists along the shoreline. The slope of the shoreline would be maintained at 2:1. Land-based equipment would include a crane, excavator(s), dump trucks and other heavy trucks (for example, tractor trailer with flatbed or lowboy), forklift and/or wheel loader.

Laydown and Storage Areas. Laydown and storage areas for in-water construction beyond what is provided by the support barge would be located onsite in the previously developed upland area.

Blair Waterway—TOTE Marine Vessel LNG Fueling System

This section describes the various procedures for construction of the in-water components of the TOTE Marine Vessel LNG Fueling System. Demolition and construction activities to occur below elevation 11.8 mllw (pile removal and installation) in the Blair Waterway would occur during the in-water work window for Commencement Bay. The fueling operations and delivering-vessel berthing facilities would be configured to avoid dredging. In water construction would consist of the following main phases: demolition and removal of existing in-water structures and construction of proposed in-water and above water structures. The onshore end of the trestle to the new LNG loading platform would land on an abutment and wing-wall system constructed with land-based equipment and would not require any in-water work.

Demolition of In-water Structures. Demolition would include removal of the creosote-treated timber pile supported catwalk from the existing Aft Loading Ramp Platform to the onshore mooring point and capstan. See Figure 11.

The existing creosote-treated timber structure would be demolished by water-born equipment and transported offsite. Creosote-treated timber and piling would be disposed of at an appropriate upland facility meeting the liner and leachate standards of the Minimum Functional Standards, Chapter 173-304 WAC. Twenty-four creosote-treated timber pilings would be removed from the Blair Waterway. These piles would be removed with a vibratory hammer. Based on the type of sediment and results from other pile removal projects along the Hylebos and Blair waterways, it is anticipated that the majority of holes would immediately fill themselves upon pile extraction. However, holes remaining from vibratory removal would be filled with clean sand or other habitat mix approved by the WDFW. It is conservatively estimated that 25 percent of the piles to be removed in the Blair Waterway would have some portion of a hole remaining following extraction (up to 6 holes). It is estimated that the total quantity of clean sand or other habitat mix needed to fill pile holes for the Project in both the Hylebos and Blair waterways would be no more than 360 cubic yards including up to 20 cubic yards in the Blair Waterway and the balance in the Hylebos Waterway.

It is assumed that up to 10 percent of the existing piles in the Blair Waterway (up to 2 pile total) would break during extraction with the vibratory hammer. Piles that break would be cut off 2 feet below the mud line and capped with clean sand or other habitat mix approved by the WDFW to an elevation flush with the existing mud line. Under the assumption that 1 pile would need to be cut off in the Blair Waterway, this would result in up to 0.2 cubic yard of clean sand added to the waterway to fill the 2-foot hole, which is included in the 20 total cubic yards in the Blair Waterway.

Construction of In-water Structures. All support and fender piles would be installed by a barge-mounted crane (derrick), using a vibratory and hydraulic or diesel impact hammer. Before installation, the piles would be transported to the site and staged on a support barge. Installation of the estimated 56 piles would require approximately 10 to 15 working days. The pile driving sequence would be as follows: first, vibratory drive the piles to 90 percent plus of their design depth (within 10 feet of design tip elevation); second, proof the installation with an impact hammer until load-bearing or pile tip elevation specifications are reached. It is anticipated that up to 80 blows per foot may be required for proofing. No temporary piling would be used for construction purposes. Once pile installation is complete, all other pier construction would be above the mean higher-high water elevation. This subsequent construction includes cast-in-place concrete pile caps, installation of concrete decking, and construction of a cast-in-place concrete topping slab, including curbs, and bull rails. Cast-in-place concrete would be delivered to the site by ready-mix trucks and pumped from land into watertight forms. Over-water construction equipment would include a barge-mounted crane (derrick), a support barge, a diesel or hydraulic impact hammer, and various small work boats. A tug boat may also be used to position the barges.

Shoreline Improvements. No fill, excavation, or other alterations to the existing shoreline are proposed.

Laydown and Storage Areas. Laydown and storage areas for in-water construction beyond what is provided by the support barge would be located in the upland areas of the TOTE site or at the adjacent Tacoma LNG Facility site.

Upland Construction—No Wetland or Waterbody Impacts

Tacoma LNG Facility

This section describes the various procedures for construction of the upland components of the Tacoma LNG Facility.

