Parcel 117 Snail Eradication Project Compensatory Mitigation Plan

Taylor Way and Alexander Avenue
Tacoma, Washington

for
Port of Tacoma

March 17, 2026

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1.0 Introduction

The Port of Tacoma (Port) proposes to eradicate invasive Mediterranean vineyard snails (*Cernuella virgata*) from two parcels collectively referred to as Parcel 117 at 1212 Taylor Way in Tacoma, Washington. Snail eradication would result in the permanent displacement of three wetlands totaling 5.446 acres. To compensate for these impacts the Port proposes a combination of concurrent mitigation at Parcels 12 and 37D and the use of advance mitigation credits generated at the Port's Lower Wapato Creek Habitat Project (LWCHP) Advance Mitigation Site (AMS).

These proposed actions require a City of Tacoma (City) Land Use Critical Areas Development Permit (Permit No. LU25-0176) and documentation of compliance with Tacoma Municipal Code (TMC) Title 13, Chapter 11, Critical Areas Preservation (City of Tacoma 2024). This Compensatory Mitigation Plan (CMP) has been prepared to document the proposed modifications, impacts to wetlands and mitigation measures proposed to provide no net loss of critical area functions and provide a net ecological benefit to critical areas ecological functions and values within the project vicinity. Wetland delineations have been conducted by Confluence Environmental Company (Confluence) and are included with the CMP as Appendix A, Parcel 117 Critical Areas Report, Appendix B, Parcel 12 Critical Areas Report and Appendix C, Parcel 37D Critical Areas Report for Parcels 117, 12 and 37D, respectively. This CMP replaces the mitigation documented in the Parcel 117 Critical Areas Report.

1.1 PROJECT LOCATION

1.1.1 Parcel 117 Project Site

Parcel 117 is located at 1212 Taylor Way (Parcel numbers 0321263045 and 0321352064) in Tacoma, Washington. The site is in Township 21 North, Range 3 East, Sections 26 and 35, Willamette Meridian (Figure 1, Vicinity Map). This site is also located in Water Resource Inventory Area (WRIA) 10 – Puyallup/White Rivers and Hydrological Unit Code (HUC) 171100190205 – Hylebos Creek – Frontal Commencement Bay.

1.1.2 Parcel 12 Mitigation Site

The Parcel 12 Mitigation Site is located at 3802 Taylor Way (Parcel numbers 0320011090 and 0320011091) in Tacoma, Washington. The proposed mitigation site is in Township 20 North, Range 3 East, Section 1, Willamette Meridian (Figure 1). This site is also located in WRIA 10 – Puyallup/White Rivers and HUC 171100190205 – Hylebos Creek – Frontal Commencement Bay.

1.1.3 Parcel 37D Mitigation Site

The Parcel 37D Mitigation Site is located at approximately 1402 Lincoln Avenue (Parcel numbers 0320031004, 0320031026, 0320031027, 0320032048 and 0320034052) in Tacoma, Washington. The proposed mitigation site is in Township 20 North, Range 3 East, Section 3, Willamette Meridian, (Figure 1). This site is also located in WRIA 10 – Puyallup/White Rivers and HUC 171100190205 – Hylebos Creek – Frontal Commencement Bay. However, the site is adjacent to HUC 171100140502 – Puyallup River.

1.1.4 LWCHP AMS

The LWCHP AMS is located at 1131 E Alexander Avenue (Parcel numbers 0320013157 and 0320013158) in Fife, Washington. The proposed mitigation site is in Township 20 North, Range 3 East, Section 1, Willamette Meridian (Figure 1). This site is also located in WRIA 10 – Puyallup/White Rivers and HUC 171100190205 – Hylebos Creek – Frontal Commencement Bay.

1.2 PROJECT DESCRIPTION

For nearly 20 years, the Port has conducted efforts to eradicate the Mediterranean vineyard snail. The snail was initially detected on Parcel 117 in 2005 with the infestation spanning 300 acres in the Blair-Hylebos peninsula. Parcel 117 represents the last known infestation area that continues to support these snails due to the presence of wetlands. The Port has completed multiple snail reduction methods including vegetation management (mowing) and steam treatment but has not been able to successfully eradicate the invasive snails from Parcel 117. The purpose of the project is to modify the site conditions to inhibit the reproduction and survival of Mediterranean vineyard snails at the site. The Port proposes to accomplish this by placing approximately 6 inches of consolidated fill material in the 5.446 acres of disturbed palustrine emergent (PEM) wetland at the site (Figure 2, Parcel 117 Wetlands Map). Washington State Department of Agriculture will monitor the site for 3 years post-construction to confirm the eradication of the invasive snails. The Port proposes to offset the loss of these wetlands through the construction of two permittee-responsible concurrent mitigation sites at Parcels 12 (Figure 3, Parcel 12 Initial Mitigation Concept) and 37D (Figure 4, Parcel 37D (Gog-le-hi-te) Initial Mitigation Concept) and use advance mitigation credits generated at the LWCHP AMS (Figure 5, LWCHP AMS Constructed Habitat).

2.0 Critical Areas Characterization

2.1 PARCEL 117 IMPACT SITE

Parcel 117 is a 15.68-acre undeveloped site containing three PEM wetlands totaling 5.446 acres in size (Figure 2). The site is mowed annually and portions of the site, including wetlands, have undergone steam treatment as part of the ongoing snail eradication efforts. Upland conditions at the site consist primarily of mowed grasses and Himalayan blackberry (*Rubus armeniacus*) and wetland areas also consist primarily of mowed grasses including reed canarygrass (*Phalaris arundinacea*) (Confluence 2025a). The wetlands were determined to be Federally non-jurisdictional as described in the United States Army Corps of Engineers (Corps) *Approved Jurisdictional Determination Memorandum for Record* (Corps 2025). Additional wetland and upland characteristics are contained in the *Port of Tacoma Parcel 117 Taylor Way and Alexander Ave Snail Eradication Project Critical Areas Study and Mitigation Plan* (Confluence 2025a). Table 1 below provides a summary of the wetlands at Parcel 117.

Parcel 117 includes a contaminated site (Washington State Department of Ecology [Ecology] Facility Site ID 1403183) subject to an agreed order with Ecology for investigation and cleanup under the Model Toxics Control Act (MTCA). Releases of hazardous substances occurred from unauthorized dumping that occurred from approximately 1946 until at least 1991. Portions of the site adjacent to and within the area populated by the snails were tested for hazardous substances in soil and groundwater in August 2024. Concentrations of hazardous substances were detected at concentrations exceeding Ecology screening levels. The Port

proposes an interim action under the agreed order that will consist of grading and capping contaminated soils integrated with this snail eradication effort.

TABLE 1. PARCEL 117 WETLAND SUMMARY

WETLAND NAME	COWARDIN CLASSIFICAITON	HGM CLASSIFICATION	CATGORY	SIZE (ACRES)
Wetland 1	PEM	Depressional and Flats	III	0.234
Wetland 2	PEM	Depressional and Flats	III	5.188
Wetland 3	PEM	Depressional and Flats	III	0.024
			Total:	**5.446**

2.2 PARCEL 12 MITIGATION SITE

Parcel 12 is an approximately 5-acre site containing one wetland along the eastern margins of the site and Fife Ditch along the northern site boundary. The site contains a high level of disturbance from human encroachment associated with a former encampment as well as impacts from encampment cleanup efforts. Initial cleanup efforts have been conducted in upland areas to remove refuse; however, remnants of the former encampment are visible in both the upland and wetland portions of the site and indications of buried refuse are present in multiple locations. Vegetation at Parcel 12 includes a deciduous forest canopy composed primarily of black cottonwood (*Populus trichocarpa*), red alder (*Alnus rubra*) and Oregon ash (*Fraxinus latifolia*). Numerous trees were damaged by encampment activities including localized clearing and use of trees as supports for temporary structures. Understory vegetation was also impacted by vegetation clearing to accommodate the encampment as well as during subsequent clean-up efforts. Understory species observed at Parcel 12 include snowberry (*Symphoricarpus albus*), osoberry (*Oemleria cerasiformis*) and Himalayan blackberry. Dense colonies of English ivy (*Hedera helix*) were also observed as groundcover and covering numerous mature trees.

The wetland at Parcel 12 is a 0.999-acre depressional palustrine forested (PFO) wetland with an overall wetland category of III and a habitat score of 4. Portions of the wetland are seasonally ponded, while the remainder of the wetland is saturated only. Vegetation within the wetland includes Oregon ash, Himalayan blackberry and slough sedge (*Carex obnupta*) (Confluence 2025b).

Fife Ditch is present along the western and northern portions of Parcel 12. Fife Ditch is an artificially constructed ditch conveying stormwater from the City of Fife north to the Hylebos Creek Estuary through a pump station maintained by Drainage District 23 (DD23).

Recent geotechnical investigations identified apparent fill material within the proposed Parcel 12 wetland re-establishment area including an apparent historic stream channel alignment. The re-establishment of wetlands will be based on excavation of surface material to re-establish elevations that will support wetland hydrology.

Additional wetland and upland characteristics are contained in the *Port of Tacoma Parcel 12 Wetland Delineation Report* (Confluence 2025b), and an updated wetland rating form for Parcel 12 existing conditions is included in Appendix D, Updated Wetland Rating Forms and Credit-Debit Worksheet.

2.3 PARCEL 37D MITIGATION SITE

Parcel 37D is approximately 2.120-acres containing one wetland that occupies the northern portion of the site. The Gog-le-hi-te I habitat restoration area is located to the west of the site, the Gog-le-hi-te Habitat Improvement Action area is located to the north of the site, and the Gog-le-hi-te Wetland loop trail system is located on the levee to the east and south of the site. Vegetation at Parcel 37D includes a deciduous forested canopy dominated by black cottonwood with an understory dominated by willow (*Salix sp.*), Himalayan blackberry, reed canarygrass, cleavers bedstraw (*Galium aparine*) and fireweed (*Chamaenerion angustifolium*).

The wetland at Parcel 37D is a 0.832-acre depressional PFO wetland with an overall wetland category of II and a habitat score of 6. A majority of the wetland is seasonally ponded with a smaller area to the south that is only saturated. Vegetation within the wetland includes black cottonwood, red-osier dogwood (*Cornus stolonifera*), willow, common cattail (*Typha latifolia*), slough sedge (*Carex obnupta*), salmonberry (*Rubus spectabilis*), Himalayan blackberry, Japanese knotweed (*Polygonum cuspidatum*) and reed canarygrass. The wetland has been impacted by human disturbance, the presence of an abandoned floating dock located along the eastern edge of the wetland, and invasive species that dominate areas of the wetland.

Additional wetland and upland characteristics are contained in the *Port of Tacoma Gog-le-hi-te Mitigation Site Wetland Delineation Report* (Confluence 2025c). An updated wetland rating form for Parcel 37D existing conditions is included in Appendix D.

2.4 LWCHP AMS

The LWCHP AMS is an approximately 17-acre site that previously contained several small, isolated, non-jurisdictional depressions that displayed wetland characteristics prior to habitat restoration actions. The site is located approximately 0.46 miles upstream of the mouth of Wapato Creek. Prior to restoration, Wapato Creek entered the site through twin, 60-inch-diameter, perched culverts and flowed along 12th Street East and Alexander Avenue as a channelized roadside ditch.

Additional wetland and upland characteristics are contained in the *Port of Tacoma Final Advance Mitigation Plan Lower Wapato Creek Habitat Project Report* (Port of Tacoma 2021).

2.5 FISH AND WILDLIFE SPECIES

2.5.1 Federally Listed Threatened and Endangered (T&E) Species

According to United Stated Fish and Wildlife Service (USFWS) Information for Planning and Consultants (IPaC) federally listed species that may occur within the project and mitigation areas include marbled murrelet (*Brachyramphus marmoratus),* streaked horned lark (*Eremophila alpestris strigata*), yellow-billed cuckoo (*Coccyzus americanus*), Northwestern pond turtle (*Actinemys marmorata*), Bull Trout (*Salvelinus confluentus*) and Monarch butterfly (*Danaus Plexippus*) (USFWS 2025).

Parcels 117, 12 and 37D contain isolated wetlands that do not support fish use. LWCHP AMS may contain Puget Sound (PS) Chinook Salmon and PS Steelhead (NMFS 2023). Puyallup Tribe of Indians (PTOI) staff identified PS Chinook Salmon rearing and spawning in Simons Creek near 90th Avenue NE, a tributary to Wapato Creek (NMFS 2023).

2.5.2 Priority Habitats and Species

2.5.2.1 PARCEL 117 PROJECT SITE

Priority Habitats and Species (PHS) data (WDFW 2025) identifies no priority species.

2.5.2.2 PARCEL 12 MITIGATION SITE

PHS data (WDFW 2025) identifies Coho, Chum and Steelhead presence in Fife Ditch. However, a pump station at the outlet of the Fife Ditch does not allow fish passage. Also, PTOI Fisheries Department prepared a letter stating they do not consider the Fife Ditch a fish-bearing waterway and they support the Port's efforts to maintain the outlet structure which prevents undesired access by salmonids into the Fife Ditch (PTOI 2025). The project area is also within a township level polygon mask for species or habitat occurrence of big brown bat (*Eptesicus fuscus*).

2.5.2.3 PARCEL 37D MITIGATION SITE

PHS data (WDFW 2025) identifies no priority species. The project area is also within a quarter-township level polygon mask for species or habitat occurrence of big brown bat.

2.5.2.4 LOWER WAPATO CREEK HABITAT PROJECT ADVANCE MITIGATION SITE

PHS data (WDFW 2025) identifies Coho, Chum and Steelhead presence in Wapato Creek. The project area is also within a quarter-township level polygon mask for species or habitat occurrence of big brown bat.

3.0 Proposed Parcel 117 Project Actions

The Port intends to modify the site conditions to inhibit the reproduction and survival of Mediterranean vineyard snails. The Port proposes to accomplish this by permanently altering the site to remove 5.446 acres of disturbed PEM wetland at the site by placing approximately 6 inches of consolidated fill material over the site.

3.1 DEMOLITION, CLEARING AND GRADING

No demolition will be required for this project as there are no existing structures on the parcel. The site will be graded to nearly level. Six inches of consolidated fill will be placed over the entirety of the site to eradicate Mediterranean vineyard snails from the parcel.

3.2 CONSTRUCTION TECHNIQUES, MATERIALS AND EQUIPMENT

The Port proposes to grade Port Parcel 117 and place approximately 6 inches of consolidated fill over the site to eradicate the Mediterranean vineyard snails. This includes filling the wetlands present within the site.

Equipment expected to be used during grading and filling:

- Excavators,
- Backhoes,
- Dozers,

- Front-end loaders,
- Dump trucks,
- Compactors,
- Compressors,
- Generators, and
- Other hand tools

3.3 BEST MANAGEMENT PRACTICES (BMPS)

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.

- A temporary erosion and sediment control (TESC) plan will be developed and implemented prior to ground disturbing activities.
- Contractors will be required to prepare and implement a Spill Prevention Control and Countermeasures (SPCC) Plan consistent with Ecology regulations.
- Contractor personnel will be equipped with appropriate spill response materials including oil-absorbent pads and booms.
- 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 soils or surface waters.
- Construction debris shall be collected and disposed of at an upland disposal site.
- Equipment will be inspected daily for drips or leaks to prevent spills.
- 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.
- Snail decontamination protocol will be utilized for all personal and mechanical equipment prior to demobilizing from the site to address all life stages of snails and prevent the potential spread of snails offsite. The Port's Snail Eradication BMPs Figure is included in Appendix E, Snail Eradication BMPs Figure.

4.0 Proposed Mitigation Project Actions at Parcels 12 and 37D

As a result of the impacts at Parcel 117, the Port is proposing to enhance 0.928 acres and re-establish 4.128 acres of wetland habitat within Parcels 12 and 37D.

4.1 DEMOLITION, CLEARING AND GRADING

Vegetation will be removed from the wetland re-establishment and portions of the enhancement areas within the mitigation sites. The wetland enhancement area will be cleared of invasive vegetation and native wetland vegetation will be seeded and planted within the enhanced wetland areas.

4.2 CONSTRUCTION TECHNIQUES, MATERIALS AND EQUIPMENT

Equipment intended to be used during clearing, site stabilization and revegetation may include:

- Excavators,
- Backhoes,
- Dozers,
- Front-end loaders,
- Dump trucks,
- Generators, and
- Other hand tools

Restoration work at Parcels 12 and 37D will be conducted over a 2-year period. The first year of construction will include removal of invasive species and regrading the sites. Large woody material (LWM) will be installed throughout the wetland areas. The project sites will be stabilized with wetland and upland seed mixes and erosion control blankets, as needed. The project site will be observed until the following year to monitor postconstruction hydrology, including water depth and durations to confirm planting zones. The second year of construction will include installing the temporary irrigation system and all the plants according to the planting plan.

4.3 BMPS

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.

- A TESC plan will be developed and implemented prior to ground disturbing activities.
- Contractors will be required to prepare and implement a SPCC Plan consistent with Ecology regulations.
- Contractor personnel will be equipped with appropriate spill response materials including oil-absorbent pads and booms.

- 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 soils or surface waters.
- Construction debris shall be collected and disposed of at an upland disposal site.
- Equipment will be inspected daily for drips or leaks to prevent spills.
- 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.

5.0 Parcel 117 Potential Proposed 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:

- Construction-related noise;
- Habitat alteration; and
- Water quality effects.

5.1 NOISE

5.1.1 Temporary Construction Related Noise

The project will generate in-air noise during construction activities. A dump truck is assumed to be the loudest construction equipment that could be used for the project. A dump truck has been measured to reach 91 decibels (dB) 50 feet from the source (WSDOT 2020). The project site is an urban area adjacent to railroads and industrial traffic. WSDOT (2020) noise impact guidance identifies urban areas adjacent to freeway traffic to have levels at 88 dB. Using a conservative background noise level of 80 dB, project noise levels are expected to extend up to 137 feet from the source over soft sites and 177 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.

5.2 HABITAT ALTERATION

The proposed modification will result in permanent habitat alterations resulting from filling the on-site wetlands.

5.2.1 Permanent Habitat Alteration

Permanent impacts will occur to Parcel 117 resulting from the addition of 6 inches of consolidated fill to the entirety of the site and will be graded to nearly level. Permanent impacts to wetlands on the parcel consist of filling 5.446 acres of disturbed PEM wetlands.

5.3 WATER QUALITY EFFECTS

The three wetlands within Parcel 117 will be filled thereby removing the water quality functions at this site.

6.0 Potential Mitigation Sites Project Effects

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

- Construction-related noise;
- Habitat alteration; and
- Water quality effects.

6.1 NOISE

6.1.1 Temporary Construction Related Noise

The project will generate in-air noise during construction activities. A dump truck is assumed to be the loudest construction equipment that could be used for the project. A dump truck has been measured to reach 91 dB 50 feet from the source (Washington State Department of Transportation [WSDOT] 2020). The project site is an urban area adjacent to railroads and freeway vehicular traffic. WSDOT (2020) noise impact guidance identifies urban areas adjacent to freeway traffic to have levels at 88 dB. Using a conservative background noise level of 80 dB, project noise levels are expected to extend up to 137 feet from the source over soft sites and 177 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.

6.2 HABITAT ALTERATION

The proposed modification will result in permanent habitat alterations resulting from proposed wetland enhancement and re-establishment.

6.2.1 Permanent Impacts

Permanent habitat impacts will occur to both parcels 12 and 37D resulting from the wetland enhancement and re-establishment actions. The wetland habitat will be beneficially impacted by removal of human disturbances and invasive species, installation of native vegetation and installation of large wood onsite. These actions will result in increased vegetation diversity and habitat interspersion, improving habitat for fish and wildlife species. Additionally, the re-establishment of wetland habitat will result in conversion of disturbed upland areas into wetland habitat, increasing the habitat area for wildlife species.

6.3 WATER QUALITY EFFECTS

The proposed modification will result in temporary and permanent water quality effects.

6.3.1 Temporary Impacts During Construction

The operation of equipment and other surface disturbing activities adjacent to wetlands have the potential to generate short-term, temporary water quality effects resulting from the release of sediment, debris and/or contaminants into the wetlands within Parcels 12 and 37D. BMPs will be implemented to minimize the potential for temporary water quality impacts.

6.3.2 Permanent Impacts

The proposed wetland re-establishment and enhancement actions will improve wetland hydrology. The installation of native vegetation will slow flood flows, improving water quality.

7.0 Habitat Management Plan

7.1 ANALYSIS OF EFFECTS ON SPECIES

7.1.1 Parcel 117 Project Actions

Potential project effects are described in Section 5.0 Parcel 117 Potential Proposed Project Effects of this report that may affect wildlife species. Affects to wildlife from project actions may include:

- **Construction related noise** is not expected to result in injurious effects to wildlife. There is no fish habitat within the site. In-air noise generated during construction could cause wildlife to avoid the area within 177 feet of the site.
- **Habitat alterations** permanent habitat alteration will result in filling of all wetlands within the parcel and the loss of that disturbed PEM wetland habitat. Removing wetland habitat reduces the amount of wetland vegetation, which decreases foraging opportunities for wildlife.
- **Water quality effects** could occur as a result of the proposed project. However, BMPs described in this report will be implemented to reduce the likelihood of water quality impacts.

7.1.2 Mitigation Actions

Potential mitigation action effects are described in Section 6.0 Potential Mitigation Site Project Effects of this report that may affect wildlife species. Affects to wildlife from project actions may include:

- **Construction-related noise** is not expected to result in injurious effects to wildlife. There is no fish use at Parcels 12 and 37D. In-air noise generated during construction could cause wildlife to avoid the work area.
- **Habitat alterations** permanent habitat alteration will include enhancement of 0.928 acres of wetland habitat and 4.128 acres of wetland re-establishment which will result in improved foraging and shelter habitat for wildlife.
- **Water quality effects** could occur as a result of the proposed project. However, BMPs described in this report will be implemented to reduce the likelihood of water quality impacts.

8.0 Mitigation Plan

8.1 MITIGATION SEQUENCING

The proposed modifications have been developed using mitigation sequencing in accordance with TMC 13.11.270. As described in the legal test below, the project cannot avoid or minimize impacts to wetlands at Parcel 117 because removal of the wetlands is required to eradicate the invasive Mediterranean vineyard snails.

The project meets the legal tests in TMC 13.11.240.A:

1. The project cannot be reasonably accomplished using one or more other sites in the general region that would avoid or result in less adverse impacts to the Critical Area;

Response to Legal Test 1: The Mediterranean vineyard snails occur within wetland areas on Port Parcel 117. There is no option for using an alternative site as the goal of the project is to eradicate the snails from the property.

2. The goals of the project cannot be accomplished by a reduction in the size, scope, configuration or density as proposed, or by changing the design of the project in a way that would avoid or result in fewer adverse effects on the Critical Area;

Response to Legal Test 2: Adult snails mate and lay eggs in autumn and winter. Eggs are buried in shallow topsoil. Juveniles grow and mature through the spring. During hot, dry summer conditions, snails enter dormancy. The purpose of the project is to modify the site condition that facilitates the snail's specific life cycle. The snail eradication effort involves grading the majority of the Port Parcel 117 site to a generally level condition and then placing approximately 6 inches of consolidated fill material over site areas known to harbor the Mediterranean vineyard snails. It is not possible to reduce the scale or scope of the project and effectively eradicate the snails from the Port Parcel 117 site.

3. In cases where the applicant has rejected alternatives to the project as proposed, due to constraints on the site such as inadequate zoning, infrastructure or parcel size, the applicant has attempted to remove or accommodate such constraints, unless the applicant can demonstrate that such attempt would be futile.

Response to Legal Test 3: The Port has implemented a snail eradication program for nearly 20 years. Eradication strategies such as vegetation management, debris removal and molluscicide application have eliminated snails from all properties except Port Parcel 117. The western portion of Port Parcel 117 differs from the other previously infested Port properties because it contains wetland areas that act as a refuge for the snail population. Additional eradication efforts that have been attempted at Parcel 117 include steaming portions of the wetland and buffer to raise the temperature of the soil enough to kill all life stages of the snail. All efforts at the site to date have been unsuccessful. The Port, along with United States Department of Agriculture (USDA) and Washington State Department of Agriculture (WSDA), have determined that continuing the current snail eradication approach is futile. There is no practicable alternative remaining that does not impact the existing onsite wetlands.

8.2 PARCEL 117 IMPACT ASSESSMENT

Permanent impacts will occur to wetland habitat resulting from the proposed modifications. There will be 5.446 acres of permanent wetland impact from the placement of fill material. The following table (Table 2) identifies the permanent impacts to wetland habitat. The new total permanent wetland impacts will be mitigated at Parcel 12, Parcel 37D and LWCHP AMS.

TABLE 2. TOTAL IMPACTS PARCEL 117 SUMMARY TABLE

HABITAT TYPE	LOCATION OF IMPACT	IMPACT TYPE	IMPACTS (AC)
PEM Wetland Habitat	Wetland 1	Permanent	0.234
PEM Wetland Habitat	Wetland 2	Permanent	5.188
PEM Wetland Habitat	Wetland 3	Permanent	0.024
		Total Impacts:	5.446

Notes:

[1] See section 2.1 for individual wetland details.

AC = acres

8.3 EXISTING CONDITIONS FUNCTIONAL ASSESSMENT

8.3.1 Parcel 117 Impact Project Site

Wetlands within the project area are significantly impaired. While the wetlands have high and moderate water quality and hydrological functions, the habitat functions at all three wetlands are low. The wetlands have only one plant structure community (emergent vegetation), two hydroperiods and no interspersion of habitats. There are low to no special habitat features and the surrounding landscape is dominated by industrial development which does not support the potential for higher habitat function. These limited functions provide minimal or no foraging or shelter opportunities for wildlife.

8.3.2 Parcel 12 Mitigation Site

The wetland within the Parcel 12 Mitigation Site has moderate potential and high value to support water quality functions because of surrounding land use that generates pollutants. The wetland has high hydrologic functions, due to the depth of storage within the wetland, the excess runoff produced by the surrounding landscape and flooding problems downgradient from the wetland. The wetland has moderate potential to provide wildlife habitat based on its potential to provide habitat for valuable species. However, this potential is limited by the lack of habitat interspersion and the presence of invasive species. Habitat functions at the site have also been degraded by the presence of encampments within the wetland and surrounding uplands.

8.3.3 Parcel 37D Mitigation Site

The wetland within the Parcel 37D Mitigation Site has moderate potential to support water quality functions because of surface depressions and plant cover that traps and filters sediments during flood events as well as surrounding land use that generates pollutants. The wetland has high hydrologic functions, due to the depth of storage within the wetland, the excess runoff produced by the surrounding landscape and flooding problems downgradient from the wetland. The wetland has moderate potential to provide wildlife habitat based on its diverse plant communities, hydroperiods, moderate habitat interspersion and species

richness. The wetland also contains several special habitat features including large woody debris, standing snags, undercut banks, stable steep banks, and woody stemmed persistent plants within seasonal ponding. These features have potential to provide habitat for valuable species. The presence of invasive species and anthropogenic impacts, including an abandoned floating dock, limit habitat function within the wetland. Dense areas of Himalayan blackberry within upland areas further limit habitat functions of the site.

8.3.4 LWCHP AMS

The wetlands within LWCHP AMS, prior to restoration, were non-jurisdictional due to their small size and isolated hydrology. The wetlands likely had moderate water quality functions as the surrounding land use generates pollutants and the plant community within the wetlands consisted of emergent vegetation. The wetlands likely had low hydrological functions as they were isolated depressions, and their size did not provide significant storage to prevent flooding. The habitat within these wetlands was likely low as there was only one plant structure (emergent), two hydroperiods (occasionally ponded and saturated), no habitat interspersion and no special habitat features.

8.4 MITIGATION GOALS AND OBJECTIVES

The primary goals of the proposed mitigation are to provide sustainable net ecological benefits to wetland habitat within the same HUC. Specific goals of the proposed mitigation are to compensate for unavoidable permanent impacts of 5.446 acres of Parcel 117 through the enhancement of approximately 0.928 acres of wetland habitat and re-establishment of approximately 4.128 acres of wetland habitat within Parcels 12 and 37D. Additional compensation will be accomplished by the application of 1.800 acres of estuarine emergent (EEM) wetland credits from LWCHP AMS. The specific objectives of the proposed mitigation are:

Objective 1: Re-establish wetlands.

Objective 2: Enhance wetlands.

Objective 3: Establish and enhance dense forested upland areas.

Objective 4: Enhance wildlife habitat.

The following performance standards are proposed to evaluate the success of the proposed mitigation and enhancement goals and objectives.

8.4.1 Wetland Re-establishment

Objective 1: Re-establish wetlands.

1A. Create at least a total of 4.128 acres of wetland habitat at the compensatory mitigation sites at Parcel 12 (approximately 3.022 acres) and Parcel 37D (approximately 1.106 acres) by the end of the monitoring period. Successful performance standard achievement will be demonstrated through wetland delineations conducted in Years 5 and 10.

1B. Wetland hydrology shall be established across the re-established and enhanced wetlands at the compensatory mitigation sites. Successful performance standard achievement will be demonstrated by documenting soil inundation or saturation to the surface of free water at 12 inches or less below the soil surface for at least 14 consecutive days during the growing season via groundwater wells during Years 1

through 10. This applies to normal precipitation or wetter conditions, where the growing season is defined in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps 2010). Successful performance standard achievement will also be demonstrated through wetland delineations conducted in Years 5 and 10.

1C. Vegetation at the compensatory mitigation sites will be planted in accordance with the approved planting plans. Successful performance standard achievement will be demonstrated through documentation of installed plants in an as-built report.

1D. In the re-established and enhanced wetlands at each compensatory mitigation site, native trees and shrubs will have a minimum 10 percent relative cover at Year 1, 15 percent relative cover by Year 2, 25 percent relative cover at Year 3, 50 percent relative cover at Year 5, 60 percent relative cover at Year 7, and 70 percent relative cover at Year 10. Successful performance standard achievement will be demonstrated through documentation of percent relative cover of native tree and shrub species in Years 1, 2, 3,5, 7, and 10. Performance Standard targets are assessed separately at each mitigation site.

1E. Himalayan blackberry (*Rubus armeniacus*), Scotch broom (*Cytisus scoparius*), tansy ragwort (*Jacobaea vulgaris*), Canada thistle (*Cirsium arvense*) and bull thistle (*Cirsium vulgare*) do not collectively exceed 10 percent cover at either compensatory mitigation site during Years 1, 2, 3, 5, 7 and 10. Successful performance standard achievement will be demonstrated through documentation of percent cover of invasive species in Years 1, 2, 3, 5, 7 and 10. Other invasive species and noxious weeds not listed will be identified and removed as needed. Performance Standard targets are assessed separately at each mitigation site.

1F. Zero tolerance of Pierce County-listed Class A noxious weeds, knotweed listed by the Washington State Weed Control Board (*Polygonum and Persicaria* spp.), purple loosestrife (*Lythrum salicaria*) and English ivy (*Hedera helix*) at either compensatory mitigation site during Years 1, 2, 3, 5, 7, and 10. Successful performance standard achievement will be demonstrated through documentation of presence/absence and/or eradication of these species in Years 1, 2, 3, 5, 7, and 10. Performance Standard targets are assessed separately at each mitigation site.

8.4.2 Wetland Enhancement

Objective 2: Enhance wetlands.

2A. Enhance at least 0.928 acres of existing wetland habitat by the end of the monitoring period. Successful performance standard achievement will be demonstrated through wetland delineations conducted in Years 5 and 10.

2B. Vegetation will be planted in accordance with the approved planting plans. Successful performance standard achievement will be demonstrated through documentation of installed plants in an as-built report.

2C. In the existing enhanced wetlands at each compensatory mitigation site, native trees and shrubs will collectively have a minimum 10 percent relative cover at Year 1, 15 percent relative cover by Year 2, 25 percent relative cover at Year 3, 50 percent relative cover at Year 5, 60 percent relative cover at Year 7, and 70 percent relative cover at Year 10. Successful performance standard achievement will be

demonstrated through documentation of percent relative cover of native tree and shrub species in Years 1, 2, 3, 5, 7, and 10. Performance Standard targets are assessed separately at each mitigation site.

2D. Himalayan blackberry (*Rubus armeniacus*), Scotch broom (*Cytisus scoparius*), tansy ragwort (*Jacobaea vulgaris*), Canada thistle (*Cirsium arvense*) and bull thistle (*Cirsium vulgare*), do not collectively exceed 10 percent cover at either compensatory mitigation site during Years 1, 2, 3, 5, 7, and 10. Successful performance standard achievement will be demonstrated through documentation of percent cover of invasive species in Years 1, 2, 3, 5, 7, and 10. Performance Standard targets are assessed separately at each mitigation site.

2E. Zero tolerance of Pierce County-listed Class A noxious weeds, knotweed listed by the Washington State Weed Control Board (*Polygonum and Persicaria* spp.), purple loosestrife (*Lythrum salicaria*) and English ivy (*Hedera helix*) at either compensatory mitigation site during Years 1, 2, 3, 5, 7, and 10. Successful performance standard achievement will be demonstrated through documentation of presence/absence and/or eradication of these species in Years 1, 2, 3, 5, 7, and 10. Performance Standard targets are assessed separately at each mitigation site.

8.4.3 Upland Enhancement

Objective 3: Establish and enhance dense forested upland areas.

3A. Vegetation will be planted in accordance with the approved planting plans. Successful performance standard achievement will be demonstrated through documentation of installed plants in an as-built report.

3B. In the enhanced uplands at each compensatory mitigation site, native trees and shrubs will collectively have a minimum 10 percent relative cover at Year 1, 15 percent relative cover by Year 2, 20 percent relative cover at Year 3, 35 percent relative cover at Year 5, 50 percent relative cover by Year 7, and 70 percent relative cover by Year 10. Successful performance standard achievement will be demonstrated through documentation of percent relative cover of native tree and shrub species in Years 1, 2, 3, 5, 7, and 10. Performance Standard targets are assessed separately at each mitigation site.

3C. Himalayan blackberry (*Rubus armeniacus*), Scotch broom (*Cytisus scoparius*), tansy ragwort (*Jacobaea vulgaris*), Canada thistle (*Cirsium arvense*) and bull thistle (*Cirsium vulgare*), do not collectively exceed 10 percent cover at either compensatory mitigation site during Years 1, 2, 3, 5, 7, and 10. Successful performance standard achievement will be demonstrated through documentation of percent cover of invasive species in Years 1, 2, 3, 5, 7, and 10. Performance Standard targets are assessed separately at each mitigation site.

3D. Zero tolerance of Pierce County-listed Class A noxious weeds, knotweed listed by the Washington State Weed Control Board (*Polygonum* and *Persicaria* spp.), purple loosestrife (*Lythrum salicaria*) and English ivy (*Hedera helix*) at either compensatory mitigation site during Years 1, 2, 3, 5, 7, and 10. Successful performance standard achievement will be demonstrated through documentation of presence/absence and/or eradication of these species in Years 1, 2, 3, 5, 7, and 10. Performance Standard targets are assessed separately at each mitigation site.

8.4.4 Wildlife Habitat

Objective 4: Enhance wildlife habitat.

4A. Remove anthropogenic impacts. Successful performance standard achievement will be demonstrated through documentation of absence of anthropogenic impacts (refuse, derelict structures, etc.) in the as-built report at each compensatory mitigation site.

4B. Habitat features installed according to approved plan. A minimum of 10 LWM habitat pieces will be installed per acre of enhanced or re-established wetland at each compensatory mitigation site. Final numbers and locations will be identified in the approved permit design drawings. Successful performance standard achievement will be demonstrated through an as-built survey (documented in the as-built report).

8.5 ANTICIPATED FUTURE CONDITIONS AND FUNCTIONAL ASSESSMENT

8.5.1 Parcel 12 Mitigation Functional Assessment

The proposed restoration and re-establishment of Parcel 12 includes removal of soil to intercept existing shallow groundwater. There will be a higher elevation area towards the center of the re-establishment area with hummocks to create diverse hydrologic regimes and habitat interspersion. The vegetation community will consist of a mixed deciduous and evergreen forested buffer with a shrub understory. The wetland will be a mixed deciduous and evergreen forest with scrub-shrub understory. The enhancement and re-establishment of wetland habitat at the site will increase the water quality function of the site by increasing persistent woody-stemmed vegetation and areas of ponding that will slow down the water within the wetland and allow particulates to settle out. Habitat functions will also increase within the site as there will be multiple vegetation strata, greater habitat interspersion, and several special habitat features including standing snags and LWM structures.

8.5.2 Parcel 37D Functional Assessment

The proposed restoration and re-establishment of Parcel 37D includes removal of soil to intercept existing shallow groundwater. There will be hummocks dispersed throughout the site to create diverse hydrologic regimes. The vegetation community will consist of a mixed deciduous and evergreen forest with a scrub-shrub understory. The enhancement and re-establishment of wetland habitat at the site will increase the water quality function of the site by increasing persistent woody-stemmed vegetation that will slow down the water within the wetland and allow particulates to settle out. Habitat functions will also increase within the site as there will be multiple vegetation strata and several special habitat features including standing snags and LWM structures.

8.5.3 LWCHP AMS

The LWCHP AMS included the replacement of an undersized culvert, re-alignment of Wapato Creek and re-establishment of a broad floodplain corridor that includes an interconnected mosaic of intertidal mudflats, EEM wetlands, PFO wetlands and enhanced forested riparian upland that surrounds the site. The enhancement and re-establishment of wetland habitat at the site increased the water quality function of the site by increasing persistent plants that will slow down the water within the wetland and allow particulates to settle out. Hydrological functions within the site increased due to the re-alignment of Wapato Creek creating connections with the re-established wetlands. Habitat functions also increased within the site as there are now multiple vegetation communities and numerous special habitat features. Specifically, this project proposes to use credits generated through the re-establishment of EEM wetland habitat, which is improving water quality and providing increased forage and refuge habitat for anadromous salmonids in Wapato Creek.

8.6 PROPOSED MITIGATION

Snail eradication on Parcel 117 will require 5.446 acres of permanent impacts to disturbed PEM wetlands. To offset those impacts, the Port proposes to re-establish 3.022 acres and enhance 0.096 acres of wetland habitat at Parcel 12, re-establish 1.106 acres and enhance 0.832 acres of wetland habitat at Parcel 37D and apply EEM acreage from LWCHP. The project will be applying 1.800 acres from the LWCHP, exceeding the required mitigation of 0.854 acres by 0.946 acres. The Credit Use Plan for LWCHP is included with this report as Appendix F, LWCHP Credit Use Plan.

Proposed replacement ratios have been obtained from Table 5 of TMC 13.11.340.D and include a 1:1 ratio for wetland creation/re-establishment and 2:1 for wetland enhancement. Proposed replacement ratios and mitigation areas are shown in the following table (Table 3).

TABLE 3. PROPOSED MITIGATION

HABITAT	CITY OF TACOMA REQUIRED MITIGATION RATIO	ACREAGES		CREDITS	
		REQUIRED MITIGATION (AC)	PROPOSED MITIGATION (AC)	REQUIRED MITIGATION (CREDITS)	PROPOSED MITIGATION (CREDITS)
Parcel 12 Re-establishment	1:1	3.022	3.022	3.022	3.022
Parcel 12 Enhancement	2:1	0.096[1]	0.096	0.048	0.048
Parcel 37D Re-establishment	1:1	1.106	1.106	1.106	1.106
Parcel 37D Enhancement	2:1	0.832	0.832	0.416	0.416
Lower Wapato Advance Mitigation	1:1	0.854	1.800	0.854	2.340[2]
	Totals:	5.910	**6.856**	5.446	**6.932**

Notes:

1. Proposed wetland enhancement at Parcel 12 is included in the creditable acreage calculation through the City of Tacoma guidance but is not included in the credit-debit methodology prepared for Ecology.
2. Although City of Tacoma guidance provides a 1:1 ratio for wetland creation/re-establishment, Ecology has requested the use of the ratio in the LWCHP Advance Mitigation Plan of 1:1.3.

AC = acres

As shown in Figures 3 and 4, both compensatory mitigation sites will include non-creditable site protection perimeter buffers. Perimeter buffers were established through coordination with Ecology using the current Ecology wetland mitigation guidance (Ecology 2021). For Parcel 12, an 80-foot buffer width has been established along the southern and eastern borders of the site because the wetland is a Category III wetland with a low habitat score and adjacent land uses are high. One exception is an area along the eastern edge of Parcel 12, where the buffer width is reduced to 50 feet because existing wetland vegetation and proposed voluntary wetland enhancement planting will provide a densely vegetated screen that will protect wildlife functions of the creditable portion of the site. Along the northern site boundary, both moderate (undeveloped area including a mulch pile to the west) and low (WSDOT open space to the east) intensity uses are present as well as the Fife Ditch. Ecology guidance requires a 60-foot buffer for moderate intensity uses and allows for no buffer when adjacent to open water. Therefore, a variable width buffer has been established along the northern boundary that ranges from 60 to more than 90 feet in the western portion, down to approximately 15 feet where adjacent to Fife Ditch (open water). A 75-foot perimeter buffer has been established along the eastern edge of Parcel 37D because the wetland is Category II with low intensity

adjacent use of the Corps levee. The northern, western and southern boundaries do not include perimeter buffers because they are adjacent to existing and planned habitat restoration sites. See Tables 4 and 5 below for creditable habitat mitigation areas and non-creditable site perimeter buffers at each site.

TABLE 4. HABITAT MITIGATION AREA SUMMARY AT PARCEL 12

MITIGATION ACTIVITY	CREDITABLE (AC)	NON-CREDITABLE (AC)	TOTAL (AC)
Wetland Re-Establishment	3.022	0.298	3.320
Wetland Enhancement	0.096[1]	0.924	1.020
Upland Enhancement	0.000	1.272	1.272
Total	**3.118**	**2.494**	**5.612**

Notes:

[1] Proposed wetland enhancement at Parcel 12 is included in the creditable acreage calculation through the City of Tacoma guidance but is not included in the credit-debit methodology prepared for Ecology.

AC = acres

TABLE 5. HABITAT MITIGATION AREA SUMMARY AT PARCEL 37D

MITIGATION ACTIVITY	CREDITABLE (AC)	NON-CREDITABLE (AC)	TOTAL (AC)
Wetland Re-Establishment	1.106	0.000	1.106
Wetland Enhancement	0.832	0.000	0.832
Upland Enhancement	0.000	0.603	0.603
Total	**1.938**	**0.603**	**2.541**

Note:

AC = acres

The proposed wetland mitigation was also evaluated using the credit-debit method described in the current Ecology wetland mitigation guidance (Ecology 2021). The Port has coordinated with Ecology to reach agreement on proposed mitigation actions and quantities. The credit-debit worksheet is included in Appendix D. The proposed mitigation using the credit-debit method includes the use of 1.800 acres of estuarine wetland habitat at the LWCHP (a full credit use plan for the LWCHP is provided in Appendix F), creation of 3.022 acres of wetland habitat at Parcel 12, creation of 1.106 acres of wetland habitat at Parcel 37D and enhancement of 0.832 acres of wetland habitat at Parcel 37D. Although the 0.096 acres of wetland enhancement proposed at Parcel 12 are not included in the credit-debit calculations, this habitat will be voluntarily enhanced in addition to the calculations used in the Ecology guidance. Additionally, 1.272 acres of upland enhancement will be completed at Parcel 12 and 0.603 acres of upland enhancement will be completed at Parcel 37D as voluntary non-creditable actions. As part of the credit-debit method, wetlands at the compensatory mitigation sites will need to be re-rated at the end of the 10-year monitoring period, and the credit-debit calculations will be updated using these ratings.

8.6.1 Regulatory Context

The proposed compensatory mitigation will occur within the same HUC; however, the in-kind mitigation will not occur onsite and spans the Hylebos Creek, Wapato Creek and Puyallup River drainages. Therefore, the following responses have been prepared to address the criteria contained in TMC 13.11.270(H):

Unless it is demonstrated that a higher level of ecological functioning would result from an alternative approach, compensatory mitigation for ecological functions shall be either in-kind and on-site, or in-kind and within the same stream reach, subbasin, or drift cell (if estuarine wetlands are impacted). Mitigation action shall be conducted within the same sub-drainage basin and on the site of the alteration except when all of the following apply:

1. There are no reasonable on-site or in subdrainage basin opportunities (e.g. on-site options would require elimination of high functioning upland habitat), or on-site and in subdrainage basin opportunities do not have a high likelihood of success based on a determination of the natural capacity of the site to compensate for impacts. Considerations should include: anticipated critical area mitigation ratios, buffer conditions and proposed widths, available water to maintain anticipated hydrogeomorphic classes of wetlands, or streams when restored, proposed flood storage capacity, potential to mitigate riparian fish and wildlife impacts (such as connectivity);

Response to Criteria 1: On-site and adjacent mitigation opportunities are limited by the nature of the project and surrounding development. The project will fill the majority of Parcel 117 to eradicate invasive Mediterranean vineyard snails. If onsite mitigation were proposed, the likelihood of eradicating the snails would decrease significantly, leaving unreasonable onsite mitigation opportunities. Therefore, there are no reasonable on-site mitigation opportunities to be completed concurrent with the impacts.

2. Off-site mitigation has a greater likelihood of providing equal or improved critical area functions than the impacted critical area; and

Response to Criteria 2: Unavoidable project impacts include fill of three wetlands within Parcel 117. Replacement of these impaired functions at Parcels 12 and 37D will provide improved critical area functions as compared to the impacted critical areas because the wetlands within Parcels 12 and 37D have potential for higher habitat functions than the wetlands within Parcel 117.

3. Off-site locations shall be in the same sub-drainage basin unless established watershed goals for water quality, flood storage or conveyance, habitat, or other wetland functions have been established by the City and strongly justify location of mitigation at another site."

Response to Criteria 3: The proposed compensatory mitigation at Parcel 12 and 37D will occur within the same HUC as project impacts. In accordance with TMC 13.11.270(M), the Mitigation Sites will contribute to a larger system of natural stream, wetland, floodplain and buffer areas, which is preferred to the preservation of many smaller individual habitat areas.

Responses to the criteria required for the project to meet the definition of TMC 13.11.270(M) – Innovative Mitigation are provided below:

The Director may approve innovative mitigation projects that are based on best available science including but not limited to activities such as advance mitigation and preferred environmental alternatives. Innovative mitigation proposals must offer an equivalent or better level of protection of critical area functions and values than would be provided by the strict application of this chapter. Such mitigation proposals must demonstrate special consideration for conservation and protection measures for anadromous fisheries. The Director shall consider the following for approval of an innovative mitigation proposal:

1. Creation or enhancement of a larger system of natural areas and open space is preferable to the preservation of many individual habitat areas;

Response to Criteria 1: Parcel 12 will encompass 4 acres of wetland habitat surrounded by enhanced uplands and is located approximately 600 feet from numerous acres of restored Hylebos Creek Estuary. Parcel 37D will encompass approximately 2 acres of wetland habitat and is adjacent to Puyallup River habitat at the Gog-le-hi-te habitat restoration area and the Gog-le-hi-te Habitat Improvement Action area thus increasing a large contiguous natural area. The LWCHP AMS contains tidally-influenced EEM and PFO wetlands and forested upland habitat encompassing approximately 17 acres. Therefore, the proposed mitigation sites are creating and contributing to larger systems of natural areas and open space when compared to on-site mitigation at Parcel 117 which would not accomplish the goal of eradicating invasive snails.

2. The applicant demonstrates that long-term protection and management of the habitat area will be provided;

Response to Criteria 2: The site will have long-term protection including monitoring, maintenance and site protection as described in Section 8.6.3 Planting Plan, Section 8.6.4 Monitoring Plan and Section 8.6.5 Postconstruction (As-built) Monitoring of this report, respectively. After performance monitoring, the mitigation sites will be entered into the Port's stewardship program.

3. There is clear potential for success of the proposed mitigation at the proposed mitigation site;

Response to Criteria 3: Hydrogeologic monitoring will be completed to assess wetland hydrology. It will be monitored and managed, along with the Port's other habitat and mitigation sites, in accordance with the Port's Habitat/Mitigation Site Stewardship procedure.

4. Mitigation according to TMC 13.11.270.E is not feasible due to site constraints such as parcel size, stream type, wetland category, or excessive costs;

Response to Criteria 4: The eradication of Mediterranean vineyard snails is only feasible within Parcel 117 by filling the parcel, eliminating opportunities for on-site mitigation.

5. A wetland of a different type is justified based on regional needs or functions and values;

Response to Criteria 5: The proposed improvements include enhancement of depressional wetlands within the same HUC to offset impacts to the depressional wetland within Parcel 117. The proposed mitigation will provide habitat improvements that could not be achieved through on-site mitigation.

6. The replacement ratios are not reduced or eliminated; unless the reduction results in a preferred environmental alternative; and

Response to Criteria 6: The replacement ratios proposed for mitigation are consistent with those shown in Table 5 of TMC 13.11.340.D. The proposed mitigation uses the combined ratios of 1:1 for re-establishment or creation and 2:1 for enhancement.

7. Public entity cooperative preservation agreements such as conservation easements are applied.

Response to Criteria 7: The sites will be protected in perpetuity through implementation of a restrictive covenant, conservation easement or deed restriction on the use or alteration of the mitigation site. The restrictive covenant will be filed with the Pierce County Auditor and will include property restrictions/limitations, a legal description and site plan, and references to the permit numbers. This process has already been completed for the LWCHP AMS.

8.6.2 Mitigation Plan

8.6.2.1 GRADING PLAN

Grading within Parcel 12 and Parcel 37D will take place to re-establish wetland conditions by lowering the elevation of the re-establishment areas to match groundwater elevations that will provide positive wetland hydrology. Final elevation will be established through hydrogeologic modeling. After grading, the site elevations of Parcel 12 are expected to be between 11 and 12 feet in elevation with a higher area of hummocks in the center between 12 and 15 feet in elevation. The entirety of Parcel 37D re-establishment area is expected to be graded to between 11 and 13 feet in elevation with higher elevations associated with hummocks. The grading of the sites will create multiple hydroperiods creating greater habitat functions within the wetlands.

8.6.2.2 LWM

LWM will be placed throughout the sites. LWM will be Douglas-fir, western red cedar or other approved coniferous species. LWM structures include standing snags and LWM structures intended to simulate fallen trees. These LWM structures will provide habitat complexity and essential wildlife forage and shelter opportunities.

8.6.2.3 WETLAND PLANTING

Wetlands will be planted with a diverse assemblage of native woody tree and shrub species to provide densely vegetated habitat and a source of long-term LWM input. The configuration of the proposed wetland areas will maximize habitat interspersion and complexity and provide significant cover over much of the site. Vegetation will include both tree and shrub species and will be planted in a gradient with species transitioning from plants that are more tolerant to inundation to less frequent inundation as the elevation increases on the sites. See section 8.6.3 below for more details on plantings.

8.6.2.4 UPLAND PLANTING

The enhanced and re-established wetlands and hummocks will be protected by forested upland areas. The forested upland will be enhanced to filter pollutants and provide screening from adjacent areas. The native woody vegetation (trees and shrubs) will roughen surfaces, slowing surface runoff and increasing the ability to remove sediments, nutrients and toxins from surface flows prior to entering the wetlands. See section 8.6.3 below for more details on plantings.

8.6.3 Planting Plan

Table 6 below contains the native species and proposed spacing for wetland planting and Table 7 contains the native species and proposed spacing for forested upland enhancement areas. Plants will be sourced from a Pacific Northwest native plant nursery. At least 12 inches of soil suitable for native plant establishment will be placed within the re-establishment areas and the areas will be stabilized with native emergent seed mix prior to planting.

