



**CITY OF TACOMA**  
**Public Work Engineering Division**

**ADDENDUM NO.1**

**DATE: 4/7/22**

**REVISIONS TO:**

**Request for Bids Specification No. PW22-0105F**

**Foss Waterway Site 10, 12, and Municipal Dock Bulkhead Replacement**

**NOTICE TO ALL BIDDERS:**

This addendum is issued to clarify, revise, add to or delete from, the original specification documents for the above project. This addendum, as integrated with the original specification documents, shall form the specification documents. The noted revisions shall take precedence over previously issued specification documents and shall become part of this contract.

**REVISIONS TO THE SUBMITTAL DEADLINE:**

The submittal deadline remains the same.

**GENERAL INFORMATION:**

Please see attached sign in sheet for the pre-proposal meeting dated April 07, 2022.

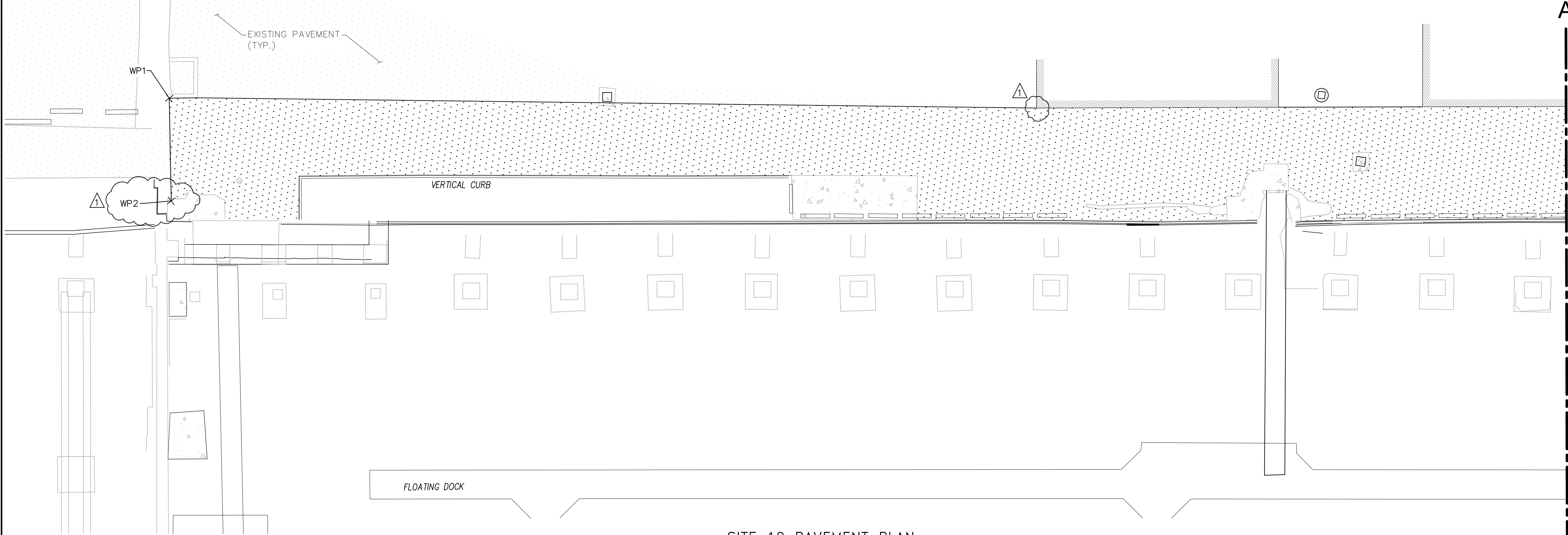
Please see attached Critical Areas Report labeled Addendum #1.

**REVISION TO THE PLANS:**

Replace sheet 26 of 32 in its entirety with the following attached Site 10 Pavement Plan.

NOTE: Acknowledge receipt of this addendum by initialing the corresponding space as indicated on the signature page. Vendors who have already submitted their bid/proposal may contact the Purchasing Division at 253-502-8468 and request return of their bid/proposal for acknowledgment and re-submittal. Or, a letter acknowledging receipt of this addendum may be submitted in an envelope marked Request for Bids Specification No. PW22-0105F Addendum No. 1. The City reserves the right to reject any and all bids, including, in certain circumstances, for failure to appropriately acknowledge this addendum.


cc: Darius Thompson, Public Works Engineering



LEGEND

PROP. HMA

WORKING POINTS		
WP	NORTHING	EASTING
WP1	706566.95	1159874.43
WP2	706570.08	1159895.44



1  
NO

Addendum #1

WORKING POINT WP2 NORTHING/EASTING REVISED

4/4/22

WMM

FIELD BOOKS

DATE

APPD

FINAL CONSTRUCTION CHECKED

DATE

12/2021

DESIGNED

DJG

DRAWN

JC

DRAWING NAME

26\_S4-27\_SS PAVEMENT PLAN

SCALE

1"=10'

CHECKED

WMM

PROJECT NAME

45-11001.02

Professional Engineer Seal

CITY OF TACOMA  
DEPARTMENT OF PUBLIC WORKS

DocuSigned by:  
Chris Larson  
026970C9D9CE5459  
Engineering Division Manager

REVETMENT REPAIRS  
TACOMA, WA  
SITE 10 – PAVEMENT PLAN – 1

45-11001.02  
SHEET NO. S4  
SHEET 26 OF 32



1101 South Fawcett Avenue, Suite 200  
Tacoma, Washington 98402  
253.383.4940

November 3, 2021

City of Tacoma Planning and Development Services  
747 Market Street  
Tacoma, Washington 98402

Subject: Critical Areas Report  
Sites 10, 12 and Municipal Dock Upland Sheet Pile Walls  
Commencement Bay  
Tacoma, Washington  
Pre-Application No. PRE21-0148  
File No. 0570-173-00

The City of Tacoma Public Works Department (City) proposes to conduct maintenance activities at three sites along Dock Street in Tacoma, Washington. The sites are referred to as Site 10, Site 12 and Municipal Dock. Additional site location information is provided in the following sections of this letter. The City plans to install sheet pile walls upland of existing headwalls to provide a safe upland interface with the Foss Waterway. This letter has been prepared to provide the information required to review this project for consistency with exemption from requiring a shoreline substantial development permit.

## PROJECT LOCATIONS

Site 10 is located at 801 Dock Street (Parcels 8950002082 and 8950002184) in Tacoma, Washington in Township 20 North, Range 3 East Section 4. Site 12 is located at 635 Dock Street (Parcels 8950002155, 8950002172) in Township 21 North, Section 3 East, Section 33. Municipal Dock Site is located at 1025 Dock Street (Parcels 8950002101 and 8950002103) in Township 20 North, Range 3 East Section 4. Figure 1, Vicinity Map shows the project locations.

## PROJECT DESCRIPTION

The project proposes to install sheet pile walls approximately 3 to 8 feet landward of the existing headwalls and landward of the ordinary high water mark (OHWM). Existing pavement will be removed from the proposed sheet pile wall locations at the three sites. At Sites 10 and 12, erosion control best management practices (BMPs) will be installed landward of the headwall. At Municipal Dock, loose debris (concrete and asphalt) above mean high water (MHW) (elevation +11 feet mean lower low water [MLLW]) will be removed from the top of the slope without excavating the slope. The remaining portion of the existing headwall in the central portion of the Municipal Dock Site will be removed and loose erodible soil above the high tide line (HTL) (elevation +13.5 feet MLLW) will be sloped back through grading, where needed, to prevent loose



soils from sloughing down the slope during sheet pile wall installation. This soil may be removed from the slope and stockpiled during sheet pile wall installation and replaced upon completion of installation of the wall. BMPs will be installed at or above the OHWM at the Municipal Dock Site.

## CRITICAL AREAS

### OHWM Delineation

OHWM delineations were conducted at Site 12 and Municipal Dock on August 3, 2021 by GeoEngineers' biologists Shawn Mahugh and Adam Wright. An OHWM delineation was not conducted at Site 10 because safe access to the shoreline of this site was not available. A large concrete wall extends below MLLW between Municipal Dock and Site 10 as shown in Photograph 1, Appendix A, Site Photographs. Also, a security fence line is present along the length of Site 10 and safe access was not identified at the marina access gates. The delineated OHWMs for Site 12 and Municipal dock were marked in the field and points were collected using a handheld global positioning system (GPS) with accuracies between less than 5 centimeters (cm) and less than 5 meters (m). Approximately 72 percent of the collected points achieved accuracy of less than 50 cm. Photographs 2 and 3 in Appendix A show typical OHWMs at Municipal Dock and Site 12, respectively.

Through consultation with Liz Bockstiegel at Washington Department of Fish and Wildlife (WDFW), a vertical elevation of +13.2 feet MLLW was identified as the vertical elevation of OHW for WDFW review of the three disturbed sites containing hard armoring. The results of the field OHWM survey conducted by GeoEngineers identified OHW elevations averaging approximately +12 feet MLLW for Site 12 and approximately +16 feet MLLW for Municipal Dock. Factors that likely influenced this variation include GPS accuracy as well as the difference in shoreline stabilization armoring present at each site. Armoring at Site 12 consists primarily of concrete, which provides a relatively smooth, solid surface. In contrast, armoring at Municipal Dock consists of riprap with concrete and asphalt debris, which presents a heavily undulating ground surface elevation. Armoring at Site 10 consists primarily of riprap and concrete debris, similar to Municipal Dock. Therefore, elevation +16 feet MLLW was used as a surrogate for OHWM at Site 10 as shown on Sheet 7, Appendix B, Joint Aquatic Resource Permit Application (JARPA) Sheets. Additionally, the southern extent of the proposed sheet pile wall at Site 12 extends onto the adjacent parcel to the south (Parcel 8950002172). This area was not delineated in the field as this area was not known to be included in the project at the time of the field survey. Elevation +16 feet MLLW was used as a surrogate for OHWM at this location as well.

### Marine Habitat Existing Conditions

The marine habitat at the three sites contains similar impacted conditions. The intertidal shoreline areas of the three sites are impacted by hard armoring and relict concrete monoliths along the shoreline interface and upper intertidal areas and overwater structures in subtidal habitats. Individual descriptions for each site are contained in the following sections.

#### Site 10

Intertidal habitat at Site 10 consists primarily of riprap and concrete debris armoring with large relict concrete monoliths remaining in place from the previous esplanade. Adjacent subtidal habitat is occupied by Foss Harbor Marina. The existing upland facilities are separated from the armored slope by a headwall located at the edge of the existing pavement. Four mature non-native American sycamore (*Platanus occidentalis*) trees are present above the headwall (see Photograph 4, Appendix A)

## Site 12

At Site 12 an existing concrete headwall is located at the edge of the existing parking lot at the top of the slope leading down to the Foss Waterway. Waterward of the headwall a layer of organic material is present in areas with vegetation primarily consisting of invasive Himalayan blackberry (*Rubus armeniacus*) as shown in Photograph 5 (Appendix A). Beneath and waterward of this layer of organic material the slope is armored with a layer of sloped concrete. The concrete armoring transitions into riprap and concrete debris. Two rows of relict concrete monoliths are present along the shoreline slope at Site 12 that remain in place from multiple historic esplanade structures. A floating dock is present over the subtidal habitat at Site 12 that runs the entire length of the parcel parallel to the shoreline.

## Municipal Dock

The Municipal Dock site contains a concrete and wood headwall along the majority of the upland interface with the slope to Foss Waterway. Portions of the existing headwall have failed and are now located along the face of the slope. Above and below the headwall, areas of soil are present. Above the headwall these areas are vegetated with grasses seeded as erosion control following the previous decking removal project. Scattered native and invasive species were observed in several locations. The remaining shoreline and intertidal habitat below the observed vegetation consists of hard armoring composed of riprap, concrete and asphalt debris. Intertidal and shallow subtidal habitat also contain relict concrete monoliths associated with the previously removed Municipal Dock decking. Adjacent subtidal habitat is occupied by Foss Harbor Marina.