Demolition of Upland Buildings and Structures. Construction of the Tacoma LNG Facility would begin with demolition and removal of the various existing structures on the Project site. Construction at the Project site would include the demolition and removal of all but two aboveground structures.

Site Preparation and Grading. Contamination associated with the historical industrial uses in the surrounding area may extend to locations within the construction footprint proposed for the Tacoma LNG Facility. PSE has solicited EPA and Ecology for information about contaminated sites in the vicinity of the LNG facility. Both of the agencies reviewed the site assessment sampling and analysis plan for the Tacoma LNG Facility site (GeoEngineers, April 24, 2014), and it is anticipated that they would also review future PSE project plans associated with work in areas of known or suspected contamination. Contaminated media may be removed from construction areas during project development; however, this would be completed solely to support construction activities outside of any formal regulatory cleanup process.

Site preparation as well as ground improvement and foundation design (see *Ground Improvements and Foundations* section directly below) would account for the potential presence of contamination, and would be reviewed with EPA and Ecology to assure compliance with potential future remedial actions. Prior to construction, soils in the vicinity of construction area disturbance would be properly characterized and a contaminated soil management plan would be prepared. This plan would assure protection of worker health and the environment during construction and operation, and the proper management of contaminated media (if any) disturbed during construction. Specific procedures would be identified for the proper handling, transport, and disposal and/or onsite reuse of contaminated media, if present.

Construction Stormwater Management. Before construction, BMPs would be implemented to prevent erosion and sedimentation and to identify, reduce, eliminate, or prevent stormwater contamination and water pollution from construction activity. The BMPs would be consistent with the conditions of the project's NPDES General Construction Stormwater Permit. The NPDES permit for the project guides construction stormwater planning for land-disturbing construction work. The BMP controls would be inspected and maintained until the end of construction.

Ground Improvements and Foundations. Seismic soil liquefaction and lateral spreading can cause significant damage to the facility in the event of an earthquake (far exceeding the damage caused by shaking only). Soil stabilization/ground improvement would be used to reduce the damage associated

seismic soil liquefaction and lateral spreading.

A zone of ground improvement would be required running parallel to the Hylebos Waterway, near the top of the waterway slope. This area of ground improvement would help reduce the amount of lateral spreading expected during the design earthquakes.

Based on preliminary geotechnical analyses, two ground improvement methods are currently under consideration: Sand compaction piles (SCPs) and displacement-drilling grout columns (DGCs).

Construction of Aboveground Facilities.

Construction of foundations for buildings and installation of major mechanical equipment would occur once the LNG storage tank construction is underway. After the pipe racks are completed, work would commence on the installation of the process and utility piping. The installation of mechanical equipment would be followed by electrical and instrumentation installation.

Restoration. The existing upland ground surface of the Tacoma LNG Facility site is either paved or covered with gravel. Existing concrete, asphalt, and gravel located outside the proposed footprint would remain in place. No bare soils would be left exposed on the Tacoma LNG Facility site.

TOTE Marine Vessel LNG Fueling Facility

Before the start of construction on the upland improvements, the exterior limits of the approved construction ROW would be civil surveyed and clearly staked or marked. Vegetation clearing would not be required for construction of the cryogenic pipeline or pipe rack preceding the LNG loading platform as the TOTE site is fully developed consisting of a paved ground surface. This work will occur entirely above elevation 11.8 feet mllw and the ohwm. The cryogenic pipeline will be horizontally drilled or bored underground without trenching or constructed below grade in a concrete trench with a steel grate over the top. Any excess or spoil material would not be stockpiled. These materials would be hauled from the workspace areas and disposed of at approved sites. Following construction, any disturbed surfaces would be restored to pre-existing conditions. Groundwater encountered during construction would be placed into a tank and then discharged into a sanitary sewer system or decant facility in coordination with the City of Tacoma.

A zone of ground improvement would be required running parallel to the Blair Waterway, near the top of the waterway slope to support the cryogenic pipelines as it transitions from underground to the loading pier. This area of ground improvement would help reduce the amount of lateral spreading expected during the design earthquakes. Based on preliminary geotechnical analyses, two ground improvement methods are currently under consideration: Sand compaction piles (SCPs) and displacement-drilling grout columns (DGCs).