TABLE 6. WETLAND PLANTING SPECIES

SCIENTIFIC NAME	COMMON NAME	SPACING
TREE SPECIES		
Fraxinus latifolia	Oregon Ash	8 ft. o.c.
Picea sitchensis	Sitka Spruce	8 ft. o.c
Thuja plicata	Western Red-Cedar	8 ft. o.c
Malus fusca	Western Crabapple	8 ft. o.c
LIVE STAKES		
Salix hookeriana	Hooker's Willow	5 ft. o.c
Salix lucida	Pacific Willow	5 ft. o.c
Salix scouleriana	Scouler's Willow	5 ft. o.c
Salix sitchensis	Sitka Willow	5 ft. o.c
SHRUBS		
Cornus stolonifera	Red Osier Dogwood	5 ft. o.c
Crataegus douglasii	Black Hawthorn	5 ft. o.c
Lonicera involucrata	Black Twinberry	5 ft. o.c
Physocarpus capitatus	Pacific Ninebark	5 ft. o.c
Rosa nutkana	Nootka Rose	5 ft. o.c
Spirea douglasii	Hardhack	5 ft. o.c
SEED MIX		
Bromus carinatus	California Brome Grass	N/A
Carex obnupta	Slough Sedge	N/A
Deschampsia caespitosa	Tufted Hair Grass	N/A
Eleocharis palustris	Common Spike Rush	N/A
Elymus glaucus	Blue Wildrye	N/A
Glyceria occidentalis	Western Mana Grass	N/A
Poa secunda	Sandberg's Bluegrass	N/A

Notes:

ft. o.c. = feet-on-center

Species may vary based on seed availability.

TABLE 7. UPLAND PLANTING SPECIES

SCIENTIFIC NAME	COMMON NAME	SPACING
TREE SPECIES		
Alnus rubra	Red Alder	8 ft. o.c.
Populus balsamifera	Black Cottonwood	8 ft. o.c
Pseudotsuga menziesii	Douglas Fir	8 ft. o.c
Thuja plicata	Wester Red Cedar	8 ft. o.c
SHRUBS		
Acer circinatum	Vine Maple	5 ft. o.c
Corylus cornuta	Western Hazelnut	5 ft. o.c
Mahonia aquifolium	Tall Oregon Grape	5 ft. o.c
Malus fusca	Western Crabapple	5 ft. o.c
Rosa gymnocarpa	Bald-Hip Rose	5 ft. o.c
Rosa pisocarpa	Pea-Fruit Rose	5 ft. o.c
Rosa pisocarpa	Snowberry	5 ft. o.c
SEED MIX		
Achillea millefolium	White Yarrow	N/A
Ambrosia chamissonis	Silver Burr Ragweed	N/A
Anaphalis margaritacea	Western Pearly Everlasting	N/A
Artemisia suksdorfii	Coastal Wormwood	N/A
Aster subspicatus	Douglas's Aster	N/A
Deschampsia caespitosa	Tufted Hairgrass	N/A
Elymus glaucus	Blue Wildrye	N/A
Erigeron speciosus	Showy Fleabane	N/A
Eriophyllum lanatum	Oregon Sunshine	N/A
Grindelia integrifolia	Puget Sound Gumweed	N/A
Hordeum brachyantherum	Meadow Barley	N/A
Lupinus bicolor	Shortspur Seablush	N/A
Lupinus littoralis	Seashore Lupine	N/A
Lupinus polyphyllus	Bigleaf Lupine	N/A
Plectritis congesta	Two Color Lupine	N/A
Poa secunda	Sandbergs Bluegrass	N/A
Prunella vulgaris	Common Selfheal	N/A
Triticum aestivum	Sterile Wheatgrass	N/A

Notes:

Species may vary based on seed availability.

8.6.4 Monitoring Plan

The Port will implement monitoring during the establishment period to determine if the mitigation sites are meeting performance standards and/or if adaptive management is needed. The establishment period is scheduled for 10 years. Qualified scientists will conduct performance standard monitoring. Additional observations, including hydrology and invasive species surveys, will occur annually throughout the establishment period to ensure the site is on track to meet performance standards and identify any need for adaptive management at the sites. Formal performance standard monitoring will occur in Years 1, 2, 3, 5, 7, and 10 with subsequent monitoring reports documenting the results of the monitoring efforts. Formal monitoring will include both qualitative and quantitative data collection to address achievement of the performance standards described in Section 8.4 Mitigation Goals and Objectives. Informal inspections will be conducted annually throughout the establishment period. Informal inspections provide a general overview of site progress to ensure that the sites are progressing towards meeting performance standards. Informal inspections will usually include observation notes and site photos. Informal inspections may quantitatively address some performance standards for upcoming years but may be less statistically rigorous than the formal monitoring.

8.6.5 Postconstruction (As-built) Monitoring

Postconstruction monitoring will document as-built conditions and establish monitoring transects, sampling locations and permanent photo points throughout the mitigation sites. Photographs taken at the permanent photo points will be included to document the as-built conditions. A Professional Land Surveyor (PLS) will conduct an as-built survey of the site following construction. The survey and/or record drawings will document the physical on-site conditions, including habitat (standing snags, LWM) features, plant zones, topography (1-foot contour intervals); and to identify any deviations from the approved, permitted construction plans. The Port will evaluate and document as-built conditions in an as-built report which will include the as-built survey, earthwork (i.e., grading), LWM installation, seeding and plantings. Earthwork conditions assessed during the as-built survey will include graded surfaces comprising habitat features across the site such as the elevations to support wetlands and buffer. The as-built survey and report will satisfy the performance standard requirements for 1C, 2B, 3B, 4A, and 4B.

8.6.6 Monitoring Methods During Establishment Period

The following sections outline the specific methods to be used to monitor the establishment of the mitigation sites and identify the status of performance standards and final success criteria that correspond to the project objectives (Section 8.4). The monitoring methods include a combination of collecting monitoring data along established transects. Photo points will be established in sufficient numbers to give an accurate visual representation of on-site conditions.

8.6.6.1 WETLAND HYDROLOGY

Hydrology monitoring will be conducted in accordance with the monitoring schedule identified in Section 8.6.4 to compare results against the performance standards.

1A, 2A. Full wetland delineations will be conducted in Years 5 and 10 and will follow the criteria outlined in the *Corps Wetlands Delineation Manual* and the associated regional supplement (Environmental Laboratory 1987; Corps 2010).

1B. Shallow groundwater monitoring wells equipped with hydrologic monitoring devices (pressure transducers) will be installed and programmed to log ground and surface water elevation data once per hour between Year 0 installation through Year 10. The recorded data will be downloaded from the transducers periodically (approximately semi-annually). The wetland re-establishment areas will each have three pressure transducers installed in locations that are representative of each site's conditions. These locations will be identified and documented in the as-built report.

8.6.6.2 VEGETATION

Vegetation monitoring will occur after the peak growing season to observe plant health. Year 1 monitoring will occur in August to early September. Quantitative vegetation monitoring will be completed using two monitoring methods along established transects. At least 1 percent of each site will be monitored for vegetation. For vegetation less than or equal to 1 meter (≤1 m) tall, the stratified random sampling approach will be used (Elzinga et al. 1998). For tree and shrub vegetation greater than 1 meter (>1 m) tall, the line-intercept method will be used (R.H. Canfield 1941). These two methods will be used for all plant communities within the sites when monitoring performance standards 1D, 1E, 1F, 2C, 2D, 2E, 3B, 3C, and 3D. Observed vegetation will be identified to species for both sampling methods.

Plot Sampling Method

The plot sampling method (Elzinga et al. 1998) will be used to quantify the percent cover of vegetation ≤1 m tall. Sampling plots 1 square meter (1 m^2) in size will be located at 6 m intervals along the transects described in the following steps.

1. Lay out the measuring tape along the transect and make sure the tape is taught, straight and firmly anchored. Stay to the left side of the transect to avoid disturbing the vegetation to be sampled.
2. Use a random number generator to identify a start location between 1 and 6 meters, place the 1 m^2 frame on the right side of the tape with the lower left corner of the frame at the meter marker designated for sampling.
3. Document standing water, if present, and record depth.
4. Record percent cover for each species present within the plot. The percent cover of individuals of a species within the plot will collectively be estimated as a unit. A plant does not need to be rooted within the plot to have coverage over it. Record both absolute cover (the amount of areal cover for all plants within a vegetation stratum) and relative cover (the overall areal amount of the plot covered by vegetation within the stratum; note: relative cover cannot exceed 100 percent).
5. Estimate and record the amount of bare ground within the plot.
6. Advance 6 m to the next plot location and repeat this process until the end of the transect.

This process will be repeated for each transect.

Line-Intercept Sampling Method

The line-intercept sampling method (R.H. Canfield 1941) will be used for trees and shrubs >1 m tall as described in the following steps.

1. Lay out the measuring tape along the transect and make sure the tape is taught, straight and firmly anchored. Stay to the left side of the transect to avoid disturbing the vegetation to be sampled.

2. Starting at the beginning of the transect, record the line-intercept species and intercept length (portion of the transect length intercepted by perpendicular projection of plant foliage) of each shrub and tree along the transect.
3. Record length of transect not covered by tree or shrub vegetation.
4. Record total transect length.

This process will be repeated for each transect.

8.6.6.3 FAUNA

During formal monitoring visits and informal inspections, observations of wildlife species will be recorded. Birds, mammals, amphibians, and reptiles that are observed on site will be identified to species (if possible), and observations of breeding, nesting or other signs of activity will be documented and reported in monitoring reports for Years 1, 2, 3, 5, 7, and 10.

8.6.6.4 PHOTOGRAPHIC DOCUMENTATION

Photo points will be established throughout both mitigation sites in permanent locations to document wetland and upland vegetation success and development over time, as well as habitat complexity and development. Photographs, including time and date stamps, global positioning system (GPS) position, and azimuth or direction of the photo will be taken from the same locations (and facing the same direction) during each vegetation monitoring visit. This will be documented in the as-built report. In addition, changes to habitat features (e.g., nests, dens), and other significant physical or biological developments will be documented photographically. Photographs taken at each photo point will also be included in monitoring reports for Years 1, 2, 3, 5, 7, and 10.

8.6.7 Monitoring Reports

As part of the monitoring program, the Port will submit monitoring reports to regulatory agencies and local jurisdictions presenting the results of the formal monitoring and evaluation of project objectives, performance standards, and final success criteria.

8.6.7.1 AS-BUILT REPORT

Within 90 days of completion of construction (grading and planting), the Port will prepare and submit an as-built report to the regulatory agencies. This report will document the as-built conditions and describe any deviations from the approved design/plan.

8.6.7.2 MONITORING SCHEDULE

Year 0 is the year during which construction, including plant installation, is completed. Year 1 is the first growing season following the completion of construction (i.e., grading and planting). Formal monitoring of the mitigation sites during the establishment period will occur in Years 1, 2, 3, 5, 7, and 10. Years 5 and 10 will include a full wetland delineation as part of the formal monitoring effort. Unless otherwise noted, vegetation monitoring activities will be conducted during the summer (July through September). Monitoring reports will be submitted to regulatory agencies by March 1 of the following calendar year.

8.6.7.3 MITIGATION MONITORING CLOSEOUT

When the mitigation sites have reached the end of their specified monitoring period and achieved final performance standards, the Port will request that it be closed out (i.e., the site is accepted by regulatory agencies as a success and further monitoring work ceased). The Port will prepare and submit a final monitoring report or closeout report (Year 10) to the regulatory agencies to establish this milestone has been reached. The submittal will explain the rationale for closing out the site.

8.6.8 Maintenance

Maintenance of the mitigation sites will be the Port's responsibility. During the first 2 years of the establishment period (Monitoring Years 1 and 2), the Port will replace dead or failed plant materials with plantings of the same species, size and location as the original planting zones under a 2-year warranty period. Comprehensive informal inspections will be conducted in the spring by a qualified scientist on an annual basis to determine what maintenance activities are needed. Areas of invasive vegetation infestation or evidence of illegal dumping will be noted. Observations made during the informal inspection will be submitted to the Port and used to develop maintenance recommendations. Those recommendations will be implemented by Port personnel and/or assigned stewardship groups. The sites will be managed for all state and county-listed Class A, B and C invasive/noxious weeds; not just those listed in the performance standards. Additional observations made during and after maintenance actions have occurred, including summer monitoring events, will assess the effectiveness of maintenance actions and identify additional maintenance recommendations, if needed. The Port's *Habitat Mitigation Site Stewardship Procedure* details the Port's stewardship program and how it is used to ensure performance standards at habitat restoration sites are being achieved. If it is determined that routine maintenance will not effectively correct an issue, adaptive management will be implemented as described below.

8.6.8.1 ADAPTIVE MANAGEMENT AND CONTINGENCY PLAN

The Port will conduct adaptive management and contingency planning (if needed) for the duration of the establishment period, during which performance standards are measured. As described above, maintenance activities will be the responsibility of the Port. The recommended maintenance activities will be identified during the informal inspections conducted by a qualified scientist on an annual basis.

During the first two years of the establishment period (Monitoring Years 1 and 2), the Port will replace dead or failed plant materials with plantings of the same species, size and location as the original planting zones under a 2-year plant warranty period. Replacement plantings, if required, will be installed during the dormant period (October through March) as practical. While the native plant species selected for the sites are local, hardy and typically thrive in Pacific Northwest conditions, some individuals within the planted areas might perish (e.g., dry conditions). Temporary supplemental irrigation may be provided in the planted areas for the duration of the first two summers while the native plantings become established. The Port will inspect the temporary irrigation to ensure proper function. During site visits, all observed litter including paper, plastic, bottles, yard debris, etc. will be removed. In addition, stewardship actions will be conducted to control non-native, invasive and noxious vegetation. In addition, the Port will monitor the sites for damage due to anthropogenic disturbances (i.e., illegal dumping, illegal trespass, etc.) and will monitor site perimeters to ensure the sites are not being degraded by anthropogenic activities. If anthropogenic disturbances are discovered, the Port will implement an adaptive management plan to make necessary repairs to the sites.

Adaptive Management Plan

The Port's adaptive management plan outlines the maintenance activities that will be undertaken by the Port to ensure the long-term success of the mitigation sites. These maintenance activities will be identified during the spring walk-through survey and may include, but are not limited to, invasive vegetation removal, replanting or inter-planting with native species, over-seeding and other maintenance actions deemed important to the overall success of the site. Maintenance and adaptive management activities conducted by the Port or its stewardship contractors will be summarized in the subsequent years formal monitoring reports submitted to the permitting agencies.

Data collected during the spring walk-through surveys and during formal monitoring events will be used to inform the Port on the status of invasive vegetation within the sites. Patches of invasive vegetation will be identified as polygons and individual plants will be identified as points on a scaled map of the sites for purposes of identifying the invasive vegetation during follow-up visits to implement control measures. Port personnel and/or a contracted stewardship coordinator will then conduct invasive vegetation removal, prior to plants going to seed. BMPs will be implemented and may include hand removal, herbicide application (e.g., injection, spot spraying, cut and daub, etc.), or other approved and permitted control measures. The Port utilizes numerous weed control methods depending on the type and number of weeds, their location and other factors. In addition, to assist with weed management efforts, the Port utilizes its own *Vegetation Management Manual*, along with Pierce County Noxious Weed Control Board guidance. The Port's weed control management procedures are flexible and include a wide range of control measures available for use depending on the specific conditions or situations at the time weed control is necessary.

Invasive vegetation includes noxious weed species listed in the most current noxious weed list issued by Pierce County and/or Washington State Noxious Weed Control Boards (Pierce County Noxious Weed Control Board 2025; Washington State Noxious Weed Control Board 2025).

Additional measures planned to prevent recolonization of noxious weeds after construction include spot treatments of hand pulling and herbicide applications. Mulching and/or covering may also be considered depending on the concentration of weeds. Where noxious weeds occur in the understory or in proximity to native vegetation designated for preservation, special care will be taken to avoid application of herbicide on native vegetation, including use of backpack sprayers that can more accurately target desired weeds.

Areas where invasive vegetation has been removed may be replanted with native vegetation to prevent re-infestation. If additional planting is necessary, plants will be installed during the dormant period from October through March, as practical.

Contingency Planning Procedure and Actions

This contingency plan identifies the planning process for selecting appropriate actions to address large-scale failure or anticipated failure of final success criteria for a specific objective. In order to maintain the flexibility needed to respond effectively and appropriately to biological and/or physical conditions, this plan does not present a complete list of actions that will be taken to remedy all types of failures at the sites. The list of corrective actions is not exhaustive or exclusive, nor is it a commitment to undertake a specific action.

Large-scale failure of biological components of the sites is difficult to predict, and specific responses are impossible to present in detail; however, the following general approaches can be applied:

- If planted vegetation (emergent, scrub-shrub and/or forested) fails to meet the canopy cover performance standards, additional planting may occur.
- If vegetation planted within the wetlands or buffer fail to meet the canopy cover standards due to incompatible hydrologic regime (i.e., too much or not enough water), additional seeding or planting of different species more appropriate to the actual hydrologic regime may occur.
- If non-native, invasive weed species exceed canopy cover standards despite adaptive management actions, large-scale planting with taller canopy species may occur to shade out invasives.

As outlined below, the contingency planning procedure is intended to be used to remedy larger, site-wide concerns. It is expected that any minor shortfall in achieving performance standards can be remedied through implementation of the Port's adaptive management plan. The contingency planning procedure consists of two elements: (1) problem recognition, and (2) planning and response.

Problem Recognition Process

The problem recognition process is an integral part of the monitoring program. As monitoring data are collected, the results will be examined and interpreted relative to the project's objectives and performance standards. The purpose of this process is to determine if there is a potential problem, and if so, the nature and extent of the problem. Appendix G, Mitigation Flow Charts, Figure G-1, Problem Recognition Flow Chart outlines this process to show potential outcomes of the problem recognition step.

Planning and Response Process

The purpose of the contingency planning process is to develop actions that may be appropriate, depending on the results of the monitoring program and problem recognition step. If modified or continued monitoring and/or adaptive management is not adequate (e.g., reoccurring failure of achieving performance standards), the Port shall submit a contingency proposal for regulatory agency review and approval. Appendix G, Figure G-2, Contingency Planning and Response Flow Chart outlines the contingency planning process.

The contingency planning process could result in the implementation of an approved response action. Alternatively, it could result in agreement on an approach or set of criteria for taking further action, depending on the results of future monitoring. If necessary, the Port will propose a response action, based on best available information, and scientifically and economically feasible recommendations. The Port or permitting agencies can invite any resource agencies into contingency planning and response discussions. The Port and the permitting agencies shall meet in good faith and shall use their best efforts to reach consensus regarding an appropriate monitoring or contingency response. Potential responses include, but are not limited to, one or more of the following:

- Concluding that the situation does not require further action;
- Expanding or modifying the monitoring program;
- Developing more specific criteria to evaluate the data during future monitoring; and/or
- Initiating a corrective action.

8.6.9 Additional Permits

The project will require an Agreed Order from Ecology. The mitigation proposed in this plan has been coordinated with Ecology and a copy of the Agreed Order will be provided to the City once received.

9.0 References

City of Tacoma. 2024. Tacoma Municipal Code, Title 13 Land Use Regulatory Code – Chapter 13.11 Critical Areas Preservation. Updated April 2024.

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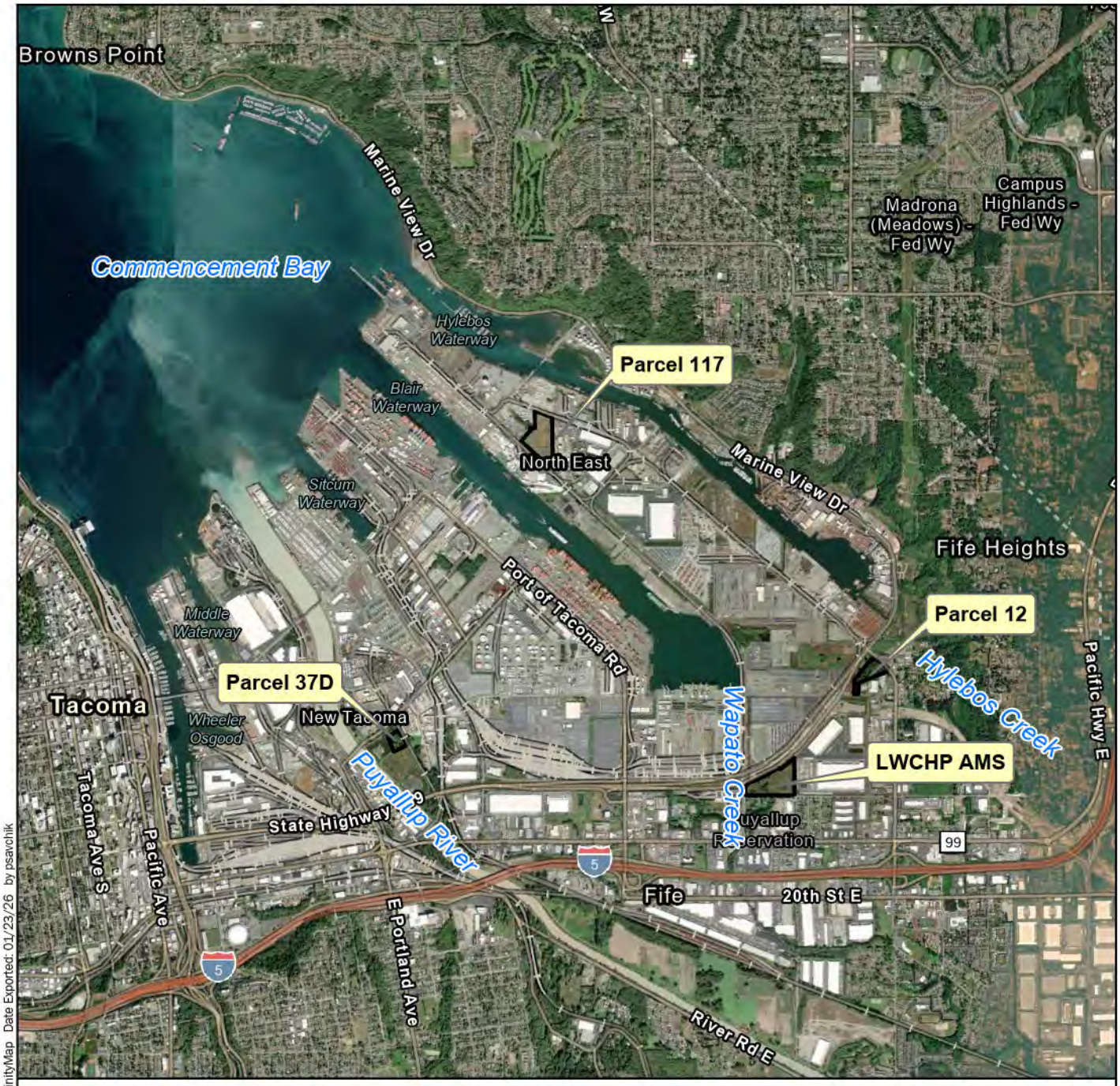
Figures





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Feet

Source(s):
- ESRI
- Pierce County PublicGIS

Coordinate System: NAD 1983 UTM Zone 10N

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Vicinity Map

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure 1

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Parcel 117 Wetlands Map

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure 2

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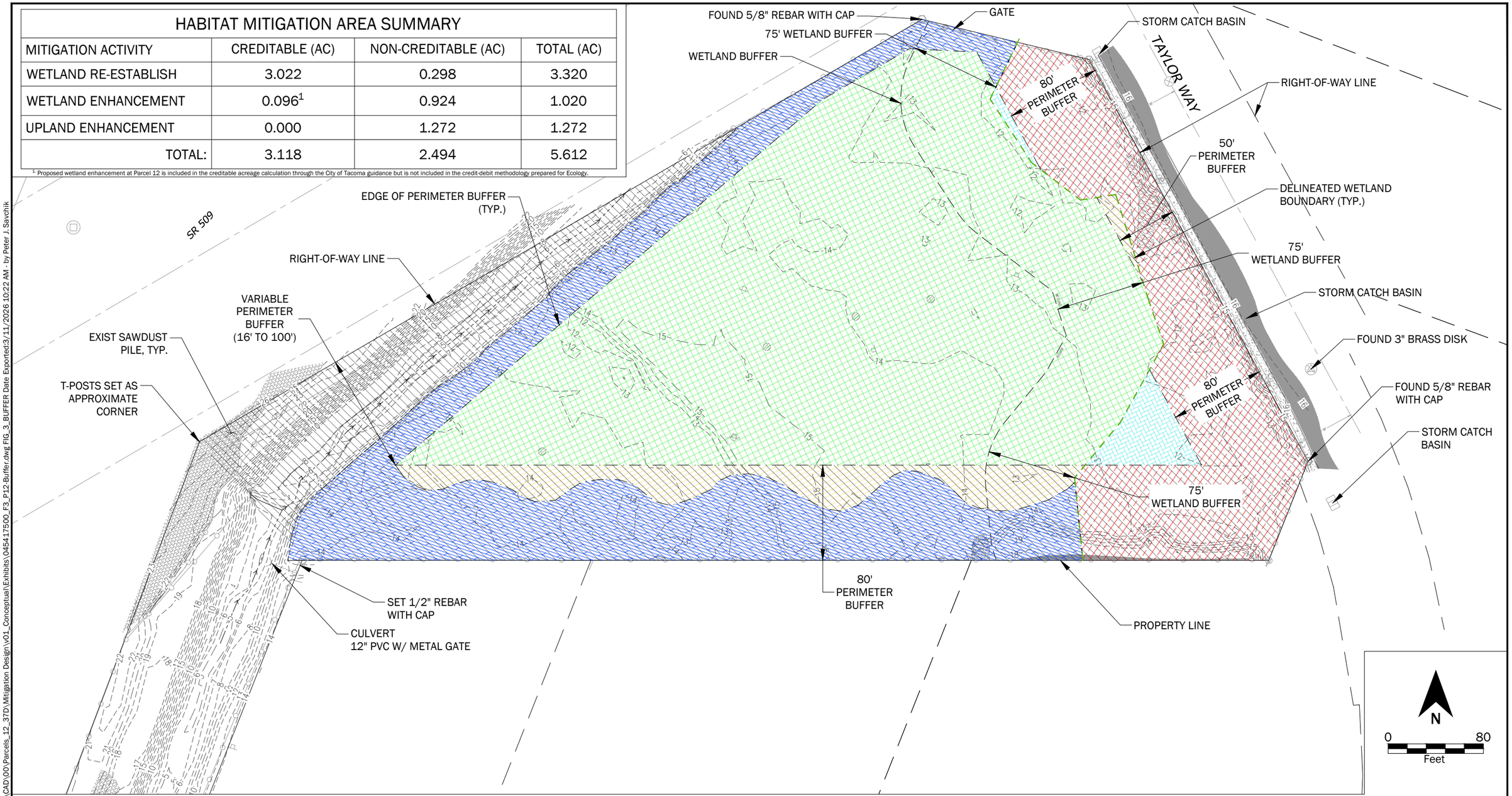
HABITAT MITIGATION AREA SUMMARY			
MITIGATION ACTIVITY	CREDITABLE (AC)	NON-CREDITABLE (AC)	TOTAL (AC)
WETLAND RE-ESTABLISH	3.022	0.298	3.320
WETLAND ENHANCEMENT	0.096[1]	0.924	1.020
UPLAND ENHANCEMENT	0.000	1.272	1.272
TOTAL:	3.118	2.494	5.612

[1] Proposed wetland enhancement at Parcel 12 is included in the creditable acreage calculation through the City of Tacoma guidance but is not included in the credit-debit methodology prepared for Ecology.



Note(s):

1. Limits of wetland re-establishment are approximate.

Source(s):

- Survey topography from Sitts & Hill, dated April and May 2025
- GPS Data provided by AquaTerra on October 10, 2025

Projection: Washington Plane Coordinate system, South Zone, NAD 83/2011
Vertical Datum: MLLW , Per Port of Tacoma Survey Control Map, Dated 2016

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Legend

- WETLAND RE-ESTABLISHMENT
- WETLAND RE-ESTABLISHMENT IN PERIMETER BUFFER
- WETLAND ENHANCEMENT
- WETLAND ENHANCEMENT IN PERIMETER BUFFER
- UPLAND ENHANCEMENT
- PERIMETER BUFFER
- EXIST DITCH THALWEG
- EXIST FENCE
- EXIST MONITORING WELL
- EXIST UTILITY POLE
- EXIST SIGN

Parcel 12
Initial Mitigation Concept

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure 3

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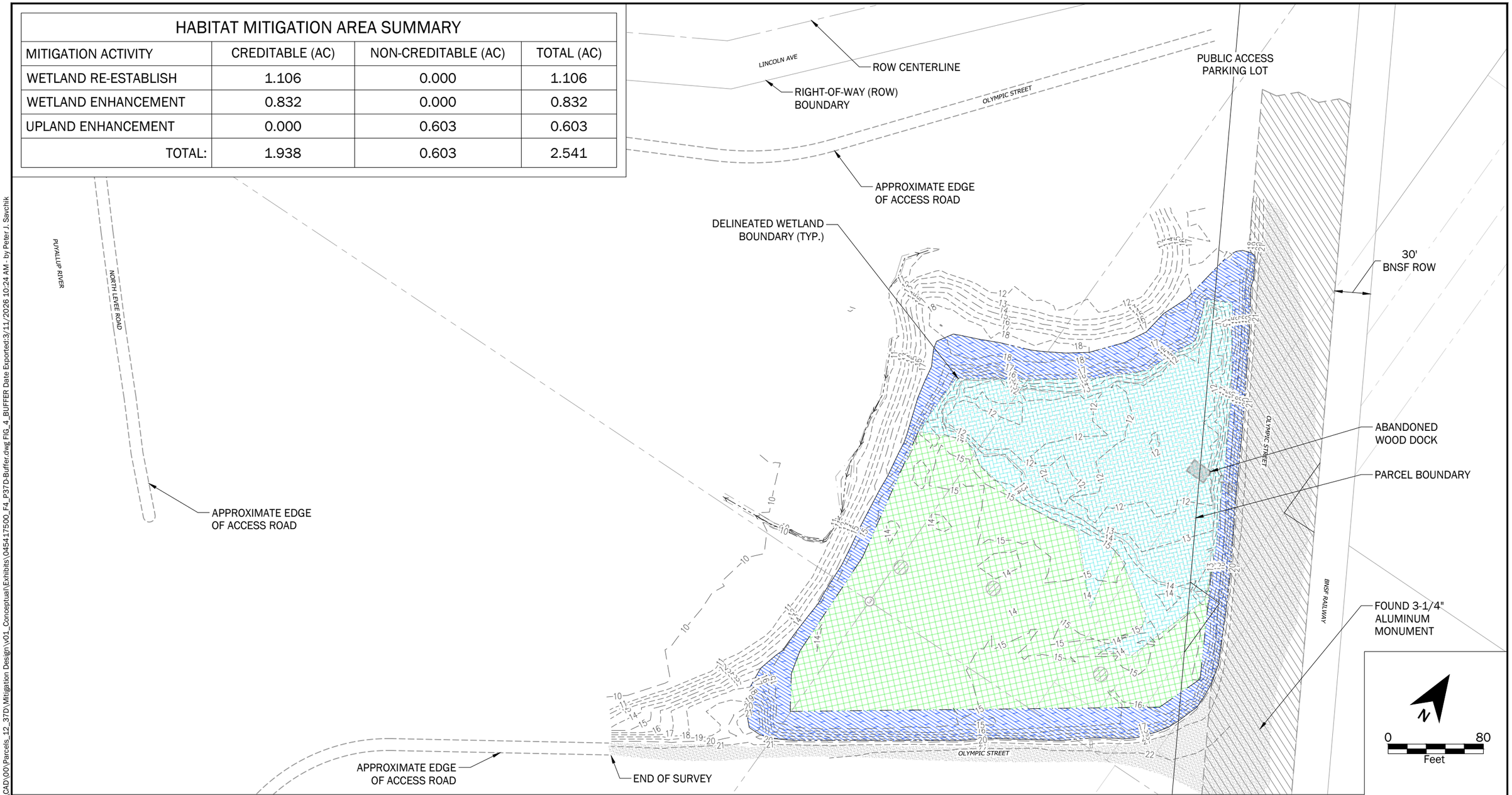
HABITAT MITIGATION AREA SUMMARY			
MITIGATION ACTIVITY	CREDITABLE (AC)	NON-CREDITABLE (AC)	TOTAL (AC)
WETLAND RE-ESTABLISH	1.106	0.000	1.106
WETLAND ENHANCEMENT	0.832	0.000	0.832
UPLAND ENHANCEMENT	0.000	0.603	0.603
TOTAL:	1.938	0.603	2.541



Note(s):

1. Limits of wetland re-establishment are approximate.

Source(s):

- Survey topography from Sitts & Hill, dated April and May 2025
- GPS Data provided by AquaTerra on October 10, 2025

Projection: Washington Plane Coordinate system, South Zone, NAD 83/2011
Vertical Datum: MLLW , Per Port of Tacoma Survey Control Map, Dated 2016

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Legend

- WETLAND RE-ESTABLISHMENT
- WETLAND ENHANCEMENT
- UPLAND ENHANCEMENT
- PERIMETER BUFFER
- EXIST FLOWLINE THALWEG
- EXIST FENCE
- EXIST MONITORING WELL
- EXIST UTILITY POLE
- EXIST SIGN

Parcel 37D (Gog-le-hi-te)
Initial Mitigation Concept

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure 4

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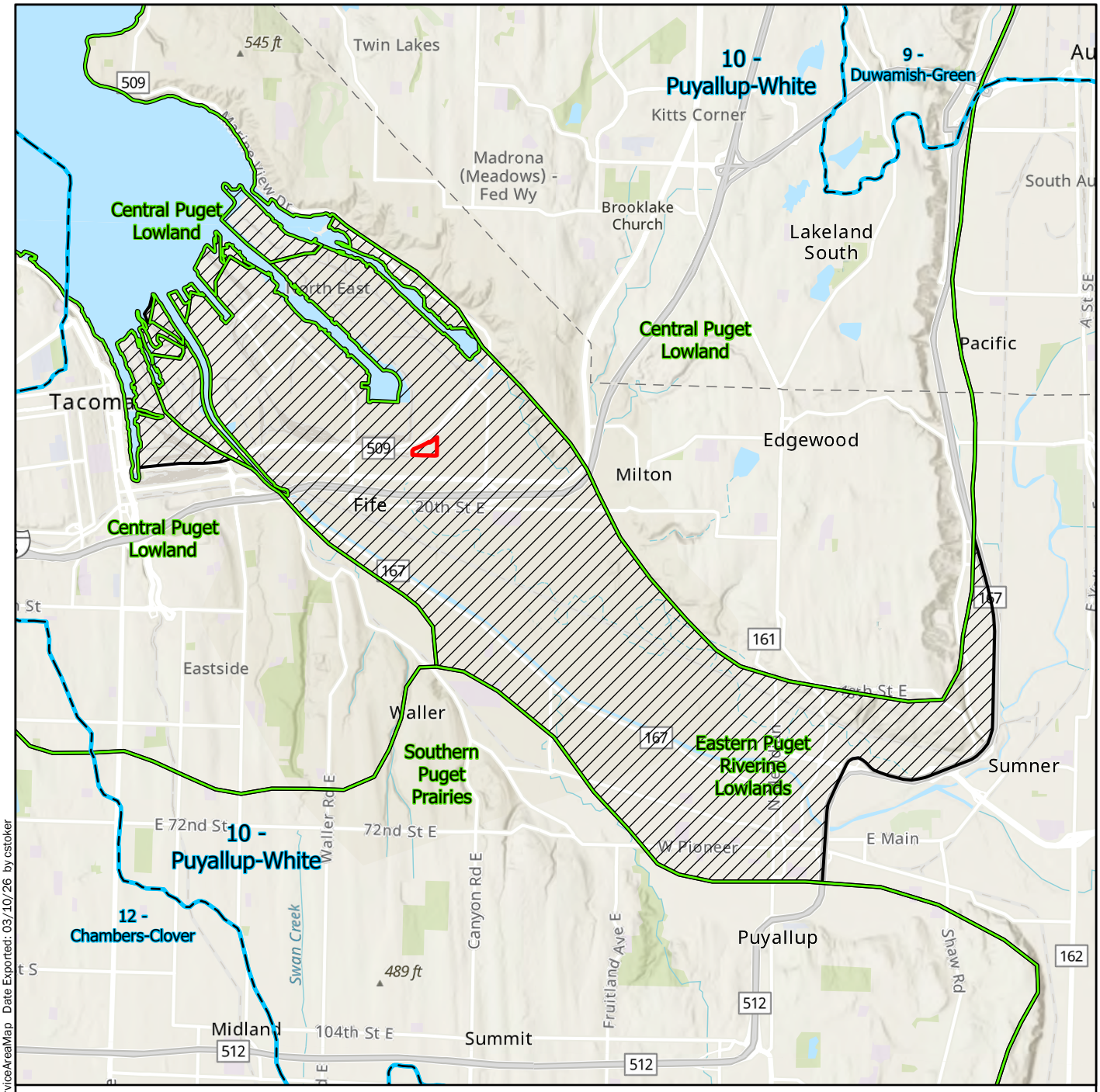

Legend

- Project Site
- Water Resource Inventory Areas
- Washington State Department of Ecology Ecoregions
- Geographic Service Area

0 1.5
Miles

N

Source(s):
- Washington State Department of Ecology
- ESRI Basemap

Coordinate System: NAD 1983 HARN StatePlane Washington South FIPS 4602 Feet

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Service Area Map

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure 5

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Appendices

Appendix A
Parcel 117 Critical Areas Report

CONFLUENCE
ENVIRONMENTAL COMPANY

Port of Tacoma Parcel 117
Taylor Way and Alexander Ave Snail Eradication Project
CRITICAL AREAS STUDY AND MITIGATION PLAN

Prepared for:

Port of Tacoma
July 2025





146 N Canal Street, Suite 111 • Seattle, WA 98103 • www.confenv.com

Port of Tacoma Parcel 117
Taylor Way and Alexander Ave Snail Eradication Project
CRITICAL AREAS STUDY AND MITIGATION PLAN

Prepared for:

Port of Tacoma
One Sitcum Plaza
PO Box 1837
Tacoma, WA 98241

Prepared by:

Confluence Environmental Company

July 2025

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1.0 INTRODUCTION

The Port of Tacoma (Port) proposes to implement a project to eradicate the highly invasive Mediterranean vineyard snails (*Cernuella virgata*) on two port owned properties, Parcel 0321263045 and Parcel 0321352064, located at 1212 Taylor Way, Tacoma, Washington. The properties are collectively known as Port Parcel 117. The snails were detected on Port property in 2005. Formal surveys completed by the Washington State Department of Agriculture (WSDA) and U.S. Department of Agriculture (USDA) delineated an infestation area of over 300 acres on the Blair-Hylebos Peninsula. Eradication strategies such as vegetation management, debris removal, and molluscicide application have eliminated snails from all properties except Port Parcel 117. The purpose of this report is to support the issuance of a Critical Areas Development Permit pursuant to Tacoma Municipal Code (TCM) Chapter 13.11.

1.1 Site Description

Port Parcel 117 is 15.68 acres of undeveloped property located in a highly industrial area within the Port, zoned PMI – Port Maritime and Industrial (City of Tacoma 2024a). Site conditions consist of open fields dominated by emergent vegetation with some shrubs. The topography is generally flat with pronounced depressions in the northern and southern portions of the site. Though the site is undeveloped, site conditions have changed over the past 20 years because of ongoing attempts to eradicate the Mediterranean vineyard snails. The Port acquired the parcels from the City of Tacoma in 2008. Trees and other significant onsite vegetation were removed at that time to limit conditions that could harbor the Mediterranean vineyard snails. Vegetation management is ongoing at the property. There is a constructed stormwater pond (historically referred to as the "Stormwater Ditch") that extends into the western portion of Port Parcel 117 property. There are several other stormwater conveyance ditches constructed throughout the property.

1.2 Project Description

The western portion of Port Parcel 117 differs from the other previously infested Port properties because it contains wetland areas that act as a refuge for the snail population. Adult snails mate and lay eggs in autumn and winter. Eggs are buried in shallow topsoil. Juveniles grow and mature through the spring. During hot, dry summer conditions, snails enter into dormancy. The purpose of the project is to modify the site condition that facilitates the snail's specific life cycle to cease reproduction. The snail eradication effort involves grading the Port Parcel 117 site to a level condition and then placing approximately six inches of consolidated fill material over site areas known to harbor the Mediterranean vineyard snails, including the wetlands and buffers. The site will be monitored for three years post-construction by WSDA to verify the snails have been eradicated.

No other onsite or off-site development or improvements are proposed. The Port plans to solicit a request for proposals for a future development project that will include Port Parcel 117 and adjoining properties, but this work would not occur until after the site has been leveled and fill material has been placed. Future development will be evaluated and permitted separately.

2.0 CRITICAL AREAS STUDY

The Critical Areas Study has been prepared per TMC 13.11.230(B)(3) to support the Port's application for a Critical Areas Development Permit.

2.1 Methods

2.1.1 Desktop Analysis

To develop a strategy for the site investigation, Confluence Environmental Company (Confluence) reviewed relevant regulations and GIS databases. Confluence reviewed TMC to determine the standard buffer requirements for critical areas in the project vicinity.

Confluence evaluated Parcel 117 and the area 300 feet beyond the parcel boundaries to determine whether buffers for off-site critical areas encroach onto the site; 300 feet is the largest buffer identified in TMC. The site and the 300-foot area beyond them will be referred to as the "study area" throughout the report (Figure 1). Confluence reviewed the GIS databases listed below for the documented presence of wetlands, streams, lakes, or species listed under the Endangered Species Act as threatened or endangered within the study area.

- City of Tacoma GIS (City of Tacoma 2024b)
- Pierce County PublicGIS (Pierce County 2024)
- Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map (FIRM) 2025.
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS 2024)
- Natural Resources Conservation Service (NRCS) Soil Survey (NRCS 2024a)
- Washington Department of Fish and Wildlife (WDFW) SalmonScape (WDFW 2024a)
- WDFW Priority Habitats and Species (PHS) (WDFW 2024b)
- Washington Department of Natural Resources (WDNR) Water Type GIS (WDNR 2024a)
- WDNR Natural Heritage Program Data Explorer (WDNR 2024b)

Results of the GIS database searches are in Appendix A.

2.1.2 Site Investigation

On March 12 and 13, 2024, Confluence conducted a site investigation to determine the presence or absence of critical areas within the study area. The precipitation in the 3 months prior to the site investigation was normal compared to historical averages (NRCS 2024b).



Figure 1. Study area

2.1.2.1 Wetlands

Wetland Identification and Delineation

The Port has conducted several previous wetland studies for the site between 2008 and 2015. Because wetland studies are only valid for 5 years (Corps 2010), Confluence conducted a new wetland investigation in 2024. Confluence identified wetlands and delineated their boundaries using the methods described by the U.S. Army Corps of Engineers (Corps) in the Corps of Engineers Wetlands Delineation Manual (Corps 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Corps 2010). The Corps typically requires that the following 3 characteristics be present for an area to be identified as a wetland: (1) hydrophytic vegetation, (2) hydric soil, and (3) wetland hydrology. For each criterion, there are several possible indicators that can be used to determine whether the criterion has been met. The indicators were established so that if a wetland were present onsite, sufficient indicators would be observed at any time of the year, including the driest months, to identify the wetland. When "normal circumstances," as defined by the Corps (1987), exist on the site all 3 criteria must be present for an area to be determined a wetland. However, steam treatments to manage the invasive snail populations were performed in the southeastern portion of the site prior to the March site investigation. Because these treatments modified the soil and vegetation, Confluence relied on hydrology indicators to determine the presence of any wetlands in this area. A more detailed description of delineation methodology is provided in Appendix B. Wetland delineation data forms completed during the site investigation are provided in Appendix C.

To confirm the presence or absence of a wetland, data were collected from representative test plots within and outside of potential wetlands. The locations of the test plots were based on the presence of visual wetland indicators (e.g., wetland vegetation, evidence of standing water) or were chosen to represent vegetative, topographic, or hydrologic features in the vicinity. Within these test plots, vegetation, soils, and hydrology were examined to determine whether wetland characteristics were present (see Appendix B for details). Plots that met all 3 wetland criteria were determined to be wetland plots; plots that did not meet all 3 wetland criteria were determined to be upland plots.

Once the presence of a wetland was confirmed, visual wetland indicators, such as topographic and vegetative shifts, were used to delineate the remainder of the wetland boundary. In areas with a lack of visual wetland indicators (i.e., areas with monoculture vegetation and no clear topographic break), Confluence used soil probes to determine the wetland boundary between test plots. Confluence evaluated the presence or absence of hydric soil and wetland hydrology indicators at soil probe locations to determine whether the area represented by the soil probe was wetland or upland. Soil probe locations and presence or absence of hydric soil and wetland hydrology indicators were recorded using GPS.

Confluence used the PLANTS Database (NRCS 2024c) to provide consistency in scientific naming and the 2020 National Wetland Plant List (Corps 2020) to determine the wetland indicator status of plants.

The wetland boundary and test plot were flagged using yellow pin flagging, the positions of which were collected by surveyors.

Off-Site Wetland Identification

To assess whether there are possible wetlands with buffers encroaching from adjacent properties, Confluence modified the methods described by the Corps (Corps 1987, 2010). The modified method identified the presence or absence of visual wetland indicators. If hydrophytic vegetation were dominant and visual indicators of wetland hydrology were observed, then hydric soils would have been assumed; however, no visual wetland indicators were observed in adjacent areas.

Wetland Rating

Confluence determined wetland ratings using the Washington State Wetland Rating System for Western Washington (Hruby and Yahnke 2023) to assess the resource value of any wetland identified on the site. This rating system is based on the wetland functions and values, sensitivity to disturbance, rarity, and irreplaceability. Wetland rating forms are in Appendix D.

2.1.2.2 Streams/Shorelines

No streams or shorelines were identified in the study area, so no ordinary high water mark delineation was needed.

2.2 Results

2.2.1 Wetlands

2.2.1.1 Desktop Analysis

No aquifer recharge areas, fish and wildlife habitat conservation areas, flood hazard areas, or geologically hazardous areas were identified in the studies and GIS datasets reviewed. Therefore, these critical areas are not discussed further in this report.

USFWS's NWI identifies 3 wetlands in the study area: a 2.55-acre freshwater emergent wetland, a 1.61-acre freshwater emergent wetland with a 0.24-acre freshwater pond, and a 2.16-acre freshwater forested/shrub wetland, which extends off-site to the northwest (USFWS 2024). Tacoma GIS shows a 9.22-acre Category IV wetland on the north side of the study area along with 3 much smaller (under 2,000 square feet) wetlands within the south end of the study area

(City of Tacoma 2024b). Pierce County GIS does not show any wetlands within the study area (Pierce County 2024). WDNR's Natural Heritage Program does not identify any rare plants or ecosystems on or within 300 feet of the site (WDNR 2024b).

The most recent wetland investigation on Parcel 117, conducted in 2015, identified 5 wetlands and a stormwater pond along the western boundary of the site (GeoEngineers 2013, GeoEngineers 2015). Two ditch features were also identified in this study, one within the northeastern corner of the site and the other along the western site boundary.

No GIS databases identify any streams on or in the vicinity of the study area (USFWS 2024; Tacoma 2024b; Pierce County 2024; WDFW 2024a,b; WDNR 2024a). The closest mapped stream is Coski Gulch, located on the north side of the Hylebos Waterway, approximately 0.5 mile north of the study area (WDFW 2024a,b). The study area is located between Hylebos Waterway and Blair Waterway, both of which are Type S (shoreline of the state) Puget Sound waterbodies (WDNR 2024a). Other than wetlands, WDFW's PHS system does not identify any priority habitats of species within the study area (WDFW 2024b).

Soils in the study area are mapped as Urban land (0-5% slopes). No hydric soils are mapped within the study area (NRCS 2024b).

2.2.1.2 Test Plots

During the site investigation, 11 test plots were established, 5 in uplands and 6 in wetlands. Soil probes were collected to rapidly determine whether an area was upland or wetland. Test plot and soil probe locations are shown on Figure 2. Test plot characteristics are detailed below. Technical terms are explained in Appendix B. Photographs of the site are in Appendix E.

The vegetation present in many of the test plots described below was dominated by mowed grass. Because the grass was mowed, identification of the individual species was not feasible and therefore the grass was conservatively assumed to have an indicator status of facultative.

Test Plot 1 (TP-1) was located in the southeastern portion of the site. Vegetation was dominated by mowed grass. The vegetation within TP-1 passed the Dominance Test and therefore met the vegetation criterion. Soil in the top layer (0-8 inches) was a black (10YR 2/1) sandy loam. Soil in the second layer (8-16 inches) was a black (10YR 2/1) sandy loam with 20% very dark grayish brown depletions (2.5Y 3/2) in the matrix and 5% dark yellowish brown (10YR 4/4) redoximorphic concentrations in the matrix. The soils met the Redox Dark Surface (F6) hydric soil indicator; thus, the hydric soil criterion was met. Three hydrology indicators—Surface Water (A1), High Water Table (A2), Saturation (A3)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-1 met all 3 criteria, the area represented by TP-1 is a wetland, identified as Wetland 2.



Figure 2. Location of test plots and soil probes

TP-2 was located in the southeastern portion of the site, just west of TP-1, in an area dominated by Himalayan blackberry (*Rubus armeniacus*), English plantain (*Plantago lanceolata*), unidentified mowed grass, and birdsfoot trefoil (*Lotus corniculatus*). The vegetation within TP-2 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-6 inches) was a very dark brown (10YR 2/2) sandy loam with cobble. Soil in the second layer (6-12 inches) was a dual matrix yellowish brown (10YR 5/6) and very dark brown (10YR 2/2) sandy loam with cobble. The soils did not meet any hydric soil indicator; therefore, the hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were observed; therefore, the wetland hydrology criterion was not met. Since TP-2 did not meet all 3 criteria, the area represented by TP-2 is not a wetland. TP-2 represents the upland area adjacent to Wetland 2.

TP-3 was located in the southern portion of the site in an area dominated by mowed grass. The vegetation within TP-3 passed the Dominance Test and therefore met the vegetation criterion. Soil in the top layer (0-4 inches) was a black (10YR 2/1) sandy loam. Soil in the second layer (4-8 inches) was a very dark grayish brown (10YR 3/2) sandy loam with 30% yellowish brown (10YR 5/8) redoximorphic concentrations in the matrix. Soil in the third layer (8-16 inches) was a very dark brown (10YR 2/2) sandy loam. The soils met the Redox Dark Surface (F6) hydric soil indicator; thus, the hydric soil criterion was met. Three hydrology indicators—Surface Water (A1), High Water Table (A2), Saturation (A3)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-3 met all 3 criteria, the area represented by TP-3 is a wetland, identified as Wetland 2.

TP-4 was located in the northwestern portion of the site in an area dominated by mowed grass. The vegetation within TP-4 passed the Dominance Test and therefore met the vegetation criterion. The soil consisted of only 1 layer (0-9 inches) and was a dark gray (10YR 4/1) sand with cobbles with 40% dark brown (10YR 3/3) redoximorphic concentrations in the matrix. Confluence could not dig deeper than 9 inches due to the presence of a restrictive layer (compacted fill). The soils met the Sandy Redox (S5) hydric soil indicator; therefore, the hydric soil criterion was met. Three primary hydrology indicators—Surface Water (A1), High Water Table (A2), and Saturation (A3)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-4 met all 3 criteria, the area represented by TP-4 is a wetland, identified as Wetland 1.

TP-5 was located in the northwestern portion of the site, immediately east of TP-4, in an area dominated by mowed grass. The vegetation within TP-5 passed the Dominance Test and therefore met the vegetation criterion. Soil in the top layer (0-9 inches) was a very dark grayish brown (10YR 3/2) sandy loam. Soil in the second layer (9-14 inches) was a very dark grayish brown (10YR 3/2) sandy loam with 3% brownish yellow (10YR 6/6) redoximorphic concentrations in the matrix. The soils did not meet any hydric soil indicator; therefore, the

hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were observed; therefore, the wetland hydrology criterion was not met. Since TP-5 did not meet all 3 criteria, the area represented by TP-5 is not a wetland. TP-5 represents the upland area adjacent to Wetland 1.