## Existing Vegetation Characterization

Shoreline vegetation at the three sites varies from sparse vegetation at Site 10 to dense vegetation at Site 12 and includes native, non-native and invasive species as described in the following sections.

## Site 10

Four mature American sycamore trees are located at the southern end of Site 10 within an approximately 1,200 square-foot landscaped area covered in wood chip mulch. The crowns of the trees include overhanging vegetation estimated to provide 1,000 square feet of shade waterward of the OHWM during midday at midsummer. The remaining portions of the Site 10 shoreline are sparsely vegetated and include several sword fern (*Polystichum munitum*) and American dunegrass (*Leymus mollis*) clumps occupying less than 1 percent of the marine shoreline buffer.

## Site 12

Marine shoreline vegetation at Site 12 is dominated by invasive Himalayan blackberry, which covers approximately 80 percent of the available shoreline area. One introduced butterfly bush (*Buddleja davidii*) is located at the southern end of the Site 12 project area. One big leaf maple (*Acer macrophyllum*) and one non-native maple (*Acer ssp.*) are also located along the shoreline at Site 12. These two maples are estimated to provide up to 100 square feet of shade waterward of the OHWM during midday at midsummer.

## Municipal Dock

The marine shoreline buffer at Municipal Dock is largely composed of erosion control grasses (approximately 80 percent cover). Additional species observed in low densities within the shoreline buffer

include Puget Sound gumweed (*Grindelia integrifolia*) and invasive Himalayan blackberry and Canada thistle (*Cirsium arvense*). No overhanging vegetation was observed at Municipal Dock.

## **Fish and Wildlife Species**

### **Federally Listed Threatened and Endangered (T&E) Species**

The project is located adjacent to the marine waters of Puget Sound. Puget Sound contains a number of T&E species including Bull trout (*Salvelinus confluentus*), Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*), Puget Sound steelhead (*O. mykiss*), Southern resident killer whale (*Orcinus orca*), Marbled murrelet (*Brachyramphus marmoratus*), Bocaccio (*Sebastes paucispinis*) and Yelloweye rockfish (*Sebastes ruberrimus*) that may occur in the project vicinity.

### **Priority Habitats and Species**

Priority Habitats and Species (PHS) data (WDFW 2021) identifies the northern end of Foss Waterway as Estuarine Zone and Dungeness crab (*Cancer magister*) are mapped to occur approximately 700 feet north of Site 12 in Commencement Bay. The Puyallup River is located less than 1 mile east of the site and supports Chinook, coho (*O. kisutch*), pink (*O. gorbuscha*), sockeye (*O. nerka*) and chum (*O. keta*) salmon as well as steelhead, cutthroat (*O. clarkii*) and bull trout. The nearest documented forage fish spawning area is a surf smelt (*Hypomesus pretiosus*) spawning area located 1,200 feet northeast of Site 12 at the Olympic View Resource Area (OVRA) site. GeoEngineers' biologists conducted a forage fish spawning survey at the OVRA site in 2018 and confirmed the presence of surf smelt spawning (GeoEngineers 2019).

### **Proposed Actions**

The proposed project includes the installation of sheet pile walls at the three sites as shown on Sheets 4 through 13, Appendix B. Additional construction details are included in the following sections.

### **Clearing and Grading**

The proposed project will involve the removal of impervious surfaces and vegetation along the proposed sheet pile wall alignments behind the existing headwalls, where present. At Municipal Dock, several areas of the previous headwall have failed. Loose concrete and asphalt debris above MHW and below HTL at the Municipal Dock site will be removed by plucking the debris from the slope without grading. The remaining portions of the concrete headwall in the central portion of the site will also be removed and the loose soil along the slope (above HTL) will be sloped back. Four mature non-native American sycamore trees will be removed from the proposed sheet pile wall alignment at Site 10. Clearing activities will also include the removal of invasive species such as Himalayan blackberry at Site 12 and Municipal Dock.

### **Construction Techniques, Materials and Equipment**

The sites will be prepped by removing paved surfaces within the sheet pile wall installation areas using concrete saw and excavators or similar equipment. At Municipal Dock an excavator will also be used to remove loose debris above MHW and also to remove loose soil above HTL. A crane will be used to install the sheet pile walls using a vibratory hammer when possible. An impact hammer will be used when necessary to advance the sheet piles to the required embedment. Paving equipment will be used to replace pavement landward of the installed sheet pile walls.



### Best Management Practices

The proposed sheet pile walls will avoid permanent adverse impacts to the marine environment of the Foss Waterway below the OHWM by installing the walls upland of the existing headwalls. Impacts to the shoreline buffer will be minimized by locating the wall at Site 12 in a currently paved area, at Municipal Dock in an area of asphalt and erosion control grasses and at Site 10 by locating the majority of the wall in currently paved areas. Approximately 130 linear feet of landscaped shoreline will be impacted at Site 10 including four large non-native American sycamore trees. Impacts to these trees are unavoidable due to the large crown and associated root masses of these trees.

The project will address known regulatory requirements governing the construction activities by prescribing BMPs to be implemented during project activities. The following BMPs are planned to be implemented during construction. Additional BMPs may be prescribed by regulatory agencies and stakeholders during the permitting process.

- Contractors will be required to prepare and implement a Spill Prevention Control and Countermeasures (SPCC) Plan consistent with Washington State Department of Ecology (Ecology) regulations.
- Contractor personnel will be equipped with appropriate spill response materials including oil-absorbent pads and booms.
- A containment barrier will be installed at or above the OHWM to prevent soil or debris from entering waters of the state.
- Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, sediment, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into surface water.
- Construction debris shall be collected and disposed upland at a disposal site.
- Equipment will be inspected daily for drips or leaks to prevent spills or releases to surface water.
- In the event of an unexpected release of a hazardous substance during project actions, notification will be provided to the United States Coast Guard (USCG) National Response Center at 1-800-424-8802 and the Washington State Emergency Management Division at 1-800-258-5990 within one hour of discovery.
- An emergency spill containment kit must be located on site along with a pollution prevention plan detailing planned fueling, materials storage and equipment storage. Waste storage areas must be prepared to address prevention and cleanup of accidental spills.
- All construction-related debris will be cleaned up daily. Proper conservation measures will be taken to ensure that debris will not contaminate surface waters.
- Routine inspections of the BMP control measures will be conducted daily during construction to ensure the effectiveness of the measures and to identify the need for maintenance or additional control measures.
- Fueling areas will be distinctly identified and established outside of sensitive areas, but within the construction area. These areas will be equipped with spill prevention and control devices.
- If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), immediate notification shall be made

to Ecology at 1.800.258.5990 and the WDFW Area Habitat Biologist listed in the Hydraulic Project Approval (HPA).

### Potential Project Effects

Potential effects from the project include both short-term temporary construction effects and long-term effects resulting from the completed project. Potential project-specific effects include:

- Operation of construction equipment;
- Construction-related noise;
- Habitat alteration; and
- Water quality effects.

### Operation of Construction Equipment

During construction, equipment will operate in the marine shoreline buffer of the Foss Waterway. Wildlife species occupying the marine shoreline buffer, if present, could be affected as a result of interaction with construction equipment and/or materials.

### Construction Related Noise

The project will generate in-air noise during construction activities. Underwater noise is not anticipated because the sheet pile walls will be installed in upland areas above the OHWM. Impact and vibratory hammers are expected to be the loudest pieces of construction equipment to be used for the project and have been measured to reach 105 decibels (dB) 50 feet from the source (Washington State Department of Transportation [WSDOT] 2020). The project site is an urban area adjacent to heavy marine traffic, railroads and freeway vehicular traffic. WSDOT (2020) noise impact guidance identifies high-density urban areas to have background sound levels of 78 dB and urban areas adjacent to freeway traffic to have levels at 88 dB. Using a background noise level of 80 dB, project noise levels are expected to extend up to 500 feet from the source over soft sites and 890 feet over hard sites. In-air noise is a short-term, temporary effect that could extend through the local project vicinity and impact wildlife species occupying the area, if present.

### Habitat Alteration

Habitat alteration will occur at each of the three sites. At Site 10, existing paved areas within approximately 10 feet of the headwall and approximately 1,200 of landscaped area will be removed. Upon completion of sheet pile wall installation, the 1,200 feet of removed landscaped area containing four non-native American sycamore trees will be replaced with native shore pine (*Pinus contorta*) and oceanspray (*Holodiscus discolor*) as well as native grass (see Figure 3, Site 10 Proposed Mitigation) and the removed paved areas will be replaced with new asphalt.

Habitat alteration associated with sheet pile wall installation at Site 12 will be limited to removal of 3,500 square feet of existing pavement, which will be replaced upon completion of the project. Additional habitat alteration at Site 12 will include the removal of approximately 900 square feet of invasive Himalayan blackberry and installation of native erosion control grasses where the site slope beyond the headwall will accommodate shoreline vegetation (see Figure 4, Site 12 Proposed Enhancement).



At Municipal Dock, habitat alteration will include removal of up to 1,450 square feet of erosion control grasses, approximately 4,050 square feet of existing asphalt and concrete upland of the existing headwall and removal of concrete and asphalt debris along the shoreline slope to prevent debris from sloughing into Foss Waterway (Photograph 6, Municipal Dock). Approximately 1,200 square feet of existing asphalt will be converted to native erosion control grasses and oceanspray waterward of the proposed sheet pile wall at Municipal Dock (see Figure 5. Municipal Dock Proposed Enhancement). Disturbed erosion control grasses at Municipal Dock will also be restored with native erosion control grasses and oceanspray.

### Water Quality Effects

The operation of equipment and surface disturbing activities have the potential to generate short-term, temporary water quality effects resulting from the release of sediment, debris and/or contaminants into the marine and shoreline buffer habitat.

### Habitat Management Plan

#### Analysis of Effects on Species and Habitat

Potential project effects are described in the previous section of this letter. The following sections analyze potential project effects on fish and wildlife species and habitats.

- **Operation of construction equipment** will be limited to developed upland areas with the exceptions of approximately 1,200 square feet of landscaped area at Site 10 and 1,450 square feet of erosion control grasses at Municipal Dock. This habitat does not represent suitable habitat for federally listed T&E species. It is expected that wildlife that may occur within the vegetated portions project area will leave the construction area and relocate to suitable habitat outside the construction zone prior to coming in contact with construction equipment. Therefore, short-term, temporary avoidance of the construction area by wildlife species could occur during construction.
- **Construction-related noise** will extend up to approximately 890 feet through the air into the surrounding vicinity. The zone of elevated in-air noise levels does not represent suitable habitat for federally listed T&E species. The Foss Waterway also experiences frequent noise intrusions due to adjacent industrial uses, railroads, freeways and marine traffic within the Foss Waterway and Commencement Bay. It is expected that wildlife that may occur within the zone of influence of construction-related noise and may experience short-term, temporary disruption to normal behaviors including avoidance of the zone and relocation to suitable habitat outside the construction noise zone.
- **Habitat alteration** that may be used by wildlife is limited to currently vegetated areas. Removal of four non-native trees will occur at Site 10, removal of invasive Himalayan blackberry will occur at Site 12 and removal of erosion control grasses will occur at Municipal Dock. These actions will preclude use of these areas by wildlife species during construction and use will be limited while disturbed areas reestablish native vegetation. The removal of trees at Site 10 will also reduce the amount of overhanging vegetation, which will limit the amount of shade (microclimate regulation and refuge) and organic input (foraging).
- **Water quality effects** could occur as a result of the proposed project which could impact marine species through increased turbidity or exposure to contaminants. However, the BMPs described in this report are proposed to avoid water quality impacts to marine species.