Before construction, best management practices would be implemented to prevent erosion and sedimentation and to identify, reduce, eliminate, or prevent stormwater contamination and water pollution from construction activity. The BMPs would be consistent with the conditions of the project's NPDES General Construction Stormwater Permit. The NPDES permit guides construction stormwater planning for land-disturbing construction work and would be obtained before initiation of construction. The BMP controls would be inspected and maintained until the end of construction.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start date: February 2016 End date: December 2018 ☒ See JARPA Attachment D, Construction Sequence. (In-water work is anticipated to be within the in-water work window of July 16, 2016, through February14, 2017.)

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

The Hylebos replacement pier is estimated to cost $8.5 million. The TOTE fueling platform improvements are estimated to cost $7 million.

6h. Will any portion of the project receive federal funding? [help]

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☒ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☒ Not applicable

All components of the project would be located in previously developed areas to avoid wetland impacts. The Tacoma LNG Facility and TOTE Marine Vessel LNG Fueling System are in previously developed areas at the Port of Tacoma. Portions of the distribution pipeline in Taylor Way would be constructed adjacent to wetlands.

7b. Will the project impact wetlands? [help]

☐ Yes ☒ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☐ Yes ☒ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☒ Yes ☐ No See JARPA Appendix B.

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☐ Yes ☒ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☐ No ☒ Not applicable

The project would not impact any wetlands.

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

The project would not impact any wetlands.

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the Impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)
None						

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.

[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.

[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.

[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

The project would not impact any wetlands.

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

The project would not impact any wetlands.

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

See Mitigation Plan in JARPA Appendix C.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Not applicable

See Mitigation Plan in JARPA Appendix C.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

This mitigation plan includes impact avoidance, impact minimization and compensatory measures for anticipated in-water impacts to the Hylebos and Blair waterways from the proposed Tacoma LNG Project (Project). The proposed mitigation actions would achieve a positive result for the Hylebos and Blair waterways and enhance ecological functions within the vicinity of the Project to ensure no net loss of ecological functions. Although total avoidance of in-water impact would not be possible with development of the Project, specific Project components or features were selected because they avoid impact compared with alternatives. Where impacts could not be eliminated, they were minimized by restraining the magnitude of an action, use of different technology or by taking specific steps to reduce impacts. Compensatory mitigation is also proposed within the same watershed as the proposed impacts and would be located where it would enhance functions and services that benefit the impacted watershed. See Figure 17. For the purposes of this Project, the impacted watershed is a portion of Commencement Bay, specifically the Hylebos and Blair waterways.

The proposed compensatory mitigation would result in a balance of 398 fewer creosote-treated piles, a 4,013 square foot reduction in creosote-treated material (including both pile and over-water structure). The majority of the in-water work, including both removal of existing structures and location of new structures, is

proposed for deep subtidal habitat (deeper than -14 feet mllw) in both the Hylebos and Blair waterways. See JARPA Appendix C for details.

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Remove existing pier	Hylebos Waterway	In-water	Permanent (Beneficial)	NA	13,300 sq. ft. (removal of intertidal shading)
Remove existing dock	Hylebos Waterway	In-water	Permanent (Beneficial)	NA	724 sq. ft. (removal of intertidal shading)
Clean sand fill for holes from existing pile removal	Hylebos Waterway	In-water	Permanent	340	NA
Construct new pier, catwalks, and 4 dolphins	Hylebos Waterway	In-water	Permanent	NA	6,094 sq. ft.
Construct new steel sheet pile bulkhead	Hylebos Waterway	In-water	Permanent	NA	600 linear ft.
Remove existing bulkhead	Hylebos Waterway	In-water	Permanent (Beneficial)	NA	600 linear ft.
Excavate bank	Hylebos Waterway	In-water	Permanent	1,900	5,440 sq. ft.
Place light riprap on bank	Hylebos Waterway	In-water	Permanent	690	5,440 sq. ft.
Remove existing catwalk	Blair Waterway	In-water	Permanent (Beneficial)	NA	671 sq. ft. (removal of intertidal shading)
Clean sand fill for holes from existing pile removal	Blair Waterway	In-water	Permanent	20	NA
Construct new access trestle, loading platform, catwalks, and 3 dolphins	Blair Waterway	In-water	Permanent	NA	6,201 sq. ft.