TP-6 was located in the northern portion of the site in an area dominated by Himalayan blackberry and mowed grass. The vegetation within TP-6 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil consisted of a single layer (0-16 inches) and was a very dark brown (10YR 2/2) sandy loam with cobble. The soils were assumed to not meet the thick dark surface hydric soils indicator due to the absence of hydrology indicators; therefore, the hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were observed; therefore, the wetland hydrology criterion was not met. Since TP-6 did not meet all 3 criteria, the area represented by TP-6 is not a wetland. TP-6 represents the upland area adjacent to Wetland 2.

TP-7 was located in the northern portion of the site northeast of TP-6 in an area dominated by mowed grass. The vegetation within TP-7 passed the Dominance Test and therefore met the vegetation criterion. Soil in the top layer (0-7 inches) was a very dark brown (10YR 2/2) sandy loam. Soil in the second layer (7-16 inches) was a very dark brown (10YR 2/2) sandy loam with 5% yellowish brown (10YR 5/4) redoximorphic concentrations in the matrix. The soils met the Redox Dark Surface (F6) hydric soil indicator; thus, the hydric soil criterion was met. Three hydrology indicators—Surface Water (A1), High Water Table (A2), Saturation (A3)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-7 met all 3 criteria, the area represented by TP-7 is a wetland, identified as Wetland 2.

TP-8 was located the central portion of the site in an area dominated by mowed grass. The vegetation within TP-8 passed the Dominance Test and therefore met the vegetation criterion. The soil in the top layer (0-5 inches) was a black (10YR 2/1) sandy loam. Soil in the second layer (5-16 inches) was a very dark gray (10YR 3/1) sand with 2% dark yellowish brown (10YR 4/6) redoximorphic concentrations in the matrix. The soils met the Sandy Redox (S5) hydric soil indicator; therefore, the hydric soil criterion was met. Two primary hydrology indicators—High Water Table (A2) and Saturation (A3)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-8 met all 3 criteria, the area represented by TP-8 is a wetland, identified as Wetland 3.

TP-9 was located in the central portion of the site, immediately north of TP-9, in an area dominated by mowed grass. The vegetation within TP-9 passed the Dominance Test and therefore met the vegetation criterion. The soil in the top layer (0-7 inches) was a black (10YR 2/1) silt loam with sand. The soil in the second layer (7-16 inches) was a dual matrix very dark gray (10YR 3/1) and dark gray (10YR 4/1) sandy loam with 2% dark yellowish brown (10YR 4/6)

redoximorphic concentrations in the latter matrix. Because the dark gray matrix only constituted 28% of the soil profile, the soils did not meet any hydric soil indicators. Therefore, the hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were observed; therefore, the wetland hydrology criterion was not met. Since TP-9 did not meet all 3 criteria, the area represented by TP-9 is not a wetland. TP-9 represents the upland area adjacent to Wetland 3.

TP-10 was located in the western portion of the site in an area dominated by reed canarygrass (*Phalaris arundinacea*). The vegetation within TP-10 passed the Dominance Test and therefore the vegetation criterion was met. Soil in the top layer (0-6 inches) was a black (10YR 2/1) sandy loam with 2% dark yellowish brown (10YR 4/6) redoximorphic concentrations in the matrix. Soil in the second layer (6-16 inches) was a dual matrix black (10YR 2/1) and very dark gray (10YR 3/1) silt loam with 5% yellowish brown (10YR 5/8) redoximorphic concentrations in the matrices. The soils met the Redox Dark Surface (F6) hydric soil indicator thus the hydric soil criterion was met. Two hydrology indicators—High Water Table (A2) and Saturation (A3)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-10 met all 3 criteria, the area represented by TP-10 is a wetland. While the area met all 3 wetland criteria, it is an extension of a man-made stormwater pond (see Section 2.2.4 for additional information).

TP-11 was located in the western portion of the site immediately east of TP-10 in an area dominated by Kentucky bluegrass (*Poa* spp.) and spotted knapweed (*Centaurea stoebe*). The vegetation within TP-11 passed the Dominance Test and therefore met the vegetation criterion. The soil in the top layer (0-6 inches) was a black (10YR 2/1) sandy loam. Soil in the second layer (6-16 inches) was a very dark gray (10YR 3/1) sandy loam. The soils were assumed to not meet the thick dark surface hydric soils indicator due to the absence of hydrology indicators; therefore, the hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were observed; therefore, the wetland hydrology criterion was not met. Since TP-11 did not meet all 3 criteria, the area represented by TP-11 is not a wetland. TP-11 represents the upland area adjacent to the stormwater pond to the west.

2.2.2 Delineated Wetlands

TP-1, TP-3, TP-4, TP-7, and TP-8 represented areas in the study area that met all 3 wetland criteria. These areas were delineated as Wetlands 1, 2, and 3, none of which extend beyond the boundary of Parcel 117. TP-10 also met the criteria, but because the area is part of a constructed stormwater pond, it would not be considered a regulated wetland (refer to Section 2.2.4 for additional information). Wetlands identified and delineated onsite are described in detail below, summarized in Table 1, and shown on Figure 2. Note the 2.16-acre wetland mapped by USFWS (described in Section 2.2.1) along the western boundary of the Parcel 117 is the constructed stormwater pond.

Table 1. Wetland summary

Wetland Name	Cowardin Classification[1]	Area		Wetland Rating[2]				
		Square feet	Acres	Water Quality	Hydrology	Habitat	Total	Category
Wetland 1	Palustrine emergent	10,214	0.234	7	8	3	18	III
Wetland 2	Palustrine emergent	225,995	5.188	8	8	3	19	III
Wetland 3	Palustrine emergent	1,032	0.024	6	7	3	16	III
Total		237,241	5.446					

[1] FGDC 2013
[2] Hruby and Yahnke 2023

2.2.2.1 Wetland 1

Wetland 1 is located in the northwest portion of the site and is 10,214 square feet (0.234 acre). TP-4, described above, represents Wetland 1. The wetland is hydrologically connected to a ditch, which enters the site at the northwest corner and flows south, eventually discharging into the stormwater pond that abuts the site to the west (refer to Section 2.2.5 for additional information on the ditches). Dominant hydrologic inputs include stormwater (from the adjacent ditch), groundwater, and precipitation.

According to the Cowardin classification system (FGDC 2013), Wetland 1 is an emergent wetland. Vegetation is dominated by mowed grass. Because the grass was mowed, Confluence biologists were unable to identify the individual species. The boundary of Wetland 1 was determined by topographic breaks and the presence of hydric soils and hydrology indicators. Wetland 1 was rated as a Category III wetland, with a water quality score of 7, hydrology score of 8, and habitat score of 3 (Hruby and Yahnke 2023).

2.2.2.2 Wetland 2

Wetland 2 is located within the eastern half of the site and is 225,995 square feet (5.188 acres). TP-1, TP-3, and TP-7, described above, represent Wetland 2. The wetland is hydrologically connected to a ditch at the northeastern corner of the site. A stormwater feature was observed on the property to the east, although it was unclear if the ditch at the northeastern corner of the site is connected to this feature. Dominant hydrologic inputs to the wetland include stormwater (from the adjacent ditch), groundwater and precipitation.

According to the Cowardin classification system (FGDC 2013), Wetland 2 is an emergent wetland. Vegetation is dominated by mowed grass, Himalayan blackberry, and some areas of reed canarygrass. Because the grass was mowed, Confluence biologists were unable to identify individual species. The boundary of Wetland 2 was determined by topographic breaks and the presence of hydric soils and hydrology indicators. Some of the soils in the southeastern portion

of the site had recently undergone steam treatment to manage the invasive snails. Because of the disturbance, Confluence biologists relied predominantly on hydrology indicators to delineate the wetland boundary in the affected areas. Wetland 2 was rated as a Category III wetland, with a water quality score of 8, hydrology score of 8, and habitat score of 3 (Hruby and Yahnke 2023).

2.2.2.3 Wetland 3

Wetland 3 is located in the central portion of the site and is 1,032 square feet (0.024 acre). TP-8, described above, represents Wetland 3. The wetland does not contain a surface water connection to any of the onsite ditches. Hydrologic inputs to Wetland 3 include groundwater and precipitation.

According to the Cowardin classification system (FGDC 2013), Wetland 3 is an emergent wetland. Vegetation is dominated by mowed grass. Because the grass was mowed, Confluence biologists were unable to identify individual species. The boundary of Wetland 3 was determined by the presence of hydric soils, hydrology indicators, and a slight topographic break. According to the 2014 Wetland Rating System (Hruby and Yahnke 2023), Wetland 3 was rated as a Category III wetland, with a water quality score of 6, hydrology score of 7, and habitat score of 3.

2.2.2.4 Other Features

Stormwater Pond

A stormwater pond abuts the site boundary to the west and extends approximately 850 feet to the northwest and is referred to in various documents as the "Stormwater Ditch" (Aspect 2023). A small portion of the stormwater pond extends onto the Parcel 117 site. The majority of the stormwater pond is located between adjoining parcels 2275200260 and 0321263016 on the north, and parcel 5000350061 on the south. The stormwater pond is located along the southern boundary of the former PQ Corporation silicate manufacturing facility, which was developed from a former tide flat in 1941 and remained in operation until 2009 (Aspect 2023). It was constructed for the purpose of conveying stormwater from the paved operational areas of the PQ Corporation facility (Aspect 2023). Soil in the stormwater pond is contaminated by petroleum hydrocarbons, polycyclic aromatic hydrocarbons, and metals at concentrations above the proposed cleanup levels established for the site (Aspect 2023).

This feature was documented in the previous wetland studies prepared for the site (GeoEngineers 2013). Confluence observed wetland characteristics (see description of TP-10 in Section 2.2.2) in an area southwest of the pond, but given the hydrologic connection observed between the stormwater pond and this area, the wetland characteristics represent an extension

of the stormwater pond. A ditch directs flow from the stormwater pond to the southern boundary of the site along Alexander Avenue.

On-Site Ditches

A total of 3 ditches were observed on the site, in the northeastern corner, the northwestern corner, and along the western property boundary. The ditch within the northeastern corner, near Taylor Way, appears to receive flow from Wetland 2 and appears to tie into the stormwater feature on the adjacent property to the east. The ditch within the northwestern corner traverses south along the western property boundary, receiving hydrologic inputs from Wetland 1. The ditch discharges into the stormwater pond along the western property boundary. The ditch observed along the western property boundary in the southern half of the site receives flow from the stormwater pond and flows south toward Alexander Avenue. Because the ditches are constructed features, they would not be regulated as critical areas.

2.2.3 Federal Jurisdictional Status of Wetlands and Other Features

The Port submitted an application to the Corps of Engineers in conjunction with the project. The Corps of Engineers issued an Approved Jurisdictional Determination (Appendix F) and concluded: " The U.S. Army Corps of Engineers has determined that Wetland 1, Wetland 2, Wetland 3, Ditch A, Ditch B, Ditch C, and Stormwater Feature [Stormwater Ditch] are not waters of the U.S. and as such, work that would occur within these areas does not require Department of the Army authorization under Section 404 of the Clean Water Act."

2.2.3.1 Wetland Areas Buffers

According to TMC, the following standard buffers apply:

- Wetland 1 is a Category III wetland with a low habitat score; therefore, the standard buffer is 75 feet.
- Wetland 2 is a Category III wetland with a low habitat score; therefore, the standard buffer is 75 feet.
- Wetland 3 is a Category III wetland with a low habitat score; therefore, the standard buffer is 75 feet.
- As man-made features, the onsite ditches and stormwater pond are assumed to not be subject to critical areas regulations.

Figure 3 shows the wetlands and their standard buffers.

2.2.4 Flood Hazard Areas

TMC 13.11.610 identifies flood hazard areas as areas identified on the most recent FEMA FIRM. A portion of the stormwater pitch has been identified on the FEMA as a Zone A floodplain. This flood hazard area is also mapped by the City GIS database (City of Tacoma 2024b). Figure 4 shows the mapped flood hazard. Zone A floodplain areas are where no base flood elevation has been determined. No Zone AE floodplains or floodways are identified on the project area.



Figure 3. Wetlands and their standard buffers



Figure 4. Mapped flood hazard areas

2.3 Impact Assessment

The Port proposes to grade the majority of the Port Parcel 117 site and place approximately 6 inches of consolidated fill over the majority of the site as a measure to eradicate the Mediterranean vineyard snails.

2.3.1 Wetlands

This activity will involve impacting the entirety of Wetland 1 (0.234 acre), Wetland 2 (5.188 acres), and Wetland 3 (0.024 acre). The total area of Category III wetland impacts resulting from the project is 5.446 acres.

2.3.2 Flood Hazard Areas

The project will include placing fill over the majority of the site; however, the mapped flood hazard area (Figure 4) is located beyond the limits of the proposed fill extents. The flood hazard area will not be impacted by the snail eradication project.

3.0 MITIGATION PLAN

This Compensatory Mitigation Plan has been prepared per TMC 13.11.230(B)(4) to support the Port's application for a Critical Areas Development Permit.

3.1 Legal Test

TCM requires demonstration that the requirements of a legal test are met per TMC 13.11.240. The proposed Taylor Way and Alexander Ave Snail Eradication Project meets the legal test requirements for having No Practicable Alternatives as described in TMC 13.11.240 (A). The project meets all three criteria outlined in the regulation.

Criteria 1: The project cannot be reasonably accomplished using one or more other sites in the general region that would avoid or result in less adverse impacts to the Critical Area.

The Mediterranean vineyard snails occur on Port Parcel 117 including within onsite wetland areas. There is no option for using an alternative site as the goal of the project is to eradicate the snail from the property.

Criteria 2: The goals of the project cannot be accomplished by a reduction in the size, scope, configuration or density as proposed, or by changing the design of the project in a way that would avoid or result in fewer adverse effects on the Critical Area.

Adult snails mate and lay eggs in autumn and winter. Eggs are buried in shallow topsoil. Juveniles grow and mature through the spring. During hot, dry summer conditions, snails enter dormancy. The purpose of the project is to modify the site condition that facilitates the snail's

specific life cycle. The snail eradication effort involves grading the majority of the Port Parcel 117 site to a generally level condition and then placing approximately 6 inches of consolidated fill material over site areas known to harbor the Mediterranean vineyard snails. It is not possible to reduce the scale or scope of the project and effectively eradicate the snails from the Port Parcel 117 site.

Criteria 3: In cases where the applicant has rejected alternatives to the project as proposed, due to constraints on the site such as inadequate zoning, infrastructure or parcel size, the applicant has attempted to remove or accommodate such constraints, unless the applicant can demonstrate that such attempt would be futile.

The Port has implemented a snail eradication program for nearly 20 years. Eradication strategies such as vegetation management, debris removal, and molluscicide application have eliminated snails from all properties except Port Parcel 117. The western portion of Port Parcel 117 differs from the other previously infested Port properties because it contains wetland areas that act as a refuge for the snail population. Additional eradication efforts that have been attempted at Parcel 117 include steaming portions of the wetland and/or buffer to raise the temperature of the soil enough to kill all life stages of the snail. All efforts at the site to date have been unsuccessful. The Port, along with USDA and WSDA, have determined that continuing the current snail eradication approach is futile. There is no practicable alternative remaining that does not impact the existing onsite wetlands.

3.2 Mitigation Requirements

TCM 13.11.270 General Mitigation Requirements specifies that, "All adverse impacts resulting from a development proposal or alteration shall be mitigated using the best available science, so as to result in no net loss of critical area functions and values and to ensure public health and safety." TCM 13.11.270 identifies that, "Mitigation shall be in-kind and onsite, when possible, and sufficient to maintain the functions and values of the critical area." The proposed snail eradication project will affect all onsite wetland areas, and the proposed consolidated fill material must remain in place to disrupt the snails required life cycle. There are no onsite and in-kind mitigation opportunities available to adequately provide mitigation for the proposed project impacts.

The functions and values of the existing wetland have been reduced by the site's unique circumstances. The onsite wetlands have a low habitat value resulting from 20 years of ongoing snail management and eradication activities. A primary characteristic of the onsite wetlands and buffers is that they provide the last vestige of Mediterranean vineyard snail habitat at the Port. Accordingly, eradication of the habitat will yield an environmental benefit and will provide a benefit to public health and safety through protection of the regional food supply.

These snails also can carry plant, animal, and human diseases (Washington Invasive Species Council 2024).

The onsite wetlands provide moderate levels of water quality and hydrologic functions and low-level habitat functions, according to western Washington rating system (Hruby and Yahnke 2023). However, the water quality and hydrologic scores for the onsite wetlands do not appear to precisely represent their contribution to the sub-basin given that they are functionally disconnected. The wetlands have a relatively small contributing hydrologic basin, and adjacent paved surfaces are shown to have site-specific drainage infrastructure, limiting the opportunity for the wetlands to perform water quality and hydrologic functions. Any surface flows leaving the wetlands enter into a storm drainage conveyance that discharges directly to the Hylebos Waterway. In the context of landscape position, the onsite wetlands have very little opportunity to provide these functions to downstream infrastructure or habitats. These water quality and hydrologic functions can be offset through the proposed stormwater management strategy for the site.

3.3 Mitigation Approach

Because of the unavoidable nature of the wetland impacts, lack of onsite and in-kind mitigation opportunities, onsite wetlands that provide minimal functions, and a net positive benefit to public health and safety as a result of implementation of the project, the Port is proposing to utilize an innovative mitigation approach per TMC 13.11.270(M). The Port proposes to provide compensatory mitigation for the proposed onsite wetland impacts required by the snail eradication project through a combination of mitigation approaches as shown in Table 2.

Table 2. Proposed mitigation per TCM 13.11.270(M)

Location	Mitigation Activity	Ratio (Mitigation activity to Credits)	Wetland Credits
Compensatory Mitigation			
Parcel 12	Reestablish/Create 2.901 acres wetland	1:1	2.901
Parcel 12	Enhance 0.9990 acre wetland	2:1	0.4995
Gog-le-hi-te	Reestablish/Create 1.000 acre wetland	1:1	1.000
Gog-le-hi-te	Enhance 0.832 acre wetland	2:1	0.416
Total Compensatory Mitigation			4.8165
Advance Mitigation Site (AMS) Credit Application			
Lower Wapato AMS - EEM	Apply 0.7554 available EEM credits	1.2:1	0.6295
Total Mitigation Credits			5.4460

3.3.1 Port Parcel 12 Mitigation Site

3.3.1.1 Site Description

The Parcel 12 site is about 5 acres including two parcels (0320011090 and 0320011091) located at 3802 Taylor Way in the City of Tacoma (Appendix G). The main portion of the site is generally triangular, with a rectangular portion following the Fife Ditch along the southern portion of the site. The north edges of the site are bound by the Fife Ditch. The southern boundary of the site is bordered by commercial/light industrial properties and land uses. The northeastern portion of the site is bounded by Taylor Way E and its associated right-of-way.

There is one wetland on the Parcel 12 property. A wetland delineation was conducted on the site in March 2024 that identified a 0.999 acre Category III wetland in the northeastern portion of the site adjacent to Taylor Way E. A wetland delineation summary report for Parcel 12 and site survey map showing the delineated wetland area and site topography and contours is included in Appendix G.

3.3.1.2 Existing Conditions

The site is generally flat with areas of hummocks. The north and east areas of the site are slightly higher than areas in the south and west. The tree canopy on the site is dominated by black cottonwood with some Oregon ash and red alder. Both upland and wetland areas of the site have been highly disturbed. Parcel 12 was used as an informal encampment area for several years. This use as an encampment, and the subsequent clean-up, resulted in a high level of disturbance to the shrub understory and groundcover. The sparse understory that remains contains English hawthorn (*Crataegus monogyna*), Pacific dogwood (*Cornus nuttallii*), Indian plum (*Oemleria cerasiformis*), and Himalayan blackberry. Some areas of the site are dominated by invasive vegetation, particularly Himalayan blackberry, yellow flag iris (*Iris pseudacorus)*, and English ivy (*Hedera helix*). Groundcovers are also generally sparse and include sword fern (*Polystichum munitum*), creeping buttercup (*Ranunculus repens*), and English ivy. A patch of slough sedge (*Carex obnupta*) is present in the northeastern portion of the site. The site has many areas of bare soil.

The Port initiated a site-specific hydrologic study of the proposed mitigation area on the Parcel 12 site in April 2025. The Port installed four shallow groundwater monitoring wells to evaluate groundwater conditions on the site over time. Groundwater levels observed within the proposed mitigation area during monitoring well installation are noted in Table 3. Well locations are shown on the site survey included in Appendix G.

Table 3. Parcel 12 groundwater observations, April 2025

Well Location	Groundwater Depth Below Existing Soil Surface (ft)	Corresponding Groundwater Elevation (datum)
Well 1	*5.9 ft*	8.50
Well 2	*5.5 ft*	8.29
Well 3	*7.0 ft*	7.85
Well 4	*6.8 ft*	6.63

A data logger was installed in each monitoring well to measure changes in observed groundwater levels over time. The Port will prepare a site-specific hydrologic report for the Parcel 12 site in Spring 2026 to include one year of groundwater data. The Port anticipates that groundwater levels will be higher in elevation (closer to the soil surface) in the early growing season and will be similar to elevations in the existing onsite wetland. The Port will utilize information from the hydrologic report to refine the grading concept, if applicable, during final design.

3.3.1.3 Anticipated Future Conditions

Confluence has developed preliminary grading and planting plans for the proposed mitigation work to occur on the Port Parcel 12 site. These plans are included as Appendix H. The plan set includes a proposed planting schedule showing proposed plant species, size, spacing, and layout for the proposed wetland reestablishment, wetland enhancement, and upland buffer enhancement areas.

Proposed Hydrologic Conditions

Wetland hydrology will be established within the mitigation area through the excavation and removal of soil to intercept existing shallow groundwater, which is currently anticipated to occur between 3 to 4 feet below the existing soil surface during the early growing season based on water levels observed in the existing onsite wetland. The main portion of the wetland mitigation area will range between 11 and 12 feet in elevation. There will be a higher area toward the center of the re-establishment area with hummocks ranging between 12 and 12.5 feet in elevation. The purpose of this layout is to create areas with differing hydrologic regimes, including areas of seasonal standing, to support the development of a variety of wetland communities.

Future Secessional Communities

The proposed plant list for the mitigation area is included in Appendix H. The mitigation concept is to establish a mixed deciduous and evergreen forested buffer with an understory of woody shrubs. The outer edge of the wetland mitigation area will be predominately scrub

shrub wetland. The inner, higher portion of the wetland will have a hydrologic regime that will allow establishment of a mixed deciduous and evergreen forested wetland cover type. It is anticipated that establishment of these communities will take between 10 and 25 years. The anticipated succession progression of each community is summarized in Table 4.

Table 4. Anticipated successional communities on Parcel 12 mitigation site

Community	Year 1	Year 5	Year 10	Year 25+
Upland Buffer	*Scrub shrub dominated*	*Scrub shrub dominated*	Deciduous forest, scrub shrub understory	Mixed deciduous evergreen forest
Forested Wetland	*Scrub shrub dominated*	*Scrub shrub dominated*	Deciduous forest, scrub shrub understory	Mixed deciduous evergreen forest
Scrub Shrub Wetland	*Scrub shrub dominated*	*Scrub shrub dominated*	Scrub shrub dominated	Scrub shrub dominated

The mitigation site is anticipated to provide increased value for improved water quality, hydrologic function, and habitat function. Improved water quality and hydrologic function will result from the creation of a larger depressional area with no defined outlet with over 50 percent of the wetland as seasonally ponded or inundated. Seasonal water depths within the wetland are anticipated to be between two to three feet deep. Habitat value will be increased by increasing the number of wetland communities on the site from one community to two, developing wetland communities with more diverse hydroperiods, increasing the richness of plant species, and establishing at least a moderate level of interspersed habitats. Brush piles and snags will be installed to provide special habitat features not currently present onsite. If no mitigation actions are taken, the majority of the Parcel 12 area will remain upland, and the existing onsite wetland will continue to provide a relatively monotypic single wetland community.

3.3.1.4 Offsite Impacts

The Parcel 12 mitigation area has been designed to avoid off-site impacts. The proposed wetland area will be set back from the property boundaries. Slopes within the wetland area will not exceed 3:1. The wetland area will be designed to be a closed depression, but overflow from the wetland will be directed to the adjoining Fife Ditch, which will not increase the flood risk to adjacent roadways and private property.

3.3.2 Gog-le-hi-te Site

3.3.2.1 Site Description

The proposed Gog-le-hi-te wetland enhancement area is located generally northeast of the main Gog-le-hi-te I habitat restoration area. The wetland enhancement area is a 2.12-acre area

bounded to the western side by the Gog-le-hi-te I habitat restoration site and on the north by the Gog-le-hi-te Habitat Improvement Area and by portions of the Gog-le-hi-te Wetland loop trail system constructed along Corps levees (Appendix I) to the east, and south. The area is located on portions of parcels 0320032048, 0320031004, 0320031026 and 0320031027, all owned by the Port.

There is one wetland within the Gog-le-hi-te mitigation site area. A wetland delineation was conducted on the site identified a 0.832 acre Category II wetland in the norther portion of the mitigation area. A wetland delineation summary report for the Gog-le-hi-te mitigation area and site survey map showing the delineated wetland area and site topography and contours is included in Appendix I.

3.3.2.2 Existing Conditions

The northern portion of the proposed mitigation area is a depressional that transitions to a higher flat area toward the south. The northern area is dominated by black cottonwood and willow. There are several large unvegetated areas, which are seasonally inundated. The higher southern portion for the site is predominately Himalayan blackberry ringed with black cottonwood and interspersed with areas of willow. Blackberry is dense and persistent in the south and west portions of the mitigation area. Understory is generally absent, but reed canarygrass is present in some areas in the southern portion of the site not covered by blackberry.

The Port initiated a site-specific hydrologic study of the proposed mitigation area at the Gog-le-hi-te site in April 2025. The Port installed two shallow groundwater monitoring wells to evaluate groundwater conditions on the site over time. Groundwater levels observed within the proposed mitigation area during monitoring well installation are noted in Table 5. Well locations are shown on the site survey included in Appendix I.

Table 5. Gog-le-hi-te groundwater observations, April 2025

Well Location	Groundwater Depth Below Existing Soil Surface (ft)	Corresponding Groundwater Elevation (datum)
Well 5	*3.8 ft*	11.28
Well 6	*3.3 ft*	11.34

A data logger was installed in each monitoring well to measure changes in observed groundwater levels over time. The Port will prepare a site-specific hydrologic report for the Gog-le-hi-te site in Spring 2026 to include one year of groundwater data. The Port anticipates that groundwater levels will be higher in elevation (closer to the soil surface) in the early growing season to match water levels in the existing onsite wetland. The Port will utilize

information from the hydrologic report to refine the grading concept, if applicable, during final design.

3.3.2.3 Anticipated Future Conditions

Confluence has developed preliminary grading and planting plans for the proposed mitigation work to occur on the proposed Gog-le-hi-te mitigation site. These plans are included as Appendix J. The plan set includes a proposed planting schedule showing proposed plant species, size, spacing, and layout for the proposed wetland reestablishment, wetland enhancement.

Proposed Hydrologic Conditions

Wetland hydrology will be established within the wetland creation areas through the excavation and removal of soil to intercept existing shallow groundwater, which is currently anticipated to occur between 3 to 4 feet below the existing soil surface based on water elevations within the exiting onsite wetland. The main portion of the wetland creation area will include multiple hummocks that will range between 11 and 13 feet in elevation. The purpose of this layout is to create areas with differing hydrologic regimes to support the development of a variety of wetland species.

Future Secessional Communities

The proposed plant list for the mitigation area is included in Appendix J. The mitigation concept is to establish a mixed deciduous and evergreen forested wetland with an understory of woody shrubs interspersed with areas of seasonal inundation. It is anticipated that establishment of these communities will take between 10 and 25 years. The anticipated succession progression the Gog-le-hi-te wetland community within the wetland mitigation area is summarized in Table 6.

Table 6. Anticipated successional communities on Gog-le-hi-te mitigation site

Community	Year 1	Year 5	Year 10	Year 25+
Forested Wetland	*Scrub shrub dominated*	*Scrub shrub dominated*	Deciduous forest, scrub shrub understory	Mixed deciduous evergreen forest

The mitigation site is anticipated to provide increased value for improved water quality, hydrologic function, and habitat function. Improved water quality and hydrologic function will result from the creation of a larger depressional area with no defined outlet with over 50 percent of the wetland as seasonally ponded or inundated. Seasonal water depths within the wetland are anticipated to be between one and two feet deep. Habitat value will be increased by developing more diverse hydroperiods, increasing the richness of plant species, and establishing at least a moderate level of interspersed habitats. Brush piles and snags will be

installed to provide special habitat features not currently present onsite. If no mitigation actions are taken, the majority of the Gog-le-hi-te area will remain upland dominated by Himalayan blackberry. The existing onsite wetland will continue to provide a relatively monotypic single wetland community with limited diversity due to seasonal ponding, which limits vegetation establishment.

3.3.2.4 Offsite Impacts

The Gog-le-hi-te mitigation site is entirely surrounded by vacant Port-owned property and surrounded by an existing levy system. The development of the mitigation site will not impact adjacent offsite properties.

3.3.3 Advance Mitigation Site Credits

The Port will apply credits from the Port's Lower Wapato Creek Advance Mitigation Site. An Advance Mitigation Use Plan will be prepared during final design as part of the construction permit application process.

The following is a summary from the "Final Advance Mitigation Plan, Lower Wapato Creek Habitat Project (Port 2021). The Lower Wapato Creek Advance Mitigation Site is located on 18.52 acres of Port-owned land approximately 0.46 mile from the mouth of Wapato Creek, where it enters into the Blair Waterway (Commencement Bay). It is owned, maintained, and managed by the Port. The site provides allocatable credits for the mitigation of palustrine and estuarine wetland impacts and also provides fish habitat credits.

The Port Parcel 117 site is located within the service area for the Lower Wapato Creek Advance Mitigation Site, which was specifically developed to provide credits for Port development projects, such as the proposed snail eradication project on the two affected parcels (0321263045 and 0321352064).

The Port completed the Year 1 post construction monitoring for the Lower Wapato Creek Advance Mitigation Site in 2024. The site is currently exceeding anticipated performance standards, has already achieved Year 3 performance for several criteria, and is on track to achieve the overall goals and objectives of the mitigation project. (GeoEngineers 2025)

The Port will allocate available mitigation credits per the procedure identified in the Final Advance Mitigation Plan. The Port proposes using 0.7554 estuarine credits available at the mitigation site. EEM wetland credits are available for use for authorized impacts to estuarine wetlands and palustrine wetlands. All the proposed impacts from the snail eradication project are to lower quality palustrine wetlands.

3.4 Construction Techniques, Equipment, Timing, Sequencing, and Best Management Practices

The Port has initiated site design work for the Parcel 12 and Gog-le-hi-te mitigation sites. Specific information pertaining to onsite construction, timing, and BMPs are in development and will be provided during the site review process for the mitigation sites. This is anticipated to occur in early 2026. Although specifics information is not available at this time, the Port makes the following commitments regarding construction of the project mitigation at both locations:

- Construction will occur using standard construction equipment that will access the site through existing access points.
- Construction sequencing will include: 1) installation of TESC measures; 2) debris removal, site clearing and grubbing, 3) rough grading and soil preparation, 4) installation of habitat features; 5) fine grading; 6) site stabilization; 7) plant establishment.
- Construction will occur during daylight hours.
- Clearing and grading will occur during the seasonally dry period (July through October).
- Planting will occur during the wet season when plants are dormant (November through March).
- The Port will employ BMPs consistent with the project permit conditions and Port standard specifications.

3.5 Mitigation Goals, Objectives, Performance Standards, and Success Criteria

Mitigation goals and objectives for the Port Parcel 117 snail eradication project are as follows:

1. To reestablish 2.901 acres of wetland adjacent to the existing onsite wetland on the Port Parcel 12 site.
2. To enhance 0.999 acre of existing degraded wetland on the Port Parcel 12 site.
3. To reestablish 1.000 acres of wetland adjacent to the existing onsite wetland on the Gog-le-hi-te mitigation area site.

4. To enhance 0.832 acres of existing degraded wetland on Gog-le-hi-te mitigation site that are currently dominated by invasive, non-native vegetation or are lacking an established understory of woody plants.
5. To enhance 1.464 acres of wetland buffer at the Port's Parcel 12 Site.
6. To allocate 0.7554 available EEM wetland mitigation credits at the Port's Lower Wapato Creek Advance Mitigation Site as mitigation for the Port Parcel 117 snail eradication project impacts not covered by the permittee-responsible compensatory mitigation implemented at Parcel 12 and the Gog-le-hi-te enhancement site.

Mitigation provided via credit allocation at the Lower Wapato Creek Advance Mitigation Site will be managed, monitored, and maintained as described in the "Final Advance Mitigation Plan, Lower Wapato Creek Habitat Project" (Port 2021). Monitoring, maintenance, and contingency actions for the Lower Wapato Creek Advance Mitigation Site are not discussed further.

The wetland establishment, wetland enhancement, and buffer enhancement at the Port Parcel 12 and the wetland enhancement at the Port's Gog-le-hi-te wetland enhancement site will be monitored for a period of at least 5 years as required by TMC 13.11.230(B)(4)(h). Specific performance standards and success criteria are identified in Table 7.

Table 7. Performance standards and success criteria

Performance Standard	Monitoring Year					
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Plant Survival (%)	100%	80%	—	NC	—	NC
Native Woody Species Cover (%)[1]	NC	—	—	60%	—	80%
Invasive Species Cover (%)	NC	≤10%	—	≤10%	—	≤10%
Wetland Hydrology[2]	NC	1 primary or 2 secondary wetland hydrology indicators present	—	1 primary or 2 secondary wetland hydrology indicators present	—	1 primary or 2 secondary wetland hydrology indicators present

NC No criterion; because the majority of plantings will be bare root or live stake, native species cover will be the primary success criterion after year 1
— No monitoring for this criterion that year
1 Includes installed, existing, and volunteer native tree and shrub species.
2 Wetland reestablishment area only.

4.0 MONITORING PLAN

The wetland reestablishment, wetland enhancement, and buffer enhancement areas will be monitored for 5 years to confirm site conditions are trending toward meeting the goals and objectives described in Section 3.4. If final success criteria are not met, the monitoring plan will be amended in consultation with the Port and the City and the monitoring period may be extended, if necessary.

4.1 Monitoring Frequency

The mitigation areas will be monitored annually. Yearly monitoring activities are described in Section 4.1.2. Associated monitoring reports will be prepared at the following frequency:

- As-Built and Site Conditions Report (Year 0)
- Monitoring Reports including quantitative data summary (Years 1, 3, and 5)
- Site Condition Technical Memoranda including photo documentation (Years 2 and 4)

4.1.1 As-Built and Site Conditions Report

Once construction and planting of the mitigation areas are complete, an as-built summary will be prepared to document that the mitigation areas were constructed per the approved design and to document any changes or modifications made during construction. This report will form the basis for all the following monitoring reports.

4.1.2 Yearly Monitoring

The performance standards to be monitored during each year are shown in Table 4. Yearly monitoring will occur in the fall before deciduous leaves have dropped. The yearly monitoring events will include a quantitative study of the mitigation areas in Years 1, 3, and 5 as described in Section 4.2. Monitoring in Years 2 and 4 will include a site visit to perform a visual inspection and collect photo documentation.

4.2 Monitoring Methods

4.2.1 Plant Survival (Year 1)

The majority of the mitigation areas will be revegetated with bare root and live stake plant materials, which generally have a higher rate of successful establishment for sites like the Port Parcel 12 and Gog-le-hi-te locations than do container plants. Evaluating vegetation cover immediately following the installation of bare root and live stake plant materials using the standard methods described in Section 4.2.2 are generally ineffective because it may take one or two seasons for the plantings to become established. A complete census of installed plant

materials is impractical at either Port Parcel 12 or Gog-le-hi-te because of the large areas and amount of plants.

To determine percent survival during the first site visit (Year 1), an adapted line intercept method, described below, will be used at both the Port Parcel 12 and Gog-le-hi-te sites:

1. Establish transects based on as-built conditions so that the transects will assess at least 20% of the total planting areas.
2. Permanently mark both ends of each transect with stakes for use in future percent cover estimates.
3. Identify, count, and log species of all living or dead installed plants in an approximately 10-foot-wide belt, 5 feet on both sides of the centerline.
4. Calculate percent survival by summing all the live plants then dividing by the total number of plants installed along the length of the transect per the as-built report to get an estimate of percent survival assumed to represent the mitigation area.

4.2.2 Native and Invasive Species Percent Cover

The line-intercept method will be used to determine the percent cover of native trees and shrubs and invasive trees, shrubs, and herbs along each of the permanently marked transects. After laying a tape measure along a transect, the lengths of tape directly under the branches and foliage of a tree or shrub will be recorded along with the species. The percent cover of each species will then be calculated by dividing the sum of lengths intercepted for that species by the total length of the transect.

4.2.3 Wetland Hydrology

The Corps (2010) wetland hydrology determination method will be used to determine the presence or absence of primary and secondary wetland hydrology characteristics within the wetland reestablishment area. At least one primary or two secondary indicators of wetland hydrology need to be present within the wetland reestablishment area for this performance standard to be met.

4.2.4 Photo Documentation

Photographs will be taken at permanent photo stations established during the as-built site visit. During monitoring events, other photographs may be taken as well to document site conditions. Photos must be dated and clearly indicate the direction the camera is facing. Photo pans are recommended.

4.3 Reports

Results of monitoring at both the Port Parcel 12 and Gog-le-hi-te will be presented in consolidated mitigation reports.

The as-built and site conditions report will be submitted to regulatory agencies prior to December 31 following material completion of the proposed mitigation construction. Annual monitoring reports will be submitted to the regulatory agencies prior to December 31 following monitoring years 1, 3 and 5. Results of the interim site visits will be summarized in brief technical memoranda which will be submitted to the regulatory agencies prior to December 31 in years 2 and 3.

Year 1, 3 and 5 monitoring reports will include the following:

- Date of survey
- A narrative description of methods and contingency measures taken
- Data tables
- Identified planted and naturally recruited trees and shrubs
- Summary of results. Planted, recruited and volunteers will collectively be counted as survivors
- Recommendations for maintenance and contingency measures, as needed
- Color photos from each of the permanent photo points

5.0 MAINTENANCE PLAN

5.1 Watering

The sites have no water service. The use of bare root and live stake plant materials is being proposed primarily to eliminate the need for irrigation during the monitoring period. No watering is proposed; however, if plant survival is determined to be affected by drought stress, supplemental hand waterings may be recommended as a contingency action.

5.2 Invasive Plant Control

Invasive plants will be removed from the mitigation areas if overall weed coverage within a distinct area exceeds the performance criterion. Annual monitoring and targeted weed control maintenance will help to ensure that these plants are minimized and/or controlled over time.

5.3 Litter Removal

Signs of litter and/or illegal dumping will be noted during each annual monitoring visit and removed from the site periodically.

6.0 CONTINGENCY MEASURES

6.1 Percent Survival

Plant survival could be negatively affected by improper installation, diseased or infested plants, inadequate moisture, extreme weather, or anthropogenic disturbance. If mortality is greater than the stated performance criteria or occurs such that site success is jeopardized, new plants must be installed to bring the plant count back up to the initial count. Alternate comparable native species may be chosen as replacements if the dead or dying plants do not appear to be well-adapted to the site.

6.2 Native Species Cover

Native plant growth, as determined by percent cover, could be negatively affected by improper installation, diseased or infested plants, inadequate watering, extreme weather, or anthropogenic disturbance. If percent cover is not approaching 80% by the end of the fourth growing season, the cause will be investigated and corrected. Additional native plants may be added if deemed critical to meeting the 80% standard by the end of Year 5. Alternate comparable native species may be chosen as replacements if the dead or dying plants do not appear to be well-adapted to the site.

6.3 Invasive Species Cover

Dominance by invasive species could result from disturbance of the soil, a high mortality rate of the native planted vegetation, or colonization by windborne seeds. If percent cover by any combination of weedy species exceeds 10%, a weed control plan will be developed and implemented to address the specific circumstance. Control is likely to require a combination of targeted herbicide application and physical removal.

6.4 Wetland Hydrology

If monitoring indicates hydrology is not sufficient, a plan will be developed to address the cause. This may involve adjusting grading to direct flow to or withing the wetland reestablishment area or adjusting the site elevation to intercept the seasonal near surface water table.

7.0 REFERENCES

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Appendix A

GIS Database Search Results

Tacoma Open Data

Wetlands (Tacoma)

Private Member
City of Tacoma GIS

Summary

City of Tacoma's wetlands inventory managed by the Planning and Development Services staff. Data is updated as needed.

View Full Details

Download

Details

Dataset
Feature Layer

March 29, 2024
Info Updated

March 7, 2024
Data Updated

March 7, 2024



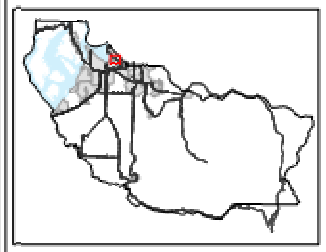
PublicGIS



Legend

Hydro - Centerlines

- Pipe
- Hydro Centerline
- Potential Wetland Review



N

0 390 780 1,560 Feet

1:19,200

Disclaimer: The map features are approximate and have not been surveyed. Additional features not yet mapped may be present. Pierce County assumes no liability for variations ascertained by formal survey.

Date: 3/29/2024 02:49 PM

U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI



March 29, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for City of Tacoma, Washington



March 20, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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Preface..... 2
Soil Map..... 5
Soil Map.....6
Legend.....7
Map Unit Legend..... 8
Map Unit Descriptions..... 8
City of Tacoma, Washington..... 10
988—Urban land, 0 to 5 percent slopes.....10

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


122° 24' 5" W
122° 23' 13" W
47° 16' 31" N
47° 16' 8" N
545300
545400
545500
545600
545700
545800
545900
546000
546100
546200
546300
5235900
5236000
5235800
5235700
5235600
5235500
5235400
5235300
11th
Taylor Way E
E 11th St
988
Puget Sound
E Alexander Ave
Alexander
Soil Map may not be valid at this scale.
Map Scale: 1:4,990 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 50 100 200 300
Feet
0 200 400 800 1200
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: City of Tacoma, Washington
Survey Area Data: Version 6, Aug 29, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 31, 2022—Aug 8, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
988	Urban land, 0 to 5 percent slopes	119.1	94.9%
Totals for Area of Interest		**125.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

City of Tacoma, Washington

988—Urban land, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2xtb5
Elevation: 20 to 540 feet
Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 180 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

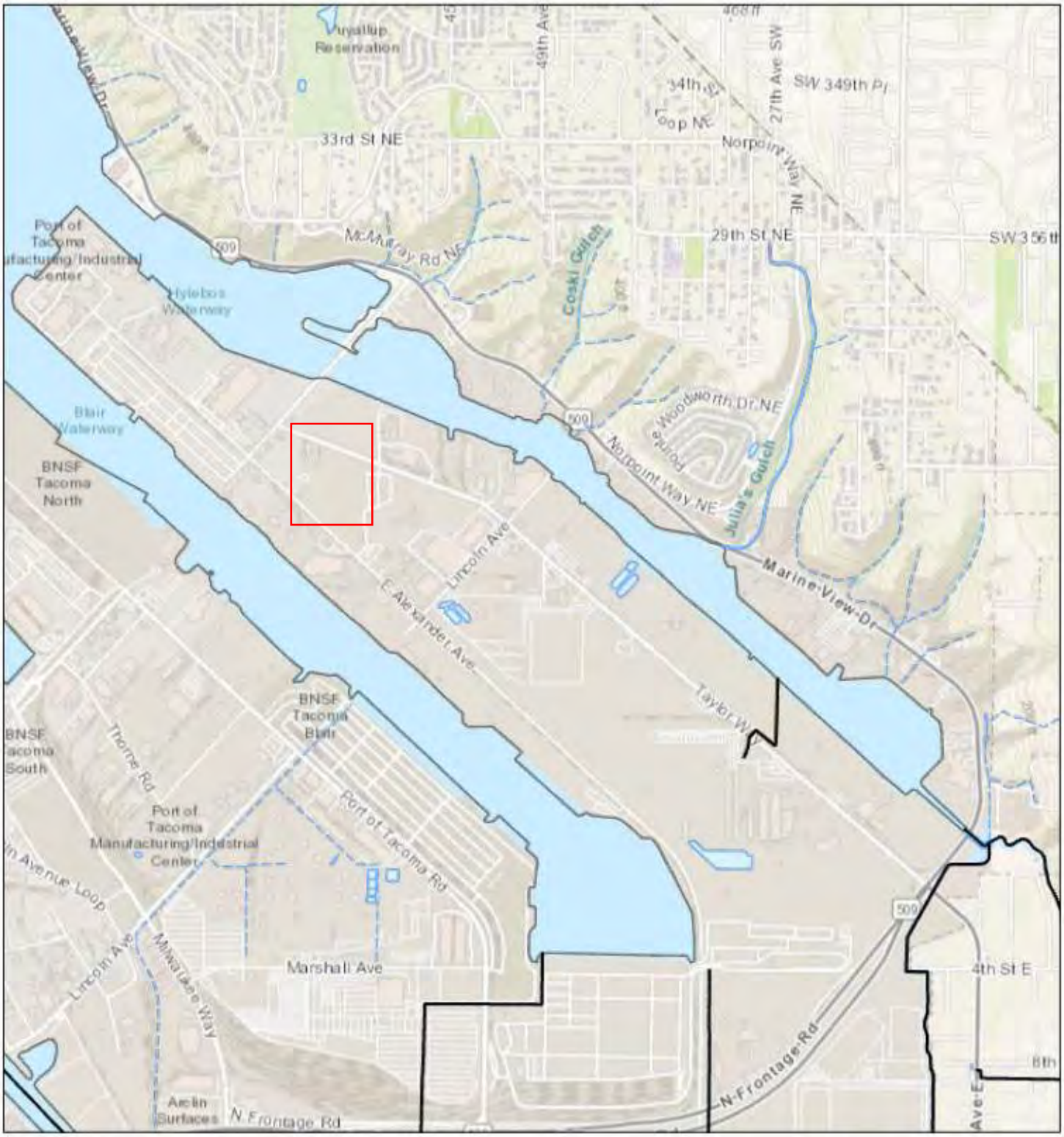
Alderwood

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F002XA004WA - Puget Lowlands Forest
Hydric soil rating: No

Anthraltic xerorthents

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F002XA004WA - Puget Lowlands Forest
Hydric soil rating: No

SalmonScape



March 29, 2024

All SalmonScape Species

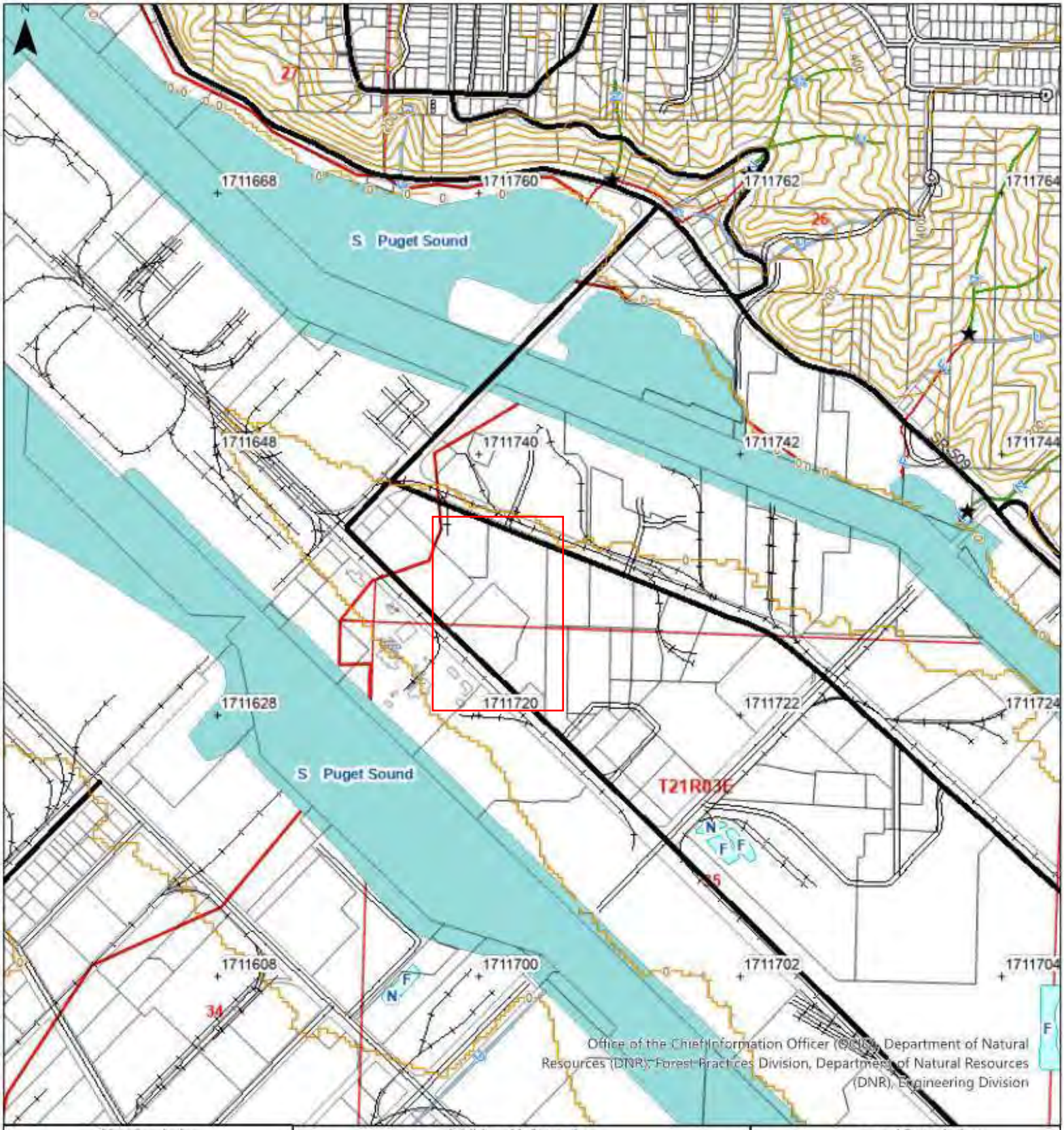
1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS/NHD, Dale Gombert (WDFW), City of Tacoma, Bureau of Land Management, Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA, WDFW

Forest Practices Activity Map - Application #_____



Map Symbols

- Harvest Boundary
- Road Construction
- Stream
- RMZ / WMZ Buffers
- Rock Pit
- Landing
- Waste Area
- Clumped WRTS/GRTS
- Existing Structure

Additional Information

Legal Description

S34 T21.0N R03.0E, S27 T21.0N R03.0E, S35 T21.0N R03.0E, S26 T21.0N R03.0E

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

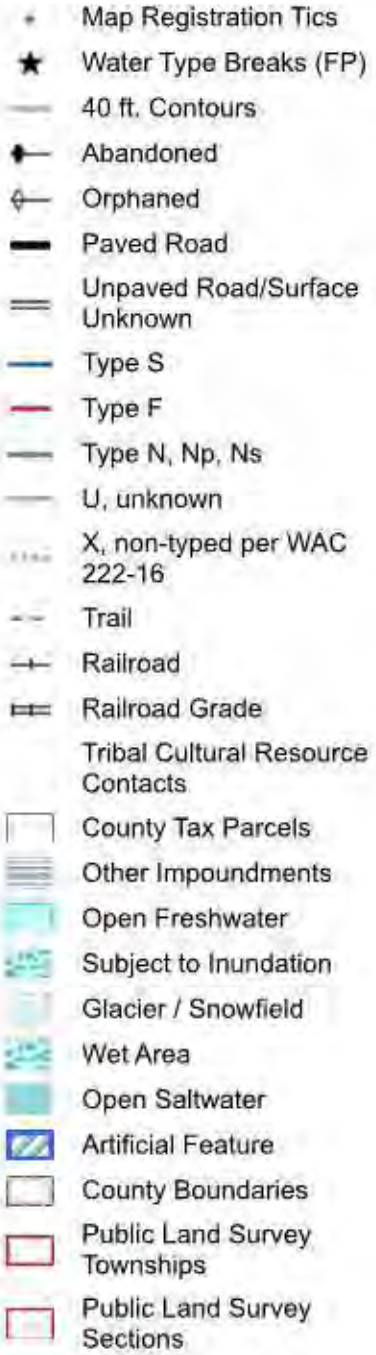
Extreme care was used during the compilation of this map to ensure its accuracy. However, due to changes in data and the need to rely on outside information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and therefore, there are no warranties that accompany this material.