### **Proposed Mitigation and Enhancement Measures**

Proposed mitigation and enhancement measures have been developed to provide no net loss of shoreline habitat functions and values at Site 10 and provide measurable and sustainable benefits at all three sites. These actions include removal of invasive species and enhancement of the shoreline area with native grasses and four oceanspray shrubs at Site 12 (see Figure 4), replacement of four non-native trees with eight native shore pine and 16 native oceanspray and grasses at Site 10 (see Figure 3), and removal of concrete and asphalt debris along the upper slope of the Municipal Dock site and conversion of 1,200 square feet from asphalt to native grasses and 12 oceanspray shrubs (see Figure 5). Additional mitigation and monitoring information is contained in the following sections of this report.

### **MITIGATION PLAN**

The project description, proposed actions, BMPs and potential project effects are addressed in the previous sections of this report. Additional information required for a mitigation plan is described in the following sections.

#### **Mitigation Sequencing**

The City has completed mitigation sequencing for this project. Early conceptual plans included an alternative to install the proposed sheet pile walls waterward of the existing headwalls. This alternative was excluded from further evaluation to avoid direct impacts to the marine environment of the Foss Waterway. The siting of the upland sheet pile wall alignments were selected to minimize impacts to marine shoreline buffer while meeting the goals of the City of Tacoma “Downtown Waterfront” Purposes listed in Shoreline Monitoring Plan (SMP) 5.5.6(A) and the General Management Policies listed in SMP 5.5.6(D). As described previously, unavoidable impacts to approximately 1,200 square feet of upland shoreline with four non-native American sycamore trees will occur and will be mitigated as described in the following sections.

#### **Impact Assessment**

The removal of four non-native American sycamore trees at Site 10 will impact approximately 1,200 square feet of landscaped wildlife habitat, including the loss of approximately 1,000 square feet of vegetation overhanging waterward of the OHWM shown on Figure 2, Site 10 Project Impacts. This action will limit the amount of upland habitat available for wildlife foraging, refuge and nesting within the project vicinity. The temporary removal of overhanging vegetation will also reduce the amount of shade over the Foss Waterway at higher tides and reduce the amount of organic input into the Foss Waterway, reducing the amount of cover and foraging opportunities for marine species during high tides and removing a source of microclimate regulation from the site. Removal of approximately 900 square feet of invasive Himalayan blackberry at Site 12 and 1,450 square feet of erosion control grasses at Municipal Dock will temporarily remove the amount of available upland foraging and refuge wildlife habitat at these sites. However, invasive Himalayan blackberry represents disturbed habitat and does not provide properly functioning forage or refuge habitat.

#### **Mitigation and Enhancement Goals and Objectives**

The goals of the proposed mitigation are to provide no net loss of ecological functions of the marine shoreline buffer habitat and to replace non-native species with native marine shoreline buffer species to increase habitat functions at Site 10. The objective of the proposed mitigation is to install native riparian

tree, shrub and herbaceous vegetation within the approximately 1,200 square feet area from which non-native tree species are proposed to be removed to provide a 1:1 ratio for marine buffer mitigation. The following performance standards are proposed to evaluate the success of the proposed mitigation.

**Performance Standard 1:** Eight shore pine and 16 oceanspray installed at Site 10 will remain healthy and exhibit new growth at Year 3 post-construction.

**Performance Standard 2:** Invasive species percent cover at Site 10 will not exceed 20 percent cover during the 3-year vegetation monitoring period.

As contingency, if the installed vegetation does not survive or exhibit new growth at Year 3 post-construction, it will be replaced with the same native species, or another native species suited to survive and grow within the marine shoreline buffer.

### Anticipated Future Conditions and Functional Assessment

The proposed mitigation will replace four non-native trees with eight shore pine and 16 oceanspray at Site 10 and replace existing wood chip mulch with native grasses. These native species will provide shrub and canopy layer cover as they mature, including overhanging vegetation beyond the existing headwall. These native species have root structures that function to stabilize shoreline soils and are suitable for marine shoreline conditions such as exposure to wind and salt spray. Shore pines will be installed between the proposed sheet pile wall and the parking lot and oceanspray will be installed between the proposed sheet pile wall and the existing headwall (see Figure 3). Dense planting of oceanspray installed immediately adjacent to the existing headwall is intended to provide rapid overhanging vegetation reestablishment with 3 to 5 years, while shore pine installation is expected to provide an additional layer of overhanging vegetation over a longer period of approximately 10 to 12 years. This vegetation, including overhanging vegetation, will function to regulate microclimate within the riparian and nearshore zones and assist in maintaining water temperatures required by salmonids. Native riparian vegetation also provides of source of organic inputs including terrestrial invertebrates which provide a food source for aquatic life. The shore pine will provide tree canopy stratum habitat for terrestrial wildlife foraging, nesting and refuge and the addition of oceanspray will improve wildlife refuge habitat by providing additional wildlife habitat structure in the shrub stratum. Conversion of existing wood chip mulch to native grasses will also provide herbaceous stratum habitat. Although the four existing non-native trees do provide riparian functions as described in the “Existing Vegetation Characterization” and “Impact Assessment” sections of this report, replacement with native tree and shrub vegetation at a higher density is expected to replace these functions with species better suited for native fish and wildlife and improve habitat by providing an additional shrub stratum.

### Mitigation Plan Description and Planting Plan

The installation of native tree and shrub species will be completed to offset impacts from the removal of non-native vegetation at Site 10 and improve riparian conditions as compared to existing conditions. Table 1 below contains the native species, quantities and spacing proposed for mitigation at Site 10 and Figure 3 shows the proposed planting configuration for Site 10. Mitigation will be completed once the sheet pile wall has been installed. At least 12 inches of soil suitable for native plant establishment will be placed within the mitigation area, trees and shrubs will be installed and the area will be seeded with native grasses. Revegetation at Site 12 and Municipal Dock will be accomplished through placement of native herbaceous seed mix and jute matting or similar biodegradable erosion control materials. Table 2 below contains the native seed mix proposed for revegetation of disturbed areas at Site 12 and Municipal Dock.

**TABLE 1. SITE 10 PLANTING PLAN SPECIES**

Common Name	Scientific Name	Planting Area (square feet)	On-Center Spacing (feet) <sup>1</sup>	Quantities
Shore pine	<i>Pinus contorta</i>	780	10	8
Oceanspray	<i>Holodiscus discolor</i>	420	5	16
<b>Totals:</b>	--	<b>1,200</b>	--	<b>24</b>

Notes:

1. On-center spacing measured as proportion of area (square feet) not distance along shoreline (linear feet).

**TABLE 2. PROPOSED NATIVE SEED MIX FOR SITE 10, SITE 12 AND MUNICIPAL DOCK**

Common Name	Scientific Name	Percent of Seed Mix
Tufted hairgrass	<i>Deschampsia cespitosa</i>	30
Blue wildrye	<i>Elymus glaucus</i>	30
Red fescue	<i>Festuca rubra</i>	20
Sandberg's bluegrass	<i>Poa secunda</i>	20

### Monitoring Plan

Site 10 will be monitored, to ensure compliance with previously identified performance standards, annually for observations of tree health and the presence of invasive species. If monitoring results indicate that the site is not meeting performance standards, maintenance actions will be implemented as described in the following section.

### Maintenance Plan

Invasive species at Site 10 will be removed annually, if present. If the installed vegetation at Site 10 does not survive or exhibit new growth at Year 3 post-construction, it will be replaced with the same native species, or another native species suited to survive and grow within the marine shoreline buffer. As the trees grow, the landward side of the trees will be trimmed to accommodate vehicular traffic through the parking lot and other public access. The waterward side of the trees and shrubs will not be trimmed and will be allowed to expand to create overhanging vegetation beyond the OHWM.

### Potential Impacts to Adjacent Properties

The proposed mitigation and enhancement activities are not expected to affect adjacent properties because the project is not directly increasing the marine waters. Therefore, marine shoreline buffers on adjacent parcels should not be impacted.

### Additional Permits

The project will receive a HPA from WDFW. A "Permit Not Required" request letter will be sent to the U.S. Army Corps of Engineers (Corps) that documents the proposed project details above both MHW and HTL. Conditions and provisions associated with the WDFW HPA and Corps "Permit Not Required" letter will be incorporated into the project design and implemented during construction.

## REFERENCES

GeoEngineers, Inc. (GeoEngineers). 2019. Supplemental Eelgrass and Forage Fish Habitat Assessment, Olympic View Resource Area, Tacoma, Washington. Dated October 9, 2021. GEI File No. 0570-158-01

Washington Department of Fish and Wildlife (WDFW). 2021. Priority Habitat and Species PHS on the Web. Available at <http://apps.wdfw.wa.gov/phsontheweb/> Accessed September 14, 2021.

Washington State Department of Transportation (WSDOT). 2020. Biological Assessment Preparation Manual. Updated August 2020. Available at <https://wsdot.wa.gov/environment/technical/fish-wildlife/esa-efh/BA-preparation-manual>.

If you have any questions, please give us a call at 253.383.4940.

Sincerely,  
GeoEngineers, Inc.



Shawn M. Mahugh, PWS  
Senior Habitat Biologist



Joseph O. Callaghan, MS, PWS  
Principal Fisheries Biologist

SMM:JOC:tjm

### Attachments:

- Figure 1. Vicinity Map
- Figure 2. Site 10 Project Impacts
- Figure 3. Site 10 Proposed Mitigation
- Figure 4. Site 12 Proposed Enhancement
- Figure 5. Municipal Dock Proposed Enhancement
- Appendix A. Site Photographs
- Appendix B. Joint Aquatic Resource Permit Application (JARPA) Sheets