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.

[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.

[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

NA = not applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

690 cubic yards of new light, loose riprap, varying in size from 3 inches to ½ cubic yard, would be placed on the bank of the Hylebos Waterway below the newly installed steel sheet pile bulkhead for bank protection.

360 cubic yards (approximately 340 cubic yards in the Hylebos Waterway and 20 cubic yards in the Blair Waterway) of clean sand or other WDFW approved habitat mix to fill holes remaining after removal of existing creosote-treated piles.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

1,900 cubic yards of existing bank material (previously filled gravel and soil) would be removed behind the existing timber bulkhead and disposed of in an approved upland location.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
U.S. Army Corps of Engineers	Olivia Romano	206-764-6960	11-17-2015
City of Tacoma	Shirley Schultz	253-591-5121	11-19-2015
WA Dept. of Ecology	Carol Serdal, Joyce Mercuri, Kerry Carroll		11-19-2015

9b Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: http://www.ecy.wa.gov/programs/wq/303d/.

☒ Yes ☐ No

Commencement Bay (Hylebos Waterway): Dieldrin, PCB, Sediment Bioassay

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

17110014 and 17110019

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to http://www.ecy.wa.gov/services/gis/maps/wria/wria.htm to find the WRIA #.

10 Puyallup-White

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to http://www.ecy.wa.gov/programs/wq/swqs/criteria.html for the standards.

☒ Yes ☐ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: http://www.ecy.wa.gov/programs/sea/sma/laws_rules/173-26/211_designations.html.

☐ Rural ☐ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☒ Other: Port Industrial

The City of Tacoma Shoreline Master Program identifies the shorelines of the Hylebos and Blair waterways in the project area as Port Industrial Shoreline District (S-10).

9g What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_watertyping.aspx for the Forest Practices Water Typing System.

☒ Shoreline ☐ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: *Stormwater Management Manual for Western Washington (Ecology, 2012)*

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☒ Yes ☐ No

In-water Sites Subject to this Application

Commencement Bay-Nearshore Tideflats adjacent to site and throughout Hylebos Waterway are a designated Superfund site.

Hylebos Waterway—Tacoma LNG Facility

The Hylebos Waterway is 303(d) listed for Dieldrin and PCBs in tissue.

Sediment cleanup actions have been completed in portions of the Hylebos Waterway under U.S. Environmental Protection Agency (EPA) oversight. During the previous cleanup actions, sediment in the immediate vicinity of the existing pier adjacent to the Tacoma LNG Facility site was designated for monitored natural recovery.

Blair Waterway—TOTE Marine Vessel LNG Fueling System

The Blair Waterway was delisted from the EPA National Priorities List on October 29, 1996 (EPA, 2010).

9j. If you know what the property was used for in the past, describe below. [help]

Beginning in the 1870s and extending through the 1960s, the tide flats were developed for manufacturing and industry. From the 1960s on, land use on the peninsula has been dominated by the shipping, manufacturing, and commercial industries.

Hylebos Waterway—Tacoma LNG Facility

The majority of the Tacoma LNG Facility site consists of existing infrastructure related to its former use by the U.S. Navy and various companies for storage. This infrastructure includes container offload/staging areas, warehouse and various associated buildings, and impervious parking lots. Most recently, the site has been used for storage warehousing, trucking, distribution, and freight services. The existing pier has been used for testing new marine vessels.

Blair Waterway—TOTE Marine Vessel LNG Fueling System

The TOTE site, including the in-water infrastructure in the Blair Waterway, have been used as a marine cargo terminal.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☒ Yes ☐ No See JARPA Appendix D.

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

Chinook Salmon – threatened
Steelhead trout – threatened
Bull Trout – threatened
Yelloweye Rockfish – threatened
Canary Rockfish – threatened
Bocaccio – endangered
Humpback Whale – endangered
North Pacific Southern Resident Killer Whale – endangered
Marbled Murrelet – threatened
Streaked Horned Lark – threatened

See JARPA Appendix E for *Draft Applicant-Prepared Biological Evaluation.*

Sources:

National Marine Fisheries Service (NMFS)**.** 2014. Office of Protected Resources, species information. Available online: http://www.nmfs.noaa.gov/pr/species/. Accessed June 8, 2014.