Approximate Scale : 1:12,000

0 500 1,000 2,000 Feet

Date: 4/24/2024 Time: 9:43 AM

Legend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Water Type Breaks (FP)
40 ft. Contours
Abandoned
Orphaned
Paved Road
Unpaved Road/Surface Unknown
Type S
Type F
Type N, Np, Ns
U, unknown
X, non-typed per WAC 222-16
Trail
Railroad
Railroad Grade
Tribal Cultural Resource Contacts
County Tax Parcels
Other Impoundments
Open Freshwater
Subject to Inundation
Glacier / Snowfield
Wet Area
Open Saltwater
Artificial Feature
County Boundaries
Public Land Survey Townships
Public Land Survey Sections

Priority Habitats and Species on the Web



Report Date: 03/29/2024

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Wetlands	N/A	N/A	No
Freshwater Forested/Shrub Wetland	N/A	N/A	No
Freshwater Emergent Wetland	N/A	N/A	No
Freshwater Pond	N/A	N/A	No

PHS Species/Habitats Details:

Wetlands	
Priority Area	Aquatic Habitat
Site Name	COMMENCEMENT BAY TRIBUTARY WETLANDS
Accuracy	1/4 mile (Quarter Section)
Notes	VARIOUS WETLANDS ASSOCIATED WITH SMALL COMMENCEMENT BAY OF SOUTH PUGET SOUND TRIBUTARIES INCLUDING HYLEBOS AND WAPATO CREEK DRAINAGES.
Source Record	902561
Source Dataset	PHSREGION
Source Name	NAUER, DON WDW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Forested/Shrub Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSS1Fx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

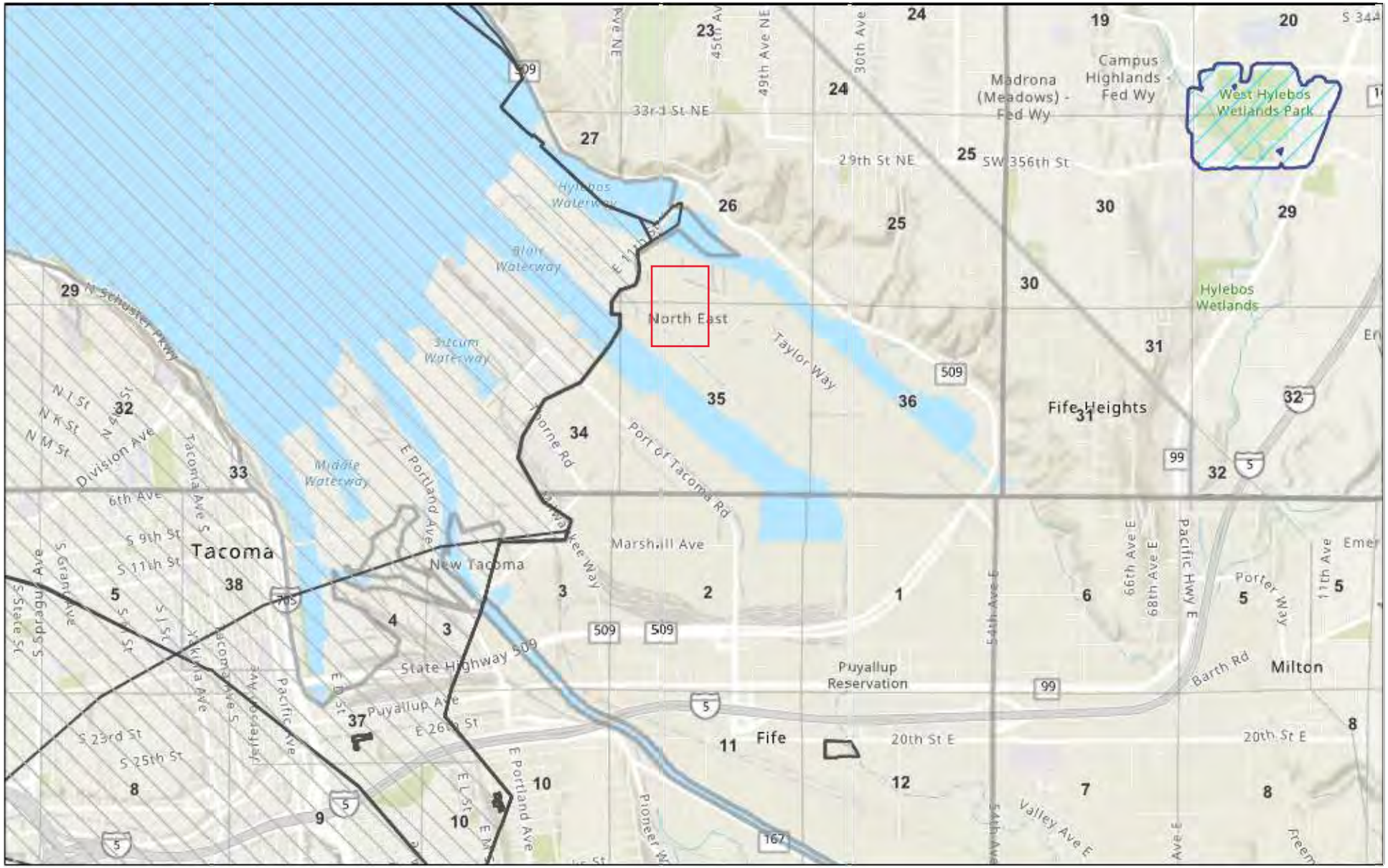
Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1Cx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Pond	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Pond - NWI Code: PUSC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necesssary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

WNHP Rare Plant and Ecosystem Locations



3/29/2024, 2:38:11 PM

1:67,180

0 0.38 0.75 1.5 mi

0 0.5 1 2 Km

Known Rare Plants and Rare & High-quality Ecosystems

Rare and/or High Quality Ecosystem

Historical Rare Plants and Rare & High-quality Ecosystems

Rare Plant

Public Land Survey Sections

Public Land Survey Townships

State Boundary

County Boundaries

Esri, HERE, NGA, USGS, FEMA, City of Tacoma, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/

WNHP Plant & Ecosystem Map Viewer

KNOWN PLANT AND ECOSYSTEM LOCATIONS REFLECT KNOWN OCCURRENCE LOCATIONS BUT MAY NOT REFLECT ALL OCCURRENCES OF RARE PLANTS OR ECOSYSTEMS.

Appendix B
Wetland Delineation Methods

Port of Tacoma Parcel 117: Critical Areas Study: Appendix B

CONFLUENCE ENVIRONMENTAL COMPANY WETLAND DELINEATION METHODS

Prepared by:

Confluence Environmental Company
2024

146 N Canal Street, Suite 111 • Seattle, WA 98103 • www.confenv.com

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2.0 WETLAND CRITERIA....1

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2.2 Hydric Soils....3

2.3 Hydrology....4

3.0 REFERENCES....4

This appendix describes the methods used to confirm the presence or absence of wetlands in a study area.

1.0 METHODOLOGIES

Confluence delineates the boundaries of wetlands using the "Routine Determinations for Areas Less Than 5 Acres in Size" method described by the U.S. Army Corps of Engineers (Corps) in the Corps of Engineers Wetlands Delineation Manual (Delineation Manual; Corps 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Regional Supplement; Corps 2010). The Regional Supplement was part of a nationwide effort to address regional wetland characteristics and improve the accuracy and efficiency of wetland-delineation procedures. The Regional Supplement uses the best available science to address regional differences in climate, geology, soils, hydrology, and plant and animal communities that cannot be addressed in a single national document, such as the Delineation Manual. The Regional Supplement was designed for use with the 1987 Delineation Manual and all subsequent versions. Where differences in the 2 documents occur, the Regional Supplement takes precedence over the 1987 Delineation Manual (Corps 2010). The Regional Supplement was developed to clarify the indicators of hydrophytic vegetation, hydric soils, and wetland hydrology found in the region (these indicators are discussed in detail in Section 2.0). It is important to note that areas that may have been determined to be wetlands under the 1987 Delineation Manual may not be determined to be wetlands under the Regional Supplement, and vice versa.

Confluence uses the PLANTS Database (NRCS 2024) for scientific names and the 2020 National Wetland Plant List (Corps 2020) to determine the wetland indicator status of plants. Wetlands are classified using the Cowardin Classification System (FGDC 2013). Confluence determines the wetland rating using Washington State Department of Ecology's Wetland Rating System for Western Washington (Hruby 2014). The National Wetland Inventory is also researched to determine if wetlands have previously been identified on the property (USFWS 2024).

The locations of test plots, soil cores, and wetland edges on a project property are recorded using a differential Global Positioning System with sub-meter accuracy. Delineated and surveyed wetland boundaries are subject to verification and approval by jurisdictional agencies.

2.0 WETLAND CRITERIA

There is specific technical language that applies to the study of wetlands. This section briefly explains the language Confluence uses in its wetland delineation reports.

The identification of wetlands is based on 3 criteria: hydrophytic vegetation, hydric soils, and hydrology. Each criterion has a number of indicators that can be used to determine whether the criterion has been met. The Corps, which is the federal authority on the regulation of wetlands,

has developed the guidance and the data form that are the standards used in all wetland determinations. The information presented below is based on their Delineation Manual (Corps 1987) and Regional Supplement (Corps 2010).

In order to confirm the presence of a wetland, data are collected from representative test plots chosen within and outside of a potential wetland. The test plots are representative of particular vegetative, topographic, and hydrologic features in the vicinity. Within the test plots particular data (see sections below) about vegetation, soils, and hydrology are collected to determine whether wetland characteristics are present. Plots that meet all 3 wetland criteria are wetland plots; plots that do not meet all 3 wetland criteria are upland (i.e., nonwetland) plots. The test plots (along with topographic and vegetative shifts) then inform the delineation of wetland boundaries.

2.1 Hydrophytic Vegetation

Vegetation is often the first visual cue that an area is a wetland. Similarly, vegetation often also signals the shift from wetland to upland. The question regarding plants to be answered when performing a wetland delineation is, "Is the vegetation hydrophytic?" That is, is the vegetation of the variety that is adapted to live in wetter-than-average conditions? To determine the answer, there are a few resources and steps to follow. First, the indicator status for each plant present in the test plot is determined from the National Wetland Plant List (Corps 2020). The indicator status is a continuum from almost exclusively occurring in wetlands (obligate wetland plants, or OBL) to almost never occurring in wetlands (obligate upland plants, or UPL). The middle ground between those 2 extremes is known as a facultative plant (or FAC), which is found equally in wetland and upland environments. The FAC category has 2 further gradations: facultative upland plants (FACU), which are plants that are usually found in uplands, and facultative wetland plants (FACW), which are plants that are usually found in wetlands.

After the status of each plant species in the test plot has been determined, the hydrophytic vegetation indicators can be applied. The application of the indicators is performed sequentially, and once one is "passed," the box for hydrophytic vegetation is checked, and the process continues to the next criterion. The first hydrophytic vegetation indicator is the "Rapid Test," which means with a quick visual survey, all the plants in the test plot are either OBL or FACW. The second test is the "Dominance Test." For the Dominance Test, the total number of dominant species in the test plot is divided by the number of species that are OBL, FACW, or FAC. The resulting percentage must be greater than 50 to pass this test. The third test is the "Prevalence Index." The Prevalence Index is a weighted average of the absolute cover of all the plant species present in the plot, regardless of dominance. There are also 2 other, less common, indicators: morphological adaptations (e.g., buttressed trunks) and nonvascular plant species (e.g., sphagnum moss).

2.2 Hydric Soils

The soils tell the story about the presence of water over time. The National Technical Committee defines a hydric soil as, "A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USDA Soil Conservation Service 1994). The question to be answered here is, "Has water been present long enough and recently enough to form hydric soils?" In order to examine the soil characteristics, a test pit must be dug, usually to about 18 inches. A sliver of soil from the test pit is extracted with a shovel (i.e., the soil profile) to examine the layers. The thickness, color, texture, redoximorphic features, and any other interesting information about each layer are observed and recorded. Those features are described more fully below.

- **Thickness.** Layers are measured to the nearest inch. Usually, each soil profile has at least 2 layers.
- **Color.** Color is determined by comparison to a color chart. The industry standard is the Munsell Soil-Color Chart, which assigns each color a designation for hue, value, and chroma (e.g., 10YR 3/2, where 10YR=hue, 3=value, and 2=chroma).
- **Texture.** The precision of texture description for the purpose of wetland delineation is at a general scale. The Washington State University texture chart (Cogger 2010) is often used, but the delineator just needs to determine if the soil is sandy or loamy/clayey.
- **Redoximorphic Features.** The most common redoximorphic features are concentrations or depletions of iron in the soil matrix. Concentrations occur as red or yellow deposits, and depletions occur as grayish deposits.

When the soil profile is fully described, it can be determined whether any of the layers meets a hydric soil indicator. The presence of any hydric soil indicator signifies a hydric soil, although a soil may be hydric and not meet any of these indicators. There are 19 hydric soil indicators in our region, 2 of which were observed at the site (Corps 2010). Additional hydric soil terminology definitions are in the sidebar.

- **F6—Redox Dark Surface.** A soil layer at least 4 inches thick, entirely within the upper 12 inches of the soil with:

More Hydric Soils Definitions
(adapted from Corps 2010)

Matrix: the dominant soil volume in a given soil layer

Depleted Matrix: the volume of a soil horizon in which soil processes have removed or transformed iron, creating colors of low chroma and high value, specifically:

- Value ≥5, chroma = 1, with or without redoximorphic features
- Value ≥6, chroma = 1 or 2, with or without redoximorphic features
- Value of 4 or 5, chroma =2, ≥2% distinct or prominent redoximorphic features
- Value of 4, chroma =1, ≥2% distinct or prominent redoximorphic features

Distinct: readily seen, but contrasting* moderately with comparison color

Prominent: readily seen and contrasting* greatly with comparison color

- matrix value ≤3, chroma ≤1, and 2% or more distinct or prominent redoximorphic concentrations, or

matrix value ≤3, chroma ≤2, and 5% or more distinct or prominent redoximorphic concentrations.

- **S5—Sandy Redox.** A soil layer starting within 6 inches of the soil surface that is at least 4 inches think and has a matrix with 60% or more chroma of 2 or less with 2% or more distinct or prominent redoximorphic concentrations occurring as soft masses or pore linings.

2.3 Hydrology

Wetland hydrology is the broadest criterion and has to do with signs of saturation and inundation in the test plot. While hydrophytic vegetation and hydric soils are the result of hydrology, they remain even during the dry season, whereas wetland hydrology can be less apparent or absent during the dry season. The hydrology indicators are broad enough to encompass characteristics that may be present even during the dry season. Hydrology indicators are in 4 groups:

- Group A is based on direct observation of surface or ground water.
- Group B consists of evidence that the site is subject to inundation.
- Group C consists of other evidence that soil is or was saturated.
- Group D consists of landscape, vegetation, and soil characteristics indicating contemporary wet conditions.

The indicators are further divided into 2 categories: primary and secondary. A test plot must have either 1 primary or 2 secondary indicators to pass the hydrology criterion. Primary and secondary indicators observed during this delineation are recorded on the wetland delineation data forms in Appendix C.

3.0 REFERENCES

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Appendix C
Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 1229 E Alexander Ave City/County: Tacoma/Pierce Sampling Date: 3/12/24
Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-1
Investigator(s): K. McArthur / A. Michniak Section, Township, Range: T21N R3E S21
Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): A Lat: 47.271153°N Long: 122.394017°W Datum: WGS 84
Soil Map Unit Name: urban land NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation ✓, Soil ✓, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Cloudy/raining
Site has been filled w/ dredge spoils & is routinely mowed.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 6')			
1. Mowed grass	100	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size: 6')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: TP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					Sandy loam	wood @ 6"
8-16	10YR 2/1	75	2.5Y 3/2	20	D	M	Sandy loam	
			10YR 4/4	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 4"

Water Table Present? Yes ✓ No ___ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Standing water w/in 20 ft of TP

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 1229 E Alexander Rd City/County: Tacoma/Pierce Sampling Date: 3/12/24
Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-2
Investigator(s): K. McArthur / A. Michniak Section, Township, Range: T21N R3E S15
Landform (hillslope, terrace, etc): valley Local relief (concave, convex, none): Convex Slope (%): 0
Subregion (LRR): A Lat: 47.271238°N Long: 122.394255°W Datum: WGS 84
Soil Map Unit Name: Urban land NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ✓, Soil ✓, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
cloudy + sunny
site is filled w/ dredge spoils + routinely mowed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ____)			
1. HBB*	15	✓	FAC
2. English plantain	15	✓	FACU
3. mowed grass	15	✓	FAC
4. birdsfoot trefoil	15	✓	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		
% Bare Ground in Herb Stratum 40**			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
* Less than 6" tall; long tendrils
** Moss significant presence

SOIL

Sampling Point: TP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					Sandy loam w/ cobble	
6-12	10YR 5/6	50					Sandy loam w/ cobble	
	10YR 2/2	50						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators observed

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 1229 E Alexander Rd City/County: Tacoma/Pierce Sampling Date: 3/12/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-3

Investigator(s): K. McArthur/A. Michniak Section, Township, Range: T21N R3E S15

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): convex Slope (%): 0

Subregion (LRR): A Lat: 47.271353°N Long: 122.394722°W Datum: WGS84

Soil Map Unit Name: urban land NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ✓, Soil ✓, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: cloudy/rainy

Site has been filled w/ dredge spoils & is routinely mowed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. mowed grass	100	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: TP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Sandy loam	
4-8	10YR 3/2	70	10YR 5/8	30	C	M	Sandy loam	
8-16	10YR 2/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 4"

Water Table Present? Yes ✓ No ___ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water within 5 ft

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 1229 E Alexander Rd City/County: Tacoma/Pierce Sampling Date: 3/12/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-4

Investigator(s): K. McArthur/A. Kleczniak Section, Township, Range: T21N R3E S15

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): A Lat: 47.27388°N Long: 122.394389°W Datum: WGS 84

Soil Map Unit Name: Urban land NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ✓, Soil ✓, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Sunny Wetland A. Flags A-1 to A-13
Site is routinely mowed & filled w/ dredge spoils

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Mowed Grass	100	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: TP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/1	60	10YR 3/3	40	C	M	Sand w/ cobbles	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted fill

Depth (inches): 9"

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 2"

Water Table Present? Yes ✓ No ___ Depth (inches): 9"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface H2O within 3 ft of test pit

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 1229 E Alexander Rd. City/County: Tacoma/Pierce Sampling Date: 3/12/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-5

Investigator(s): K. McArthur/A. Michniak Section, Township, Range: T21N R3E S15

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): none Slope (%): 1-2%

Subregion (LRR): A Lat: 47.273809°N Long: 122.394162°W Datum:

Soil Map Unit Name: Urban land NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ✓, Soil ✓, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:
Sunny
site filled w/ dredge spoils & is routinely mowed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. mowed grass	80	✓	FAC
2. birdfoot trefoil	15		FAC
3. HBB	5		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

Sampling Point: TP-5

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100					Sandy loam	
9-14	10YR 3/2	97	10YR 6/6	3	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators observed

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 1229 E Alexander Rd City/County: Tacoma/Pierce Sampling Date: 3/12/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-6

Investigator(s): K. McArthur / A. Michalak Section, Township, Range: T21N R3E S21

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): none Slope (%): 1-2%

Subregion (LRR): A Lat: 47.273732°N Long: 122.393632°W Datum: WGS84

Soil Map Unit Name: urban land NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation ✓, Soil ✓, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes _____ No ✓	

Remarks:
Cloudy
Site filled w/ dredge spoil & routinely mowed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. HBB	20	✓	FAC
2. Mowed Grass	80	✓	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Sampling Point: TP-6

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 2/2	100					sandy loam w/ cobble	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

assumed not thick dark surface b/c of lack of hydric indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators observed

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 1229 E Alexander Rd City/County: Tacoma/Pierce Sampling Date: 3/12/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-7

Investigator(s): K. McArthur / A. Michniak Section, Township, Range: T21N R3E S15

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): convex Slope (%): 0

Subregion (LRR): A Lat: 47.273750°N Long: 122.393501°W Datum: WGS 84

Soil Map Unit Name: urban land NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation ✓, Soil ✓, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

site filled w/ dredge spoils + routinely mowed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5')			
1. HBB	15		FAC
2. mowed grass	80	✓	FAC
3. softrush	5		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: TP 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/2	100					sandy loam	
7-16	10YR 2/2	97	10YR 5/4	3	C	M	sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 4"

Water Table Present? Yes ✓ No _____ Depth (inches): 9"

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

surface water w/in 15' of Test pit

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Port of Tacoma City/County: Tacoma / Pierce County Sampling Date: 03/13/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-8

Investigator(s): AHM, NAD Section, Township, Range: 26 and 35, T21N, R3E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): A Lat: 47.2733 Long: 122.39452 Datum: WGS 1984

Soil Map Unit Name: Urban land, 0-5% slopes NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No / (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes / No ____

Are Vegetation ✓, Soil ✓, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?**	Yes X No ____
Hydric Soil Present?	Yes ____ No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks: site has various dredged fill present throughout

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15m)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1m)			
1. Mowed grass	80	✓	FAC
2. HBR	10		FAC
3. plantain	5		FAC
4. Softrush	5		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 5m)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
- Mowed grass assumed FAC

SOIL

Sampling Point: TP-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR2/1	100					sandy loam	
5-16	10YR3/1	98	10YR4/6	2	C	M	sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes X No ___ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Port of Tacoma City/County: Tacoma / Pierce County Sampling Date: 3/13/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-9

Investigator(s): MAD, AHM Section, Township, Range: 26 and 35, T21N, R3E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47, 27309 Long: 122. 39449 Datum: WGS 1984

Soil Map Unit Name: Urban land, 0-5% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation ✓, Soil ✓, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

Fill present throughout site

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5m)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1m)			
1. HYB3	10		FAC
2. Mowed grass	90	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 5m)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Mowed grass assumed FAC

SOIL

Sampling Point: TP-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100					silt loam w/sand	
7-16	10YR 3/1	70					sandy loam	
	10YR 4/1	28	10YR 4/6	2	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Port of Tacoma City/County: Tacoma/Pierce County Sampling Date: 3/13/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-10

Investigator(s): AHM, NAD Section, Township, Range: 26 and 35, T21N, R3E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): NA to Ha Slope (%): 0–1

Subregion (LRR): A Lat: 47.27653°N Long: -122.395457°W Datum: WGS 84

Soil Map Unit Name: Urban land, 0-5% slopes NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ✓, Soil ✓, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: sunny, temp in 50s

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 M)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 M)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1 M)			
1. reed canary grass	100	✓	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 5M)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: TP-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	98	10YR 4/6	2	C	M	Sandy loam	
6-16	10YR 2/1	60	10YR 5/8	2.5	c	m	Silt loam	
	10YR 3/1	35	10YR5/8	2.5	c	m		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 9"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 2"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

surface water ~ 10ft away from TP

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Port of Tacoma City/County: Tacoma/Pierce County Sampling Date: 3/13/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-11

Investigator(s): NAD, AHM Section, Township, Range: 26 and 35, T21N, R3E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): _____

Subregion (LRR): A Lat: 47.27262°N Long: -122.39537° W Datum: WGS 84

Soil Map Unit Name: Urban land, 0-5% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation ✓, Soil ✓, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Sunny, 50s

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 M)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		

Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		

Herb Stratum (Plot size: 1M)			
1. POA sp.	70	✓	FAL
2. spotted knapweed	15	✓	FAL
3. birdsfoot deervetch	5		FAL
4. Trailing blackberry	2		FAL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	92 = Total Cover		

Woody Vine Stratum (Plot size: 5M)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: TP-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Sandy loam	
6-16	10YR 3/1	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Note we assumed the soils do not meet Thick Dark Surface (A12) because of the lack of hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix D
Wetland Rating Forms

Wetland name or number Wetland 1

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 1 Date of site visit: 3/12/2024

Rated by N. Dietsch, A. Michniak Trained by Ecology? ☑ Yes ☐ No Date of training 23-Nov

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map ArcGIS World Imagery

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	L	
Landscape Potential	H	H	L	
Value	H	H	L	**Total**
Score Based on Ratings	7	8	3	**18**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number Wetland 1

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☑ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wetland 1

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	0
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	**4**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source migrating waterfowl Yes = 1 No = 0	1
Total for D 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 or 4 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number Wetland 1

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

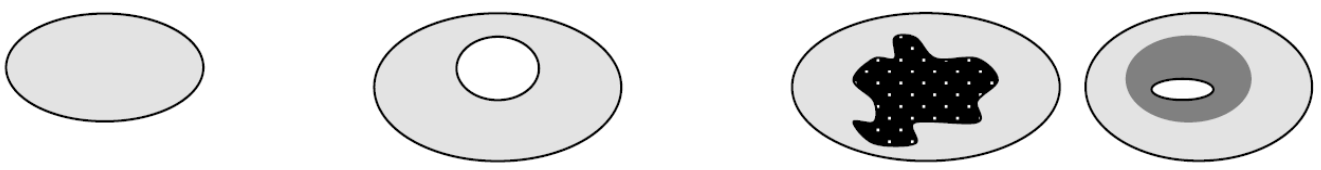
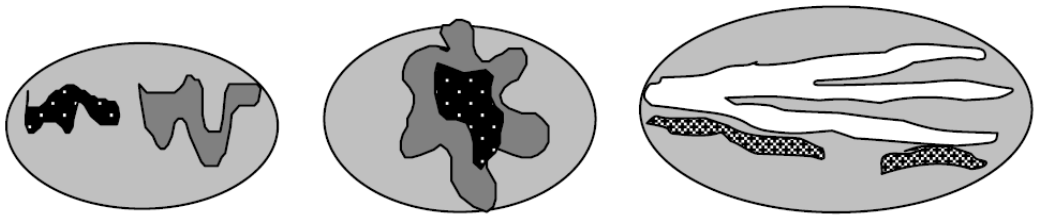
D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon		
● Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☑ ● Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number Wetland 1

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	0

Wetland name or number Wetland 1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by* ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	**3**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 1 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 1% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 10 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 10% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	0
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**-2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☐ **1 - 3 = M** ☑ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated* . Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	0

Rating of Value If Score is: ☐ **2 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number Wetland 1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☑ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** *.* SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Figure 1



Path: J:\Port of Tacoma_0014671\00467003_TO #1 Taylor Way & Alexander Ave Fill Area Investigation (Port of Tacoma)\GIS\Port of Tacoma\Port of Tacoma.aprx,

CONFLUENCE
ENVIRONMENTAL COMPANY

Wetland 1 Cowardin Class

Emergent

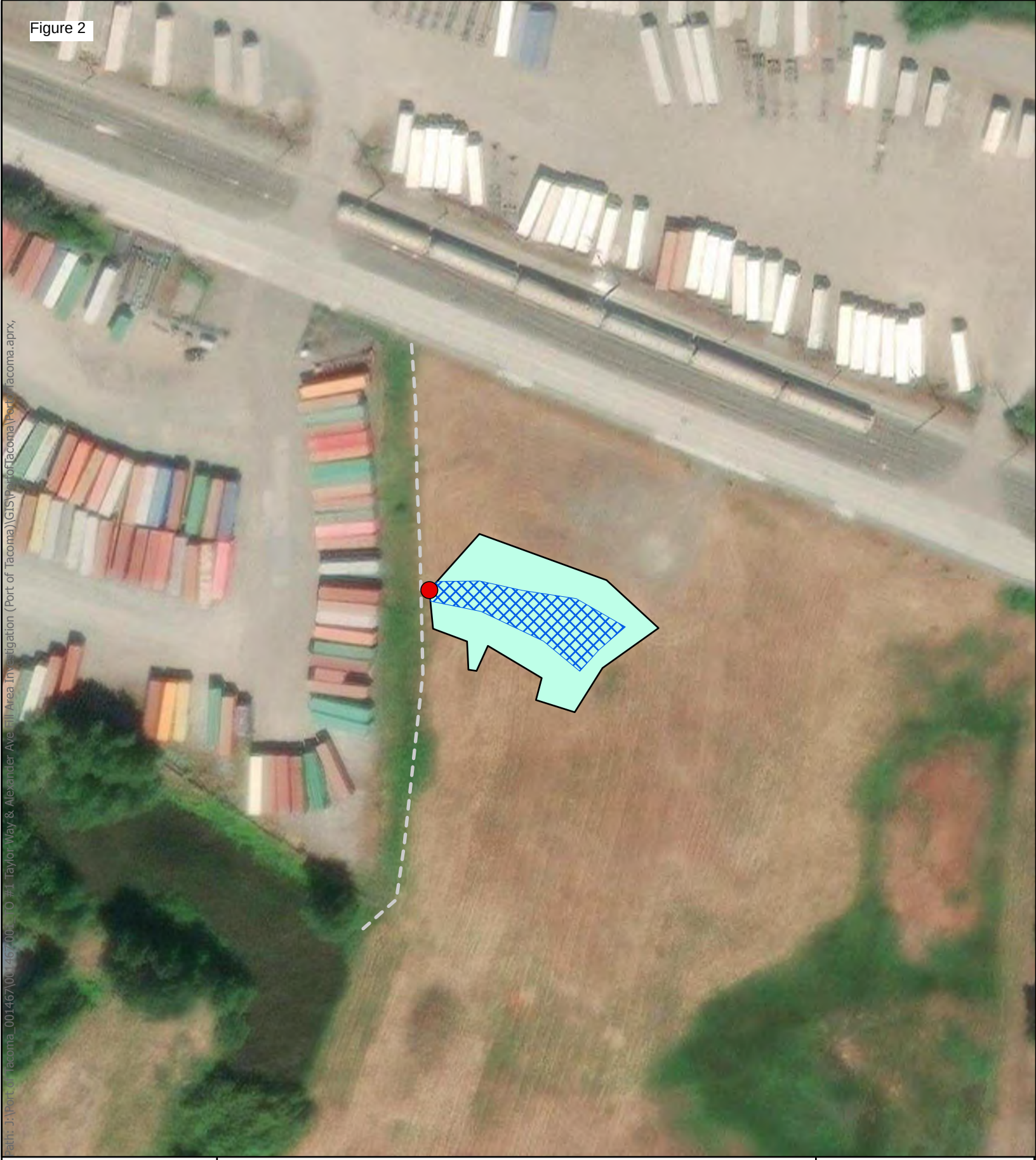
Wetland 1: 150 ft Buffer

N

0 40 80

Feet

Figure 2



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CONFLUENCE ENVIRONMENTAL COMPANY

HydroPeriod
- Saturated
- Seasonally Flooded

Ditch
Outlet

N

0 40 80 Feet

Figure 3



CONFLUENCE ENVIRONMENTAL COMPANY

Wetland 1

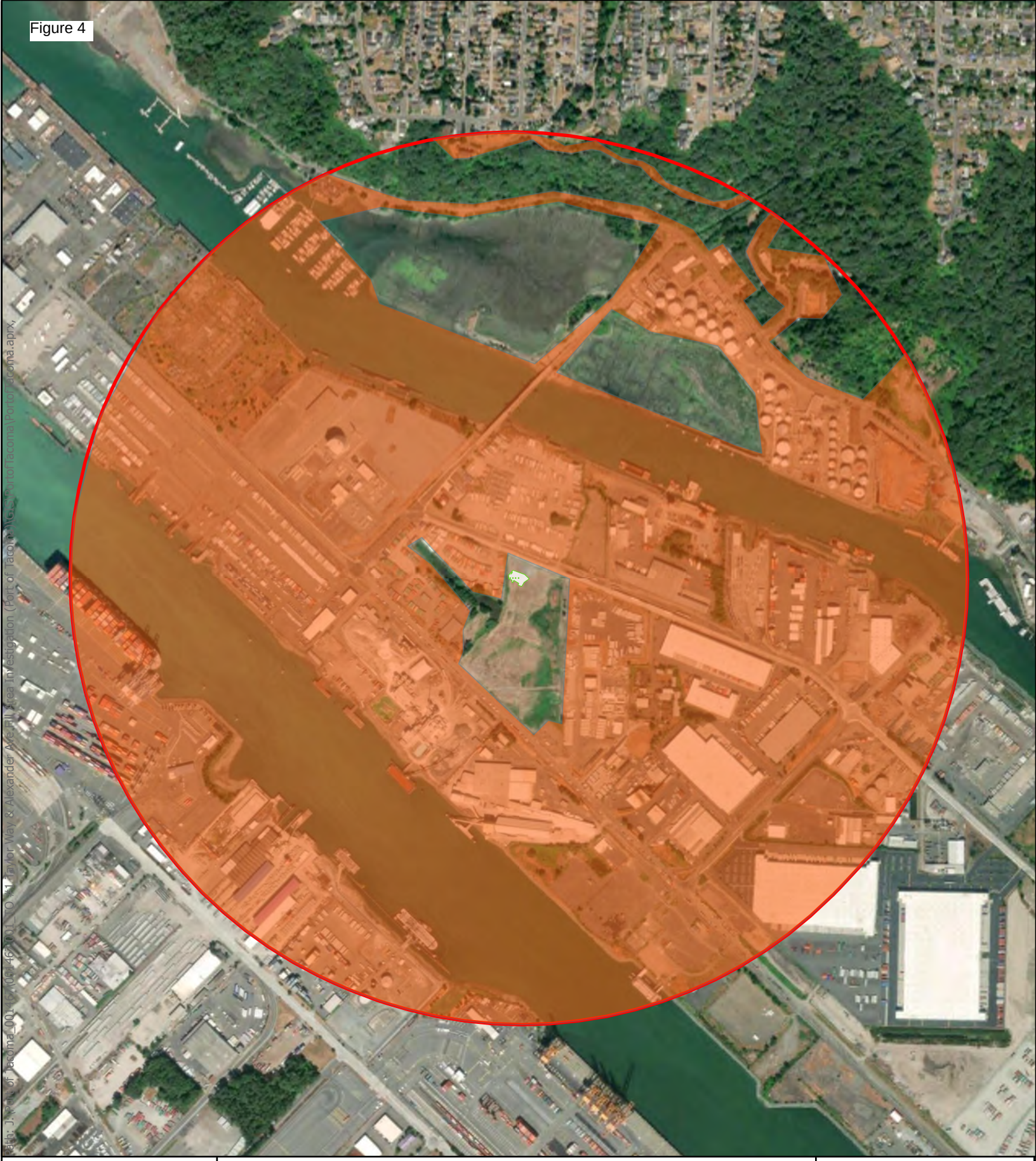
Contributing Basin

Topography- 2ft contour intervals (Tacoma)

N

0 125 250 Feet

Figure 4



CONFLUENCE ENVIRONMENTAL COMPANY

Wetland 1

Wetland 1: 1 Km Buffer

Land Use Intensity

High Intensity

Note: unshaded areas represent relatively undisturbed areas

N

0 500 1,000 Feet

Figure 5

March 29, 2024

303(d) List



Assessed Water/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

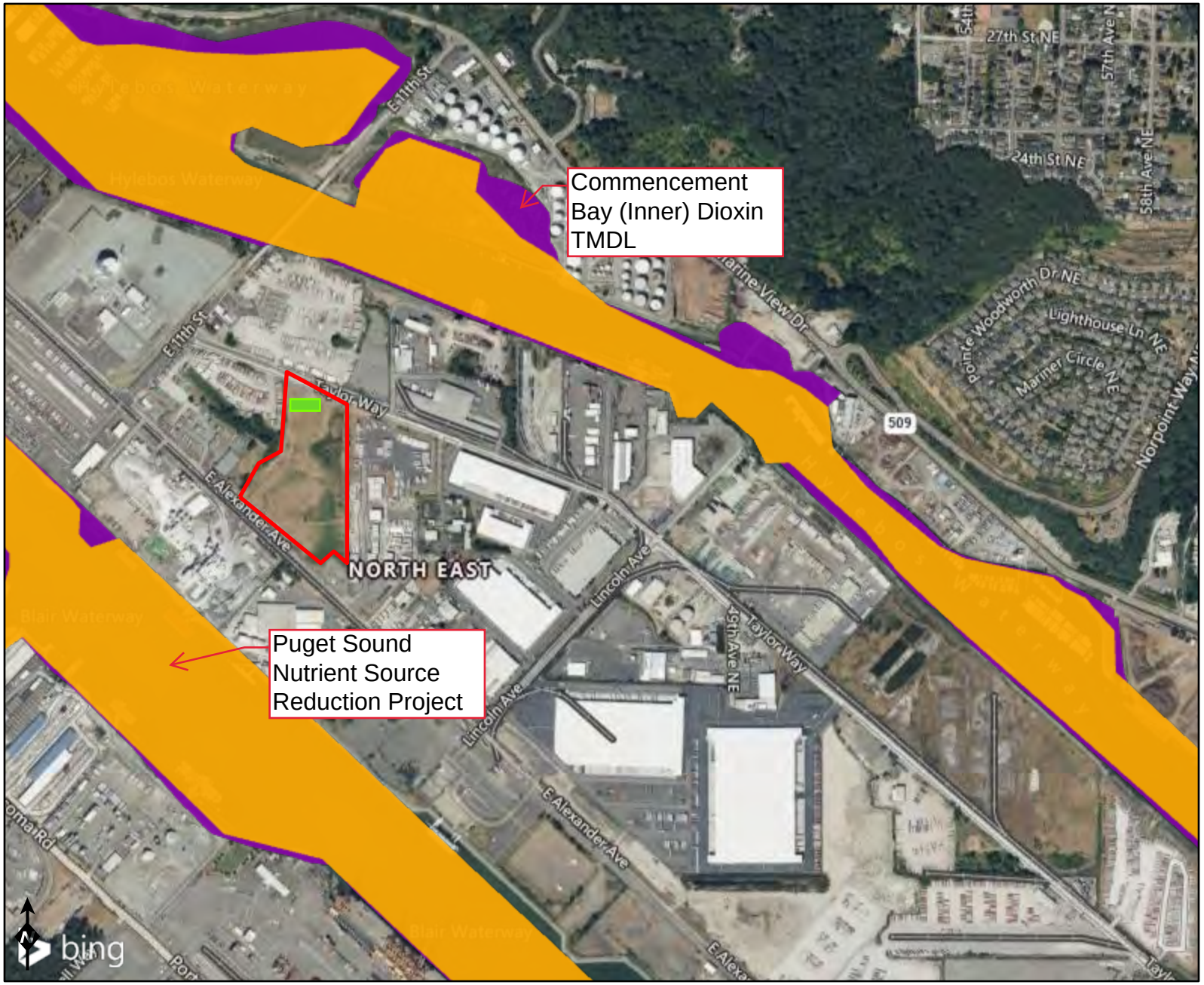
Esri Community Maps Contributors, City of Tacoma, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau,

Miles
0 0.1 0.2 0.4

Figure 6

March 29, 2024

TMDL



WQ Improvement Projects
- Approved
- In Development

Esri Community Maps Contributors, City of Tacoma, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau,

Miles
0 0.1 0.2 0.4

Wetland name or number 2

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 2 Date of site visit: 3/12/2024

Rated by N. Dietsch, A. Michniak Trained by Ecology? ☑ Yes ☐ No Date of training Nov-23

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map ArcGIS World Imagery

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		List appropriate rating (H, M, L)		
Site Potential	M	M	L	
Landscape Potential	H	H	L	
Value	H	H	L	**Total**
Score Based on Ratings	8	8	3	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number 2

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number 2

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☑ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number 2

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	0
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1 Add the points in the boxes above	**6**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source migrating waterfowl, contaminated soil from steam treatments for snail control and auto fluff Yes = 1 No = 0	1
Total for D 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 or 4 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number 2

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		5
☑ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4 — Add the points in the boxes above		**10**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

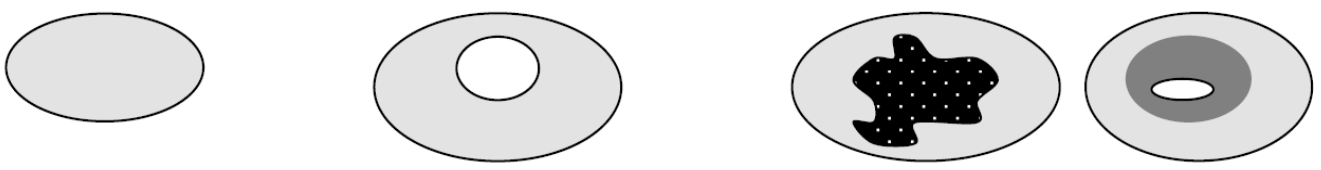
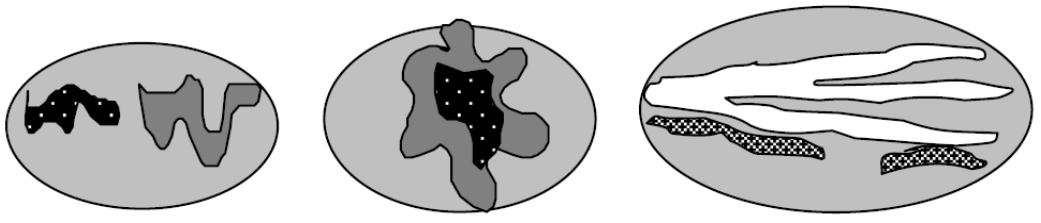
D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5 — Add the points in the boxes above		**3**

Rating of Landscape Potential If score is: ☑ **3 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon		
● Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☑ ● Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6 — Add the points in the boxes above		**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number 2

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	0

Wetland name or number 2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by* ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	0
Total for H 1 Add the points in the boxes above	**2**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 1 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 1% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 10 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 10% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	0
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**-2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☐ **1 - 3 = M** ☑ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated* . Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	0

Rating of Value If Score is: ☐ **2 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number 2

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☑ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** *.* SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Figure 1



Path: J:\Port of Tacoma\001467\001467.001_TO #1 Taylor Way & Alexander Ave Fill Area Investigation\Port of Tacoma\MXD\Port of Tacoma\PortofTacoma.aprx

CONFLUENCE ENVIRONMENTAL COMPANY

Cowardin Class

Emergent

Wetland 2: 150 ft Buffer

N

0 100 200 Feet

Figure 2



Path: J:\Port of Tacoma\001467\001467.001_TO #1 Taylor Way & Alexander Ave Fill Area Investigation\Port of Tacoma\MXD\PortOfTacoma.aprx

CONFLUENCE ENVIRONMENTAL COMPANY

Hydroperiod

- Saturated
- Seasonally Flooded
- Wetland 2 Outlet

N

0 100 200 Feet

Figure 3



Path: J:\Port of Tacoma\0146_001_TO_#_Taylor Way & Alexander Ave - Area Investigation (Port of Tacoma)\GIS\MXD\Port of Tacoma\Port of Tacoma.aprx;

CONFLUENCE ENVIRONMENTAL COMPANY

Wetland 2

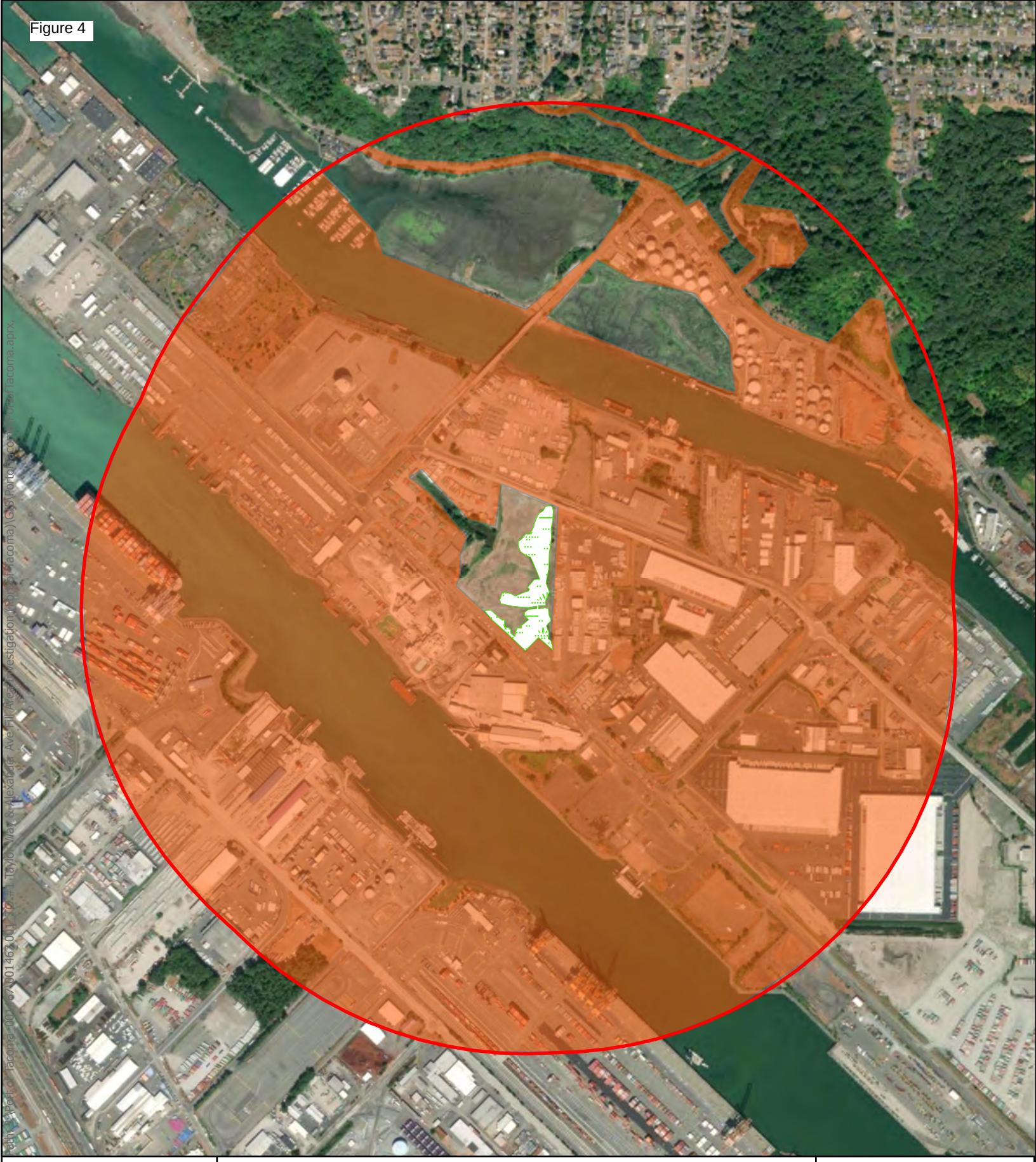
Contributing Basin

Topography- 2ft contour intervals (Tacoma)

N

0 160 320 Feet

Figure 4



CONFLUENCE ENVIRONMENTAL COMPANY

Wetland 2

Wetland 2: 1 km Buffer

Land Use Intensity

High Intensity

Note: unshaded areas represent relatively undisturbed areas

N

0 500 1,000 Feet

March 29, 2024

303(d) List



Assessed Water/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

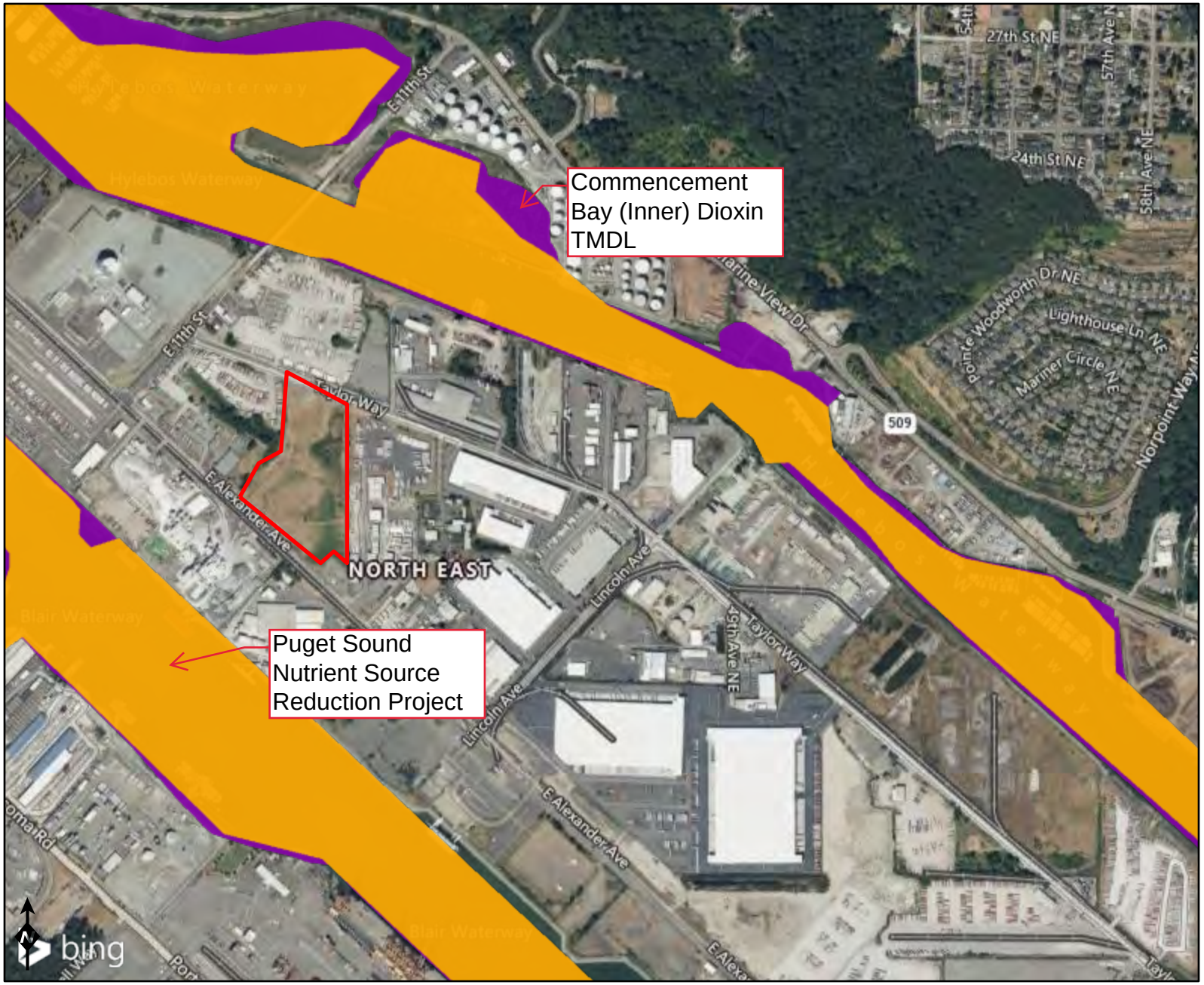
Esri Community Maps Contributors, City of Tacoma, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau,

Miles
0 0.1 0.2 0.4

Figure 6

March 29, 2024

TMDL



WQ Improvement Projects
- Approved
- In Development

Esri Community Maps Contributors, City of Tacoma, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau,

Miles
0 0.1 0.2 0.4

Wetland name or number Wetland 3

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 3 Date of site visit: 3/12/2024

Rated by N. Dietsch, A. Michniak Trained by Ecology? ☑ Yes ☐ No Date of training 23-Nov

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map ArcGIS World Imagery

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	L	
Landscape Potential	H	M	L	
Value	M	H	L	**Total**
Score Based on Ratings	6	7	3	**16**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number Wetland 3

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☑ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☑ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wetland 3

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0		0
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		0
Total for D 1	Add the points in the boxes above	**3**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source migrating waterfowl	Yes = 1 No = 0	1
Total for D 2	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 or 4 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	0
Total for D 3	Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2 - 4 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number Wetland 3

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		4
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		0
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		5
☑ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**9**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

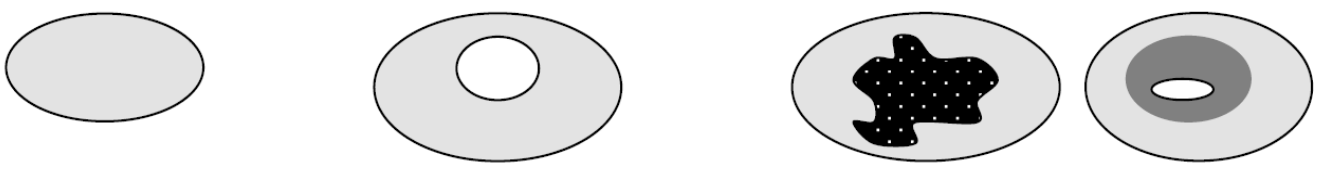
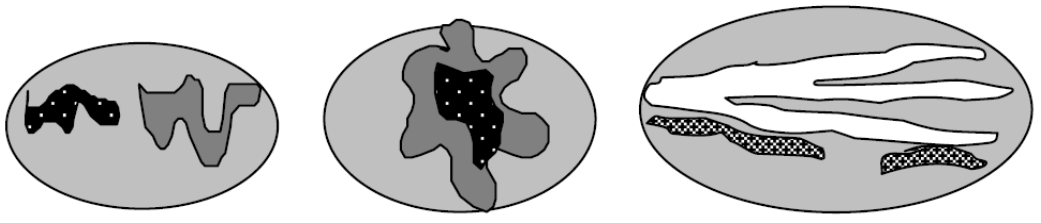
D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☑ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number Wetland 3

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☐ Seasonally flooded or inundated — 3 types present: points = 2 ☑ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	0
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	0

Wetland name or number Wetland 3

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by* ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	**2**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 1 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 1% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 10 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 10% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	0
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**-2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☐ **1 - 3 = M** ☑ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated* . Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	0

Rating of Value If Score is: ☐ **2 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number Wetland 3

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☑ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** *.* SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Figure 1



Path: J:\Port of Tacoma_001467\001_467.001_TO #1 - Taylor Way & Alexander Ave Fill Area Investigation\Port of Tacoma\GIS\PoT_Tacoma\PortofTacoma.aprx

CONFLUENCE
ENVIRONMENTAL COMPANY

Wetland 3: Cowardin Class - Emergent

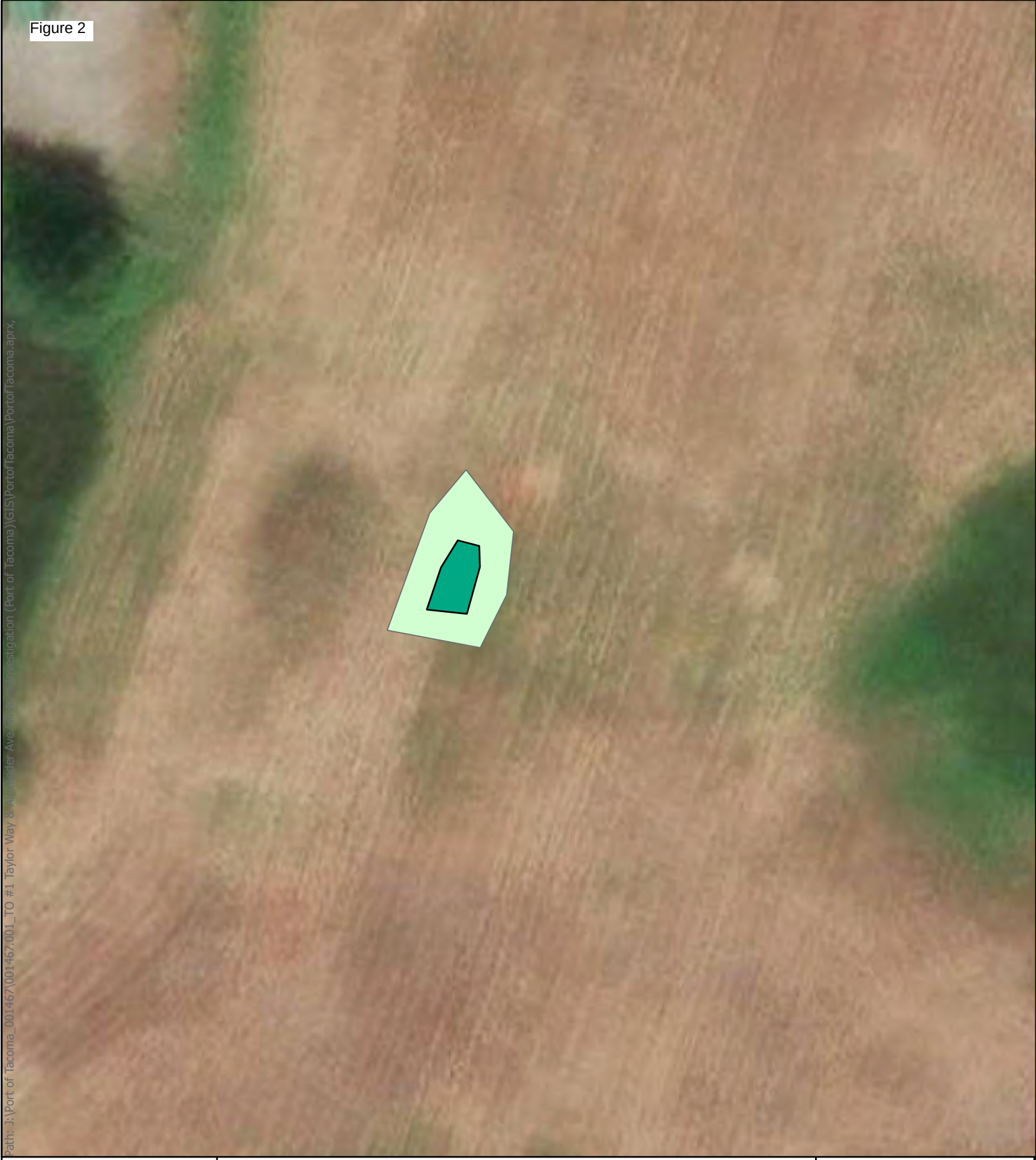
Wetland 3: 150 ft Buffer

N

0 40 80

Feet

Figure 2



Path: J:\Port of Tacoma_001467\001467.001_TO #1 Taylor Way & Alexander Ave Intersection Investigation (Port of Tacoma)\GIS\PortofTacoma\PortofTacoma.aprx;

CONFLUENCE
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HydroPeriod

Saturated

Occasionally Flooded

Note: Wetland 3 does not have an outlet.