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

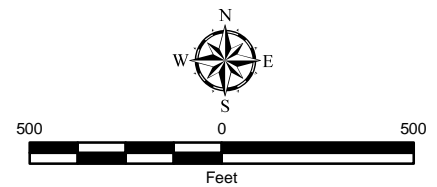
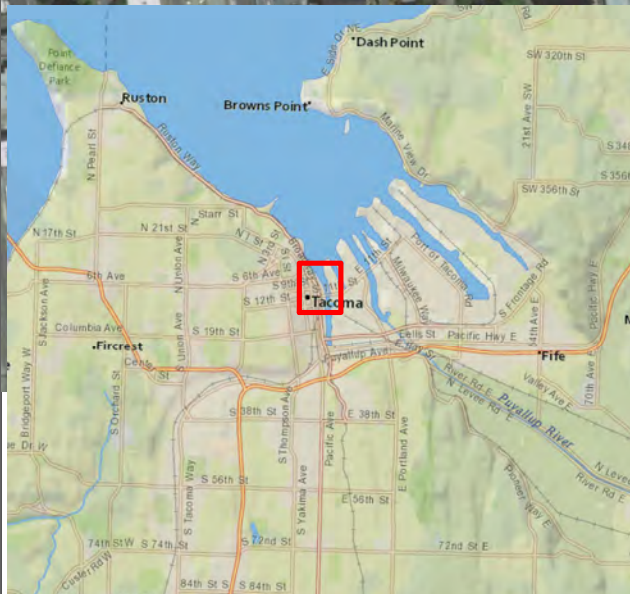
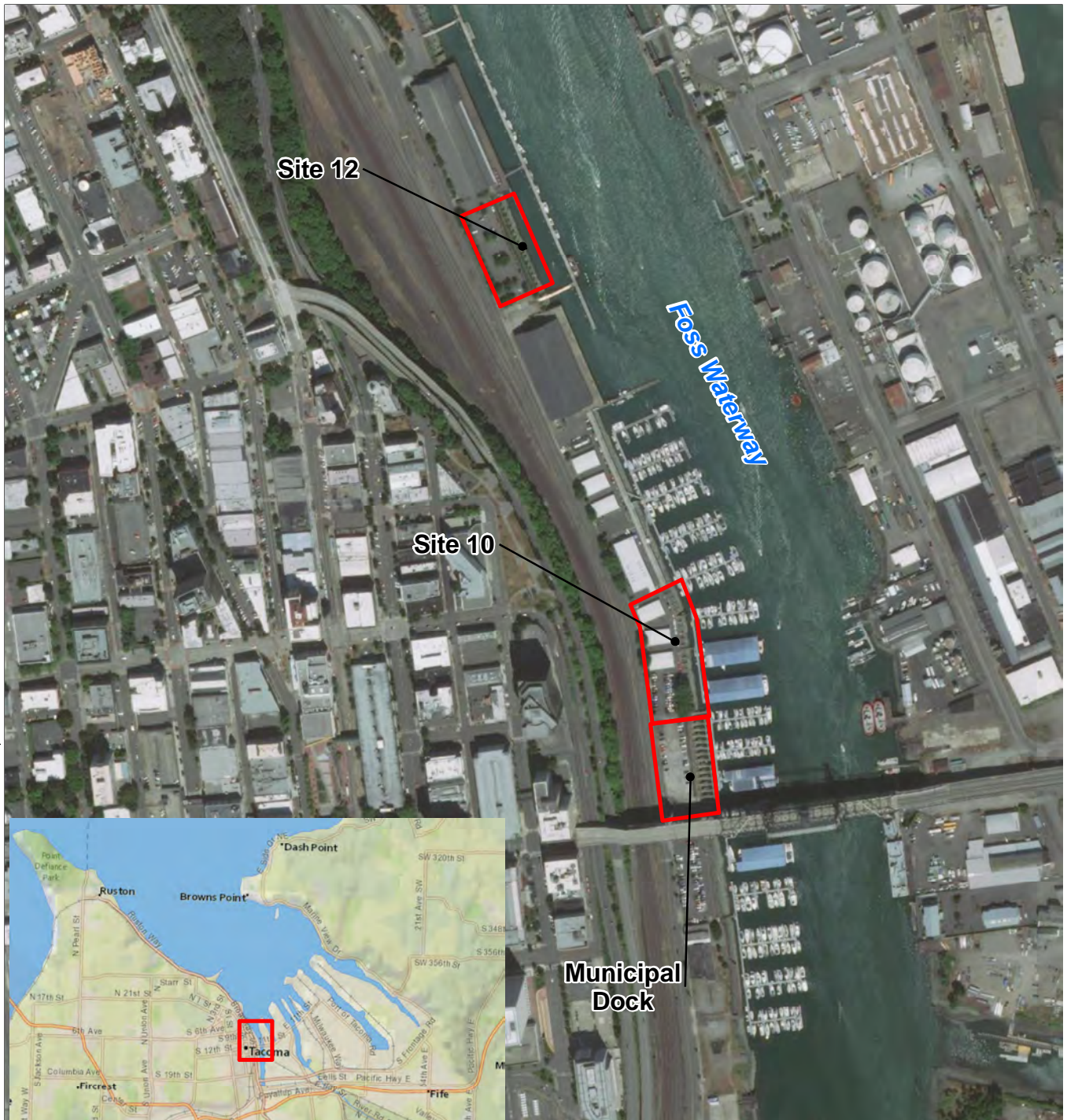




Map Revised: 9/9/2021

Path: SSPW\_Fig1\_VM

TACO



Reference: Imagery obtained from ESRI 2021

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

### Vicinity Map

Sites 10, 12 and Municipal Dock Upland Sheet Pile Walls  
Tacoma, Washington









Figure 1





### Legend

-  Landscaping Removal
-  Non-native Tree Removal
-  Overhanging Vegetation Removal
-  Proposed Sheet Pile Wall
-  Existing Headwall (To Remain)
-  OHWM Est. from El. +16'

Reference: Imagery obtained from ESRI 2021

#### Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.



### Site 10 Project Impacts

Sites 10, 12 and Municipal Dock Upland Sheet Pile Walls  
Tacoma, Washington



**Figure 2**



### Legend

- Native Vegetation Reestablishment
- Oceanspray
- Shore pine
- Proposed Sheet Pile Wall
- Existing Headwall (To Remain)
- OHWM Est. from El. +16'

Reference: Imagery obtained from ESRI 2021

#### Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.



### Site 10 Proposed Mitigation

Sites 10, 12 and Municipal Dock Upland Sheet Pile Walls  
Tacoma, Washington

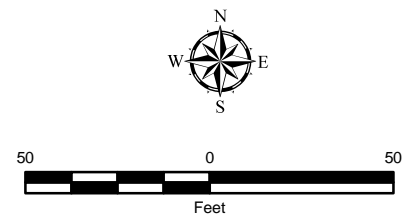


**Figure 3**



### Legend

- Existing Maple (To Remain)
- Proposed Oceanspray
- Invasive Removal and Native Grass Seed
- Existing Headwall (To Remain)
- Proposed Sheet Pile Wall
- OHWM



Reference: Imagery obtained from ESRI 2021

#### Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

### Site 12 Proposed Enhancement

Sites 10, 12 and Municipal Dock Upland Sheet Pile Walls  
Tacoma, Washington



**Figure 4**





### Legend

- Proposed Sheet Pile Wall
- Oceanspray
- Native Grass Seed
- OHWM
- Existing Headwall (To Be Removed)
- Existing Headwall (To Be Retained)
- Asphalt (To Be Removed)

Reference: Imagery obtained from ESRI 2021

#### Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.



### Municipal Dock Proposed Enhancement

Sites 10, 12 and Municipal Dock Upland Sheet Pile Walls  
Tacoma, Washington



**Figure 5**

## **APPENDIX A**

### **Site Photographs**






Photograph 1 - Wall preventing access between Municipal Dock and Site 10.



Photograph 2 - Municipal Dock ordinary high water mark (OHWM) delineation (typical).

Site Photographs	
Sites 10, 12 and Municipal Dock Upland Sheet Pile Walls Tacoma, Washington	
GEOENGINEERS 	Figure A-1






Photograph 3 – Site 12 OHWM delineation (typical).



Photograph 4 – Non-native American sycamore trees at Site 10.

Site Photographs	
Sites 10, 12 and Municipal Dock Upland Sheet Pile Walls Tacoma, Washington	
GEOENGINEERS 	Figure A-2





Photograph 5 – Site 12 showing invasive Himalayan blackberry.



Photograph 6 – Concrete and asphalt debris to be removed, where above mean high water (MHW) and asphalt to be replaced with native grass at Municipal Dock.

### Site Photographs

Sites 10, 12 and Municipal Dock Upland Sheet Pile Walls  
Tacoma, Washington



Figure A-3

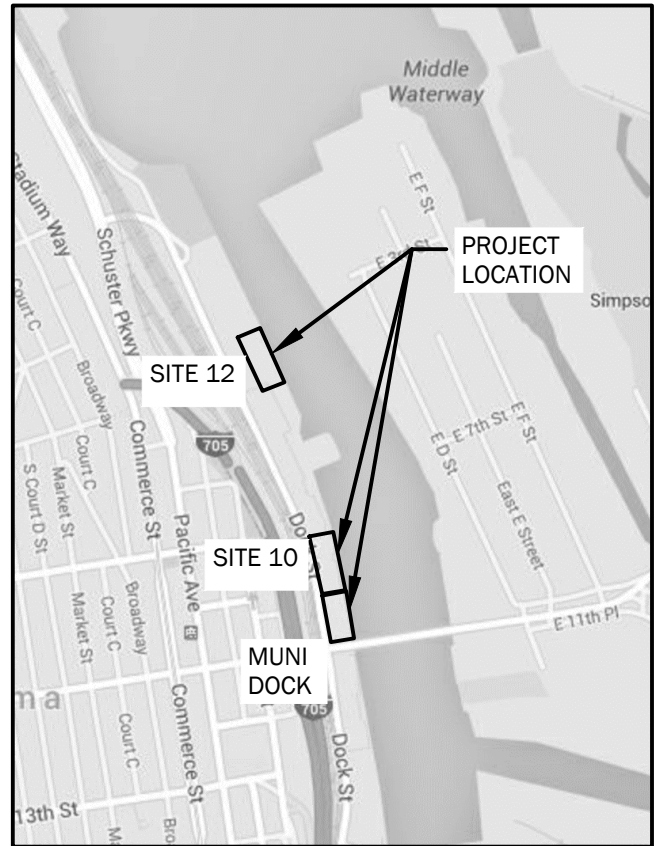
**APPENDIX B**  
**Joint Aquatic Resource Permit Application (JARPA) Sheets**

# CITY OF TACOMA

## SITE 10, SITE 12 AND MUNICIPAL DOCK REVTMENT STABILIZATION



**VICINITY MAP**  
NOT TO SCALE



**LOCATION MAP**  
NOT TO SCALE



**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

### CITY OF TACOMA SITE 10, SITE 12, AND MUNICIPAL DOCK REVTMENT STABILIZATION

**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 1 of 13     **Date:** AUGUST 2021

**COLLINS  
ENGINEERS**

7576 WEST VICTORY RD  
BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

**County:** PIERCE

**State:** WA



**DEBRIS CONTAINMENT NOTES:**

1. CONTRACTORS MUST PREPARE AND IMPLEMENT A SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN CONSISTENT WITH WASHINGTON STATE DEPARTMENT OF ECOLOGY (ECOLOGY) REGULATIONS.
2. CONTRACTOR PERSONNEL SHALL BE EQUIPPED WITH APPROPRIATE SPILL RESPONSE MATERIALS INCLUDING OIL-ABSORBENT PADS AND BOOMS.
3. EXTREME CARE SHALL BE TAKEN TO ENSURE THAT NO PETROLEUM PRODUCTS, HYDRAULIC FLUID, SEDIMENT, SEDIMENT LADEN WATER, CHEMICALS OR ANY OTHER TOXIC OR DELETERIOUS MATERIALS ARE ALLOWED TO ENTER OR LEACH INTO SURFACE WATER.
4. REPLACE WITH CONTAINMENT BMP AT OR ABOVE THE ORDINARY HIGH WATER MARK.
5. EQUIPMENT SHALL BE INSPECTED DAILY FOR DRIPS OR LEAKS TO PREVENT SPILLS OR RELEASES TO SURFACE WATER.
6. IN THE EVENT OF AN UNEXPECTED RELEASE OF A HAZARDOUS SUBSTANCE DURING PROJECT ACTIONS, NOTIFY THE UNITED STATES COAST GUARD (USCG) NATIONAL RESPONSE CENTER AT 1.800.424.8802 AND THE WASHINGTON STATE EMERGENCY MANAGEMENT DIVISION AT 1.800.258.5990 WITHIN 1 HOUR OF DISCOVERY.
7. AN EMERGENCY SPILL CONTAINMENT KIT MUST BE LOCATED ON SITE ALONG WITH A POLLUTION PREVENTION PLAN DETAILING PLANNED FUELING, MATERIALS STORAGE, AND EQUIPMENT STORAGE. WASTE STORAGE AREAS MUST BE PREPARED TO ADDRESS PREVENTION AND CLEANUP OF ACCIDENTAL SPILLS.
8. ALL CONSTRUCTION-RELATED DEBRIS MUST BE CLEANED UP DAILY. PROPER CONSERVATION MEASURES SHALL BE TAKEN TO ENSURE THAT DEBRIS WILL NOT CONTAMINATE SURFACE WATERS.
9. ROUTINE INSPECTIONS OF THE BMP CONTROL MEASURES SHALL BE CONDUCTED DAILY DURING CONSTRUCTION TO ENSURE THE EFFECTIVENESS OF THE MEASURES AND TO DETERMINE THE NEED FOR MAINTENANCE OR ADDITIONAL CONTROL MEASURES.
10. FUELING AREAS MUST BE DISTINCTLY IDENTIFIED AND ESTABLISHED OUTSIDE OF SENSITIVE AREAS, BUT WITHIN THE CONSTRUCTION AREA. THESE AREAS MUST BE EQUIPPED WITH SPILL PREVENTION AND CONTROL DEVICES.
11. IF AT ANY TIME, AS A RESULT OF PROJECT ACTIVITIES, FISH ARE OBSERVED IN DISTRESS, A FISH KILL OCCURS, OR WATER QUALITY PROBLEMS DEVELOP (INCLUDING EQUIPMENT LEAKS OR SPILLS), IMMEDIATELY NOTIFY ECOLOGY AT 1.800.258.5990 AND THE WDFW AREA HABITAT BIOLOGIST LISTED IN THE HYDRAULIC PROJECT APPROVAL (HPA).