StreamNet. 2014. http://www.streamnet.org/. Accessed May 7, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014. Critical habitat mapper. Online tool. Available at: http://criticalhabitat.fws.gov/crithab/. Accessed May 25, 2014.

Washington Department of Fish and Wildlife (WDFW). 2011. Priority Habitat and Species Digital Data.

Washington Department of Fish and Wildlife (WDFW). 2012. Priority Habitats and Species. Database query for the Tacoma Future Fuels Project and a 5-mile buffer.

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

PHS Species

Birds

Bald Eagle – Sensitive

Peregrine Falcon – Sensitive

Fish

Chinook Salmon – Species of concern

Bull Trout – Species of concern

Canary Rockfish – Species of concern

Bocaccio – Species of concern

WDFW has identified the presence of priority habitat in the general vicinity of the Project as listed in the table below. The Project will not impact any of these habitats.

PHS HABITATS LOCATED WITHIN 0.5 MILE OF THE PROJECT AREA

Project Feature	Distance in Miles	Type	Description
Tacoma LNG Facility	0.05	Wetlands	Various wetlands associated with tributaries near Commencement Bay, including Hylebos Waterway and Wapato Creek drainages
Tacoma LNG Facility	0.1	Biodiversity Areas And Corridor	Hylebos Waterway bluff area consists of steep slopes and bluffs overlooking the Commencement Bay waterways Area provides raptor habitat and refugia for many bird and mammal species
Tacoma LNG Facility	0.2	Estuarine zone	Estuary associated with the Hylebos Waterway; intact intertidal estuary/mudflat
Tacoma LNG Facility	0.3	Wetlands	Region 4 saltwater wetland: Puget Sound coastal salt marshes, salt meadows, and brackish marshes
Tacoma LNG Facility	0.4	Pigeon guillemot breeding occurrence	Pigeon guillemots observed nesting in cliffs in 2001 Nest holes still present in 2006

Source: WDFW, 2011. Priority Habitat and Species Digital Data.

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.ecy.wa.gov/opas/.
- Governor's Office of Regulatory Assistance at (800) 917-0043 or help@ora.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to www.ecy.wa.gov/programs/sea/sepa/e-review.html.

☒ A copy of the SEPA determination or letter of exemption is included with this application. SEPA Determination of Significance letters provided in Appendix F.

☐ A SEPA determination is pending with _____ (lead agency). The expected decision date is

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt?

_____

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☒ Substantial Development ☐ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain): _____

Other city/county permits:

☐ Floodplain Development Permit ☒ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

Effective July 10, 2012, you must submit a check for $150 to Washington Department of Fish and Wildlife, unless your project qualifies for an exemption or alternative payment method below. **Do not send cash.**

Check the appropriate boxes:

☒ $150 check enclosed. (Check #_____)
Attach check made payable to Washington Department of Fish and Wildlife.

☐ Charge to billing account under agreement with WDFW. (Agreement #_____)

☐ My project is exempt from the application fee. (Check appropriate exemption)

☐ HPA processing is conducted by applicant-funded WDFW staff.
(Agreement #_____)

☐ Mineral prospecting and mining.

☐ Project occurs on farm and agricultural land.
(Attach a copy of current land use classification recorded with the county auditor, or other proof of current land use.)

☐ Project is a modification of an existing HPA originally applied for, prior to July 10, 2012.
(HPA #_____)

Washington Department of Natural Resources:

☐ Aquatic Use Authorization Not Applicable

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

See JARPA Appendix G for Coastal Zone Management Act, Certification of Consistency form for Federally Permitted Activities

FEDERAL GOVERNMENT

United States Department of the Army permits (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.) ☒ Section 10 (work in navigable waters)

United States Coast Guard permits:

☐ General Bridge Act Permit ☐ Private Aids to Navigation (for non-bridge projects)

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. _____ (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. _____ (initial)

Applicant Printed Name	Applicant Signature	Date
Tony Wm Ricci / Jim Hogan	Tony Ricci / J. Hogan	12/3/15 12/3/15

11b Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant). [help]

Not required if project is on existing rights-of-way or easements.

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office of Regulatory Assistance (ORA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341.

ORA publication number: ENV-019-09 rev. 06-12