N

0 20 40

Feet

Figure 3

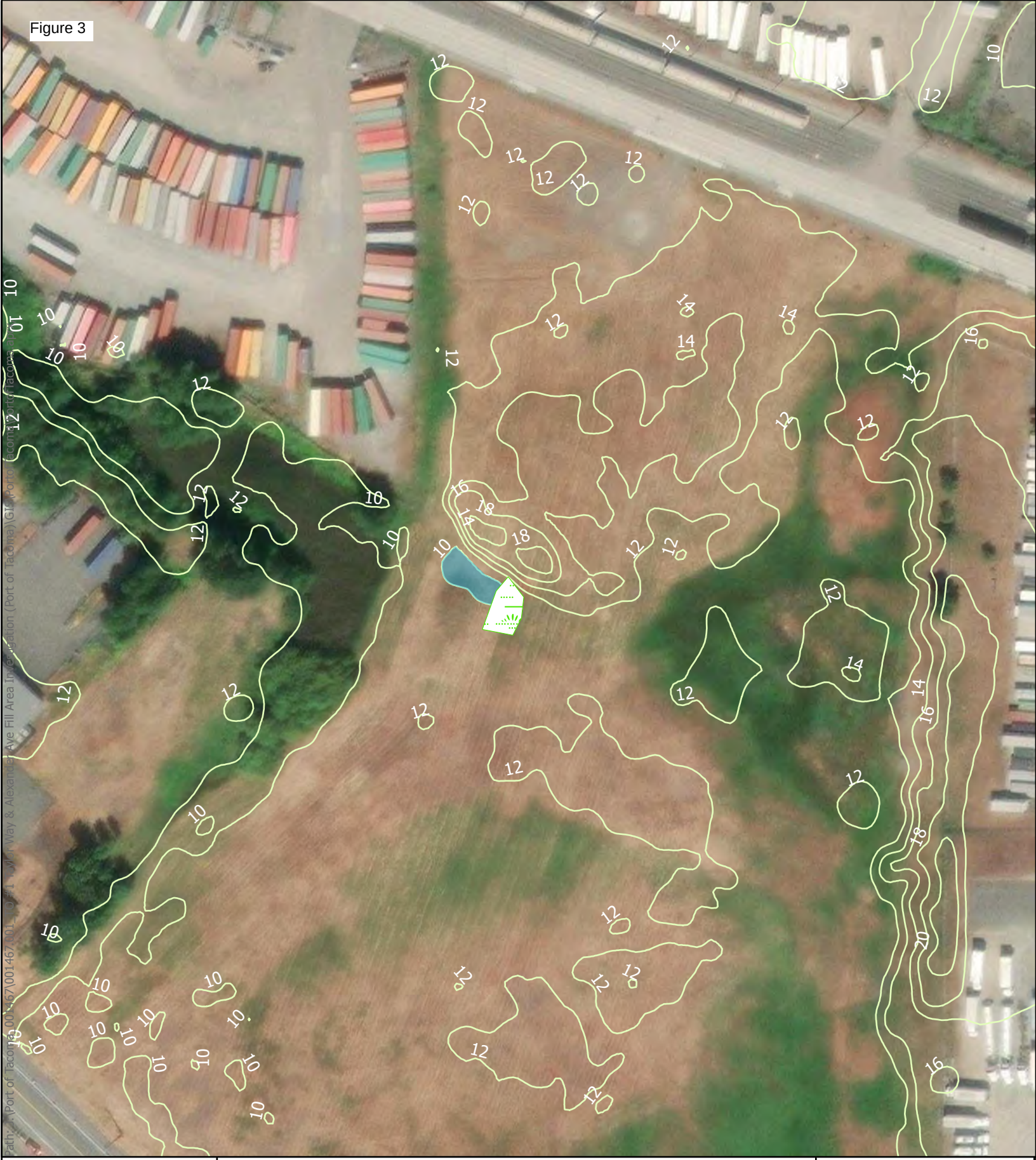
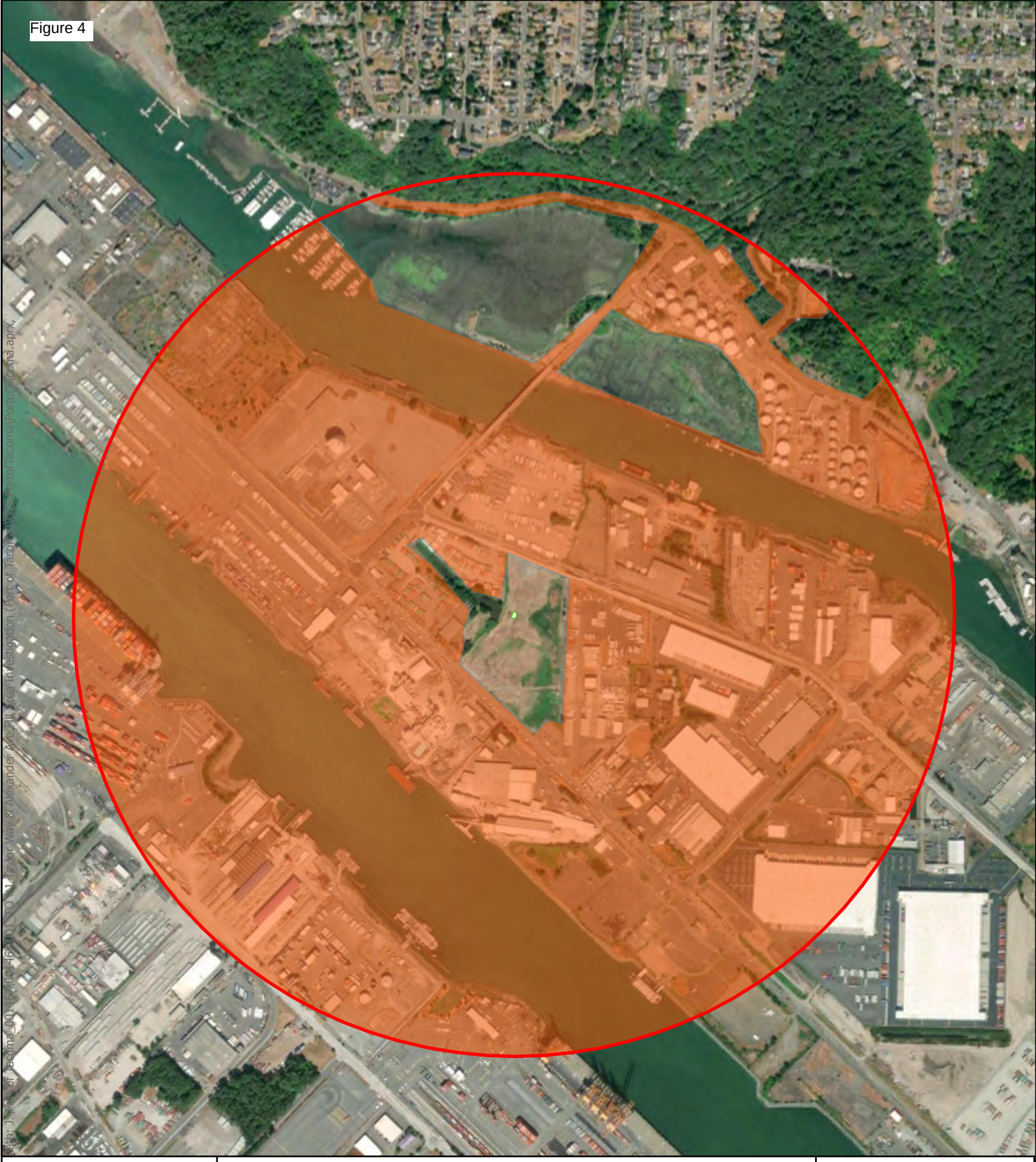

Wetland 3
Contributing Basin Wetland 3
Topography- 2ft contour intervals (Tacoma)
N
0
50
100
Feet
CONFLUENCE
ENVIRONMENTAL COMPANY

Figure 4



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Wetland 3

Wetland 3: 1 Km Buffer

High Intensity

Note: unshaded areas represent relatively undisturbed areas

N

0 500 1,000 Feet

Figure 5

March 29, 2024

303(d) List



Assessed Water/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

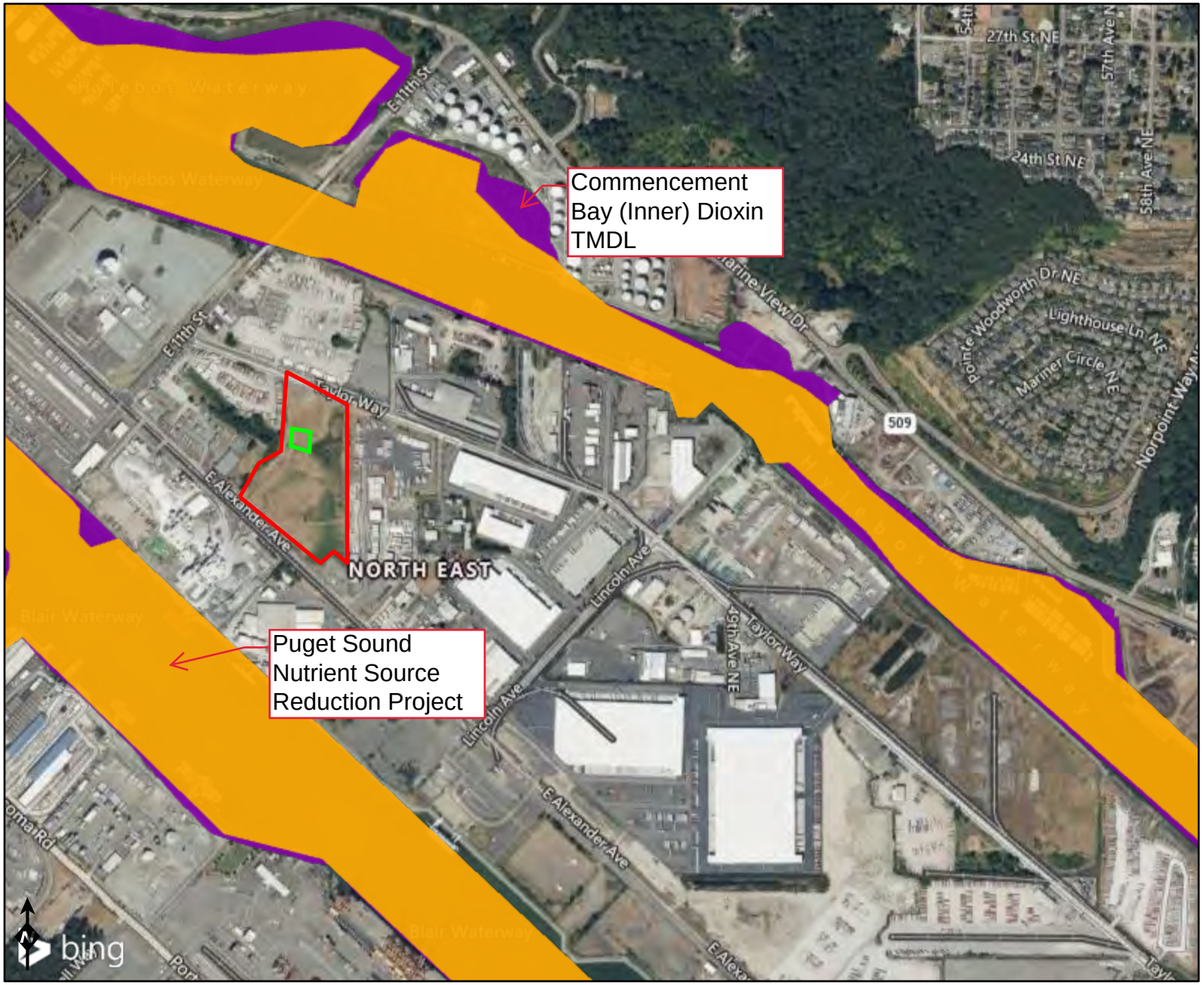
Esri Community Maps Contributors, City of Tacoma, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau,

Miles
0 0.1 0.2 0.4

Figure 6

March 29, 2024

TMDL



WQ Improvement Projects
- Approved
- In Development

Esri Community Maps Contributors, City of Tacoma, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau,

Miles
0 0.1 0.2 0.4

Appendix E
Site Photographs



Photo 1. Soil profile at TP-1



Photo 2. Soil profile at TP-2



Photo 3. Soil profile at TP-3



Photo 4. Soil profile at TP-4



Photo 5. Soil profile at TP-5



Photo 6. Soil profile at TP-6



Photo 7. Soil profile at TP-7



Photo 8. Soil profile at TP-8



Photo 9. Soil profile at TP-9



Photo 10. Soil profile at TP-10



Photo 11. Soil profile at TP-11



Photo 12. Wetland 2, facing southeast



Photo 13. Wetland 2, facing north



Photo 14. Wetland 2, facing north



Photo 15. Wetland 1, facing west



Photo 16. Wetland 1, facing northeast



Photo 17. Wetland 3, facing southeast



Photo 18. Stormwater pond along western site boundary



Photo 19. Wetland conditions observed south of stormwater pond. This area is an extension of the stormwater feature.

Appendix F

Corps of Engineers ADJ Letter

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT
4735 EAST MARGINAL WAY SOUTH, BLDG 1202
SEATTLE, WA 98134-2388

Regulatory Branch 08 April 2025

Port of Tacoma
Ms. Kristin Evered
Post Office Box 1837
Tacoma, Washington 98401

Reference: NWS-2025-34
Port of Tacoma (Neptune Development)

Dear Ms. Evered:

The U.S. Army Corps of Engineers (Corps) received your request for an Approved Jurisdictional Determination (AJD) of the aquatic resources within the review area on the properties located at 1212 Taylor Way in Tacoma, Pierce County, Washington as shown on the enclosed drawings dated January 2025. This determination applies only to the review area. Other aquatic resources, including wetlands, ditches, or other ponds, that may occur on this property or on adjacent properties outside the review area are not the subject of this determination

The U.S. Army Corps of Engineers has determined that Wetland 1, Wetland 2, Wetland 3, Ditch A, Ditch B, Ditch C, and Stormwater Feature 1 are not waters of the U.S. and as such, work that would occur within these areas does not require Department of the Army authorization under Section 404 of the Clean Water Act. The enclosed *Approved Jurisdictional Determination Memorandum for Record* provides the rationale for jurisdiction for all aquatic resources within the review area.

Other state and local regulations may still apply to these waters. For example, the Washington State Department of Ecology (Ecology) may regulate these features. For information on how to obtain State approval for your project, you should contact Ecology's Federal Permit Coordinator at ecyrefedpermits@ecy.wa.gov or at (360) 407-6068. Information regarding State permitting requirements can also be found at the following website: https://ecology.wa.gov/Water-Shorelines/Wetlands/Regulations. We are sending a copy of this letter to Ecology.

This letter contains an AJD for the subject site. If you object to the enclosed AJD, you may request an administrative appeal under the Corps regulations at 33 CFR Part 331. Enclosed you will find a *Notification of Administrative Appeal Options and Process*

(NAP) and Request for Appeal (*RFA*) form. If you request to appeal this AJD, you must submit a completed RFA form to the Corps Northwestern Division Office at the following address:

Melinda Larsen, Regulatory Appeals Review Officer
U.S. Army Corps of Engineers, Northwestern Division
1201 NE Lloyd Blvd., Suite 400
Portland, OR 97232

This approved jurisdictional determination is valid for a period of five years from the date of this letter unless new information warrants revisions of the determination. You may contact the Appeals Review Officer by phone at 503-726-6194 or by email at melinda.m.larsen@usace.army.mil. In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR § 331.5, and that it has been received by the Division Office within 60 days from the date on the NAP. Should you decide to submit an RFA form, it must be received at the above address by 9 June 2025. It is not necessary to submit an RFA form to the Division Office if you do not object to the enclosed AJD.

A copy of the *Approved Jurisdictional Determination Memorandum for Record* and drawings will also be posted to Seattle District website at https://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/Jurisdictional-Determinations.

If you propose to do any work in the areas identified to be waters of the U.S., you should contact our office prior to commencing work to determine permit requirements. If you have any questions, please contact Ms. LeeAnn Simmons at leeann.w.simmons@usace.army.mil or at (206)-764-3420.

Sincerely,



Brad Johnson, Section Chief
Regulatory Branch

Enclosures

cc:
Washington State Department of Ecology (ecyrefedpermits@ecy.wa.gov)

Appendix B
Parcel 12 Critical Areas Report

CONFLUENCE
ENVIRONMENTAL COMPANY

Port of Tacoma Parcel 12
WETLAND DELINEATION REPORT

Prepared for:

Port of Tacoma
July 2025





146 N Canal Street, Suite 111 • Seattle, WA 98103 • www.confenv.com

Port of Tacoma Parcel 12
WETLAND DELINEATION REPORT

Prepared for:

Port of Tacoma
One Sitcum Plaza
PO Box 1837
Tacoma, WA 98241

Prepared by:

Confluence Environmental Company

July 2025

This report should be cited as:

Confluence (Confluence Environmental Company). 2025. Port of Tacoma Parcel 12: Wetland delineation report. Prepared for Port of Tacoma, Tacoma, Washington, by Confluence, Seattle, Washington.

146 N Canal Street, Suite 111 • Seattle, WA 98103 • www.confenv.com

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APPENDICES

Attachment 1—GIS Database Search Results

Attachment 2—Wetland Delineation Data Forms

Attachment 3—Wetland Rating Form

Attachment 4—Site Photographs

Attachment 5—FEMA FIRM Map

1.0 INTRODUCTION

As part of providing compensatory mitigation for wetland impacts associated with the Parcel 117 snail eradication project, the Port of Tacoma (Port) proposes mitigation actions on tax parcel 0320011091 located at 3802 Taylor Way in Tacoma, Washington (the site, Figure 1).

Confluence conducted a wetland delineation on the site and prepared this report to document findings to inform the mitigation design and support issuance of a Critical Areas Development Permit pursuant to Tacoma Municipal Code (TCM) Chapter 13.11. In addition to wetlands, this report discusses flood hazard areas on the site based on a review of GIS databases.



Figure 1. Site

2.0 METHODS

This section describes the methods used to delineate any wetlands on the site and to determine whether flood hazard areas are present.

2.1 Desktop Analysis

Confluence reviewed the GIS databases listed below for the potential presence of wetlands and flood hazard areas on the site.

- City of Tacoma GIS (City of Tacoma 2025b,c)
- Pierce County PublicGIS (Pierce County 2025)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS 2025)
- Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) (WDFW 2025)
- Natural Resources Conservation Service (NRCS) Soil Survey (NRCS 2025a)
- Washington Department of Natural Resources (WDNR) Natural Heritage Program Data Explorer (WDNR 2025)
- Federal Emergency Management Agency (FEMA) flood map service center (FEMA 2025)

Results of the GIS database searches are in Attachment 1.

2.2 Site Investigation

On March 29, 2024, Confluence conducted a site investigation to delineate any wetlands on the site.

2.2.1 Wetland Identification and Delineation

Confluence identified wetlands and delineated their boundaries using the methods described by the U.S. Army Corps of Engineers (Corps) in the Corps of Engineers Wetlands Delineation Manual (Corps 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Corps 2010). The Corps typically requires that the following 3 characteristics be present for an area to be identified as a wetland: (1) hydrophytic vegetation, (2) hydric soil, and (3) wetland hydrology. For each criterion, there are several possible indicators that can be used to determine whether the criterion has been met. The indicators were established so that if a wetland were present, sufficient indicators would be observed at any time of the year, including the driest months, to identify the wetland. Since "normal circumstances," as defined by the Corps (1987), exist in the study area, all 3 criteria must be met for an area to be determined a wetland. A more detailed description of delineation methodology is provided in Appendix B in the main report. Wetland delineation data forms completed during the site investigation are provided in Attachment 2.

To confirm the presence or absence of a wetland, data were collected from representative test plots within and outside of possible wetlands. The locations of the test plots were based on the presence of visual wetland indicators (e.g., wetland vegetation, evidence of standing water) or were chosen to represent vegetative, topographic, or hydrologic features in the study area. Vegetation, soils, and hydrology in the test plots were examined to determine whether wetland characteristics were present. Plots that met all 3 wetland criteria were determined to be wetland plots, and plots that did not meet all 3 criteria were determined to be upland plots.

Once the presence of a wetland was confirmed, visual wetland indicators, such as topographic and vegetative shifts, were used to delineate the remainder of the wetland boundary. In areas with a lack of visual wetland indicators (i.e., areas with monoculture vegetation and no clear topographic break), Confluence used soil probes to determine the wetland boundary between test plots. Confluence evaluated the presence or absence of hydric soil and wetland hydrology indicators at soil probe locations to determine whether the area represented by the soil probe was wetland or upland. Soil probe locations and presence or absence of hydric soil and wetland hydrology indicators were recorded using GPS.

Confluence used the PLANTS Database (NRCS 2025b) to provide consistency in scientific naming and the 2020 National Wetland Plant List (Corps 2020) to determine the wetland indicator status of plants.

The wetland boundary and test plot locations were flagged using ribbon flagging. The flags were mapped using a Trimble mapping grade GPS receiver capable of sub-meter accuracy after post-processing.

2.2.2 Wetland Rating

Confluence determined wetland ratings using the Washington State Wetland Rating System for Western Washington (Hruby and Yahnke 2023) to assess the resource value of any wetland identified on the site. This rating system is based on the wetland functions and values, sensitivity to disturbance, rarity, and irreplaceability. Wetland rating forms are in Attachment 3.

3.0 RESULTS

Confluence biologists identified 1 wetland, identified as Wetland A, and 1 flood hazard area on the site.

3.1 Site Description

The site is approximately 5 acres and is generally flat with areas of hummocks. The north and east areas of the site are slightly higher than areas in the south and west. The site is irregularly shaped (Figure 1). The north and western edges of the site are bounded by the Fife Ditch. The southern boundary of the site is bordered by commercial/light industrial properties and land uses. The northeastern portion of the site is bounded by Taylor Way E and its associated right-of-way. The site is zoned M2 – Heavy Industrial (City of Tacoma 2025a). The land use designation is Heavy Industrial.

The tree canopy on the site is dominated by black cottonwood (*Populus trichocarpa*) with some Oregon ash (*Fraxinus latifolia*) and red alder (*Alnus rubra*). Some of the black cottonwoods on the site are large, with diameters at standard height greater than 36 inches. Both upland and wetland areas of the site have been highly disturbed. Parcel 12 was used as an informal encampment area for several years. This use as an encampment, and the subsequent clean-up, resulted in a high level of disturbance to the shrub understory and groundcover. The understory that remains contains common hawthorn (*Crataegus monogyna)*, Pacific dogwood (*Cornus nuttallii*), Indian plum (*Oemleria cerasiformis*), and Himalayan blackberry (*Rubus armeniacus*). Groundcovers are generally sparse and include sword fern (*Polystichum munitum*), creeping buttercup (*Ranunculus repens*), and English Ivy (*Hedera helix*). A patch of slough sedge (*Carex obnupta*) is present in the northeastern portion of the site. There are many areas of bare soil.

3.2 Wetland

3.2.1 Desktop Analysis

City of Tacoma GIS (City of Tacoma 2025b) identifies a wetland in the northeastern portion of the Parcel 12 site adjacent to Tayor Way E. This wetland was identified during a City project to rehabilitate Taylor Way E within the Parcel 12 vicinity. It was described in a critical areas report prepared by SCJ Alliance (2018). SCJ Alliance delineated only the northwestern boundary of the wetland along the roadway. The other boundaries were estimated based on aerial photo interpretation.

Several other databases map a wetland in the location of Wetland A but do not agree on the size or precise boundary. USFWS's NWI (2025) and WDFW's PHS mapper (2025) map an approximately 6-acre freshwater forested/shrub wetland over the entire parcel. Pierce County maps a much smaller wetland near the center of the site. Tacoma's DART Map maps only the

northeast portion of the parcel as wetland (City of Tacoma 2025b). The NRCS Soil Survey (NRCS 2025a) maps hydric soils in only the southwest portion of the parcel.

WDNR's Natural Heritage Program does not identify any rare plants or ecosystems on the site (WDNR 2025).

3.2.2 Test Plots

During the site investigation, 2 test plots were established, 1 in upland and 1 in wetland. Soil probes were also collected to rapidly determine whether an area was upland or wetland. Test plot and soil probe locations are shown on Figure 2. Test plot characteristics are detailed below. Photographs of the site are in Attachment 4.

Test Plot 1 (TP-1) was located in the northeast portion of the site. Vegetation was dominated by Oregon ash, Himalayan blackberry, and slough sedge. The vegetation within TP-1 passed the Dominance Test and therefore met the vegetation criterion. Soil in the top layer (0-5 inches) was a dark brown (10YR 3/3) silt loam. Soil in the second layer (5-16 inches) was a dark grayish brown (2.5Y 4/2) silt loam with 20% yellowish brown (10YR 5/8) redoximorphic concentrations in the matrix. The soils met the Depleted Matrix (F3) hydric soil indicator; thus, the hydric soil criterion was met. Two primary hydrology indicators—Saturation (A3) and High Water Table (A2)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-1 met all 3 criteria, the area represented by TP-1 is a wetland, identified as Wetland A.



Figure 2. Wetland A, standard buffer, test plot, and soil probe locations

TP-2 was located in the northeast portion of the site just northwest of TP-1. Vegetation was dominated by Oregon ash, common hawthorn, dogwood (*Cornus* sp.), Indian plum, sword fern, and creeping buttercup. The vegetation within TP-2 passed the Dominance Test and therefore met the vegetation criterion. Soil in the top layer (0-11 inches) was a very dark grayish brown (10YR 3/2) silt loam. Soil in the second layer (11-16+ inches) was a dark grayish brown (10YR 4/2) silt loam with 2% brownish yellow (10YR 6/8) redoximorphic concentrations in the matrix. The soils met the Depleted Below Dark Surface (A11) hydric soil indicator; thus, the hydric soil criterion was met. No primary hydrology indicators were observed, but one secondary hydrology indicator—the FAC-Neutral Test (D5)—was observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion; since TP-2 had only 1 secondary indicator, it did not meet the hydrology criterion. Since TP-2 did not meet all 3 criteria, the area represented by TP-2 is upland.

3.2.3 Wetland A Description

Wetland A is in the northeast portion of the site and is 43,522 square feet (Figure 2). TP-1 represents Wetland A. Confluence observed similar conditions to those described by SCJ Alliance (2018) but found the wetland did not extend as far to the southeast as shown in the City of Tacoma GIS (City of Tacoma 2025b). The boundary of Wetland A was determined by hydric soils, algal mats, and a slight elevation change.

According to the Cowardin classification system (FGDC 2013), Wetland A is a forested wetland dominated by Himalayan blackberry, sword fern, and slough sedge in its understory and a high presence of Oregon ash in the overstory.

The primary hydrologic inputs to Wetland A come from the Fife Ditch, which is connected to Wetland A by a roadside ditch that runs along Taylor Way E.

The observed soils were consistent with past use of the site to receive dredge spoils. Soil saturation was noted within 8 inches below ground surface with standing water measured at 10 inches below ground surface. Surface water was not present during the site investigation, but algal mats were noted in some areas, indicating periods of prior standing surface water.

Wetland A was rated a Category III wetland, with a water quality score of 6, hydrology score of 8, and habitat score of 5. This rating is consistent with the wetland rating identified by SCJ Alliance (2018). As a Category III wetland, Wetland A has a standard buffer of 75 feet per Tacoma Municipal Code (TMC) 13.11.320.

3.3 Flood Hazard Areas

TMC 13.11.610 identifies flood hazard areas as areas identified on the most recent FEMA Flood Insurance Rate Map (FIRM). The Fife Ditch has been identified on the FEMA FIRM as a Zone A Special Flood Hazard Area (FEMA 2025). This flood hazard area is also mapped by the City

flooding map (City of Tacoma 2025c). Zone A Special Flood Hazard Areas are are areas subject to inundation by the 1% annual chance (100-year) flood, or "base flood", for which no base flood elevation has been determined. The FEMA FIRM is provided in Attachment 5.

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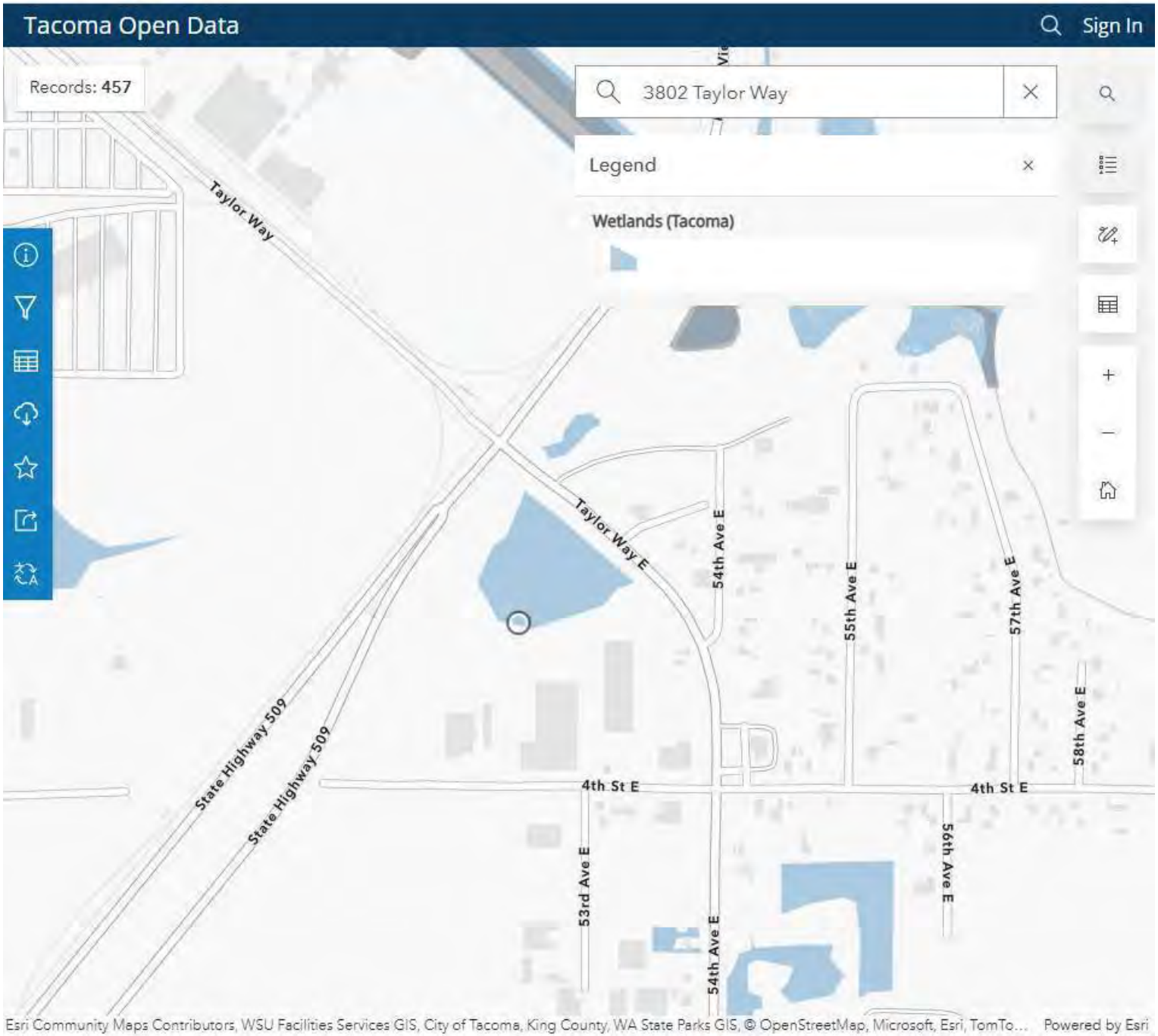
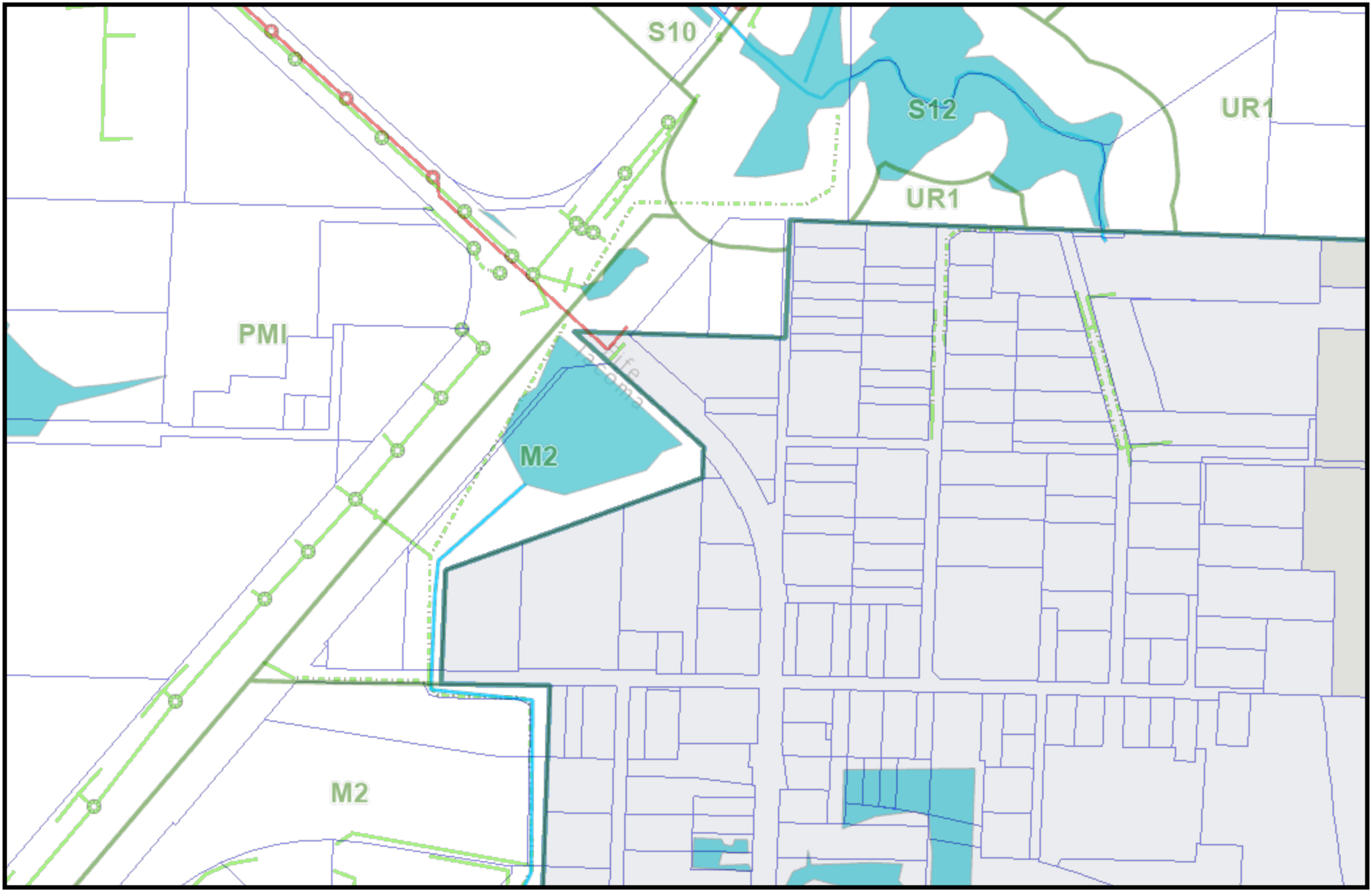
Attachment 1

GIS Database Search Results


Tacoma Open Data
Sign In
Records: 457
3802 Taylor Way
Legend
Wetlands (Tacoma)
Taylor Way
Taylor Way E
54th Ave E
55th Ave E
57th Ave E
58th Ave E
State Highway 509
State Highway 509
4th St E
4th St E
53rd Ave E
54th Ave E
56th Ave E
Esri Community Maps Contributors, WSU Facilities Services GIS, City of Tacoma, King County, WA State Parks GIS, © OpenStreetMap, Microsoft, Esri, TomTo...
Powered by Esri

DART



Scale: 1:4,514

0 0.0175 0.035 0.07 0.105 0.14
mi

tacomaMAP

© 2019 City of Tacoma GIS

Last Printed: 5/30/2025 2:45 PM

* This map is not suitable for site-specific analysis or for utility location *

See full disclaimer below:
http://geohub.cityoftacoma.org/pages/disclaimer

N

PublicGIS



Legend

Hydric Soils

Hydro - Centerlines

Hydro Centerline

Wetlands Delineation

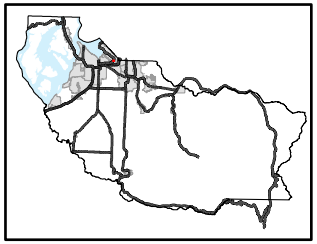
Verified

Unverified

Wetlands

Unconfirmed

Tax Parcels



N

0 50 100 200 ft

1:2,233

Disclaimer: The map features are approximate and have not been surveyed. Additional features not yet mapped may be present. Pierce County assumes no liability for variations ascertained by formal survey.

Date: 5/30/2025 02:24 PM

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands



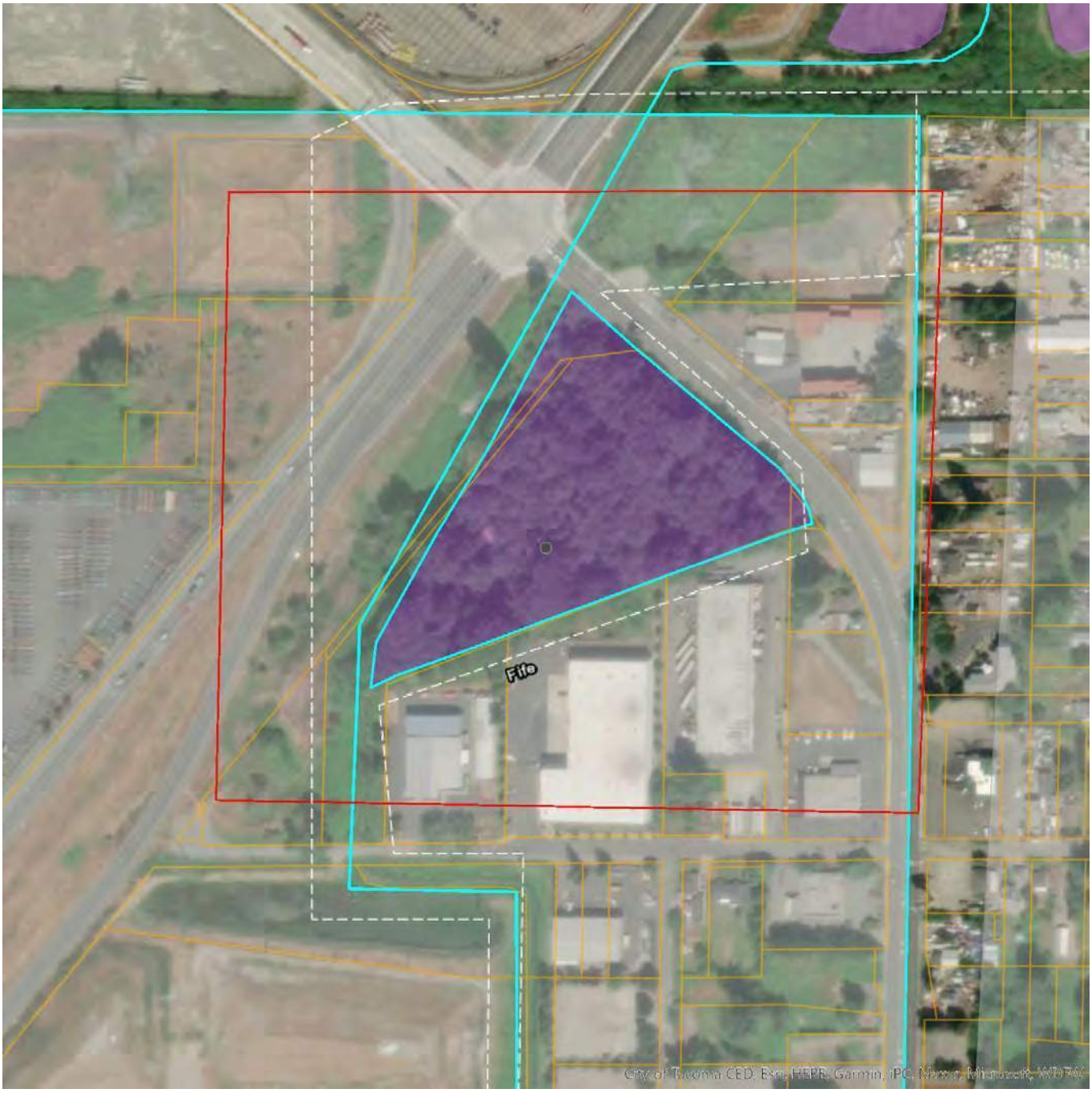
May 30, 2025

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Priority Habitats and Species on the Web



Report Date: 05/30/2025

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Fall Chum	N/A	N/A	No
Coho	N/A	N/A	No
Chum	Not Warranted	N/A	No
Winter Steelhead	N/A	N/A	No
Freshwater Forested/Shrub Wetland	N/A	N/A	No
Big brown bat			Yes

PHS Species/Habitats Details:

Fall Chum	
Scientific Name	*Oncorhynchus keta*
Priority Area	Occurrence/Migration
Site Name	Wapato Creek
Accuracy	NA
Notes	LLID: 1223689472459, Fish Name: Chum Salmon, Run Time: Fall, Life History: Anadromous
Source Record	43927
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence/Migration
Site Name	Wapato Creek
Accuracy	NA
Notes	LLID: 1223689472459, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	43929
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Chum	
Scientific Name	*Oncorhynchus keta*
Priority Area	Occurrence
Accuracy	NA
Notes	LLID: 1223549472587, Stock Name: Hylebos Creek Fall Chum, Run: Fall, Status: Unknown
Source Record	2165
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence/Migration
Site Name	Wapato Creek
Accuracy	NA
Notes	LLID: 1223689472459, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	43934
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Freshwater Forested/Shrub Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Big brown bat	
Scientific Name	*Eptesicus fuscus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necesssary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.