**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

**CITY OF TACOMA  
SITE 10, SITE 12, AND MUNICIPAL DOCK  
REVETMENT STABILIZATION**

**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 2 of 13      **Date:** AUGUST 2021

**COLLINS  
ENGINEERS**

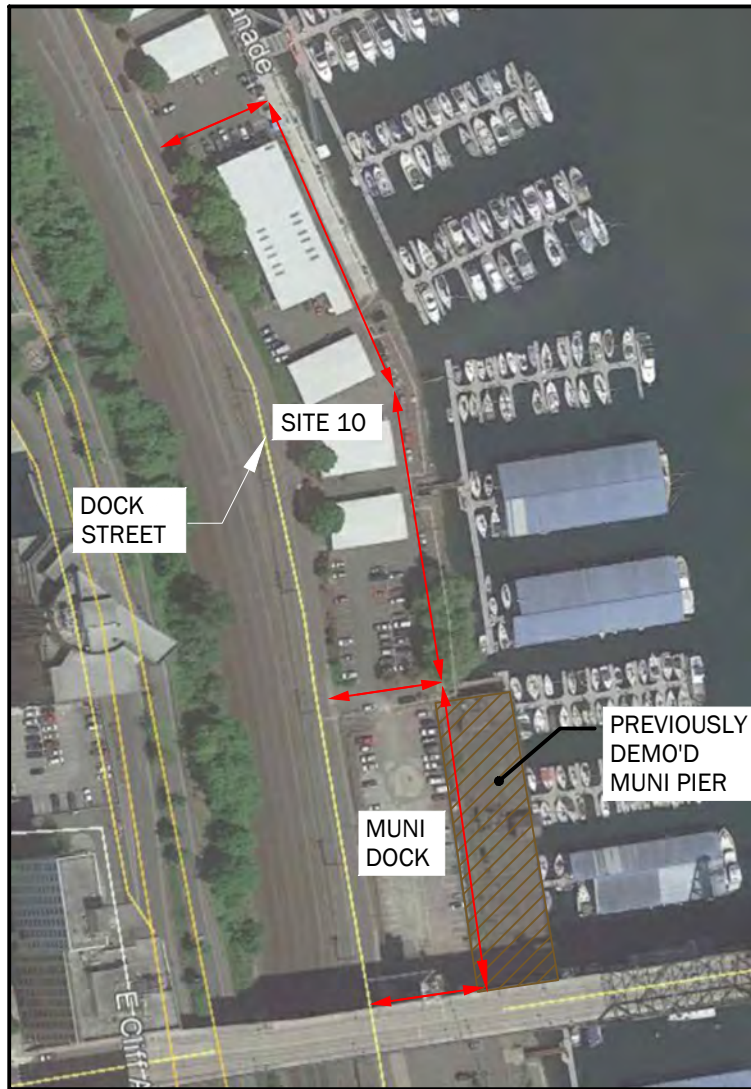
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BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

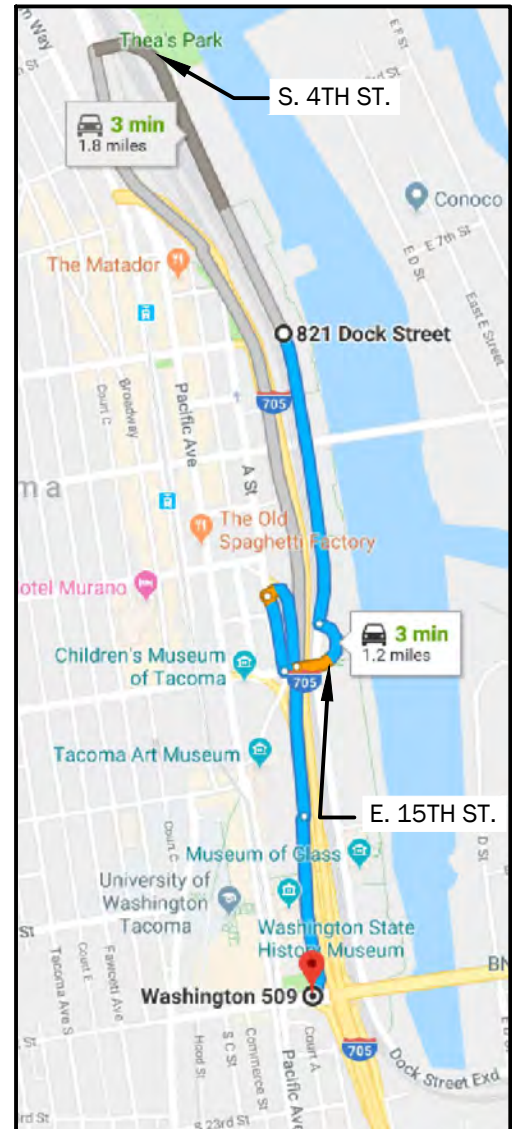
**Near/At:** TACOMA

**County:** PIERCE

**State:** WA



SITE 10/MUNI DOCK  
VEHICLE ACCESS PLAN  
SCALE : NTS



SITE 10/MUNI DOCK GOOGLE MAPS  
DOCK ST. TO RT 509 - SCALE : NTS

**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

**CITY OF TACOMA  
SITE 10, SITE 12, AND MUNICIPAL DOCK  
REVETMENT STABILIZATION**

**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 3 of 13      **Date:** AUGUST 2021

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ENGINEERS**

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BOISE, ID 83709  
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**In:** FOSS WATERWAY

**Near/At:** TACOMA

**County:** PIERCE

**State:** WA





**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

**CITY OF TACOMA**  
**SITE 10, SITE 12, AND MUNICIPAL DOCK**  
**REVTMENT STABILIZATION**  
**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 4 of 13    **Date:** AUGUST 2021

**COLLINS**  
**ENGINEERS**

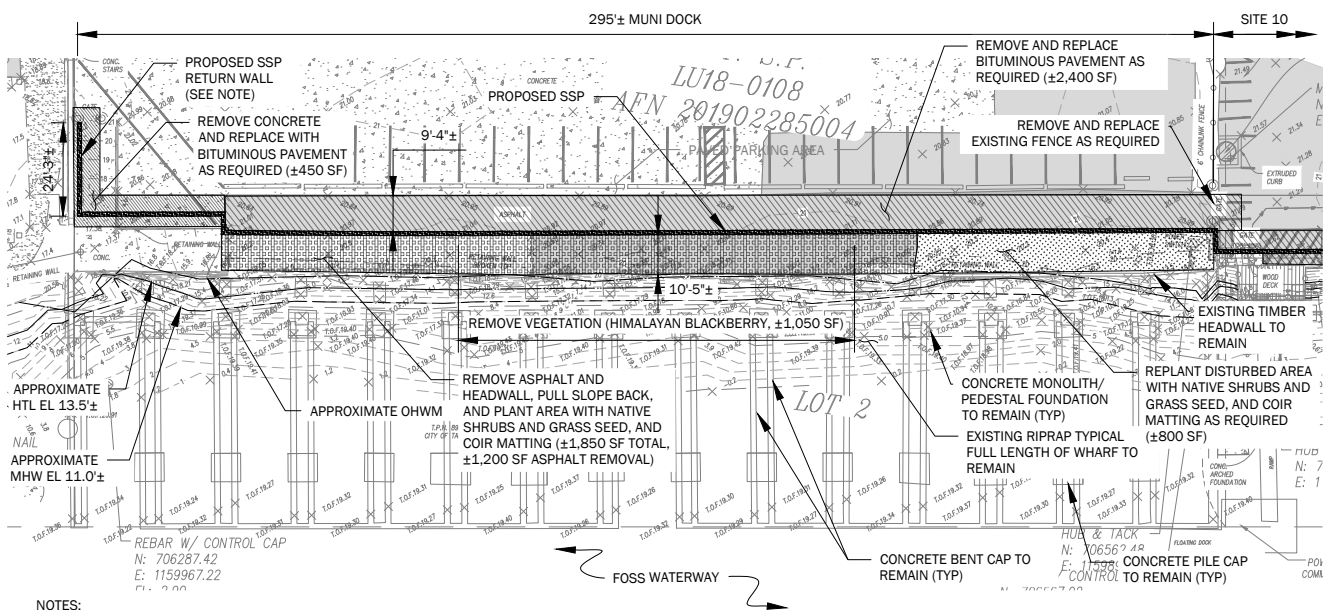
7576 WEST VICTORY RD  
BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

**County:** PIERCE

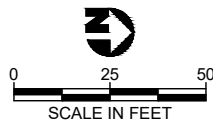
**State:** WA



- NOTES:
1. TOP OF SSP RETURN WALL SHALL MATCH ELEVATION OF SSP ALONG WATERWAY (EL. 21.65'±).
  2. EXISTING UTILITIES PENETRATING THROUGH EXISTING HEADWALL SHALL BE CUT AND SLEEVED AS REQUIRED TO FACILITATE SSP INSTALLATION.
  3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SHORING AS REQUIRED TO MAINTAIN THE STABILITY OF THE EXISTING STRUCTURE UNTIL CONSTRUCTION OF THE PROPOSED SSP IS COMPLETED.

### MUNI DOCK PROPOSED PLAN

SCALE : 1" = 50'



**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

**CITY OF TACOMA**  
**SITE 10, SITE 12, AND MUNICIPAL DOCK**  
**REVETMENT STABILIZATION**

**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 5 of 13 **Date:** AUGUST 2021

**COLLINS ENGINEERS**

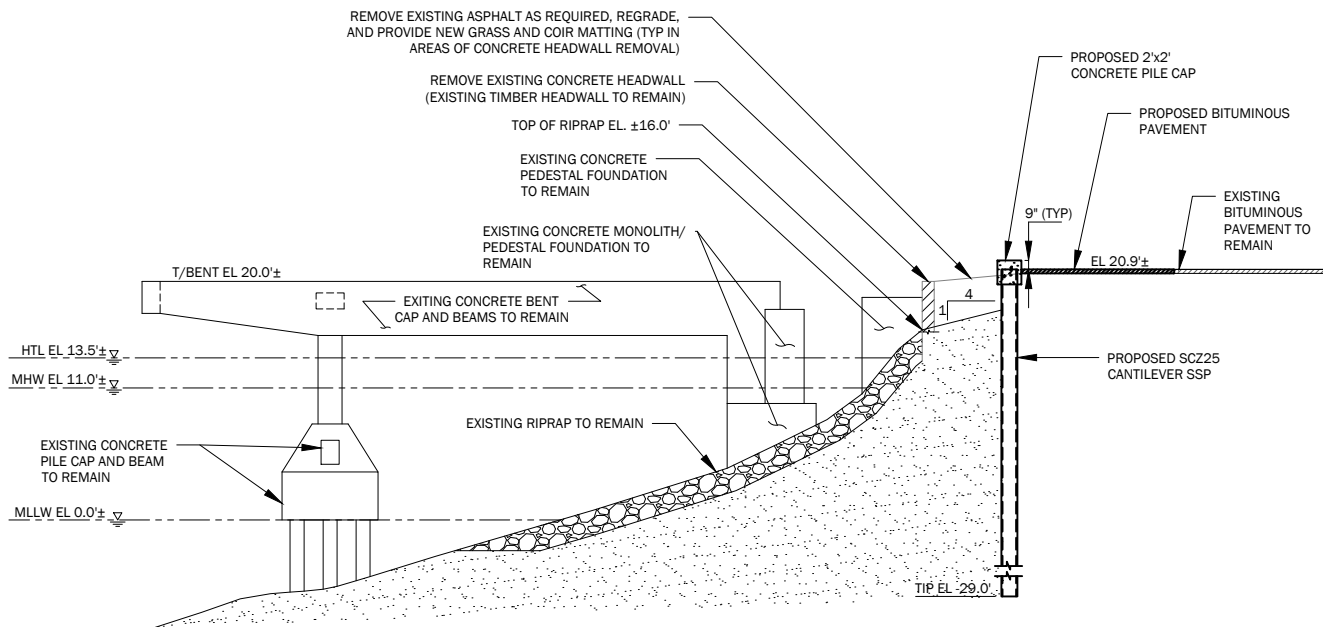
7576 WEST VICTORY RD  
BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

**County:** PIERCE

**State:** WA



- NOTES:
1. PROTECT EXISTING CONCRETE PEDESTAL FOUNDATIONS AND TIMBER HEADWALL DURING SSP INSTALLATION.
  2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SHORING AS REQUIRED TO MAINTAIN THE STABILITY OF THE EXISTING STRUCTURE UNTIL CONSTRUCTION OF THE PROPOSED SSP IS COMPLETED.

### PROPOSED MUNI DOCK SECTION

SCALE : 1" = 16'

#### WATER DATUMS

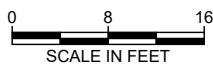
APPROXIMATE HIGH TIDE LINE (HTL)	13.50'
MEAN HIGHER HIGH WATER (MHHW)	11.80'
MEAN HIGH WATER (MHW)	11.00'
MEAN SEA LEVEL (MSL)	6.85'
MEAN LOW WATER (MLW)	2.85'
MEAN LOWER LOW WATER (MLLW)	0.00'
LOWEST OBSERVED WATER LEVEL (11/26/07)	-4.71'

#### REFERENCE:

NOAA STATION: TACOMA, WASHINGTON #9446484

#### NOTE:

ELEVATIONS REFERENCE TO MLLW UNLESS OTHERWISE NOTED



**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

**CITY OF TACOMA**  
**SITE 10, SITE 12, AND MUNICIPAL DOCK**  
**REVTMENT STABILIZATION**

**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 6 of 13 **Date:** AUGUST 2021

**COLLINS**  
**ENGINEERS**

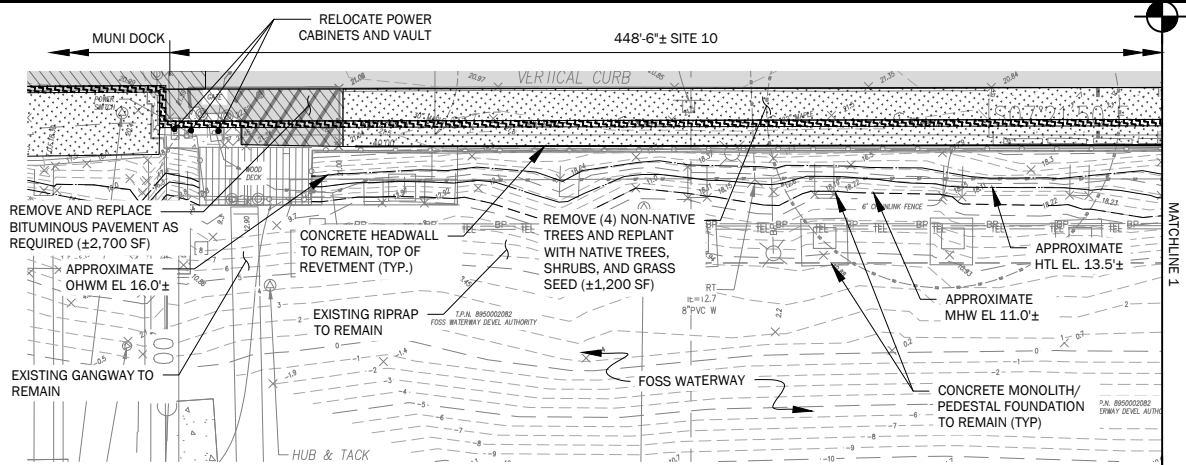
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BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

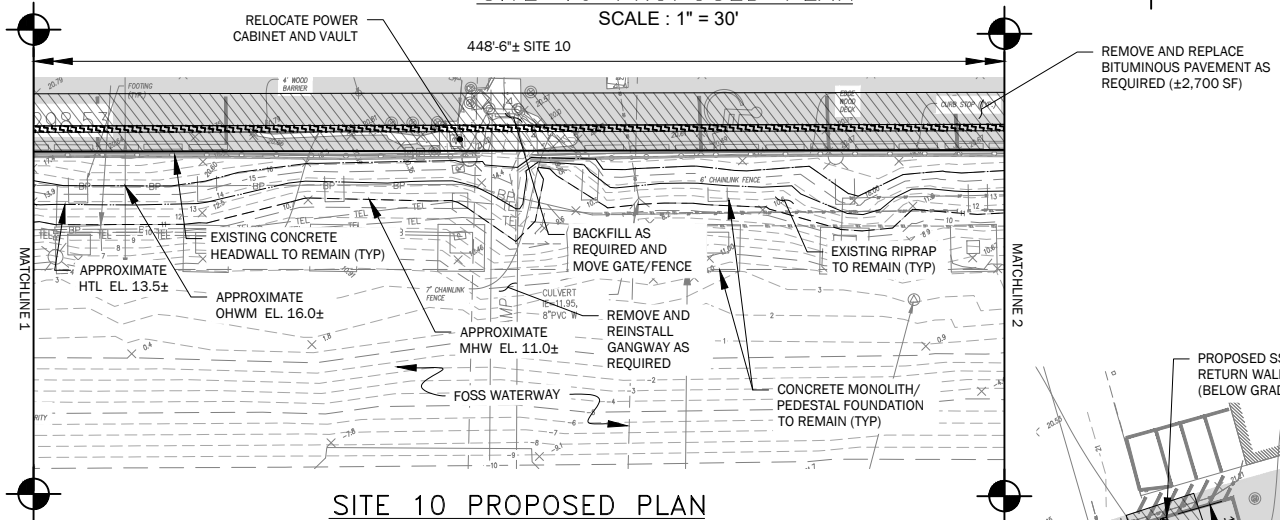
**County:** PIERCE

**State:** WA



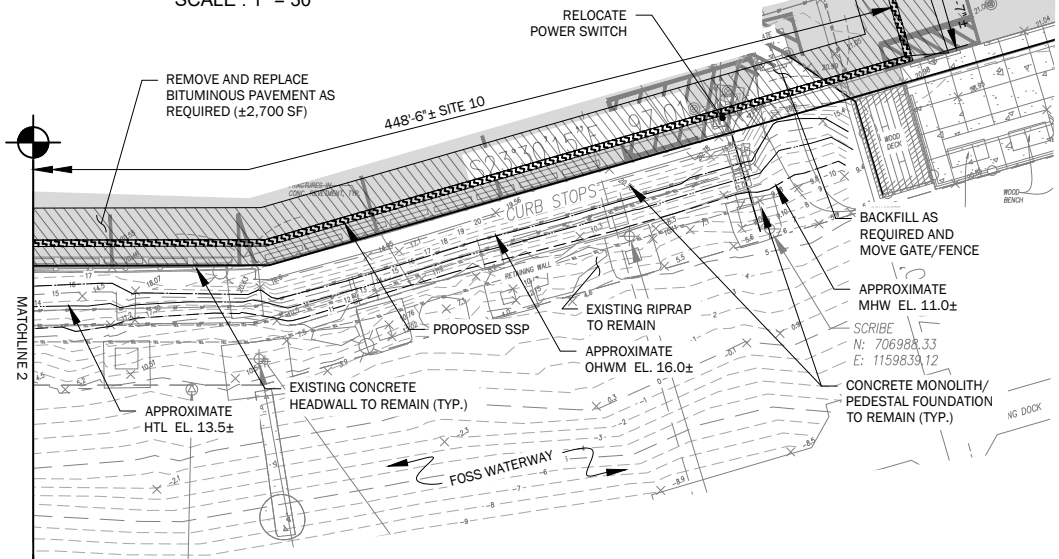
### SITE 10 PROPOSED PLAN

SCALE : 1" = 30'



### SITE 10 PROPOSED PLAN

SCALE : 1" = 30'



### SITE 10 PROPOSED PLAN

SCALE : 1" = 30'

#### NOTES:

1. EXISTING UTILITIES PENETRATING THROUGH EXISTING HEADWALL SHALL BE CUT AND SLEEVED AS REQUIRED TO FACILITATE SSP INSTALLATION.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SHORING AS REQUIRED TO MAINTAIN THE STABILITY OF THE EXISTING STRUCTURE UNTIL CONSTRUCTION OF THE PROPOSED SSP IS COMPLETED.



0 15 30  
SCALE IN FEET

**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

**CITY OF TACOMA**  
**SITE 10, SITE 12, AND MUNICIPAL DOCK**  
**REVETMENT STABILIZATION**

**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 7 of 13 **Date:** AUGUST 2021

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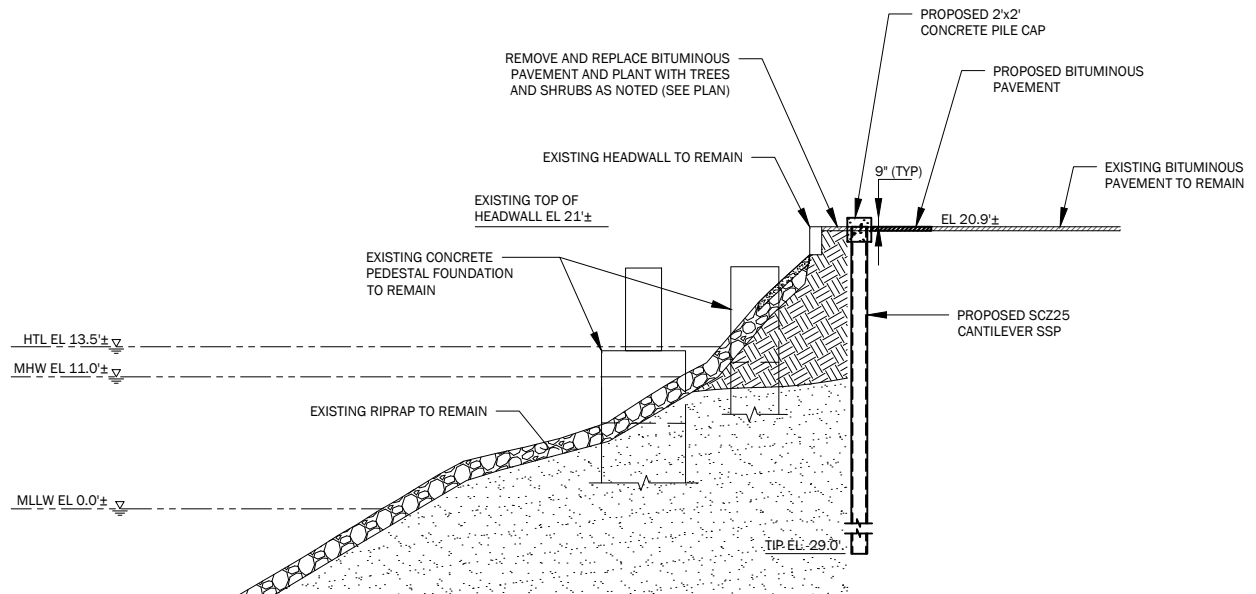
7576 WEST VICTORY RD  
BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

**County:** PIERCE

**State:** WA



- NOTES:
1. PROTECT EXISTING CONCRETE PEDESTAL FOUNDATIONS AND HEADWALL DURING SSP INSTALLATION.
  2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SHORING AS REQUIRED TO MAINTAIN THE STABILITY OF THE EXISTING STRUCTURE UNTIL CONSTRUCTION OF THE PROPOSED SSP IS COMPLETED.