Map Scale: 1:4,110 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: City of Tacoma, Washington
Survey Area Data: Version 7, Aug 28, 2024

Soil Survey Area: Pierce County Area, Washington
Survey Area Data: Version 20, Aug 27, 2024

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 31, 2022—Aug 8, 2022

MAP LEGEND

MAP INFORMATION

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
988	Urban land, 0 to 5 percent slopes	0	0.4	0.6%
3065	Anthraltic Xerorthents gravelly sandy loam, 12 to 35 percent slopes	10	0.0	0.1%
Subtotals for Soil Survey Area			**0.5**	**0.7%**
Totals for Area of Interest			**74.9**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
30A	Puget silty clay loam	100	4.7	6.3%
42A	Sultan silt loam	8	36.2	48.2%
988	Urban land, 0 to 5 percent slopes	0	32.8	43.8%
3064	Anthraltic Xerorthents gravelly sandy loam, 0 to 12 percent slopes	10	0.1	0.2%
3065	Anthraltic Xerorthents gravelly sandy loam, 12 to 35 percent slopes	10	0.7	0.9%
Subtotals for Soil Survey Area			**74.4**	**99.3%**
Totals for Area of Interest			**74.9**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

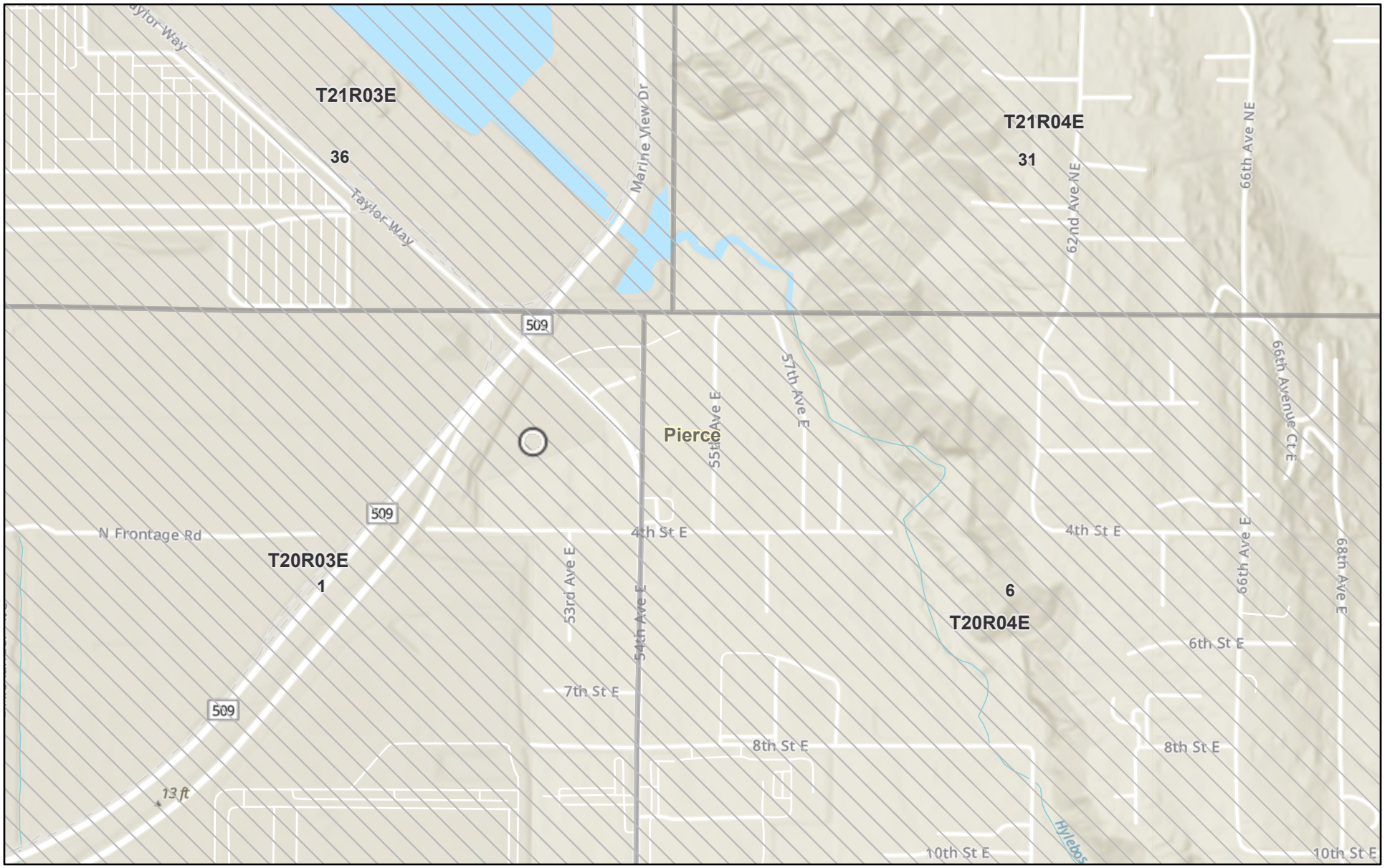
Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

WNHP Rare Plant and Ecosystem Locations



5/30/2025, 2:33:07 PM

1:15,297

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

- Public Land Survey Sections
- Public Land Survey Townships
- State Boundary
- County Boundaries
- World_Hillshade

Esri, NASA, NGA, USGS, FEMA, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

WNHP Plant & Ecosystem Map Viewer

KNOWN PLANT AND ECOSYSTEM LOCATIONS REFLECT KNOWN OCCURRENCE LOCATIONS BUT MAY NOT REFLECT ALL OCCURRENCES OF RARE PLANTS OR ECOSYSTEMS.

Attachment 2

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel 12 City/County: Tacoma / Pierce Sampling Date: 3/29/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-1

Investigator(s): K McArthur, A Mahnrath, C Stanley Section, Township, Range: T20N R3E S1

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): A Lat: 47.25539°N Long: 122.35824°W Datum: WGS84

Soil Map Unit Name: Sultan silt loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: Sunny. Site filled w/ old onsite spoils + farmed many yrs. Previous homeless encampment. cleaned out + disturbed veg. Sampling TP's in areas w/out veg. disturbance

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. BR ash	90	✓	FACW
2.			
3.			
4.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Him blackberry	30	✓	FAC
2. Indian plum	5		FACU
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Slough sedge	30	✓	OBL
2. Sword fern	10		
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: TP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					silt loam	
5-16	2.5Y 4/2	80	10YR 5/8	20	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 10"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 8"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

algal mats w/in wetland but not close to TP-1

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel 12 City/County: Tacoma / Pierce Sampling Date: 3/29/24

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-2

Investigator(s): K. McArthur, A. Nichrunki, C. Sharman Section, Township, Range: T 20N 3E S1

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR): A Lat: 47.255441°N Long: 122.358361°W Datum: WGS 84

Soil Map Unit Name: Sultan silt loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
sunny.
transition zone btwn upland & wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Oregon ash	80	✓	FACW
2. English hawthorn	30	✓	FAC
3.			
4.			
	110	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. dogwood	35	✓	FACW
2. Indian plum	20	✓	FAC
3.			
4.			
5.			
	55	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Sword fern	20	✓	FACU
2. creeping buttercup	60	✓	FAC
3. B. ivy	15		FACU
4. dewy sedge	5		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: TP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	100					silt loam	
11-16+	10YR 4/2	98	10YR 6/8	2	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils moist but not close to saturation 0-16+. No indicators observed despite indicators observed w/in ~25 ft @ TP-1. Slightly higher elevation than TP-1.

Attachment 3

Wetland Rating Form

Wetland name or number Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 3/29/2024

Rated by A. Michniak / K. McArthur Trained by Ecology? ☑ Yes ☐ No Date of training 23-Nov

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map ESRI World Imagery

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	L	
Landscape Potential	M	H	L	
Value	H	H	H	**Total**
Score Based on Ratings	6	8	5	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☑ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☑ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wetland A

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0		3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		0
Total for D 1	Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**4**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number Wetland A

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	2
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 ☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 ☐ The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	3
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* ☐ The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 ☐ Entire wetland is in the Flats class points = 5	3
Total for D 4 Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?	
D 5.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 ☑ • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 ☐ Flooding from groundwater is an issue in the sub-basin. points = 1 ☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why points = 0 ☐ There are no problems with flooding downstream of the wetland. points = 0	2
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for D 6 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number Wetland A

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	0

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	0
Total for H 1 Add the points in the boxes above	**2**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 2 % undisturbed habitat + (10 % moderate & low intensity land uses / 2) = 7% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 25 % undisturbed habitat + (10 % moderate & low intensity land uses / 2) = 30% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**0**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☐ **1 - 3 = M** ☑ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☑ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☑ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☑ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☑ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☑ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions***. SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☑ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☑ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☑ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☑ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☑ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☑ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

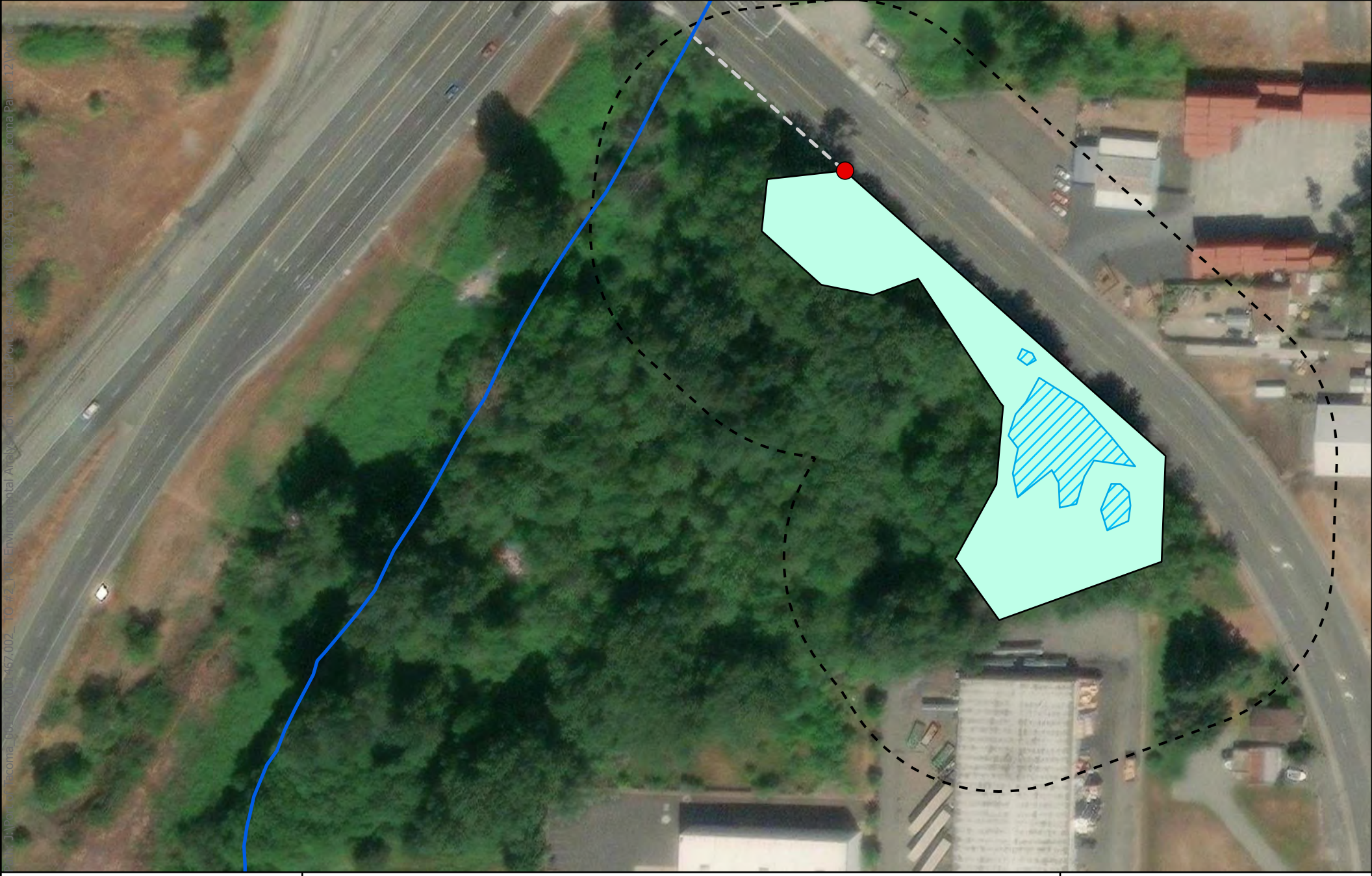


CONFLUENCE
ENVIRONMENTAL COMPANY

Cowardin Class
Forested
Stream

Note: Wetland A has persistent, ungrazed, plant >1/2 of area

N
0 50
Feet



CONFLUENCE
ENVIRONMENTAL COMPANY

Stream

Hydroperiod

Saturated

Seasonlly ponded

Wetland A 150 ft Buffer

Outlet

Ditch

Note: Wetland A is connected to the nearby stream via roadside ditch.

N

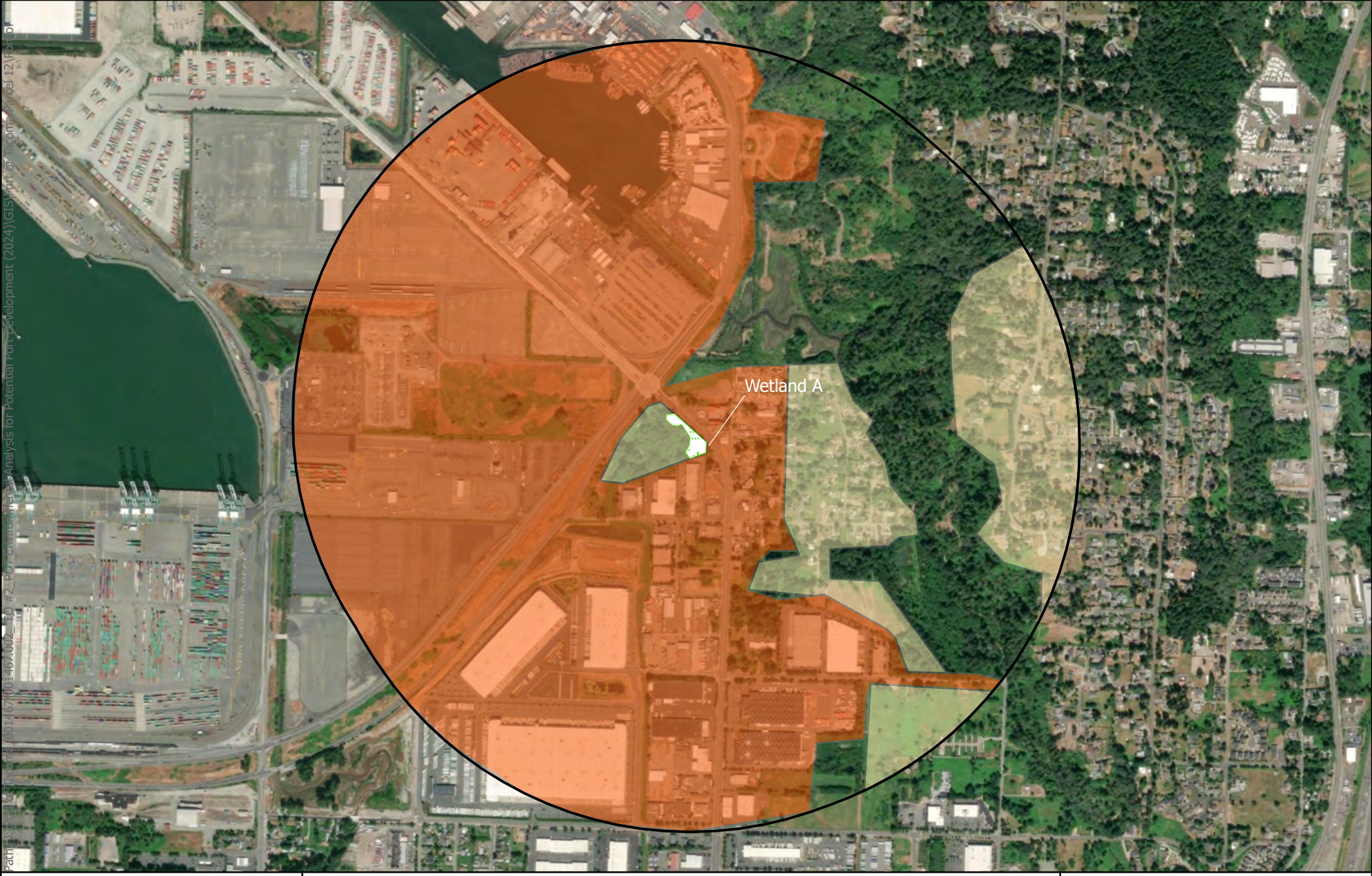
0 150 Feet



CONFLUENCE
ENVIRONMENTAL COMPANY

Wetland A
Stream
Topography - 2 ft interval (Tacoma 2004)
Contributing Basin

N
0 200
Feet



CONFLUENCE
ENVIRONMENTAL COMPANY

Wetland A
Wetland A 1km Buffer
LandUseIntensity
High Intensity Land Use
Moderate Intensity Land Use

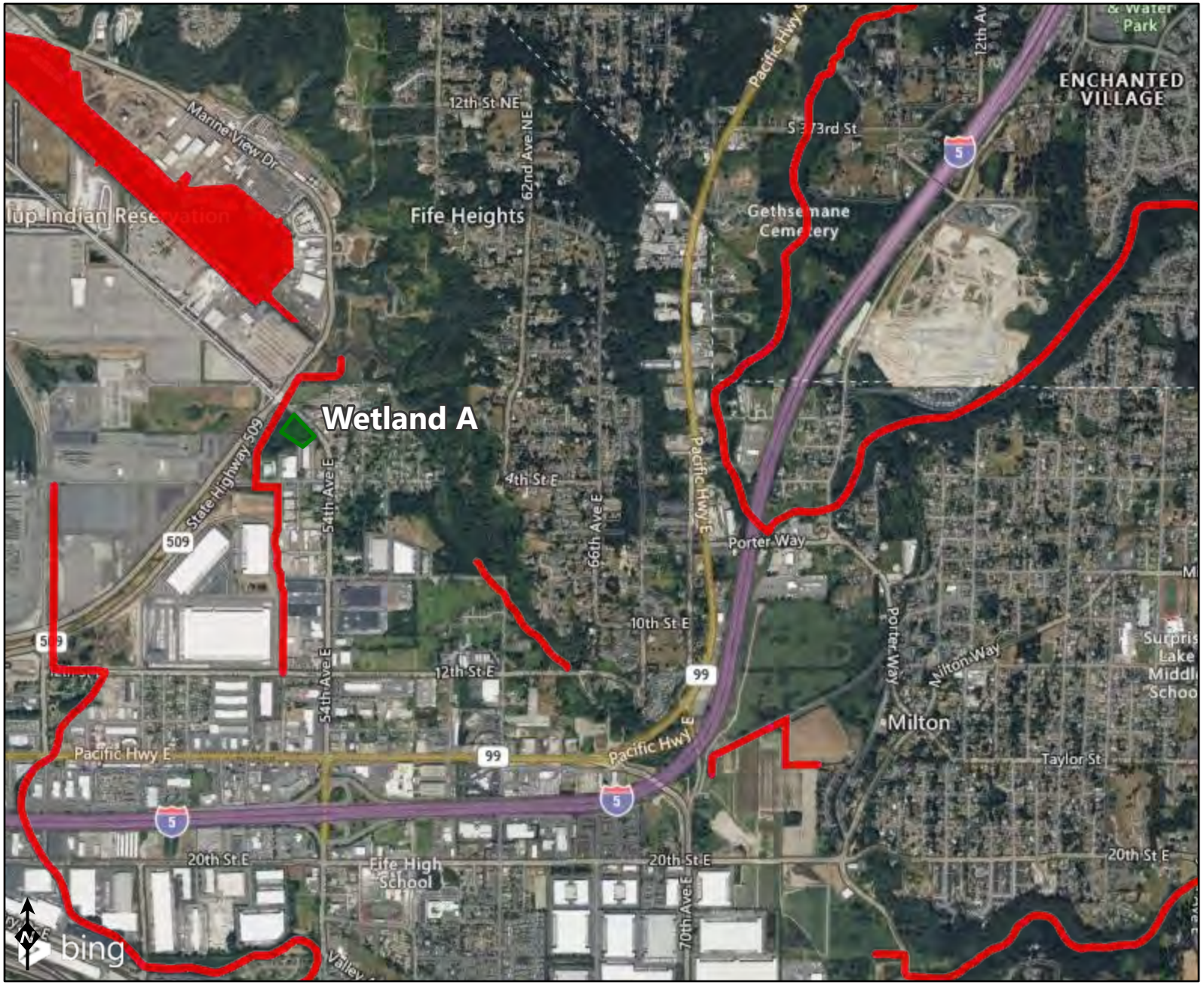
Note: unshaded areas represent relatively undisturbed habitats.

0 1,000 Feet

N

April 10, 2024

303(d) List



Esri, NASA, NGA, USGS, FEMA
King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management,

Miles
0 0.23 0.45 0.9

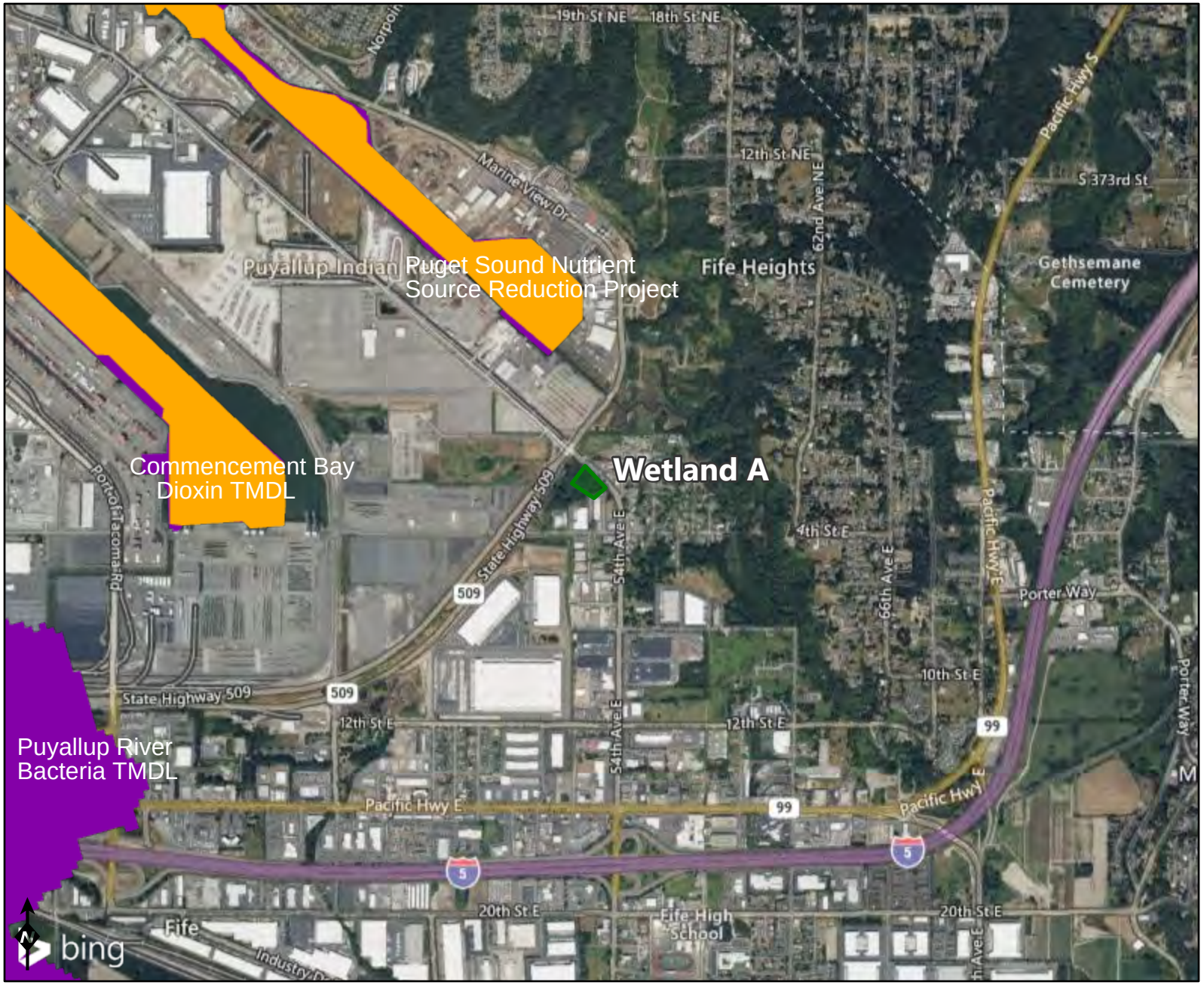
Assessed Water/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

April 10, 2024

TMDL



WQ Improvement Projects
- Approved
- In Development

Miles
0 0.23 0.45 0.9

City of Tacoma, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

Attachment 4

Site Photographs



Photo 1. Soil profile at TP-1



Photo 2. View to east from TP-1



Photo 3. View to south from TP-1



Photo 4. Soil profile at TP-2



Photo 5. View to east from TP-2



Photo 6. View to south from TP-2



Photo 7. View of site, facing south

Attachment 5
FEMA FIRM Map

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 10. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey **at (301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by Pierce County GIS, WA DNR, WSDOT, USFWS, Washington State Department of Ecology, and Puget Sound Regional Council. This information was compiled at scales of 1:1,200 to 1:24,000 during the time period 1996-2012.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

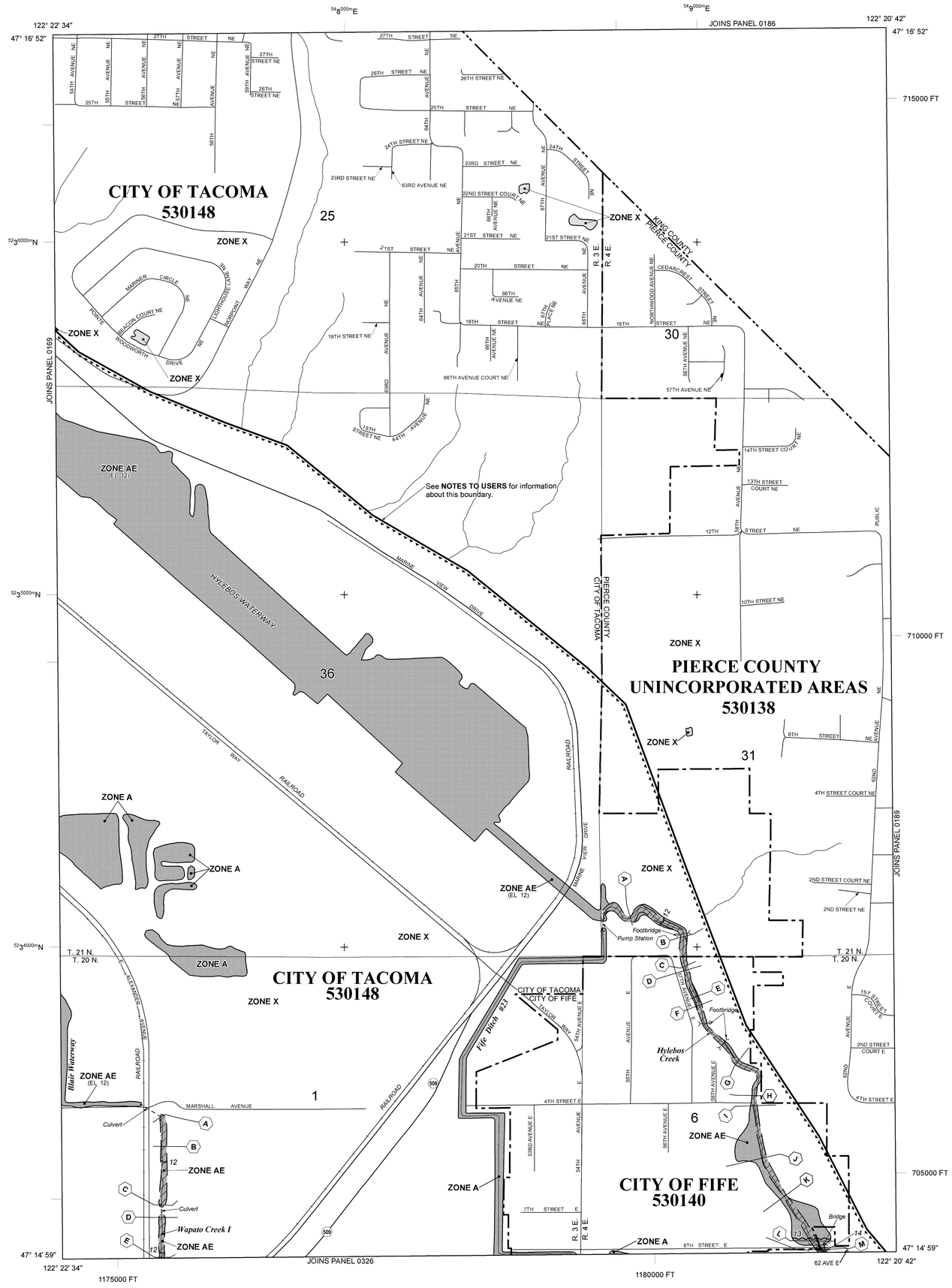
For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

Tribal lands exist on this panel, but have not been shown.
These areas are present in the DFIRM database in the S_Pol_Ar table.

ATTENTION: The levee, dike, or other structure that impacts flood hazards inside this boundary has not been shown to comply with Section 65.10 of the NFIP Regulations. As such, this FIRM panel will be revised at a later date to update the flood hazard information associated with this structure.

The flood hazard data inside this boundary on the FIRM panel has been republished from the previous effective (historic) FIRM for this area, after being converted from NGVD 29 to NAVD 88.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% Annual Chance Floodplain Boundary
	0.2% Annual Chance Floodplain Boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 — 23	Transect line
	Culvert
	Bridge
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
4989000m N	1000-meter Universal Transverse Mercator grid values, zone 10
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
March 7, 2017

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0188E

FIRM

FLOOD INSURANCE RATE MAP

PIERCE COUNTY, WASHINGTON AND INCORPORATED AREAS

PANEL 188 OF 1375
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
FIFE, CITY OF	530140	0188	E
PIERCE COUNTY	530138	0188	E
TACOMA, CITY OF	530148	0188	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
53053C0188E
EFFECTIVE DATE
MARCH 7, 2017

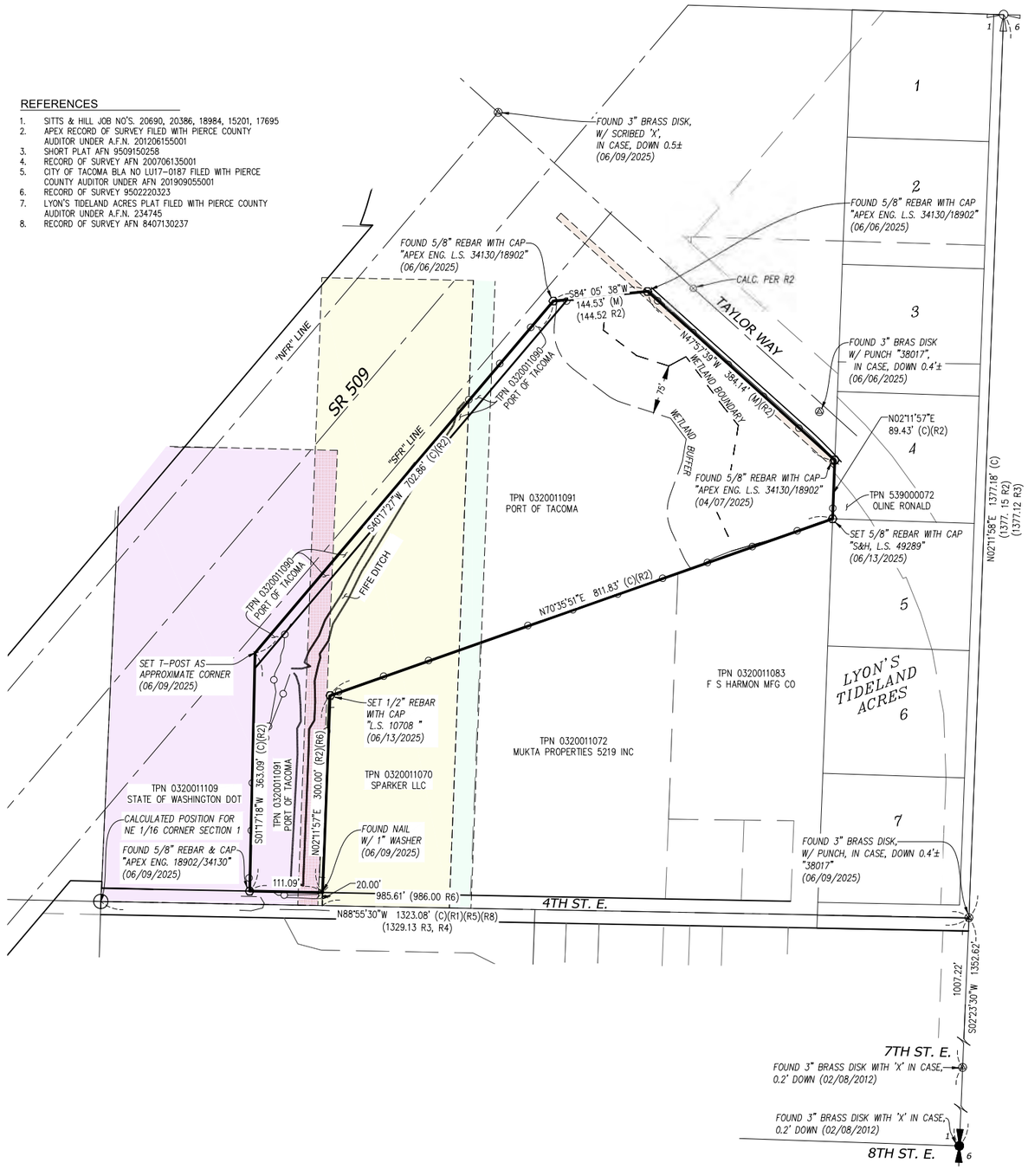
Federal Emergency Management Agency



CONFLUENCE
ENVIRONMENTAL COMPANY

BINDING EDGE

TOPOGRAPHIC SURVEY OF PARCEL 12 FOR THE
PORT OF TACOMA
A PORTION OF THE N.E. 1/4 OF SECTION 1, TOWNSHIP 20 NORTH, RANGE 3 EAST W.M., CITY OF TACOMA, PIERCE COUNTY, WASHINGTON STATE



HORIZONTAL SCALE: 1"=100'
100 0 100 200

LEGEND

- FOUND MONUMENT
- REBAR W/ CONTROL CAP
- SURVEY CONTROL POINT
- PARCEL LINE
- ROAD CENTERLINE
- RIGHT OF WAY LINE
- EASEMENT LINE
- GIS PARCEL LINE (APPROX.)

REFERENCES

1. SITTS & HILL JOB NO'S. 20690, 20386, 18984, 15201, 17695
2. APEX RECORD OF SURVEY FILED WITH PIERCE COUNTY AUDITOR UNDER A.F.N. 201206155001
3. SHORT PLAT AFN 9509150258
4. RECORD OF SURVEY AFN 200706135001
5. CITY OF TACOMA BLA NO LU17-0187 FILED WITH PIERCE COUNTY AUDITOR UNDER AFN 201909055001
6. RECORD OF SURVEY 9502220323
7. LYON'S TIDELAND ACRES PLAT FILED WITH PIERCE COUNTY AUDITOR UNDER A.F.N. 234745
8. RECORD OF SURVEY AFN 8407130237

HORIZONTAL DATUM

WASHINGTON PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83/2011
(PER PORT OF TACOMA SURVEY CONTROL MAP – 2016)

MEASURED N 00°01'26" E BETWEEN TWO FOUND MONUMENTS WITHIN SECTION 1, PORT OF TACOMA CONTROL POSITIONS NUMBERED 127, LOCATED AT THE INTERSECTION OF 12TH ST. EAST & 46TH AVE. EAST, AND 2352 LOCATED WITHIN THE MEDIAN OF SR 509.

UTILIZED SURVEY CONTROL FROM SITTS & HILL JOB NO'S 20690, 20386, 18984, AND 15201.

VERTICAL DATUM

MLLW (PER PORT OF TACOMA SURVEY CONTROL MAP, DATED 2016)

P.O.T. MONUMENT #178
DESCRIPTION: LEAD AND TACK FOUND IN THE NORTHEAST GUTTER OF TAYLOR WAY.
PUBLISHED COORDINATES
N: 709882.76
E: 1175405.11
MLLW ELEV.: 15.73

TO CONVERT TO NGVD29 VALUES, REDUCE ALL ELEVATIONS BY 5.96 FEET (-5.96)

TO CONVERT TO NAVD88 VALUES, REDUCE ALL ELEVATIONS BY 2.46 FEET (-2.46)

SCHEDULE B EXCEPTIONS

PER CHICAGO TITLE INSURANCE COMPANY OF WASHINGTON, COMMITMENT NUMBER 251596-TC, DATED MAY 14, 2025

* NOT A SURVEY MATTER, DESCRIPTION PROVIDED AS A COURTESY
** CONTENT/DATA WITHIN INSTRUMENT IS INSUFFICIENT TO DETERMINE EXACT LOCATION
*** INSTRUMENT IS BLANKET IN NATURE OR AFFECTS ENTIRE PROPERTY

EXCEPTION NUMBER	AFN	DESCRIPTION
1	1275300	EASEMENT IN FAVOR OF THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY; FOR THE CONSTRUCTION, OPERATION, AND/OR MAINTENANCE OF TRANSMISSION LINES AND APPU SHOWN HEREON
2	1277459	EASEMENT IN FAVOR OF THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY; FOR THE CONSTRUCTION, OPERATION, AND/OR MAINTENANCE OF TRANSMISSION LINES AND APPU SHOWN HEREON
3	1277470	EASEMENT IN FAVOR OF THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY; FOR THE CONSTRUCTION, OPERATION, AND/OR MAINTENANCE OF LINES AND APPURTENANCES; SI
4	1818275	EASEMENT IN FAVOR OF THE CITY OF TACOMA FOR THE INSTALLATION OF A POWER LI APPURTENANCES; LOCATED WITHIN FIFE CITY LIMITS; NOTHING SHOWN HEREON
5	8801260281	EASEMENT IN FAVOR OF THE CITY OF FIFE FOR SLOPE AND/PR STORM DRAINAGE; SH
6	8802020111	EASEMENT IN FAVOR OF THE CITY OF TACOMA
7***	9502210260	CITY OF TACOMA ORDINANCE 25664; REGARDING ANNEXATION OF LAND INTO THE CITY AMENDED BY ORDINANCE 25687 RECORDED UNDER AFN 9504270103; NOTHING SHOWN
8	9502220323	RECORD OF SURVEY AND ANY MATTERS DISCLOSED WITHIN THE INSTRUMENT
9	9601250594	QUITCLAIM DEED; GRANTOR: BONNEVILLE POWER ADMINISTRATION; GRANTEE: WASHINGT DEPARTMENT OF TRANSPORTATION
10	9703270148	QUITCLAIM DEED; GRANTOR: PORT OF TACOMA; GRANTEE: STATE OF WASHINGTON
11***	201206155001	RECORD OF SURVEY AND ANY MATTERS DISCLOSED WITHIN THE INSTRUMENT; AMENDS SUPERSEDES SURVEY RECORDED UNDER AFN 201002045002
12*	N/A	NOTE REGARDING TAX EXEMPT STATUS
13*	N/A	NOTE REGARDING SPECIAL TAXES
14*	N/A	NOTE REGARDING TAX EXEMPT STATUS
15*	N/A	NOTE REGARDING SPECIAL TAXES
16*	2864651	NOTICE OF CITY OF TACOMA SPECIAL SEWER CHARGES; CORRECTED BY AFN 2881434; AFN 8012010130
17*	N/A	NOTICE OF TITLE INSURANCE COMPANY'S RIGHT TO REQUIRE FURTHER EVIDENCE TO COI PROPERTY IS UNENCUMBERED, AND ADD ADDITIONAL ITEMS OR EXCEPTIONS UPON DISC FURTHER EVIDENCE
18*	N/A	NOTE REGARDING UNRECORDED LEASEHOLDS AND RIGHTS OF HOLDER'S OF SECURITY IN THE LAND

LEGAL DESCRIPTION

THAT PORTION OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 1, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE WILLAMETTE MERIDIAN, LYING SOUTHWESTERLY OF TAYLOR WAY AS CONVEYED TO PIERCE COUNTY BY DEEDS RECORDED UNDER RECORDING NUMBERS 798135 AND 798133, AND LYING SOUTHEASTERLY OF STATE ROUTE 509, AS CONVEYED TO THE STATE OF WASHINGTON BY QUIT CLAIM DEED RECORDED UNDER RECORDING NUMBER 9703270148;
EXCEPT THAT PORTION THEREOF LYING EAST OF THE WEST LINE OF LYON'S TIDELAND ACRES, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 8 OF PLATS, PAGE 59, RECORDS OF PIERCE COUNTY, WASHINGTON;
ALSO EXCEPT MARSHALL AVENUE (4TH STREET EAST);
ALSO EXCEPT THAT PORTION OF THE ABOVE DESCRIBED PREMISES LYING EAST AND SOUTHEASTERLY OF THE FOLLOWING DESCRIBED LINE:
BEGINNING ON THE NORTH LINE OF MARSHALL AVENUE AT A POINT 20 FEET NORTH AND 986 FEET WEST OF THE SOUTHEAST CORNER OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 1;
THENCE NORTH 300 FEET;
THENCE NORTHEASTERLY TO THE SOUTHWEST CORNER OF LOT 4, LYON'S TIDE LAND ACRES, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 8 OF PLATS, PAGE 59, RECORDS OF PIERCE COUNTY, WASHINGTON;
ALSO EXCEPT THE FOLLOWING DESCRIBED PROPERTY:
THE WEST 225 FEET OF THE FOLLOWING DESCRIBED PROPERTY LYING WITHIN SECTION 1, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE WILLAMETTE MERIDIAN:
BEGINNING 999 FEET WEST AND 350 FEET SOUTH OF THE NORTHEAST CORNER OF LOT 1;
THENCE SOUTH TO THE NORTH LINE OF MARSHALL AVENUE;
THENCE WEST TO THE WEST LINE OF SAID LOT 1;
THENCE NORTH TO A POINT WEST OF THE BEGINNING;
THENCE EAST TO THE POINT OF BEGINNING;
EXCEPT THAT PORTION THEREOF LYING WITHIN TRACT 8 OF THE PORT OF TACOMA ASSESSOR'S TRACTS;
ALSO EXCEPT THAT PORTION THEREOF CONVEYED TO THE STATE OF WASHINGTON FOR SR 509 BY QUIT CLAIM DEED RECORDED UNDER RECORDING NUMBER 9703270148.
SITUATE IN THE COUNTY OF PIERCE, STATE OF WASHINGTON.

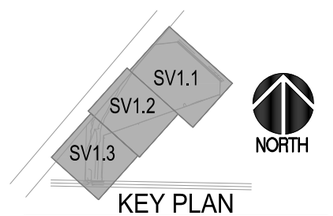
SITE DATA

TAX PARCEL NO.: 0320011091
ADDRESS: 3802 TAYLOR WAY

NOTES

1. EQUIPMENT USED: CARLSON CR2+ ROBOTIC TOTAL STATION AND JAVAD TRIUMPH-3NR RTK/GPS.
2. THIS SURVEY WAS PERFORMED BY FIELD TRAVERSE WITH THE FINAL RESULTS MEETING OR EXCEEDING THE CURRENT TRAVERSE AND RELATIVE POSITIONAL ACCURACY STANDARDS CONTAINED IN W.A.C. 332-130-090. THE RELATIVE POSITIONAL ACCURACY OF THE POSITIONS LOCATED HEREON MEETS OR EXCEEDS 2 CM (0.07 FT.) PLUS 50 PARTS PER MILLION BETWEEN ANY TWO TESTED POSITIONS. ALL MEASUREMENTS WERE MADE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S SPECIFICATIONS.
3. IN ACCORDANCE WITH THE REVISED CODE OF WASHINGTON (R.C.W.) 58.09 AND THE WASHINGTON ADMINISTRATIVE CODE (W.A.C.) 332-130, THIS SURVEY MAY DEPICT OCCUPATIONAL INDICATORS THAT DIFFER FROM THE DEEDED LOT LINES. THESE INDICATORS, IF AT ALL PRESENT, MAY REPRESENT A POTENTIAL FOR CLAIMS OF UNWRITTEN TITLE. THIS SURVEY DOES NOT PURPORT TO RESOLVE SUCH ITEMS.
4. FIELD WORK PERFORMED IN APRIL AND MAY OF 2025, UNDER SITTS & HILL PROJECT NUMBER 20869.
5. UTILITIES AS SHOWN HEREON ARE BASED ON FIELD SURVEY OBSERVATION OF ABOVE GROUND UTILITIES. THIS SURVEY WAS COMPLETED WITHOUT THE BENEFIT OF UNDERGROUND UTILITY LOCATING. THIS HAS BEEN SUPPLEMENTED BY RECORD INFORMATION PROVIDED BY THE PORT OF TACOMA, AS WELL AS BY DAVID EVANS ASSOCIATES AND SITTS AND HILL, UNDER SITTS AND HILL JOB NUMBER 17695 FROM 2018. RECORD UTILITY LINES SHOWN HEREON ARE DEPICTED WITH THE STANDARD LINETYPE WITH A "- - -" AS SHOWN IN THE LEGEND. UTILITIES OTHER THAN SHOWN MAY EXIST ON THE SITE. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE SURVEYOR DOES CERTIFY THAT THEY ARE SHOWN AS ACCURATELY AS POSSIBLE FROM FIELD SURVEY. COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA IS CONSISTENT WITH QUALITY LEVEL C OF THE ASCE STANDARD GUIDELINES 38-02.
6. SITTS & HILL ENGINEERS, INC. HAS RELIED UPON TITLE INFORMATION NOTED IN COMMITMENT FOR TITLE INSURANCE PREPARED BY CHICAGO TITLE INSURANCE COMPANY OF WASHINGTON, COMMITMENT NUMBER 251596-TC, DATED MAY 14, 2025. IN PREPARATION OF THIS SURVEY, SITTS AND HILL ENGINEERS, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS SITTS AND HILL ENGINEERS, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND/OR DISCLOSED BY SAID TITLE COMPANY'S ORDER. SITTS & HILL ENGINEERS, INC. HAS RELIED WHOLLY ON SAID TITLE COMPANY'S REPORT AND THEREFORE QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
7. THIS SURVEY COMPLIES WITH W.A.C. 332-130-145. THE CONTOURS DEPICTED HEREON ARE BASED ON DATA FROM DIRECT FIELD MEASUREMENTS. SPOT ELEVATIONS ARE BASED ON DIRECT FIELD MEASUREMENTS AND ARE DEPICTED FOR REFERENCE. THE PURPOSE OF THIS TOPOGRAPHIC MAP IS TO SERVE AS A BASE MAP FOR CONTEMPLATED SITE IMPROVEMENTS AND DESIGN.
8. WETLAND BOUNDARY DELINEATION COMPLETED BY OTHERS WITH WETLAND FLAGS LOCATED BY SITTS AND HILL IN OCTOBER 2024 UNDER JOB NUMBER 20690.