### PROPOSED SITE 10 SECTION

SCALE : 1" = 16'

#### WATER DATUMS

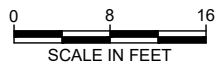
APPROXIMATE HIGH TIDE LINE (HTL)	13.50'
MEAN HIGHER HIGH WATER (MHHW)	11.80'
MEAN HIGH WATER (MHW)	11.00'
MEAN SEA LEVEL (MSL)	6.85'
MEAN LOW WATER (MLW)	2.85'
MEAN LOWER LOW WATER (MLLW)	0.00'
LOWEST OBSERVED WATER LEVEL (11/26/07)	-4.71'

#### REFERENCE:

NOAA STATION: TACOMA, WASHINGTON #9446484

#### NOTE:

ELEVATIONS REFERENCE TO MLLW UNLESS OTHERWISE NOTED



**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

### CITY OF TACOMA SITE 10, SITE 12, AND MUNICIPAL DOCK REVTMENT STABILIZATION

**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 8 of 13    **Date:** AUGUST 2021

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ENGINEERS**

7576 WEST VICTORY RD  
BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

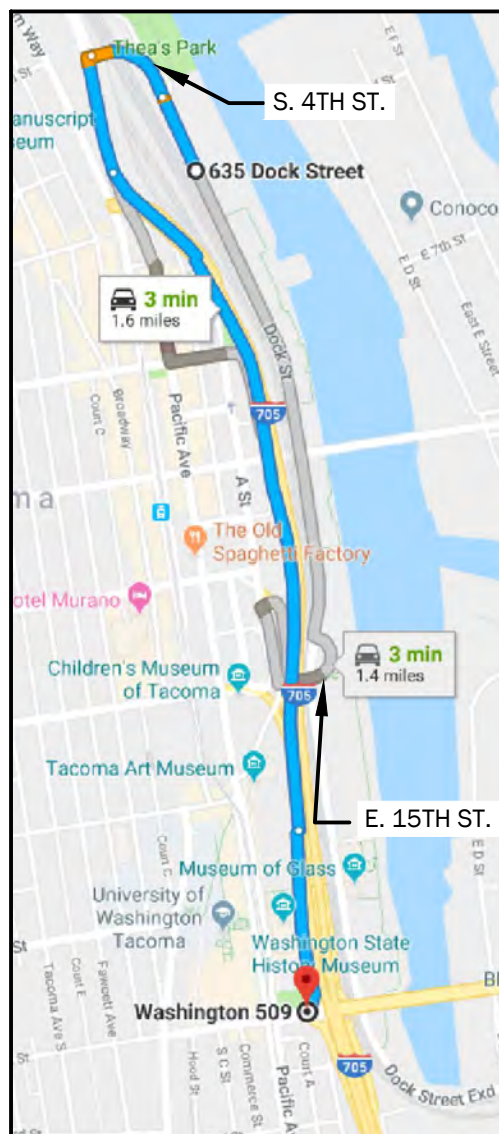
**County:** PIERCE

**State:** WA





SITE 12 VEHICLE ACCESS PLAN  
SCALE : NTS



SITE 12 GOOGLE MAPS  
DOCK ST. TO RT 509 - SCALE : NTS

**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

**CITY OF TACOMA**  
**SITE 10, SITE 12, AND MUNICIPAL DOCK**  
**REVTMENT STABILIZATION**  
**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW  
**Sheet:** 9 of 13    **Date:** AUGUST 2021

**COLLINS ENGINEERS** 7576 WEST VICTORY RD  
BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

**County:** PIERCE

**State:** WA





SITE 12 WORK PLAN  
SCALE : NTS

**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

**CITY OF TACOMA  
SITE 10, SITE 12, AND MUNICIPAL DOCK  
REVETMENT STABILIZATION**

**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 10 of 13      **Date:** AUGUST 2021

**COLLINS  
ENGINEERS**

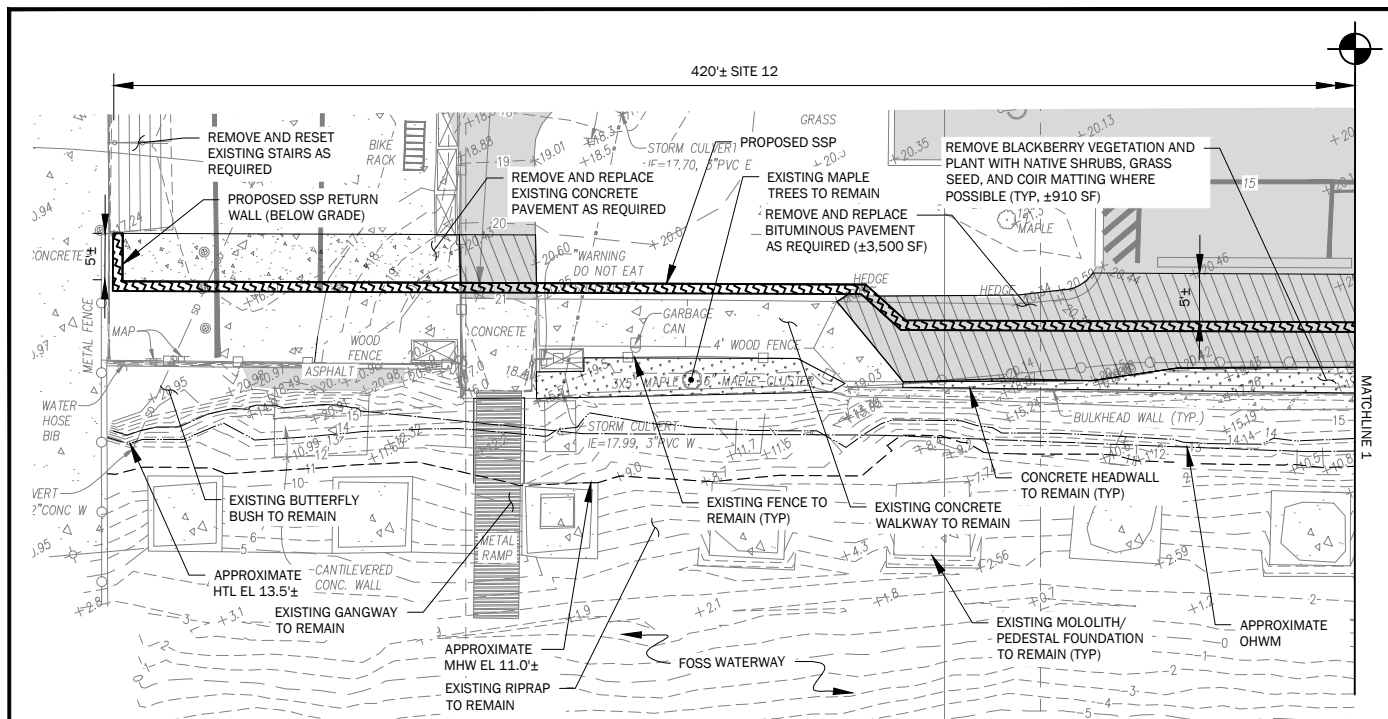
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BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

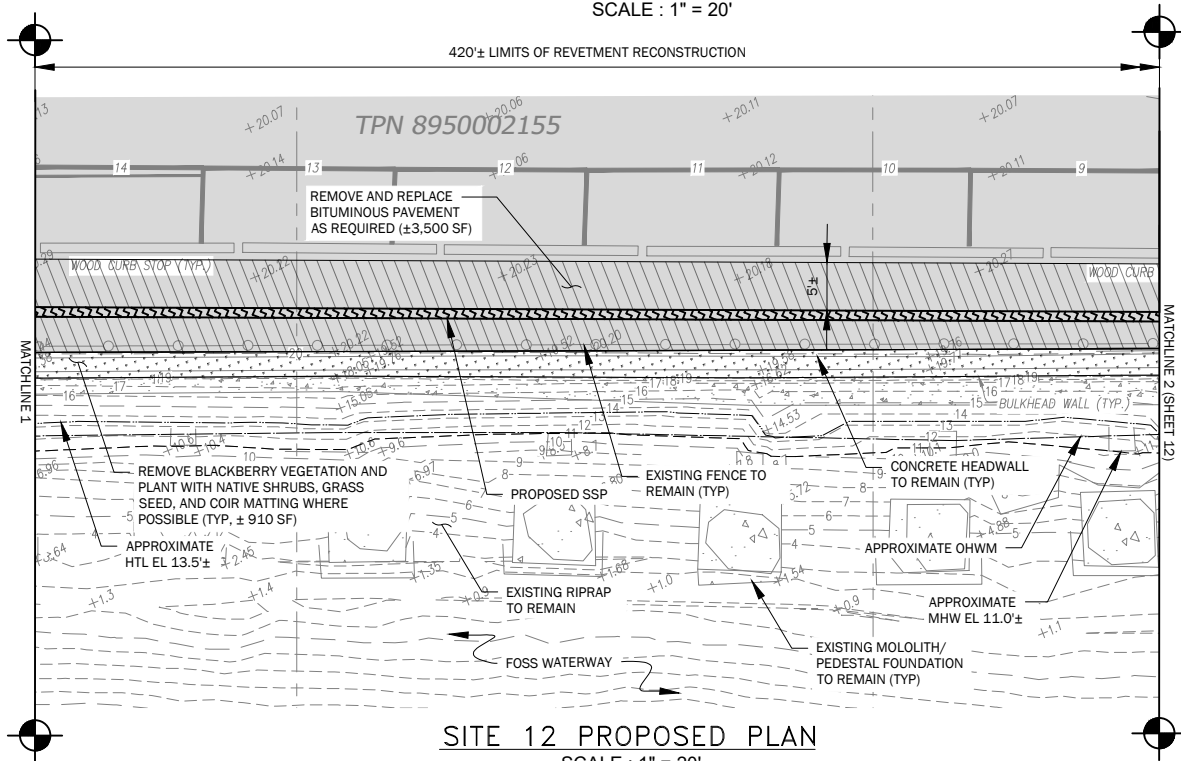
**County:** PIERCE

**State:** WA



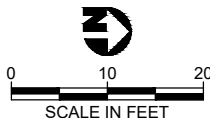
### SITE 12 PROPOSED PLAN

SCALE : 1" = 20'



### SITE 12 PROPOSED PLAN

SCALE : 1" = 20'



#### NOTES:

1. EXISTING UTILITIES PENETRATING THROUGH EXISTING HEADWALL SHALL BE CUT AND SLEEVED AS REQUIRED TO FACILITATE SSP INSTALLATION.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SHORING AS REQUIRED TO MAINTAIN THE STABILITY OF THE EXISTING STRUCTURE UNTIL CONSTRUCTION OF THE PROPOSED SSP IS COMPLETED.

**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

### CITY OF TACOMA SITE 10, SITE 12, AND MUNICIPAL DOCK REJETMENT STABILIZATION

**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 11 of 13 **Date:** AUGUST 2021

**COLLINS  
ENGINEERS**

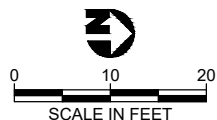
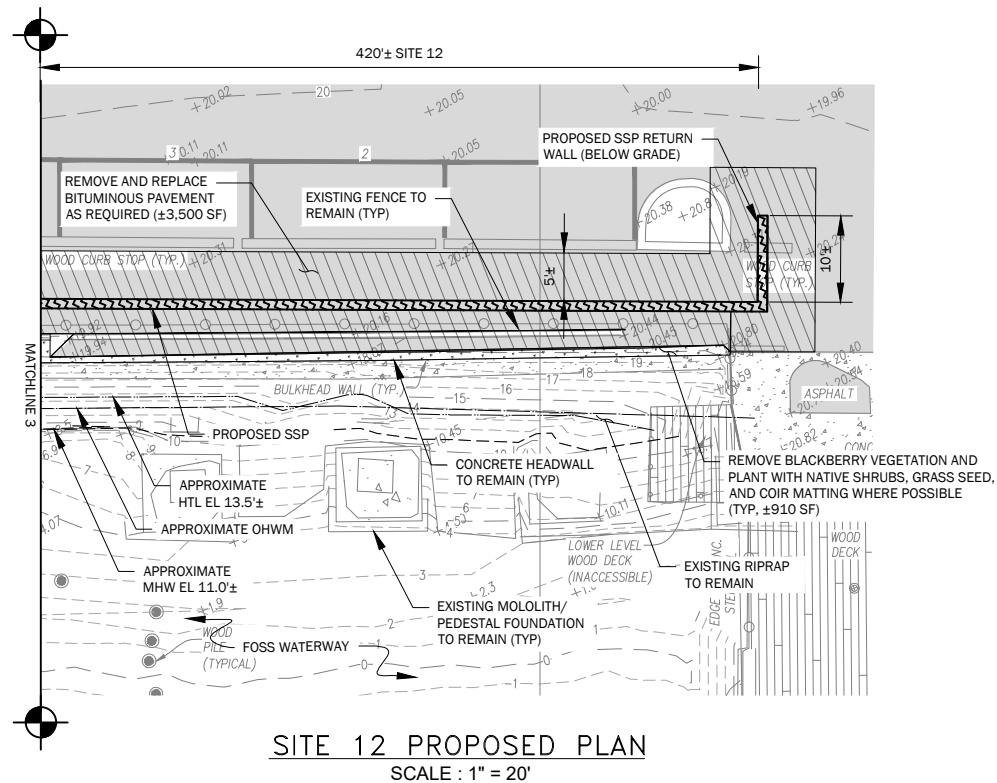
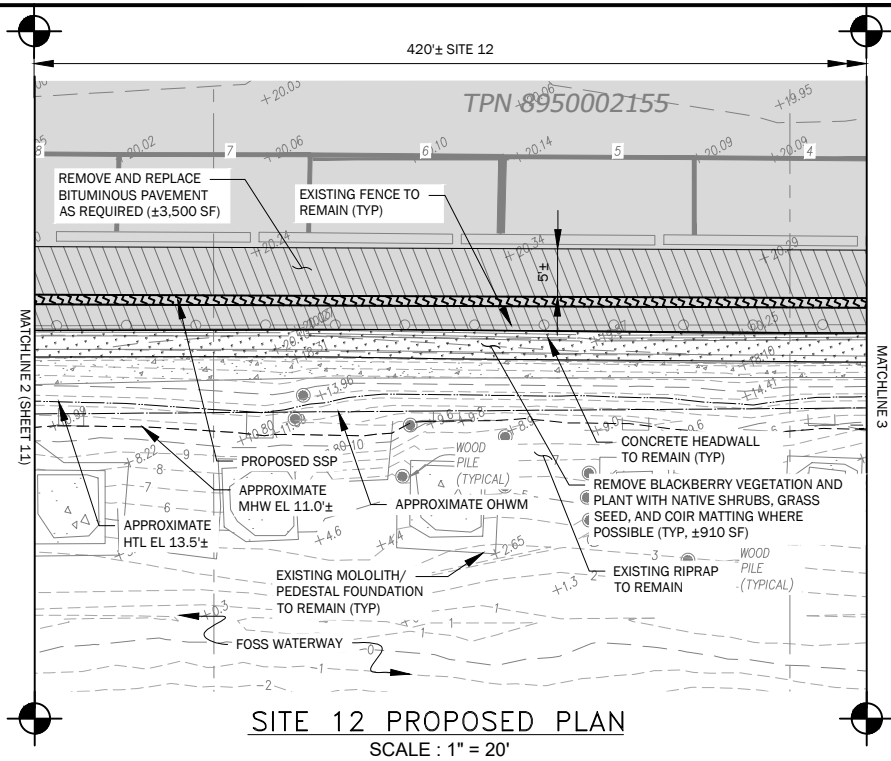
7576 WEST VICTORY RD  
BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

**County:** PIERCE

**State:** WA



- NOTES:
1. EXISTING UTILITIES PENETRATING THROUGH EXISTING HEADWALL SHALL BE CUT AND SLEEVED AS REQUIRED TO FACILITATE SSP INSTALLATION.
  2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SHORING AS REQUIRED TO MAINTAIN THE STABILITY OF THE EXISTING STRUCTURE UNTIL CONSTRUCTION OF THE PROPOSED SSP IS COMPLETED.

**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

**CITY OF TACOMA**  
**SITE 10, SITE 12, AND MUNICIPAL DOCK**  
**REVTMENT STABILIZATION**  
**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 12 of 13 **Date:** AUGUST 2021

**COLLINS ENGINEERS**

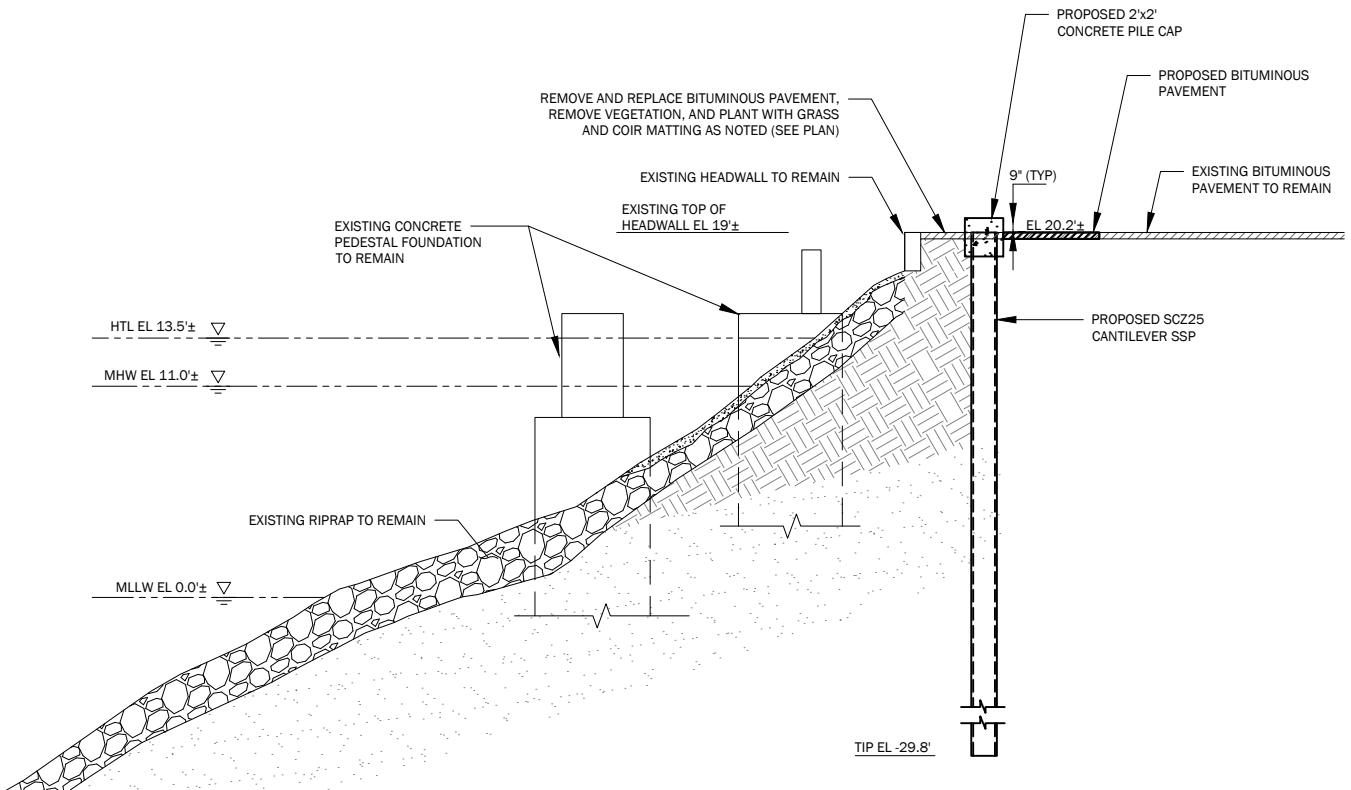
7576 WEST VICTORY RD  
BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

**County:** PIERCE

**State:** WA



- NOTES:
1. PROTECT EXISTING CONCRETE PEDESTAL FOUNDATIONS AND HEADWALL DURING SSP INSTALLATION.
  2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SHORING AS REQUIRED TO MAINTAIN THE STABILITY OF THE EXISTING STRUCTURE UNTIL CONSTRUCTION OF THE PROPOSED SSP IS COMPLETED.

**SITE 12 PROPOSED SECTION**  
SCALE : 1" = 10'

**WATER DATUMS**

APPROXIMATE HIGH TIDE LINE (HTL)	13.50'
MEAN HIGHER HIGH WATER (MHHW)	11.80'
MEAN HIGH WATER (MHW)	11.00'
MEAN SEA LEVEL (MSL)	6.85'
MEAN LOW WATER (MLW)	2.85'
MEAN LOWER LOW WATER (MLLW)	0.00'
LOWEST OBSERVED WATER LEVEL (11/26/07)	-4.71'

**REFERENCE:**

NOAA STATION: TACOMA, WASHINGTON #9446484

**NOTE:**

ELEVATIONS REFERENCE TO MLLW UNLESS OTHERWISE NOTED



**Applicant:** CITY OF TACOMA

**Reference Number:**

**Adjacent Property Owners:**  
CITY OF TACOMA

**CITY OF TACOMA**  
**SITE 10, SITE 12, AND MUNICIPAL DOCK**  
**REVTMENT STABILIZATION**

**Lat/Long:** 47.2550°N, -122.4355°W

**Datum:** WA State Plane North  
Horizontal=NAD83  
Vertical=MLLW

**Sheet:** 13 of 13    **Date:** AUGUST 2021

**COLLINS**  
**ENGINEERS**

7576 WEST VICTORY RD  
BOISE, ID 83709  
Phone: 208-254-1266

**In:** FOSS WATERWAY

**Near/At:** TACOMA

**County:** PIERCE

**State:** WA

# Pre Proposal Meeting

PW22-0105F

Foss Waterways Site  
Bulkhead Replacement

10, 12, Municipal Dock  
4/17/22

Name / Email

Company

1) Darius Thompson

City of Tacoma

Darius.Thompson@cityoftacoma

2) CHANCY BENSON

PACIFIC PILE & MARINE

chancyb@pacificpile.com

3) NICLAS ANDERSEN

AMERICAN

NICLAS.A@AMERICANCONSTRUCTION.COM

4) CHAD CURS

BERGERSON CONST.

ESTIMATING@BERGERSON-CONST.COM

5) IQBAL SARIP

ORION

isarip@orionmarinegroup.com

JACOB NICHOLS

RAIN FOR RENT

JNICHOLS@RAINFORRENT.COM



Hans Breuick

Quigg Bros

hansb@quiggbros.com

360-507-6455

Mark Henry

Mark Henry City of Tacoma.org

253-591-5771

Josh L.

Veronica M.