A-## = WETLAND FLAG NUMBER
TP-## = TEST PIT NUMBER



KEY PLAN
SCALE: NTS

Port of Tacoma
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PRELIMINARY
STATE OF WASHINGTON
JAMES E. SCHILLING
CERTIFICATE NUMBER 18902
REGISTERED PROFESSIONAL LAND SURVEYOR

APPROVED: _____ DATE _____

CHECKED BY _____ DATE _____

DIRECTOR ENG. _____ DATE _____
PROJ. ENGR _____ DATE Jun 18, 2025
PRINTED BY: smootsr
PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837

PARCEL 12
BOUNDARY AND SURVEY CONTROL

SV1.0
SH # 1 OF 4

CONT/CONS:	071861	TOWNSHIP: 20N	RANGE: 3E
M. ID:	101711.01	DAT-HRZ: WA83/2011	VERT: MLLW 15.73 @ POT MON #178
PHASE:		PARCEL: 12	DRAWING SCALE: AS NOTED

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PORT OF TACOMA FILE: O:\20800\20869\Drawings\20869 - Topo Sheet SV1.0

TAYLOR WAY

"NFR" LINE

FOUND 3" BRASS DISK, W/ SCRIBED 'X', IN CASE, DOWN 0.5± (06/09/2025)

FOUND 5/8" REBAR WITH CAP "APEX ENG. L.S. 34130/18902" (06/06/2025)

RECORD POWER LINE FROM SITTS & HILL JOB 17695, 2018

SCRIBE #228
N: 706693.00
E: 1178871.03
EL: 16.46

"NO TRESSPASSING"

CALCULATED POSITION PER R2

STORM MANHOLE TYPE II RIM=15.99 IE=12.37, 15" CPP NE IE=6.23, 24" CPP SE IE=6.23, 24" CPP NW LADDER SW

ABANDONED LINE

SIGN POSTS ONLY

"35 MPH & NO PARKING"

MAG #227
N: 706531.59
E: 1179052.14
EL: 16.56

STORM CATCH BASIN RIM=16.16 TYPE II IE=6.53, 24" CPP SE IE=6.41, 24" CPP NW LADDER SW

FOUND 3" BRAS DISK W/ PUNCH "38017", IN CASE, DOWN 0.4'± (06/06/2025)

FOUND 5/8" REBAR WITH CAP "APEX ENG. L.S. 34130/18902" (04/07/2025)

STORM CATCH BASIN RIM=15.11 TYPE II IE=6.88, 24" CPP SE IE=6.81, 24" CPP NW

HORIZONTAL SCALE: 1"=20'
20 0 20 40

S84°05'38"W 144.53'

N42°17'57"E 69.43'

N21°35'51"E 811.83'

N47°57'39"W 384.14'

6' CHAIN LINK FENCE

6' CHAIN LINK FENCE WITH BARBED WIRE & ELECTRIC

RECORD COMM. LINE FROM DEA FOR SITTS & HILL JOB 17695, 2018

TPN 539000072
OLINE RONALD

SET 5/8" REBAR WITH CAP "S&H, L.S. 49289" (06/13/2025)

MAG #225
N: 706332.80
E: 1179141.35
EL: 19.84

GATE

STANDING WATER

WETLAND

WETLAND BOUNDARY

75' WETLAND BUFFER

15' WETLAND BUFFER

16' WILLOW BUFFER

ABANDONED LINE

MONITORING WELL #1
RIM=16.70
PIPE=16.59

MONITORING WELL #2
RIM=16.06
PIPE=15.96

10' CITY OF TPE EASEMENT FOR SLOPES AND STORM DRAINAGE PER AFN 8801260281

33' PACIFIC TELEPHONE AND TELEGRAPH COMPANY EASEMENT PER AFN 1275300

DEBRIS PILE

"RIGHT TURN"

TPN 0320011090
PORT OF TACOMA

TPN 0320011091
PORT OF TACOMA

TPN 0320011091
PORT OF TACOMA

TPN 0320011083
F S HARMON MFG CO

TPN 0320011072
MUKTA PROPERTIES
5219 INC

MATCHLINE - SEE SV1.1
MATCHLINE - SEE SV1.2

LEGEND

- FOUND MONUMENT
- REBAR W/ CONTROL CAP
- SURVEY CONTROL POINT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM CULVERT
- UTILITY POLE
- JUNCTION BOX
- LIGHT POLE
- TELECOM RISER
- UTILITY VAULT
- SIGN
- WETLAND FLAG
- MONITORING WELL
- DECIDUOUS TREE
- EVERGREEN TREE
- SIGNIFICANT STUMP
- CWOOD COTTONWOOD TREE
- TPN TAX PARCEL NUMBER
- X.X' DISTANCE OF NOTED OBJECT FROM PROPERTY LINE

- PARCEL LINE
- ROAD CENTERLINE
- RIGHT OF WAY LINE
- EASEMENT LINE
- GIS PARCEL LINE (APPROX.)
- STORM DRAIN LINE
- RECORD STORM LINE
- BURIED POWER LINE
- RECORD BURIED POWER
- BURIED TELECOM LINE
- RECORD TELECOM LINE
- CHAIN LINK FENCE
- WETLAND DELINEATION

- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- RIP-RAP SURFACE
- SUBMERGED AREA AT TIME OF SURVEY
- WOOD CHIPS

KEY PLAN
SCALE: NTS
SV1.1
SV1.2
SV1.3
NORTH

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

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CHRISTOPHER SCHILLING
STATE OF WASHINGTON
49289
REGISTERED PROFESSIONAL LAND SURVEYOR

APPROVED:

CHECKED BY DATE

DIRECTOR ENG. DATE

PROJ. ENGR DATE

PARCEL 12
TOPOGRAPHIC SURVEY 1

SV1.1
SH #2 OF 4

CONT/CONS: 071861	TOWNSHIP: 20N	RANGE: 3E	SECTION: 1
M. ID: 101711.01	DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178	
PHASE:	PARCEL: 12	DRAWING SCALE: AS NOTED	

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BINDING EDGE

PORT OF TACOMA FILE: O:\20800\20869\Drawings\20869 - Topo Sheet SV1.1

BINDING EDGE

"SFR" LINE

SR 509

FIFE DITCH

MATCHLINE - SEE SV1.1
MATCHLINE - SEE SV1.2

MONITORING WELL #3
RIM=16.57
PIPE=16.52

"CABLE ROUTE 280-5W" ABANDONED

TPN 0320011091
PORT OF TACOMA

TPN 0320011072
MUKTA PROPERTIES 5219 INC

MAG #222
N: 706104.78
E: 1178717.56
EL: 17.87

N70°35'51"E 811.83'

6' CHAIN LINK FENCE

0.7'

0.3'

6' CHAIN LINK FENCE WITH BARBED WIRE

0.8'

33' PACIFIC TELEPHONE AND TELEGRAPH COMPANY EASEMENT PER AFN 1275300

MONITORING WELL #4
RIM=15.42
PIPE=15.21

231.0' PACIFIC TELEPHONE AND TELEGRAPH COMPANY EASEMENT PER AFN 1277459

TEE POST

S40°17'27"W 702.86'

TPN 0320011090
PORT OF TACOMA

"NO TRESSPASSING"

TPN 0320011070
SPARKER LLC

1.1'

5.268± AC. PACIFIC TELEPHONE AND TELEGRAPH EASEMENT PER AFN 1277470

SAW DUST

MATCHLINE - SEE SV1.2
MATCHLINE - SEE SV1.3

HORIZONTAL SCALE: 1"=20'

20 0 20 40

LEGEND

- FOUND MONUMENT
- REBAR W/ CONTROL CAP
- SURVEY CONTROL POINT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM CULVERT
- UTILITY POLE
- JUNCTION BOX
- LIGHT POLE
- TELECOM RISER
- UTILITY VAULT
- SIGN
- WETLAND FLAG
- MONITORING WELL
- DECIDUOUS TREE
- EVERGREEN TREE
- SIGNIFICANT STUMP
- CWOOD COTTONWOOD TREE
- TPN TAX PARCEL NUMBER
- X.X' DISTANCE OF NOTED OBJECT FROM PROPERTY LINE

- PARCEL LINE
- ROAD CENTERLINE
- RIGHT OF WAY LINE
- EASEMENT LINE
- GIS PARCEL LINE (APPROX.)
- SD STORM DRAIN LINE
- SD–R SD–R RECORD STORM LINE
- BP BP BURIED POWER LINE
- BP–R BP–R RECORD BURIED POWER
- BT BT BURIED TELECOM LINE
- BT–R BT–R RECORD TELECOM LINE
- CHAIN LINK FENCE
- WETLAND DELINEATION
- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- RIP–RAP SURFACE
- SUBMERGED AREA AT TIME OF SURVEY
- WOOD CHIPS

SV1.1
SV1.2
SV1.3

NORTH

KEY PLAN
SCALE: NTS

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STATE OF WASHINGTON
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REGISTERED PROFESSIONAL LAND SURVEYOR

APPROVED:

DIRECTOR ENG. DATE

CHECKED BY DATE

PROJ. ENGR DATE

PRINTED BY: smootsr Jun 18, 2025

PORT ADDRESS:ONE SITCUM PLAZA

TACOMA, WA 98401-1837

PARCEL 12
TOPOGRAPHIC SURVEY 2

SV1.2
SH # 3 OF 4

CONT/CONS:	071861	TOWNSHIP: 20N	RANGE: 3E
M. ID:	101711.01	DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178
PHASE:		PARCEL: 12	DRAWING SCALE: AS NOTED

SECTION: 1

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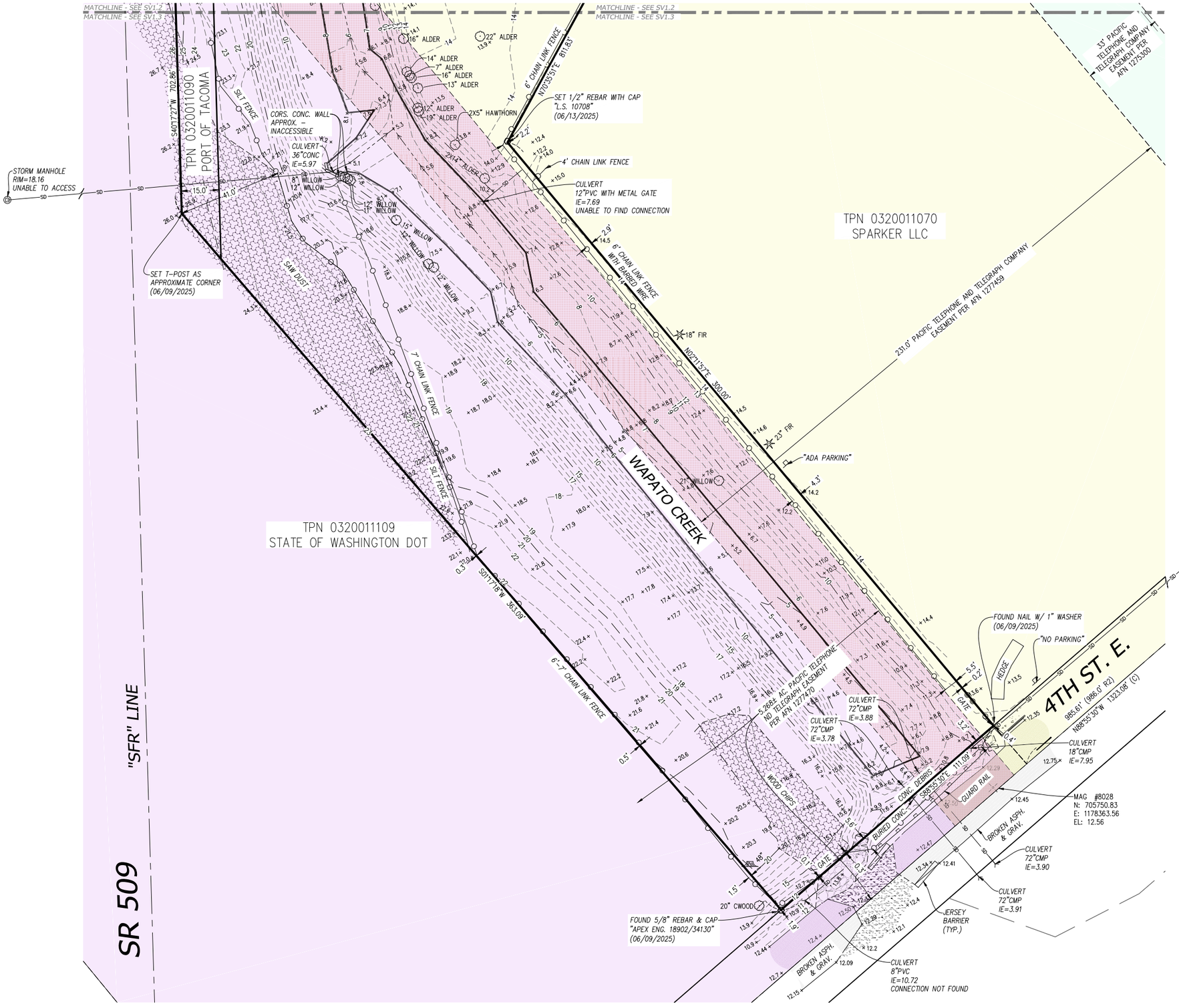

LEGEND

- FOUND MONUMENT
- REBAR W/ CONTROL CAP
- SURVEY CONTROL POINT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM CULVERT
- UTILITY POLE
- JUNCTION BOX
- LIGHT POLE
- TELECOM RISER
- UTILITY VAULT
- SIGN
- WETLAND FLAG
- MONITORING WELL
- DECIDUOUS TREE
- EVERGREEN TREE
- SIGNIFICANT STUMP
- CWOOD COTTONWOOD TREE
- TPN TAX PARCEL NUMBER
- X.X' DISTANCE OF NOTED OBJECT FROM PROPERTY LINE

- PARCEL LINE
- ROAD CENTERLINE
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- SUBMERGED AREA AT TIME OF SURVEY
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PROFESSIONAL LAND SURVEYOR

APPROVED:

DIRECTOR ENG.	DATE	CHECKED BY	DATE
PROJ. ENGR	DATE		

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TACOMA, WA 98401-1837
DRAWING SCALE: AS NOTED

PARCEL 12
TOPOGRAPHIC SURVEY 3

SV1.3
SH # 4 OF 4

CONT/CONS:	071861	TOWNSHIP: 20N	RANGE: 3E
M. ID:	101711.01	DAT-HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178
PHASE:		PARCEL: 12	SECTION: 1

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Appendix C
Parcel 37D Critical Areas Report

CONFLUENCE
ENVIRONMENTAL COMPANY

Gog-le-hi-te Mitigation Site
WETLAND DELINEATION REPORT

Prepared for:

Port of Tacoma
July 2025





146 N Canal Street, Suite 111 • Seattle, WA 98103 • www.confenv.com

Gog-le-hi-te Mitigation Site
WETLAND DELINEATION REPORT

Prepared for:

Port of Tacoma
One Sitcum Plaza
PO Box 1837
Tacoma, WA 98241

Prepared by:

Confluence Environmental Company

July 2025

This report should be cited as:

Confluence (Confluence Environmental Company). 2025. Gog-le-hi-te mitigation site: Wetland delineation report. Prepared for Port of Tacoma, Tacoma, Washington, by Confluence, Seattle, Washington.

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Figure 2. Wetland A, standard buffer, test plot, and soil probe locations 7

ATTACHMENTS

Attachment 1—GIS Database Search Results

Attachment 2—Wetland Delineation Data Forms

Attachment 3—Wetland Rating Form

Attachment 4—Site Photographs

Attachment 5—FEMA FIRM Map

1.0 INTRODUCTION

As part of providing compensatory mitigation for wetland impacts associated with the Parcel 117 snail eradication project, the Port of Tacoma (Port) proposes mitigation actions within the northeastern portion of the Gog-le-hi-te Wetland site on parcels 0320032048, 0320031004, 0320031026, 0320031027, and 0320034052 at 1402 Lincoln Avenue in Tacoma, Washington (Figure 1).

Confluence conducted a wetland delineation within the proposed mitigation area and prepared this report to document findings to inform the mitigation design and support issuance of a Critical Areas Development Permit pursuant to Tacoma Municipal Code (TCM) Chapter 13.11. In addition to wetlands, this report discusses flood hazard areas on the site based on a review of GIS databases.



Figure 1. Mitigation area

2.0 METHODS

This section describes the methods used to delineate any wetlands in the mitigation area and to determine whether flood hazard areas are present.

2.1 Desktop Analysis

Confluence reviewed the GIS databases listed below for the potential presence of wetlands and flood hazard areas in the mitigation area.

- City of Tacoma GIS (City of Tacoma 2025b,c)
- Pierce County PublicGIS (Pierce County 2025)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS 2025)
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) (WDFW 2025)
- Natural Resources Conservation Service (NRCS) Soil Survey (NRCS 2025a)
- Washington Department of Natural Resources (WDNR) Natural Heritage Program Data Explorer (WDNR 2025)
- Federal Emergency Management Agency (FEMA) flood map service center (FEMA 2025)

Results of the GIS database searches are in Attachment 1.

2.2 Site Investigation

On May 6 and 12, 2025, Confluence conducted a site investigation to delineate any wetlands in the mitigation area.

2.2.1 Wetland Identification and Delineation

Confluence identified wetlands and delineated their boundaries using the methods described in the Corps of Engineers Wetlands Delineation Manual (Corps 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Corps 2010). The Corps typically requires that the following 3 characteristics be present for an area to be identified as a wetland: (1) hydrophytic vegetation, (2) hydric soil, and (3) wetland hydrology. For each criterion, there are several possible indicators that can be used to determine whether the criterion has been met. The indicators were established so that if a wetland were present on-site, sufficient indicators would be observed at any time of the year, including the driest months, to identify the wetland. When "normal circumstances," as defined by the Corps (1987), exist on the site all 3 criteria must be present for an area to be determined a wetland. A more detailed description of delineation methodology is provided in Appendix B of the main report. Wetland delineation data forms completed during the site investigation are provided in Attachment 2.

To confirm the presence or absence of a wetland, data were collected from representative test plots within and outside of potential wetlands. The locations of the test plots were based on the presence of visual wetland indicators (e.g., wetland vegetation, evidence of standing water) or were chosen to represent vegetative, topographic, or hydrologic features in the vicinity. Within these test plots, vegetation, soils, and hydrology were examined to determine whether wetland characteristics were present (see Appendix B for details). Plots that met all 3 wetland criteria were determined to be wetland plots; plots that did not meet all 3 wetland criteria were determined to be upland plots.

Once the presence of a wetland was confirmed, visual wetland indicators, such as topographic and vegetative shifts, were used to delineate the remainder of the wetland boundary. In areas with a lack of visual wetland indicators (i.e., areas with monoculture vegetation and no clear topographic break), Confluence used soil probes to determine the wetland boundary between test plots. Confluence evaluated the presence or absence of hydric soil and wetland hydrology indicators at soil probe locations to determine whether the area represented by the soil probe was wetland or upland. Soil probe locations and presence or absence of hydric soil and wetland hydrology indicators were recorded using a differential GPS capable of sub-meter accuracy after post-processing.

Confluence used the PLANTS Database (NRCS 2025b) to provide consistency in scientific naming and the 2020 National Wetland Plant List (Corps 2020) to determine the wetland indicator status of plants.

The wetland boundary and test plot locations were flagged using pink ribbon flagging, the positions of which were collected by surveyors.

2.2.2 Wetland Rating

Confluence determined wetland ratings using the Washington State Wetland Rating System for Western Washington (Hruby and Yahnke 2023) to assess the resource value of any wetland identified on the site. This rating system is based on the wetland functions and values, sensitivity to disturbance, rarity, and irreplaceability. Confluence used Ecology's Washington Tool for Online Rating (WATOR) to complete the rating figures and form. Wetland rating forms are in Attachment 3.

3.0 RESULTS

Confluence identified and delineated 1 wetland in the mitigation area, Wetland A. No flood hazard areas were identified in the mitigation area.

3.1 Mitigation Area Description

The proposed Gog-le-hi-te mitigation area is a freshwater wetland area located generally northeast of the Gog-le-hi-te I habitat restoration area. The mitigation area is a 2.12-acre area bounded on the western side by the Gog-le-hi-te I Habitat Restoration Site, on the north by the Gog-le-hi-te Habitat Improvement Action area, and on the east and south by portions of the Gog-le-hi-te Wetland loop trail system constructed along U.S. Army Corps of Engineers (Corps) levees. The mitigation area is generally flat and is located above the level of tidal influence. The parcels are zoned PMI – Port Maritime Industrial (City of Tacoma 2025a). The land use designation is Parks and Open Space.

3.2 Wetland

3.2.1 Desktop Analysis

USFWS's NWI (2025) maps a freshwater forested/scrub-shrub wetland in the vicinity of the mitigation area and a estuarine and marine wetland to the west. While Pierce County (2025) does not identify any wetlands in the mitigation area, Tacoma's DART Map shows a wetland in the mitigation area that extends beyond the mitigation area to the north and west (City of Tacoma 2025b). WDNR's Natural Heritage Program does not identify any rare plants or ecosystems in the mitigation area (WDNR 2025).

3.2.2 Test Plots

During the site investigation, 5 test plots were established, 4 in uplands and 1 in wetland. Soil probes were also collected to rapidly determine whether an area was upland or wetland. Test plot and soil probe locations are shown on Figure 2. Test plot characteristics are detailed below. Photographs of the site are in Attachment 4.

Test Plot 1 (TP-1) was located in the southwestern portion of the mitigation area. Vegetation was dominated by black cottonwood (*Populus trichocarpa*), willow (*Salix* spp.), reed canarygrass (*Phalaris arundinacea*), and cleavers bedstraw (*Galium aparine*). The vegetation within TP-1 passed the Dominance Test and therefore met the vegetation criterion. Soil in the top layer (0-5 inches) was a black (10YR 2/1) silt loam. Soil in the second layer (5-12 inches) was a black (10YR 2/1) silt loam with cobbles. Soil in the third layer (12-18 inches) was a black (10YR 2/1) silt loam with high organic content (bark, root fibers, etc.). Confluence was unable to dig deeper than 18 inches due to a restrictive layer (rock). It was assumed that the soils did not meet the thick dark surface hydric soil indicator (A12) based on the absence of hydrology indicators and the

presence of the restrictive layer. Therefore, the soils did not meet any hydric soil indicator, meaning the hydric soil criterion was not met. No primary hydrology indicators were observed, and only 1 secondary indicator, FAC-Neutral Test (D5), was observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-1 did not meet all 3 criteria, the area represented by TP-1 is not a wetland.

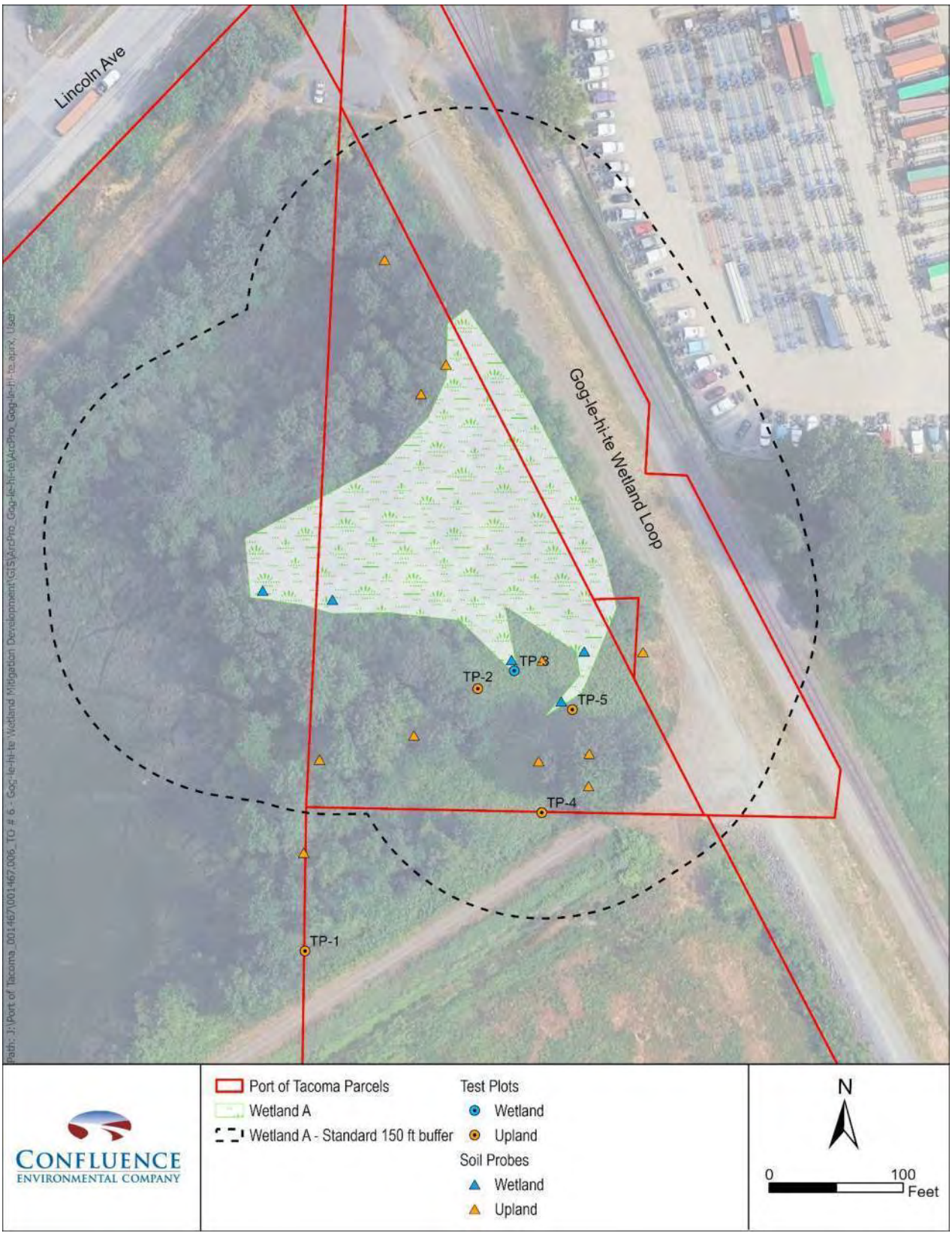

Figure 2. Wetland A, standard buffer, test plot, and soil probe locations

TP-2 was located in the southeastern portion of the mitigation area in an area dominated by black cottonwood, Himalayan blackberry (*Rubus armeniacus*), and reed canarygrass. The vegetation within TP-1 passed the Dominance Test and therefore met the vegetation criterion. The soil consisted of only 1 layer (0-16 inches) and was a black (10YR 2/1) silt loam. Confluence was unable to dig deeper than 18 inches due to a restrictive layer, which consisted of cobbles and gravel and appeared to be fill. It was assumed that the soils did not meet the thick dark surface hydric soil indicator (A12) due to the fill material observed at 18 inches. Therefore, the soils did not meet any hydric soil indicator, meaning the hydric soil criterion was not met. Two primary hydrology indicators—Saturation (A3) and Oxidized Rhizospheres on Living Roots (C3)—and 1 secondary indicator—FAC-Neutral Test (D5)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-2 did not meet all 3 criteria, the area represented by TP-2 is not a wetland. This area is a transitional zone between Wetland A and the adjacent upland area.

TP-3 was located in the southeastern portion of the mitigation area, just east of TP-2, in an area dominated by Himalayan blackberry, reed canarygrass, and cleavers bedstraw. The vegetation within TP-3 passed the Dominance Test and therefore met the vegetation criterion. Soil in the top layer (0-6 inches) was a black (10YR 2/1) sandy silt loam. Soil in the second layer (6-15 inches) was a very dark gray (10YR 3/1) gravelly loam with 10% dark yellowish brown (10YR 4/6) redoximorphic concentrations in the matrix and pore linings. The soils met the Redox Dark Surface (F6) hydric soil indicator; thus, the hydric soil criterion was met. One primary hydrology indicator—Saturation (A3)—was observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-3 met all 3 criteria, the area represented by TP-3 is a wetland, identified as Wetland A.

TP-4 was located in the southeastern corner of the mitigation area in an area dominated by black cottonwood and Himalayan blackberry. The vegetation within TP-4 passed the Dominance Test and therefore met the vegetation criterion. Soil in the top layer (0-6 inches) was a black (10YR 2/1) sandy silt loam. The soil consisted of only 1 layer (0-15 inches) and was a black (10YR 2/1) silt loam. No primary or secondary hydrology indicators were observed. It was assumed that the soils did not meet the thick dark surface hydric soil indicator (A12) based on the absence of hydrology indicators. Therefore, the soils did not meet any hydric soil indicator, meaning the hydric soil criterion was not met. Since TP-4 did not meet all 3 criteria, the area represented by TP-4 is not a wetland.

TP-5 was located in the southeastern corner of the mitigation area, just north of TP-4, in an area dominated by black cottonwood, willow, Himalayan blackberry, narrowleaf fireweed (*Chamaenerion angustifolium*), and reed canarygrass. The vegetation within TP-5 passed the Dominance Test and therefore met the vegetation criterion. The soil consisted of only 1 layer (0-15 inches) and was a black (10YR 2/1) silt loam. It was assumed that the soils did not meet the thick dark surface hydric soil indicator (A12) based on the absence of hydrology indicators.

Therefore, the soils did not meet any hydric soil indicator, meaning the hydric soil criterion was not met. No primary or secondary hydrology indicators were observed. Since TP-5 did not meet all 3 criteria, the area represented by TP- 5 is not a wetland.

3.2.3 Wetland A Description

Wetland A is 36,224 square feet (0.832 acre) and is bounded on the west by the Gog-le-hi-te I habitat restoration site, on the north by the Gog-le-hi-te Habitat Improvement Action area, and on the east and south by portions of the Gog-le-hi-te Wetland loop trail system. TP-3, described above, represents Wetland A.

The Gog-le-hi-te I site to the west is a large estuarine wetland connected to a tidally-influenced reach of the Puyallup River. The Habitat Improvement Action area to the north is hydrologically connected to the Gog-le-hi-te I site. There is a berm between Wetland A and these restoration areas; therefore, Wetland A would be considered hydrologically separate from the wetlands in these areas. Since Wetland A is located above the level of tidal influence, hydrologic inputs from the Puyallup River are limited. Dominant sources of hydrologic inputs are groundwater and precipitation. No outlet was observed.

According to the Cowardin classification system (FGDC 2013), Wetland A contains forested, scrub-shrub, and emergent vegetation classes. Vegetation is dominated by red-osier dogwood (Cornus sericea), black cottonwood, willow, common cattail (Typha latifolia), slough sedge (Carex obnupta), salmonberry (Rubus spectabilis), and two invasive species, Himalayan blackberry and reed canarygrass. There are particularly dense patches of both invasive species in the southeastern portion of the wetland.

The boundary of Wetland A was determined by topographic breaks, vegetation shifts, and hydrology indicators. Wetland A was rated as a Category II wetland, with a water quality score of 7, hydrology score of 8, and habitat score of 6 (Hruby and Yahnke 2023).

As a Category II wetland with a moderate habitat score, the standard buffer for Wetland A is 150 feet (TMC 13.11.320). Figure 2 shows the wetland, the location of the test plots and soil probes, and the standard buffer.

3.3 Flood Hazard Areas

TMC 13.11.610 identifies flood hazard areas as areas identified on the most recent FEMA Flood Insurance Rate Map (FIRM). A portion of the Gog-le-hi-te I site, west of the mitigation area, is identified on the FEMA FIRM as a Zone A Special Flood Hazard Area; however, no flood hazard areas are identified in the mitigation area (FEMA 2025). The flood hazard area to the west is also mapped by the City flooding map (City of Tacoma 2025c). Zone A Special Flood Hazard Areas are areas subject to inundation by the 1% annual chance (100-year) flood, or “base

flood," for which no base flood elevation has been determined. The FEMA FIRM map is provided in Attachment 5.

4.0 REFERENCES

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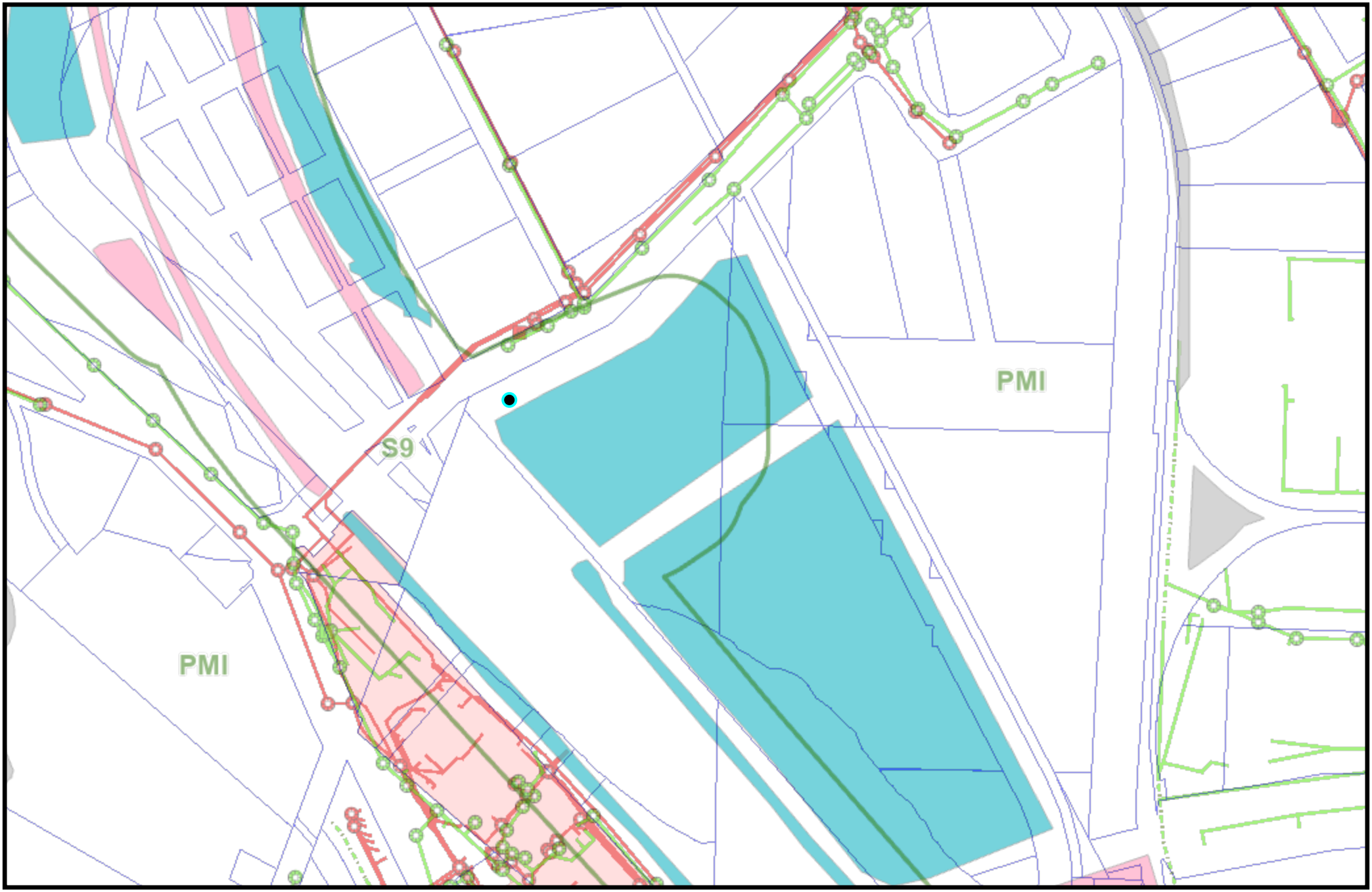
Attachment 1

GIS Database Search Results

Tacoma GIS



tacomaMAP

© 2019 City of Tacoma GIS

Last Printed: 6/5/2025 3:59 PM

Scale: 1:4,514

0 0.0175 0.035 0.07 0.105 0.14

mi

* This map is not suitable for site-specific analysis or for utility location *

See full disclaimer below:
http://geohub.cityoftacoma.org/pages/disclaimer

N

PublicGIS



Legend

Floodways

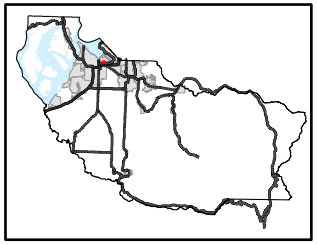
Hydro - Centerlines

Hydro Centerline

Regulated Floodplain 2017

1% Annual Chance Flood

Tax Parcels



N

0 90 180 360 ft

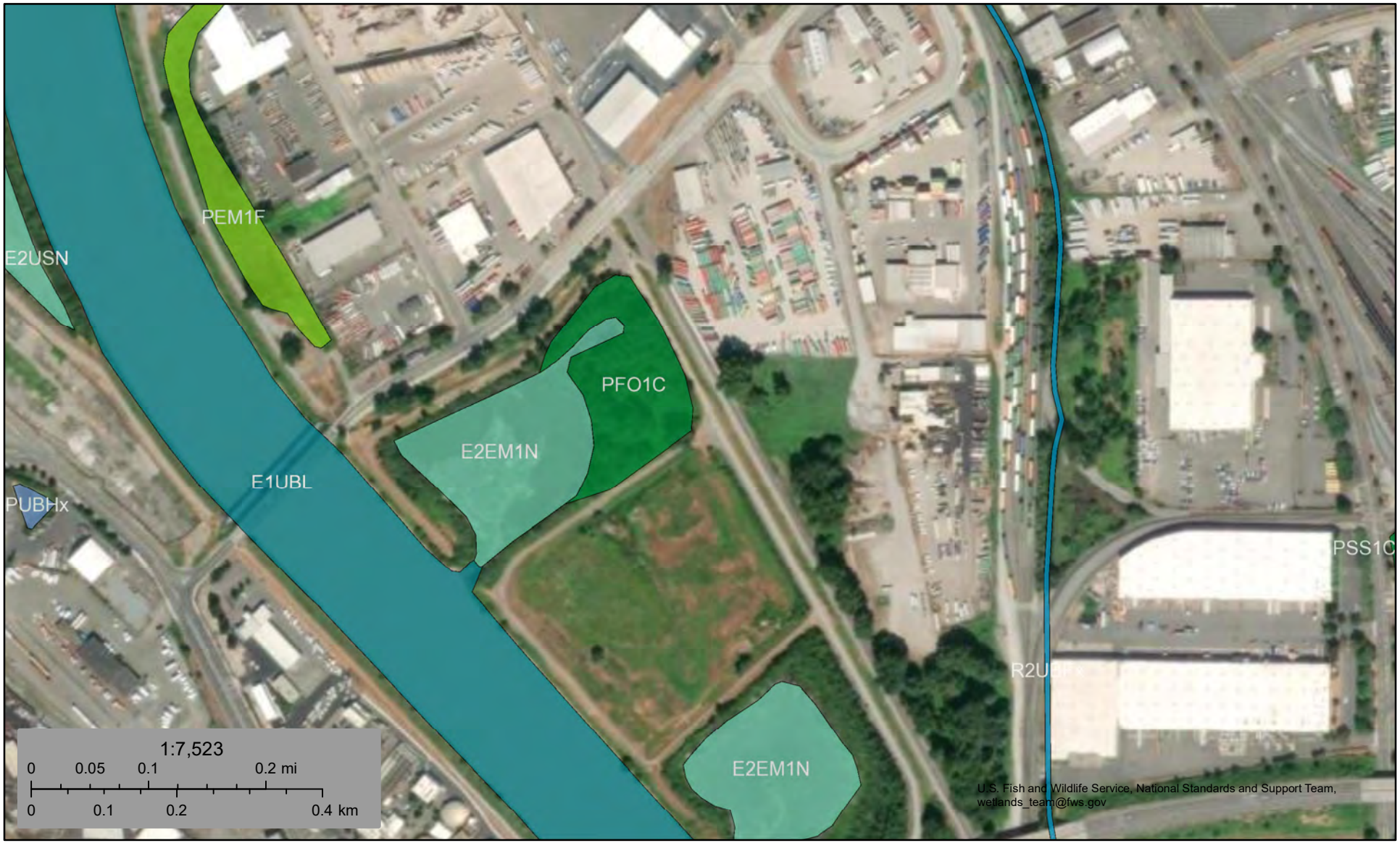
1:4,044

Disclaimer: The map features are approximate and have not been surveyed. Additional features not yet mapped may be present. Pierce County assumes no liability for variations ascertained by formal survey.

Date: 5/1/2025 01:21 PM

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands

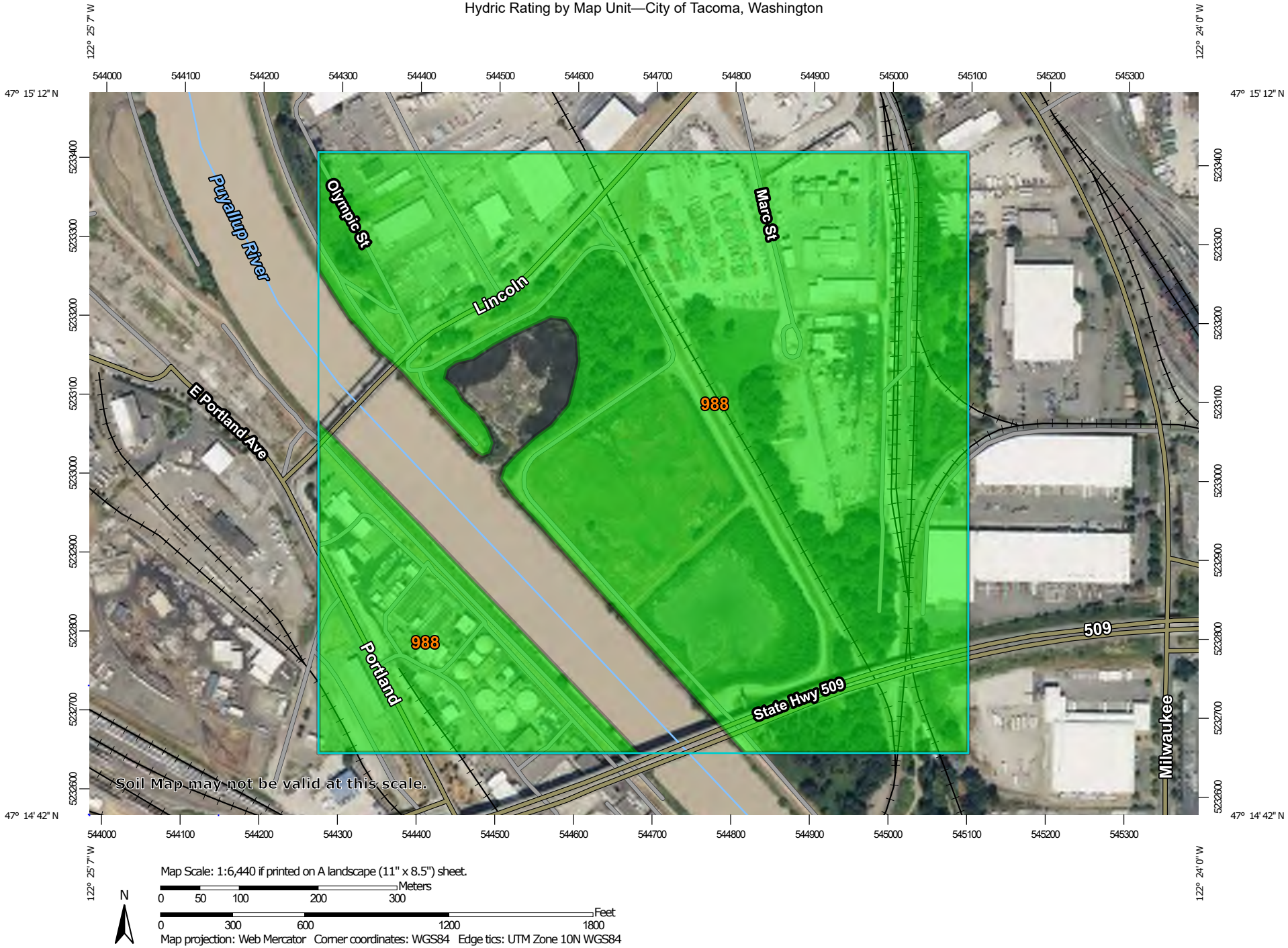


May 1, 2025

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.


122° 25' 7" W
122° 24' 0" W
47° 15' 12" N
47° 14' 42" N
544000
544100
544200
544300
544400
544500
544600
544700
544800
544900
545000
545100
545200
545300
5233400
5233300
5233200
5233100
5233000
5232900
5232800
5232700
5232600
Puyallup River
Olympic St
Lincoln
Marc St
E Portland Ave
988
988
Portland
509
State Hwy 509
Milwaukee
Soil Map may not be valid at this scale.
Map Scale: 1:6,440 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 50 100 200 300
Feet
0 300 600 1200 1800
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: City of Tacoma, Washington
Survey Area Data: Version 7, Aug 28, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 31, 2022—Aug 8, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
988	Urban land, 0 to 5 percent slopes	0	132.5	84.9%
Totals for Area of Interest			**156.1**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

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Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Priority Habitats and Species on the Web



Report Date: 05/01/2025, Parcel ID: 0320031004

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Wetlands	N/A	N/A	No
Estuarine and Marine Wetland	N/A	N/A	No
Freshwater Forested/Shrub Wetland	N/A	N/A	No
Big brown bat			Yes

PHS Species/Habitats Details:

Wetlands	
Priority Area	Aquatic Habitat
Site Name	COMMENCEMENT BAY TRIBUTARY WETLANDS
Accuracy	1/4 mile (Quarter Section)
Notes	VARIOUS WETLANDS ASSOCIATED WITH SMALL COMMENCEMENT BAY OF SOUTH PUGET SOUND TRIBUTARIES INCLUDING HYLEBOS AND WAPATO CREEK DRAINAGES.
Source Record	902561
Source Dataset	PHSREGION
Source Name	NAUER, DON WDW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Estuarine and Marine Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Estuarine and Marine Wetland - NWI Code: E2EM1N
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Forested/Shrub Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Big brown bat	
Scientific Name	*Eptesicus fuscus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necesssary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

WNHP Rare Plant and Ecosystem Locations



5/29/2025, 3:21:07 PM

Historical Rare Plants and Rare & High-quality Ecosystems

Rare Plant

Public Land Survey Sections

Public Land Survey Townships

State Boundary

County Boundaries

1:15,295

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

Source: Esri, USDA FSA, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community,

WNHP Plant & Ecosystem Map Viewer

KNOWN PLANT AND ECOSYSTEM LOCATIONS REFLECT KNOWN OCCURRENCE LOCATIONS BUT MAY NOT REFLECT ALL OCCURRENCES OF RARE PLANTS OR ECOSYSTEMS.

Attachment 2

Wetland Delineation Data Forms

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Google-hi-fe Mit. site City/County: Tacoma Sampling Date: 5/6/25

Applicant/Owner: POA of Tacoma State: WA Sampling Point: TP-1

Investigator(s): C. Sharman, N. Dietsch Section, Township, Range: S3 T20N R3E

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.249971°W Long: -122.410123° Datum: WGS84

Soil Map Unit Name: Urban land, 0-3% slopes NWI classification: PF8IC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
TP ~ 20 ft. from berm/walking path

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 M)	Absolute % Cover	Dominant Species?	Indicator Status
1. black cottonwood	90	✓	FAC
2.			
3.			
4.			
	90	=Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. willow (scouler's)	15	✓	FACW
2.			
3.			
4.			
5.			
	15	=Total Cover	
Herb Stratum (Plot size: 1M)			
1. reed canarygrass	50	✓	FACW
2. cleaver bedstraw	25	✓	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75	=Total Cover	
Woody Vine Stratum (Plot size: 1M)			
1. 0			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ 5 - Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: TP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					silt loam	
5-12	10YR 2/1	100					silt loam w/ cobbles	
12-18	10YR 2/1	100					silt loam w/ organics	(bank root material)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock

Depth (inches): 18"

Hydric Soil Present? Yes ___ No ✓

Remarks:

Do not assume thick dark surface due to lack of hydrology indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ___
Water Table Present?	Yes ___	No ✓	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Cowlitz-Whitetail mitigation site City/County: Tacoma Sampling Date: 5/16/25

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-2

Investigator(s): C. Sharman, N. Dietrich Section, Township, Range: S3 T20N R3E

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.250295°N Long: -122.409777°W Datum: WGS 84

Soil Map Unit Name: Urban land, 0-5% slopes NWI classification: PF01C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ____

Hydric Soil Present? Yes ✓ No ____

Wetland Hydrology Present? Yes ✓ No ____

Is the Sampled Area within a Wetland? Yes ____ No ____

Remarks: TP in depression in central portion of site reed canarygrass + HBB dominant

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. black cottonwood	50	✓	FAC
2. bird cherry	5		FAC
3.			
4.			
	55	=Total Cover	

Sapling/Shrub Stratum (Plot size: 5M)			
1. himalayan BB	30	✓	FAC
2. Japanese knotweed	5		FACU
3. Oregon grape (tall)	5		FACU
4.			
5.			
	40	=Total Cover	

Herb Stratum (Plot size: 1M)			
1. reed canarygrass	100	✓	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	=Total Cover	

Woody Vine Stratum (Plot size: 1M)			
1.			
2. Ø			
		=Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: TP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ~~Rock~~ rock

Depth (inches): 18"

Hydric Soil Present? Yes ___ No ✓

Remarks:

Did not assume Thick Dark surface due to fill material at 18". TP appear to be a transitional area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ___
Water Table Present?	Yes ✓	No ✓	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 5"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Gog-o-hi-te mitigation site City/County: Tacoma Sampling Date: 5/6/25
Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-3
Investigator(s): C. Sharman, N. Dietrich Section, Township, Range: S3 T20N R3E
Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): A Lat: 47.250332°N Long: -122.409686°W Datum: WGS 84
Soil Map Unit Name: Urban land, 0-5% slopes NWI classification: PFOIC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ____
Hydric Soil Present? Yes ✓ No ____
Wetland Hydrology Present? Yes ✓ No ____

Is the Sampled Area within a Wetland? Yes ✓ No ____

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix sp.	3	N	FACW
2.			
3.			
4.			
	3	=Total Cover	

Sapling/Shrub Stratum (Plot size: 5M)			
1. Himalayan blackberry	90	Y	FAC
2.			
3.			
4.			
5.			
	90	=Total Cover	

Herb Stratum (Plot size: 1M)			
1. Reed canarygrass	100	Y	FACW
2. Cleavers (Galium aparine)	50	Y	FACU
3. Iris sp.	1	N	
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	151	=Total Cover	

Woody Vine Stratum (Plot size: 1M)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: TP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					sandy silt loam	
6-15	10YR 3/1	90	10YR 4/6	10	C	M&PL	gravelly loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ___
Water Table Present?	Yes ___	No ✓	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation to surface

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Gog-le-hi-te wetland City/County: Tacoma Sampling Date: 9/12/25

Applicant/Owner: Port of Tacoma State: WA Sampling Point: TP-4

Investigator(s): C. Sharman, N. Dietsch Section, Township, Range: S3 T20N R3E

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.250173°W Long: -122.409480°N Datum: WGS 84

Soil Map Unit Name: Urban land, 0-5% slopes NWI classification: PF01C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: TP adjacent to berm & walking path

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. black cottonwood	30	✓	FAC
2.			
3.			
4.			
	30 =Total Cover		
Sapling/Shrub Stratum (Plot size: 5M)			
1. himalayan blackberry	100	✓	FAC
2.			
3.			
4.			
5.			
	100 =Total Cover		
Herb Stratum (Plot size: 1M)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	=Total Cover		
Woody Vine Stratum (Plot size: 1M)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ 5 - Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: TP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-15	10YR 2/1	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

All upland soils do not meet A12 because no hydrology indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ___
Water Table Present?	Yes ___	No ✓	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

dry soils, no indicators observed

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Guq-le-hi-te wetland City/County: Tacoma Sampling Date: 5/12/25
Applicant/Owner: POA of Tacoma State: WA Sampling Point: TP-5
Investigator(s): L. Dietsch, C. Sharman Section, Township, Range: S3 T20N R3E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): A Lat: 47.250309 °N Long: -122.409426 °W Datum: WGS 84
Soil Map Unit Name: Urban land, 0-3% slopes NWI classification: PFO1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ____
Hydric Soil Present? Yes ____ No ✓
Wetland Hydrology Present? Yes ____ No ✓
Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:
About 5' from algal crust + SPWET

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. black cottonwood	50	✓	FAC
2. (willow sp.)	20	✓	FAC
3. red osier dogwood	15		FACW
4.			
	85 = Total Cover	20% of 10 = 2	

Sapling/Shrub Stratum (Plot size: 5m)			
1. himalayan blackberry	100	✓	FAC
2.			
3.			
4.			
5.			
	100 = Total Cover		

Herb Stratum (Plot size: 1 m)			
1. fireweed (not dwarf)	50	✓	FACU
2. reed canarygrass	50	✓	FACW
3. mimulus alsinoides	1		NI
4. knotweed family	1		NI
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	102 = Total Cover		

Woody Vine Stratum (Plot size: 1 m)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
* no indicator – assume FAC

TP-5

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 2/1	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No ✓

Remarks:

Assumed soils do not meet A12 because of lack of hydrology indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): _____

Water Table Present? Yes ____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment 3

Wetland Rating Form

Wetland name or number: Wetland A

RATING SUMMARY - Western Washington

Name of wetland (or ID#): Wetland A **Date of site visit:** 05/06/2025

Rated By: Charlie Sharman **Trained by Ecology? Yes** [X] **No** [ ] **Date of Training:** 05/20/2025

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes [ ] **No** [X]

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map: Bing 2025

OVERALL WETLAND CATEGORY: [**Category II**] (based on functions [X] or special characteristics [ ])

1. Category of wetland based on FUNCTIONS

[ ] **Category I** - Total score = 23 - 27

[X] **Category II** - Total score = 20 - 22

[ ] **Category III** - Total score = 16 - 19

[ ] **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	**M**	**H**	**M**	
Landscape Potential	**M**	**M**	**L**	
Value	**H**	**H**	**H**	**Total**
Score Based on Ratings	**7**	**8**	**6**	**21**

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested	
Coastal Lagoon	
Interdunal	
None of the above	**Not Applicable**

Wetland name or number: Wetland A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	4
Map of the contributing basin	D 4.3, D 5.3	5
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	6
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	7
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	8

Wetland name or number: Wetland A

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0 Does the site have the potential to improve water quality?

D 1.1 What are the characteristics of surface water outflows from the wetland?

Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	**Score: 3**

D 1.2 Is the soil 2 in. below the surface a true clay or organic soil?

Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	**Score: 0**

D 1.3 What are the characteristics and distribution of persistent plants?

Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	**Score: 3**

D 1.4 What are the characteristics of seasonal ponding or inundation in the wetland area?

Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	**Score: 4**

Total for D 1: 10

Rating of Site Potential [ ] **12-16 = H** [X] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 2.0 Does the landscape have the potential to support the water quality function of the site?

D 2.1 Does the wetland unit receive stormwater discharges?

Yes	points = 1	
No	points = 0	**Score: 0**

D 2.2 Is >10% of the area within 150ft of the wetland in land uses that generate pollutants in surface runoff?

Yes	points = 1	
No	points = 0	**Score: 1**

D 2.3 Are there septic systems within 250ft of the wetland?

Yes	points = 1	
No	points = 0	**Score: 0**

D 2.4 Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?

Yes	points = 1	
No	points = 0	**Score: 1**

Wetland name or number: Wetland A

D 2.5 What are the other sources of pollutants coming into the wetland? Occasional dogs, dumping	
Total for D 2:	**2**

Rating of Landscape Potential [ ] **3-4 = H** [X] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

D 3.0 Is the water quality improvement provided by the site valuable to society?		
D 3.1 Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 3.2 Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?		
Yes	points = 2	
No	points = 0	**Score: 2**
Total for D 3:		**3**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradtion

D 4.0 Does the site have the potential to reduce flooding and erosion?		
D 4.1 What are the characteristics of surface water outflows from the wetland?		
Wetland has no surface water outlet.	points = 4	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	**Score: 4**
D 4.2 What is the depth of storage during the wet periods?		
Marks of ponding are 3ft or more above the surface or bottom of the outlet.	points = 7	
Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet.	points = 5	
Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet.	points = 3	
The wetland is a "headwater" wetland.	points = 3	
The wetland is flat but has small depressions on the surface that trap water.	points = 1	
Marks of ponding are less than 0.5ft (6in).	points = 0	**Score: 7**

Wetland name or number: Wetland A

D 4.3 What is the contribution of the wetland to storage in the watershed?		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	**Score: 5**
	Total for D 4:	**16**

Rating of Site Potential [X] **12-16 = H** [ ] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 5.0 Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1 Does the wetland unit receive stormwater discharges?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 5.2 Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 5.3 Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?		
Yes	points = 1	
No	points = 0	**Score: 0**
	Total for D 5:	**1**

Rating of Landscape Potential [ ] **3 = H** [X] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

D 6.0 Are the hydrologic functions provided by the site valuable to society?		
D 6.1 Is the wetland in a landscape that has flooding problems?		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	**Score: 0**
D 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
Yes	points = 2	
No	points = 0	**Score: 2**
	Total for D 6:	**2**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: Wetland A

HABITAT FUNCTIONS

These questions apply to wetlands of all HGM classes - Indicators that the site functions to provide important habitat

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

- [ ] Aquatic Bed
- [x] Emergent
- [x] Scrub-shrub
- [x] Forested
- [ ] Multiple strata within the Forested class (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)

4 structures or more	points = 4	
3 structures	points = 2	
2 structures	points = 1	
1 structure	points = 0	
No structures present	points = 0	**Score: 2**

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

- [x] Permanently flooded or inundated
- [x] Seasonally flooded or inundated
- [ ] Occasionally flooded or inundated
- [x] Saturated only
- [ ] Permanently flowing stream or river in, or adjacent to, the wetland
- [ ] Seasonally flowing stream in, or adjacent to, the wetland
- [ ] Lake Fringe wetland
- [ ] Freshwater Tidal wetland

4 or more types present	points = 3	
3 types present or Lake Fringe / Freshwater Tidal Fringe	points = 2	
2 types present	points = 1	
1 type present	points = 0	
None present	points = 0	**Score: 2**

H 1.3 What is the richness of the plant species in the wetland?

>19 species	points = 2	
5-19 species	points = 1	
<5 species	points = 0	**Score: 2**

Wetland name or number: Wetland A

H 1.4 What is the interspersion of habitats?

High	points = 3	
Moderate	points = 2	
Low	points = 1	
None	points = 0	**Score: 2**

H 1.5 What are the special habitat features in the wetland?

- [✓] Large, downed, woody debris within the wetland (>4in diameter and 6ft long).
- [✓] Standing snags (dbh >4in) within the wetland
- [✓] Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)
- [ ] Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)
- [✓] At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)
- [ ] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)

6 habitats selected	points = 6	
5 habitats selected	points = 5	
4 habitats selected	points = 4	
3 habitats selected	points = 3	
2 habitats selected	points = 2	
1 habitat selected	points = 1	
No habitats selected	points = 0	**Score: 4**

Total for H 1: 12

Rating of Site Potential [ ] **15-18 = H** [X] **7-14 = M** [ ] **0-6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat functions of the site?

H 2.1 What is the percentage of accessible habitat within 1km of the wetland?

>33% of 1km Polygon	points = 3	
20-33% of 1km Polygon	points = 2	
10-19% of 1km Polygon	points = 1	
<10% of 1km Polygon	points = 0	**Score: 1**

H 2.2 What is the percentage of total habitat in a 1km polygon around the wetland?

Total habitat is >50% of the Polygon	points = 3	
Total habitat is 10-50% of the Polygon and in 1-3 patches	points = 2	
Total habitat is 10-50% of the Polygon and in >3 patches	points = 1	
Total habitat is <10% of the Polygon	points = 0	**Score: 1**

Wetland name or number: Wetland A

H 2.3 What is the land use intensity in the 1km polygon?

50% of the Polygon is high intensity land use	points = -2	
<50% of the Polygon is high intensity land use	points = 0	**Score: -2**

Total for H 2: **0**

Rating of Landscape Potential [ ] **4-6 = H** [ ] **1-3 = M** [X] **0 = L** *Record the rating on the first page*

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?

- [ ] Aspen Stands
- [ ] Biodiversity Areas and Corridors
- [ ] Herbaceous Balds
- [ ] Old-growth/Mature Forests
- [ ] Oregon White Oak
- [✓] Riparian
- [ ] Westside Prairie
- [ ] Fresh Deepwater
- [✓] Instream
- [ ] Nearshore (Coastal, Open Coast, Puget Sound)
- [ ] Caves
- [ ] Cliffs
- [ ] Snags and Logs
- [ ] Talus

The following criteria automatically score 2 points:

- [ ] The wetland provides habitat for Threatened or Endangered species
- [ ] The wetland is mapped as a location for an individual WDFW priority species
- [ ] The wetland is a Wetland of High Conservation Value
- [✓] The wetland has been categorized as an important habitat site in a local plan

The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	**Score: 2**

Total for H 3: **2**

Rating of Value [X] **2 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: Wetland A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

SC 1.1 Does the wetland meet all of the following criteria for Estuarine wetlands?

☐ The dominant water regime is tidal
☐ The wetland is vegetated
☐ The water salinity is greater than 0.5 ppt

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

Result: Not an Estuarine Wetland

SC 1.2 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

SC 1.3 Is the wetland unit at least 1ac in size and meets at least two of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species.
☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland
☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

SC 2.1 Does the wetland overlap with any known or historical rare plant or rare & high-quality ecosystem polygons on the WNHP Data Explorer?

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

SC 2.2 Does the wetland have a rare plant species, rare plant community, or high-quality common plant community that may qualify the site as a WHCV?

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

Result: Not a Wetland of High Conservation Value

Wetland name or number: Wetland A

SC 3.0 Bogs

SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16in or more of the first 32in of the soil profile?

Yes - Go to SC 3.3
No - Go to SC 3.2 **Result: Go to SC 3.2**

SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?

Yes - Go to SC 3.3

No - Not a Bog Wetland **Result: Not a Bog Wetland**

SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least 30% cover of plant species listed in the table provided in the instructions?

Yes - Category I Bog Wetland
No - Go to SC 3.4 **Result:**

SC 3.4 Is an area with peats or mucks forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann Spruce, or western white pine AND any of the species (or combinations of species) listed in the table found in the instructions provide more than 30% of the cover under the canopy?

Yes - Category I Bog Wetland
No - Not a Bog Wetland **Result:**

SC 4.0 Forested Wetlands

SC 4.1 Does the wetland have at least 1 contiguous acre of forest that meets one of the following criteria?

- [ ] Old-growth forests
- [ ] Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland **Result: Not a Forested Wetland**

Wetland name or number: Wetland A

SC 5.0 Wetlands in Coastal Lagoons

SC 5.1 Coastal Lagoons: Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or rocks

☐ The depression in which the wetland is located contains ponded water that is saline or brackish (>0.5 ppt) during most of the year in at least a portion of the open water area (measured near the bottom)

☐ The lagoon retains some of its surface water at low tide during spring tides

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland **Result: Not a Coastal Lagoon Wetland**

SC 5.2 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species).

☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ the wetland is larger than 0.10ac (4350 sqft)

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon **Result:**

SC 6.0 Interdunal Wetlands

SC 6.1 Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership WBUO)?

Yes - Go to SC 6.2

No - Not an Interdunal Wetland **Result: Not an Interdunal Wetland**

SC 6.2 Is the wetland 1ac or larger in size, or a mosaic that is 1ac or larger in size?

Wetland is larger than 1ac in size - Go to SC 6.3

Wetland is a mosaic larger than 1ac is size - Category II Interdunal Wetland

No - Go to SC 6.4 **Result:**

SC 6.3 Does the wetland score 8 or 9 points for the habitat functions?

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland **Result:**

SC 6.4 Is the wetland unit between 0.1ac and 1ac, or in a mosaic of wetlands that is between 0.1ac and 1ac in size?

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland **Result:**

Wetland name or number: Wetland A

Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	**Final Category: Not Applicable**

Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/29/2025**

About | Close

Add/Remove map data layers

Cowardin Plant Class Items

Cowardin Classes

- Forested
- Scrub-shrub
- Emergent
- Aquatic bed
- Open water
- Wetland/Unmapped wetland

Data transparency 10%



Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/29/2025**

About | Close

Add/Remove map data layers

Hydroperiod Items

- Permanent Stream
- Seasonal Stream
- Permanently
- Seasonally
- Occasionally
- Saturated only
- Wetland/Unmapped wetland

Data transparency 50%



Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/28/2025**

About | Close

Add/Remove map data layers

Location of Outlet Items

- Wetland
- Outlet location

Find address or place

Lidar Hillshade

30 m
60 ft

Data transparency 10%

Washington Geological Survey

Powered by Esri

Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/28/2025**

About | Close

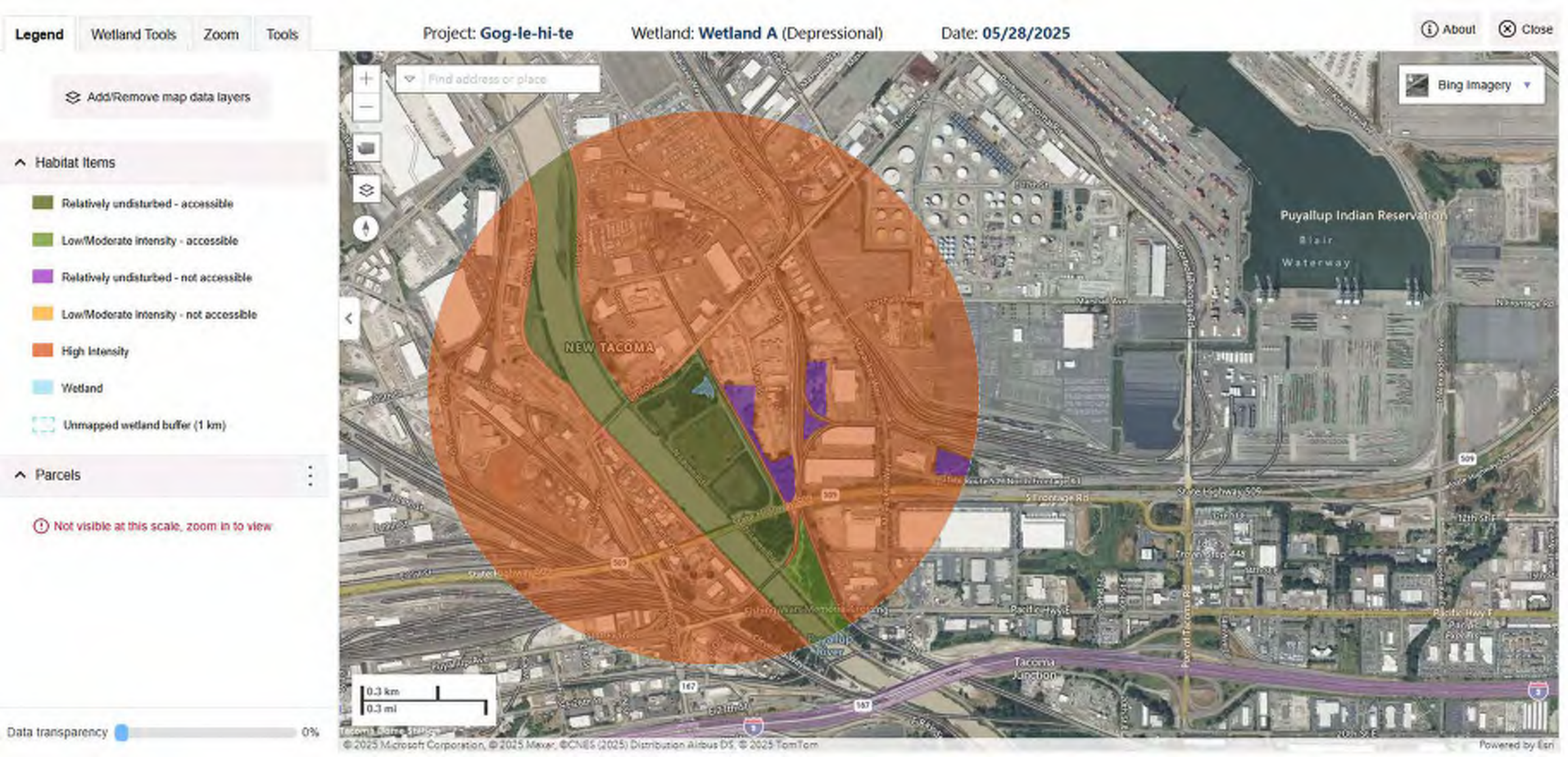
Add/Remove map data layers

Contributing Basin Items

- Wetland
- Contributing basin



Data transparency 10%


Legend
Wetland Tools
Zoom
Tools
Project: Gog-le-hi-te
Wetland: Wetland A (Depressional)
Date: 05/28/2025
About
Close
Add/Remove map data layers
Habitat Items
Relatively undisturbed - accessible
Low/Moderate intensity - accessible
Relatively undisturbed - not accessible
Low/Moderate intensity - not accessible
High Intensity
Wetland
Unmapped wetland buffer (1 km)
Parcels
Not visible at this scale, zoom in to view
Data transparency
0%
Find address or place
Bing Imagery
NEW TACOMA
Puyallup Indian Reservation
Blair
Waterway
Tacoma Junction
0.3 km
0.3 mi
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Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/28/2025**

About | Close

Add/Remove map data layers

Wetland Width Items

- Wetland
- Distance: wetland to nearest 303(d) listing

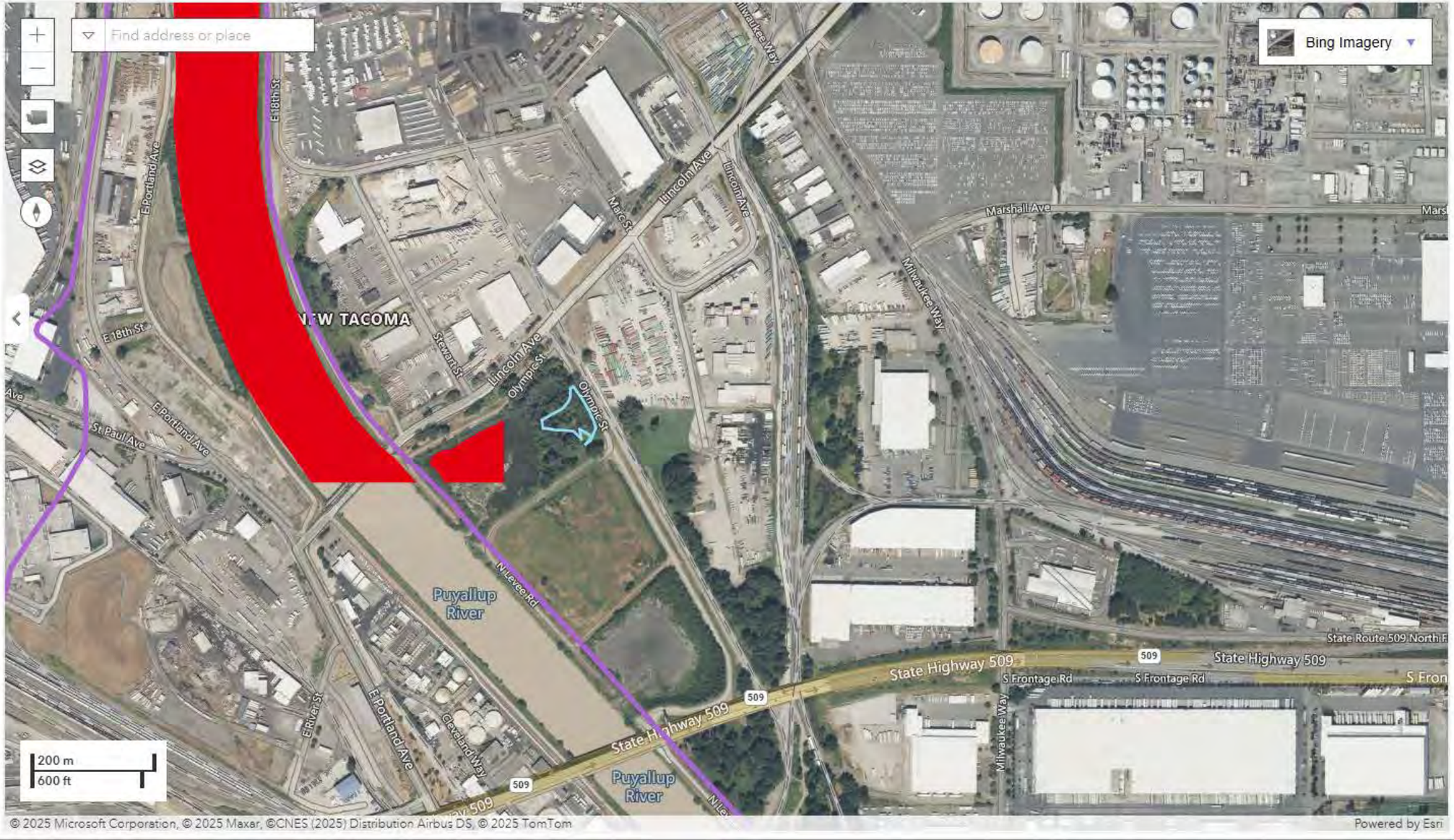
303(d) List

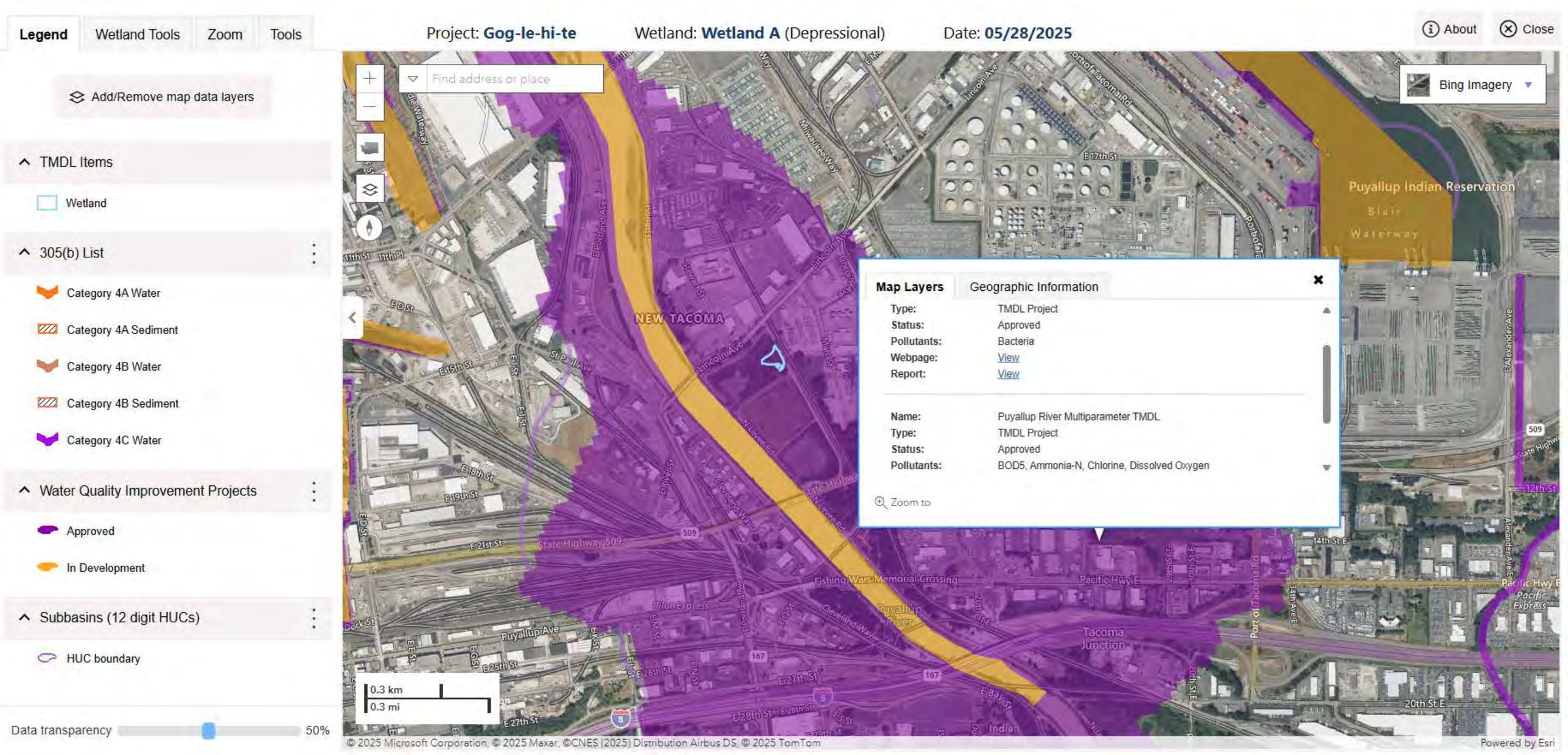
- Category 5 Water
- Category 5 Sediment

Subbasins (12 digit HUCs)

- HUC boundary

Data transparency 0%




Legend
Wetland Tools
Zoom
Tools
Project: Gog-le-hi-te
Wetland: Wetland A (Depressional)
Date: 05/28/2025
About
Close
Add/Remove map data layers
TMDL Items
Wetland
305(b) List
Category 4A Water
Category 4A Sediment
Category 4B Water
Category 4B Sediment
Category 4C Water
Water Quality Improvement Projects
Approved
In Development
Subbasins (12 digit HUCs)
HUC boundary
Data transparency
50%
Find address or place
Bing Imagery
Map Layers
Geographic Information
Type: TMDL Project
Status: Approved
Pollutants: Bacteria
Webpage: View
Report: View
Name: Puyallup River Multiparameter TMDL
Type: TMDL Project
Status: Approved
Pollutants: BOD5, Ammonia-N, Chlorine, Dissolved Oxygen
Zoom to
Puyallup Indian Reservation
NEW TACOMA
Tacoma Junction
Fishing Wars Memorial Crossing
Puyallup River
State Highway 509
0.3 km
0.3 mi
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Powered by Esri

Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/28/2025**

About | Close

Add/Remove map data layers

Land Use Items

- Generates excessive runoff
- Generates pollutants
- Generates excessive runoff and pollutants
- Upland within 150' wetland buffer
- Wetland
- Wetland buffer (150')



Data transparency 50%

Attachment 4

Site Photographs



Photo 1. Soil profile at TP-1



Photo 2. Soil profile at TP-2



Photo 3. Soil profile at TP-3



Photo 4. Soils at TP-4



Photo 5. Soils at TP-5



Photo 6. Estuarine wetland west of Wetland A



Photo 7. Standing water in central portion of Wetland A, facing west



Photo 8. Wetland A, facing west. Blackberry is dominant in the southeast portion of the mitigation area.



Photo 9. Wetland A, facing east. Blackberry is dominant in the southeast portion of the mitigation area.



Photo 10. Standing water, woody debris, and emergent vegetation in Wetland A



Photo 11. Historic structure near northeast corner of wetland



Photo 12. View from northeast corner of wetland, facing south with trail to the east



Photo 13. View from northeast corner of Wetland A, facing south

Attachment 5

FEMA FIRM Map

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 10. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey **at (301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by Pierce County GIS, WA DNR, WSDOT, USFWS, Washington State Department of Ecology, and Puget Sound Regional Council. This information was compiled at scales of 1:1,200 to 1:24,000 during the time period 1996-2012.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

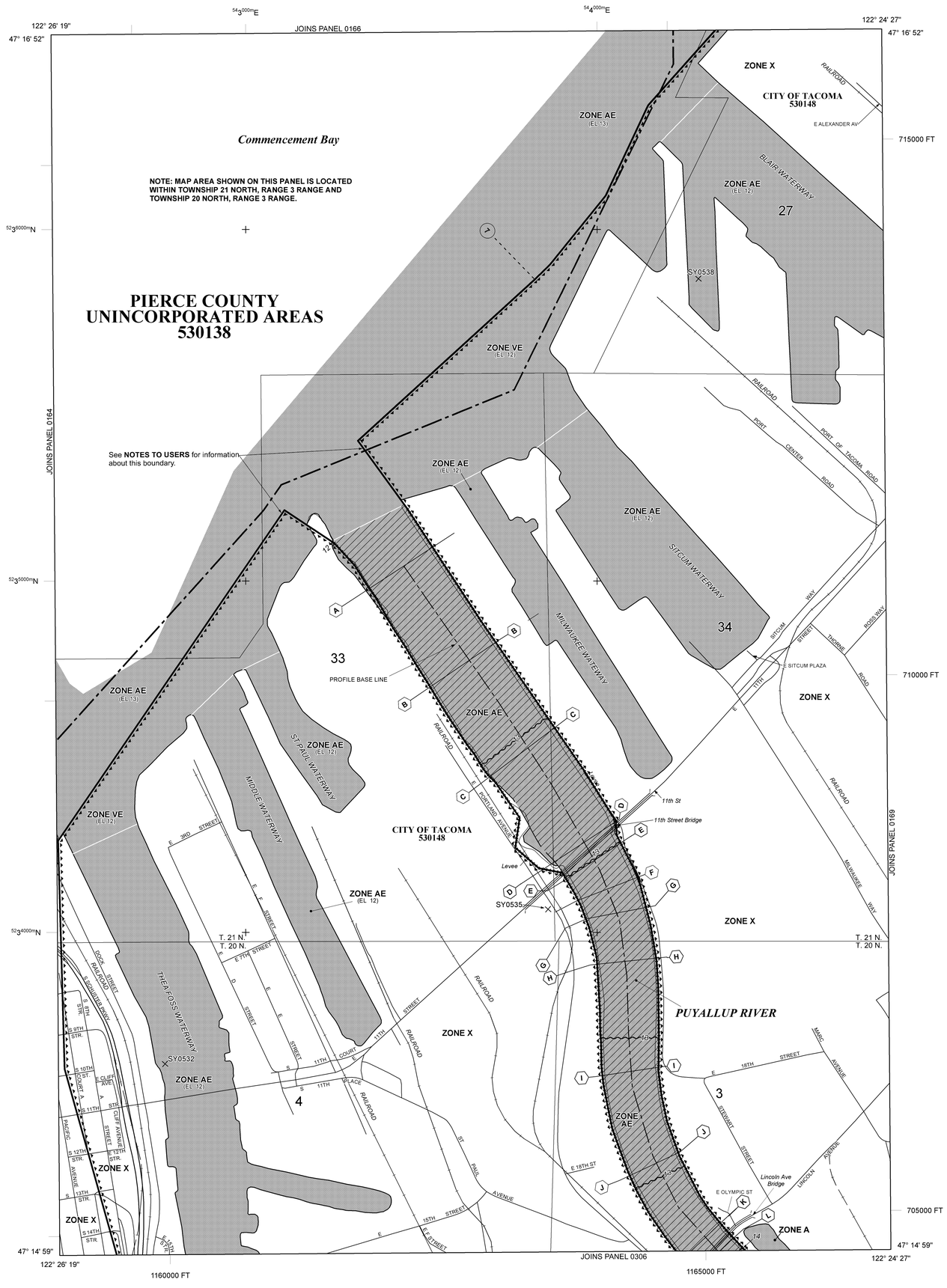
For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

Tribal lands exist on this panel, but have not been shown.
These areas are present in the DFIRM database in the S_Pol_Ar table.

ATTENTION: The levee, dike, or other structure that impacts flood hazards inside this boundary has not been shown to comply with Section 65.10 of the NFIP Regulations. As such, this FIRM panel will be revised at a later date to update the flood hazard information associated with this structure.

The flood hazard data inside this boundary on the FIRM panel has been republished from the previous effective (historic) FIRM for this area, after being converted from NGVD 29 to NAVD 88.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% Annual Chance Floodplain Boundary
	0.2% Annual Chance Floodplain Boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A A	Cross section line
23 23	Transect line
	Culvert
	Bridge
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
4988000mN	1000-meter Universal Transverse Mercator grid values, zone 10
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 •	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
March 7, 2017

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0168E

FIRM

FLOOD INSURANCE RATE MAP

PIERCE COUNTY, WASHINGTON AND INCORPORATED AREAS

PANEL 168 OF 1375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PIERCE COUNTY	530138	0168	E
TACOMA, CITY OF	530148	0168	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
53053C0168E
EFFECTIVE DATE
MARCH 7, 2017

Federal Emergency Management Agency



CONFLUENCE
ENVIRONMENTAL COMPANY

BINDING EDGE

SEE SHEET SV1.1 FOR SURVEY REFERENCES

TOPOGRAPHIC SURVEY OF PARCEL 37D

A PORTION GOVERNMENT LOTS 2, 3, AND 4, AS WELL AS A PORTION OF THE S.W. 1/4 OF THE N.E. 1/4 OF SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST, CITY OF TACOMA, PIERCE COUNTY, WASHINGTON STATE

LEGAL DESCRIPTION

PARCEL A: 032003-1004

THAT PORTION OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON, LYING SOUTHWESTERLY OF THE CITY OF TACOMA TRANSMISSION LINE.

PARCEL B: 032003-1009

BEGINNING AT THE INTERSECTION OF THE WEST LINE OF THE NORTHERN PACIFIC RIGHT OF WAY WITH THE SOUTH LINE OF LINCOLN AVENUE IN SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON;
THENCE SOUTHEASTERLY ALONG SAID RIGHT OF WAY 394.95 FEET TO THE POINT OF BEGINNING;
THENCE SOUTH ALONG THE CENTERLINE OF VACATED COMMERCIAL AVENUE TO THE INTERSECTION OF A LINE 30 FEET WEST OF THE WEST LINE OF THE NORTHERN PACIFIC RIGHT OF WAY;
THENCE EAST 30 FEET TO THE WEST LINE OF THE NORTHERN PACIFIC RIGHT OF WAY;
THENCE NORTHWESTERLY ALONG SAID RIGHT OF WAY TO THE POINT OF BEGINNING.

PARCEL C: 032003-1026

BEGINNING AT A POINT ON THE WEST LINE OF THE NORTHEAST QUARTER OF SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON, A DISTANCE OF 518.4 FEET NORTHERLY FROM THE SOUTHWEST CORNER OF SAID QUARTER SECTION;
THENCE NORTH 1°43' EAST ON THE WEST LINE OF SAID QUARTER SECTION A DISTANCE OF 125.9 FEET TO THE EASTERLY LINE OF LINCOLN AVENUE;
THENCE NORTH 42°47' EAST ON SAID EASTERLY LINE OF LINCOLN AVENUE A DISTANCE OF 37.17 FEET, MORE OR LESS, TO A POINT ON THE WESTERLY LINE OF THE NORTHERN PACIFIC RAILWAY COMPANY'S RIGHT OF WAY;
THENCE SOUTH 28°55' EAST ALONG THE WESTERLY LINE OF THE NORTHERN PACIFIC RAILWAY COMPANY'S RIGHT OF WAY A DISTANCE OF 275.89 FEET, MORE OR LESS, TO THE WEST LINE OF THE EAST HALF OF THE WEST HALF OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M.;
THENCE SOUTH ALONG SAID WEST LINE A DISTANCE OF 196.54 FEET;
THENCE NORTH 28°55' WEST A DISTANCE OF 323.82 FEET, MORE OR LESS TO THE POINT OF BEGINNING;
TOGETHER WITH THE FOLLOWING DESCRIBED PROPERTY:
BEGINNING AT A POINT ON THE WEST LINE OF THE EAST HALF OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON, 452.41 FEET NORTH OF THE SOUTHWEST CORNER THEREOF, BEING A POINT ON THE SOUTHWESTERLY LINE OF THE RIGHT OF WAY OF THE NORTHERN PACIFIC RAILWAY COMPANY;
THENCE SOUTH ALONG SAID WEST LINE 196.54 FEET;
THENCE SOUTH 28°55' EAST 89.06 FEET TO THE WEST LINE OF MAIN STREET AS SHOWN ON PLAT OF CHICAGO-MILWAUKEE 2ND ADDITION, PIERCE COUNTY, WASHINGTON, AS PER MAP THEREOF RECORDED IN VOLUME 10 OF PLATS AT PAGE 4, RECORDS OF PIERCE COUNTY AUDITOR (SAID STREET AND PLAT NOW VACATED);
THENCE EAST 30 FEET TO THE CENTER LINE OF SAID VACATED STREET;
THENCE NORTH ALONG SAID CENTER LINE TO THE SOUTHWESTERLY LINE OF SAID NORTHERN PACIFIC RAILWAY COMPANY RIGHT OF WAY;
THENCE NORTH 28°55' WEST ALONG SAID RIGHT OF WAY 119.06 FEET, MORE OR LESS, TO THE POINT OF BEGINNING;
TOGETHER WITH THAT PORTION LYING WITHIN A 100 FOOT WIDE STRIP OF LAND RUNNING PARALLEL WITH AND ABUTTING AND ADJOINING THE SOUTHWESTERLY LINE OF THE NORTHERN PACIFIC RAILWAY RIGHT OF WAY;
SAID 100 FOOT WIDTH BEING MEASURED AT RIGHT ANGLES TO SAID RAILWAY RIGHT OF WAY;
COMMENCING AT A POINT ON THE SOUTH LINE OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER 74.75 FEET EAST OF THE SOUTHWEST CORNER OF THE EAST HALF OF THE WEST HALF OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER, BEING THE POINT OF INTERSECTION OF THE CENTER LINES OF MAIN STREET AND SOUTH 21ST STREETS AS SHOWN ON THE PLAT OF CHICAGO-MILWAUKEE 2ND ADDITION, PIERCE COUNTY, WASHINGTON, AS PER PLAT RECORDED IN VOLUME 10 OF PLATS, PAGE 4, RECORDS OF PIERCE COUNTY, WASHINGTON (SAID STREETS AND PLAT NOW BEING VACATED);
THENCE NORTH ALONG THE CENTER LINE OF VACATED MAIN STREET 30 FEET TO THE POINT OF BEGINNING FOR THIS DESCRIPTION;
THENCE CONTINUING NORTH ALONG THE CENTER LINE 225.50 FEET;
THENCE EAST 30 FEET TO THE POINT OF INTERSECTION OF THE SOUTHWESTERLY LINE OF THE NORTHERN PACIFIC RAILWAY RIGHT OF WAY WITH THE EAST LINE OF VACATED MAIN STREET;
THENCE SOUTH 28°55' EAST ALONG SAID RIGHT OF WAY TO A POINT 161.50 FEET EAST OF THE POINT OF BEGINNING;
THENCE SOUTH 30 FEET TO THE CENTERLINE OF VACATED SOUTH 21ST STREET;
THENCE WEST ALONG SAID CENTER LINE 131.50 FEET TO A POINT 30 FEET EAST OF THE POINT OF INTERSECTION OF THE CENTER LINE OF SAID VACATED STREETS;
THENCE NORTH 30 FEET TO THE NORTH LINE OF VACATED SOUTH 21ST STREET;
THENCE WEST 30 FEET TO THE POINT OF BEGINNING;
ALSO TOGETHER WITH THAT PORTION LINCOLN AVENUE VACATED BY ORDINANCE NO 23629 RECORDED UNDER RECORDING NO. 8606230239, WHICH UPON VACATION REVERTED TO THE HEREIN ABOVE DESCRIBED PROPERTY BY OPERATION OF LAW, SAID VACATED PORTION BEING DESCRIBED AS FOLLOWS:
BEGINNING AT THE INTERSECTION OF THE WEST LINE OF SAID SUBDIVISION WITH THE MOST SOUTHERLY SOUTHEASTERLY LINE OF LINCOLN AVENUE;
THENCE NORTH 02°40'50" EAST ALONG SAID WEST LINE A DISTANCE OF 19.49 FEET;
THENCE SOUTH 45°51'40" EAST 12.90 FEET TO SAID SOUTHEASTERLY LINE OF LINCOLN AVENUE;
THENCE SOUTH 44°08'20" WEST ALONG SAID LINCOLN AVENUE RIGHT OF WAY A DISTANCE OF 14.60 FEET TO THE POINT OF BEGINNING.

PARCEL D: 032003-1027

BEGINNING AT A POINT 518.4 FEET NORTH OF THE SOUTHWEST CORNER OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER IN SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON;
THENCE SOUTH 28°55' EAST 412.88 FEET TO THE POINT OF BEGINNING;
THENCE EAST TO THE CENTER LINE OF VACATED COMMERCIAL AVENUE;
THENCE SOUTH ALONG THE CENTER LINE OF SAID VACATED STREET TO THE INTERSECTION OF A LINE PARALLEL WITH AND 100 FEET WESTERLY OF THE WEST LINE OF THE NORTHERN PACIFIC COMPANY RIGHT OF WAY;
THENCE NORTHWESTERLY ALONG SAID PARALLEL LINE TO THE POINT OF BEGINNING.

PARCEL E: 032003-2006

BEGINNING AT A POINT ON THE WEST LINE OF THE NORTHEAST QUARTER OF SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON, A DISTANCE OF 518.4 FEET NORTHERLY FROM THE SOUTHWEST CORNER OF SAID QUARTER SECTION;
THENCE NORTH 28°55' WEST A DISTANCE OF 102.95 FEET, MORE OR LESS TO THE EASTERLY LINE OF LINCOLN AVENUE;
THENCE NORTH 42°47' EAST ON THE EASTERLY LINE OF LINCOLN AVENUE 79.85 FEET TO THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 3;
THENCE SOUTH 1°43' WEST 148.6 FEET TO THE POINT OF BEGINNING.

PARCEL F: 032003-2048

GOVERNMENT LOTS 2 AND 3, LYING SOUTHERLY OF LINCOLN AVENUE, BEING LOCATED IN SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON;
EXCEPT THAT PORTION THEREOF DESCRIBED AS FOLLOWS:
BEGINNING 750.93 FEET WEST OF THE CENTER OF SAID SECTION;
THENCE WEST 32.20 FEET TO THE BOUNDARY OF THE PUYALLUP INDIAN RESERVATION;
THENCE SOUTH 18°49'07" WEST OF THE LINE OF ORDINARY HIGH WATER OF THE PUYALLUP RIVER;
THENCE UPSTREAM ALONG SAID HIGHWATER LINE TO A POINT SOUTH 42°23'14" WEST TO THE POINT OF BEGINNING;
ALSO EXCEPT THAT PORTION THEREOF DESCRIBED AS PARCEL A BY QUIT CLAIM DEED RECORDED OCTOBER 29, 1963 UNDER RECORDING NUMBER 2031027;
ALSO EXCEPT THAT PORTION CONVEYED BY WARRANTY DEED TO THE UNITED STATES OF AMERICA RECORDED UNDER RECORDING NUMBER 8706050320;
ALSO EXCEPT THAT PORTION THEREOF DESCRIBED BY ORDER ENTERED JULY 24, 1981 UNDER U.S. DISTRICT COURT CAUSE NO. C80-164T.

SCHEDULE B EXCEPTIONS

PER CHICAGO TITLE INSURANCE COMPANY OF WASHINGTON, COMMITMENT NUMBER 251070-TC, DATED APRIL 3, 2025.

* NOT A SURVEY MATTER, DESCRIPTION PROVIDED AS A COURTESY
** CONTENT/DATA WITHIN INSTRUMENT IS INSUFFICIENT TO DETERMINE EXACT LOCATION
*** INSTRUMENT IS BLANKET IN NATURE OR AFFECTS ENTIRE PROPERTY

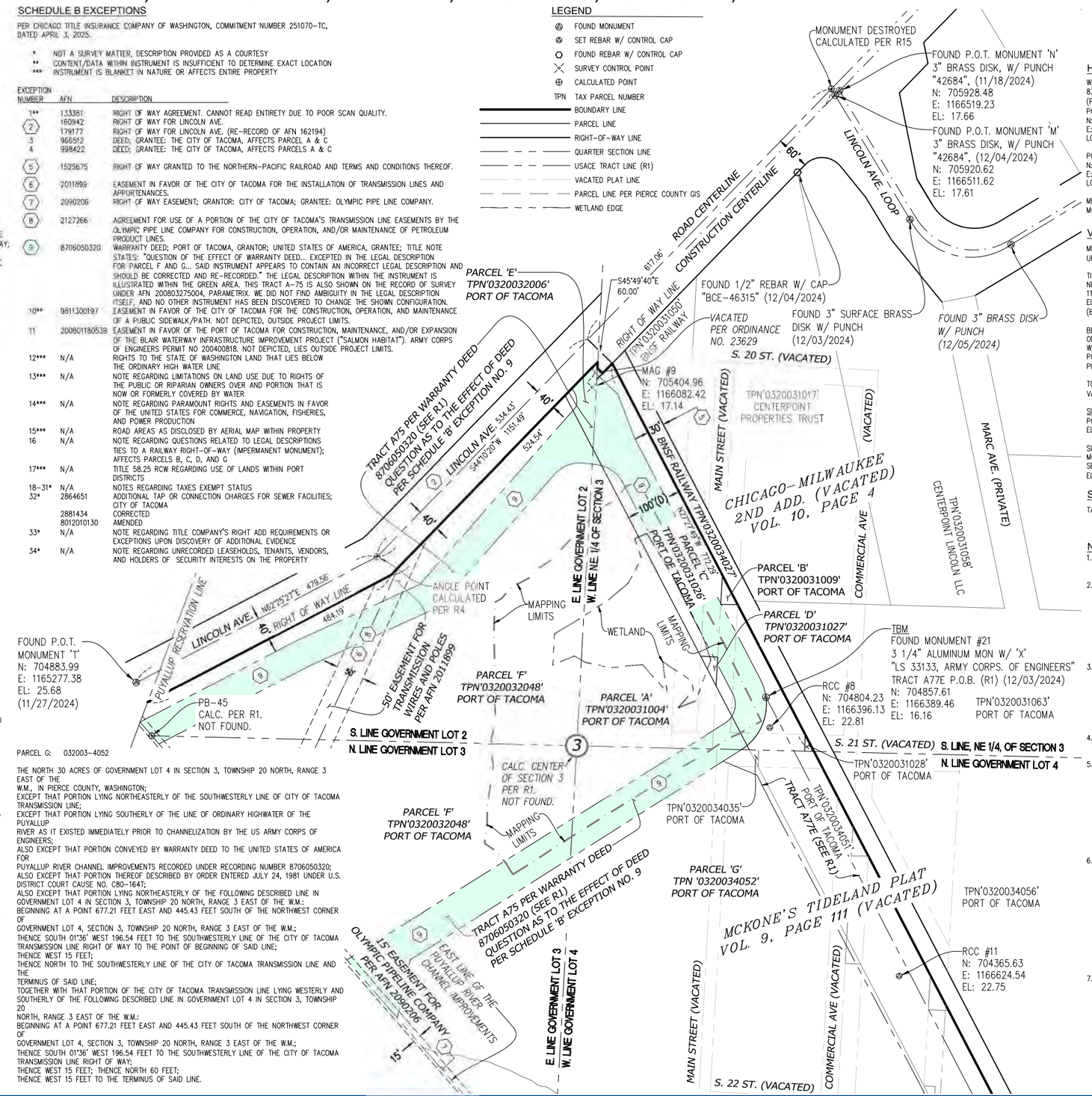
EXCEPTION NUMBER	AFN	DESCRIPTION
1**	133351	RIGHT OF WAY AGREEMENT. CANNOT READ ENTIRETY DUE TO POOR SCAN QUALITY.
2	160942	RIGHT OF WAY FOR LINCOLN AVE.
3	179177	RIGHT OF WAY FOR LINCOLN AVE. (RE-RECORD OF AFN 162194)
4	966512	DEED; GRANTEE: THE CITY OF TACOMA, AFFECTS PARCEL A & C
	998422	DEED; GRANTEE: THE CITY OF TACOMA, AFFECTS PARCELS A & C
5	1525675	RIGHT OF WAY GRANTED TO THE NORTHERN-PACIFIC RAILROAD AND TERMS AND CONDITIONS THEREOF.
6	2011899	EASEMENT IN FAVOR OF THE CITY OF TACOMA FOR THE INSTALLATION OF TRANSMISSION LINES AND APPURTENANCES.
7	2090206	RIGHT OF WAY EASEMENT; GRANTOR: CITY OF TACOMA; GRANTEE: OLYMPIC PIPE LINE COMPANY.
8	2127266	AGREEMENT FOR USE OF A PORTION OF THE CITY OF TACOMA'S TRANSMISSION LINE EASEMENTS BY THE OLYMPIC PIPE LINE COMPANY FOR CONSTRUCTION, OPERATION, AND/OR MAINTENANCE OF PETROLEUM PRODUCT LINES.
9	8706050320	WARRANTY DEED; PORT OF TACOMA, GRANTOR; UNITED STATES OF AMERICA, GRANTEE; TITLE NOTE STATES: "QUESTION OF THE EFFECT OF WARRANTY DEED... EXCEPTED IN THE LEGAL DESCRIPTION FOR PARCEL F AND G... SAID INSTRUMENT APPEARS TO CONTAIN AN INCORRECT LEGAL DESCRIPTION AND SHOULD BE CORRECTED AND RE-RECORDED." THE LEGAL DESCRIPTION WITHIN THE INSTRUMENT IS ILLUSTRATED WITHIN THE GREEN AREA. THIS TRACT A-75 IS ALSO SHOWN ON THE RECORD OF SURVEY UNDER AFN 200803275004, PARAMETRIX. WE DID NOT FIND AMBIGUITY IN THE LEGAL DESCRIPTION ITSELF, AND NO OTHER INSTRUMENT HAS BEEN DISCOVERED TO CHANGE THE SHOWN CONFIGURATION.
10**	9811300197	EASEMENT IN FAVOR OF THE CITY OF TACOMA FOR THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF A PUBLIC SIDEWALK/PATH. NOT DEPICTED, OUTSIDE PROJECT LIMITS.
11	200801180539	EASEMENT IN FAVOR OF THE PORT OF TACOMA FOR CONSTRUCTION, MAINTENANCE, AND/OR EXPANSION OF THE BLAIR WATERWAY INFRASTRUCTURE IMPROVEMENT PROJECT ("SALMON HABITAT"). ARMY CORPS OF ENGINEERS PERMIT NO 200400818. NOT DEPICTED, LIES OUTSIDE PROJECT LIMITS.
12***	N/A	RIGHTS TO THE STATE OF WASHINGTON LAND THAT LIES BELOW THE ORDINARY HIGH WATER LINE
13***	N/A	NOTE REGARDING LIMITATIONS ON LAND USE DUE TO RIGHTS OF THE PUBLIC OR RIPARIAN OWNERS OVER AND PORTION THAT IS NOW OR FORMERLY COVERED BY WATER
14***	N/A	NOTE REGARDING PARAMOUNT RIGHTS AND EASEMENTS IN FAVOR OF THE UNITED STATES FOR COMMERCE, NAVIGATION, FISHERIES, AND POWER PRODUCTION
15***	N/A	ROAD AREAS AS DISCLOSED BY AERIAL MAP WITHIN PROPERTY
16	N/A	NOTE REGARDING QUESTIONS RELATED TO LEGAL DESCRIPTIONS TIES TO A RAILWAY RIGHT-OF-WAY (IMPERMANENT MONUMENT); AFFECTS PARCELS B, C, D, AND G
17***	N/A	TITLE 58.25 RCW REGARDING USE OF LANDS WITHIN PORT DISTRICTS
18-31*	N/A	NOTES REGARDING TAXES EXEMPT STATUS
32*	2864651	ADDITIONAL TAP OR CONNECTION CHARGES FOR SEWER FACILITIES; CITY OF TACOMA
	2881434	CORRECTED
	8012010130	AMENDED
33*	N/A	NOTE REGARDING TITLE COMPANY'S RIGHT ADD REQUIREMENTS OR EXCEPTIONS UPON DISCOVERY OF ADDITIONAL EVIDENCE
34*	N/A	NOTE REGARDING UNRECORDED LEASEHOLDS, TENANTS, VENDORS, AND HOLDERS OF SECURITY INTERESTS ON THE PROPERTY

PARCEL G: 032003-4052

THE NORTH 30 ACRES OF GOVERNMENT LOT 4 IN SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE
W.M., IN PIERCE COUNTY, WASHINGTON;
EXCEPT THAT PORTION LYING NORTHEASTERLY OF THE SOUTHWESTERLY LINE OF CITY OF TACOMA TRANSMISSION LINE;
EXCEPT THAT PORTION LYING SOUTHERLY OF THE LINE OF ORDINARY HIGHWATER OF THE PUYALLUP
RIVER AS IT EXISTED IMMEDIATELY PRIOR TO CHANNELIZATION BY THE US ARMY CORPS OF ENGINEERS;
ALSO EXCEPT THAT PORTION CONVEYED BY WARRANTY DEED TO THE UNITED STATES OF AMERICA FOR
PUYALLUP RIVER CHANNEL IMPROVEMENTS RECORDED UNDER RECORDING NUMBER 8706050320;
ALSO EXCEPT THAT PORTION THEREOF DESCRIBED BY ORDER ENTERED JULY 24, 1981 UNDER U.S. DISTRICT COURT CAUSE NO. C80-164T;
ALSO EXCEPT THAT PORTION LYING NORTHEASTERLY OF THE FOLLOWING DESCRIBED LINE IN GOVERNMENT LOT 4 IN SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M.:
BEGINNING AT A POINT 677.21 FEET EAST AND 445.43 FEET SOUTH OF THE NORTHWEST CORNER OF
GOVERNMENT LOT 4, SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M.;
THENCE SOUTH 01°36' WEST 196.54 FEET TO THE SOUTHWESTERLY LINE OF THE CITY OF TACOMA TRANSMISSION LINE RIGHT OF WAY TO THE POINT OF BEGINNING OF SAID LINE;
THENCE WEST 15 FEET;
THENCE NORTH TO THE SOUTHWESTERLY LINE OF THE CITY OF TACOMA TRANSMISSION LINE AND THE
TERMINUS OF SAID LINE;
TOGETHER WITH THAT PORTION OF THE CITY OF TACOMA TRANSMISSION LINE LYING WESTERLY AND SOUTHERLY OF THE FOLLOWING DESCRIBED LINE IN GOVERNMENT LOT 4 IN SECTION 3, TOWNSHIP 20
NORTH, RANGE 3 EAST OF THE W.M.:
BEGINNING AT A POINT 677.21 FEET EAST AND 445.43 FEET SOUTH OF THE NORTHWEST CORNER OF
GOVERNMENT LOT 4, SECTION 3, TOWNSHIP 20 NORTH, RANGE 3 EAST OF THE W.M.;
THENCE SOUTH 01°36' WEST 196.54 FEET TO THE SOUTHWESTERLY LINE OF THE CITY OF TACOMA TRANSMISSION LINE RIGHT OF WAY;
THENCE WEST 15 FEET; THENCE NORTH 60 FEET;
THENCE WEST 15 FEET TO THE TERMINUS OF SAID LINE.

LEGEND

- FOUND MONUMENT
- SET REBAR W/ CONTROL CAP
- FOUND REBAR W/ CONTROL CAP
- SURVEY CONTROL POINT
- CALCULATED POINT
- TPN TAX PARCEL NUMBER
- BOUNDARY LINE
- PARCEL LINE
- RIGHT-OF-WAY LINE
- QUARTER SECTION LINE
- USACE TRACT LINE (R1)
- VACATED PLAT LINE
- PARCEL LINE PER PIERCE COUNTY GIS
- WETLAND EDGE



HORIZONTAL SCALE: 1"=100'
100 0 100 200

HORIZONTAL DATUM

WASHINGTON PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83/2011
(PER PORT OF TACOMA SURVEY CONTROL MAP - 2016)
PORT OF TACOMA MONUMENT 'N'
N: 705928.480
E:1166519.225
LOCATED AT THE INTERSECTION OF LINCOLN & MARC AVE.

PORT OF TACOMA MONUMENT '920'
N: 707540.800
E:1168067.270
LOCATED AT THE INTERSECTION LINCOLN AND THORNE

MEASURED NORTH 43°50'06" EAST BETWEEN THESE TWO FOUND MONUMENTS

VERTICAL DATUM

MLLW (PER PORT OF TACOMA 2016 SURVEY CONTROL MAP, UPDATED JANUARY 2023)

TIDE 22 1933 BENCHMARK, SINCE DESTROYED: LOCATED AT NE CORNER OF 11TH ST. BRIDGE AT THE INTERSECTION OF E. 11TH ST. AND MILWAUKEE WAY
ELEVATION = 19.18
(BASED ON 1983-2001 TIDAL EPOCH)

BENCHMARK: '944 6484 A'- BENCHMARK IS A BRASS DISK ON STEEL ROD, SET IN PVC PIPE, LOCATED EAST OF CURVED WALL IN PLANTING STRIP, NEAR THE SOUTHERN EDGE OF THE PORT OF TACOMA OBSERVATION TOWER SITE,
PUBLISHED ELEVATION = 16.88'

TO CONVERT TO NGVD29 DATUM, REDUCE ALL ELEVATION VALUES BY 5.96 (-5.96)

SITE BENCHMARK:
PORT OF TACOMA MONUMENT 'N'
ELEVATION = 17.66

SITE TEMPORARY BENCHMARK (TBM)
MONUMENT AT USACE TRACT A77E LEGAL DESCRIPTION P.O.B., SE CORNER OF SITE
ELEVATION = 16.16'

SITE DATA

TAX PARCEL NO. 0320031004, 0320031009, 0320031026, 0320031027, 0320032006, 0320032048, 0320034052

NOTES

1. EQUIPMENT USED: CARLSON CR2+ ROBOTIC TOTAL STATION AND JAVAD TRIUMPH-3NR RTK/GPS.
2. THIS SURVEY WAS PERFORMED BY FIELD TRAVERSE WITH THE FINAL RESULTS MEETING OR EXCEEDING THE CURRENT TRAVERSE AND RELATIVE POSITIONAL ACCURACY STANDARDS CONTAINED IN W.A.C. 332-130-090. THE RELATIVE POSITIONAL ACCURACY OF THE POSITIONS LOCATED HEREON MEETS OR EXCEEDS 2 CM (0.07 FT.) PLUS 50 PARTS PER MILLION BETWEEN ANY TWO TESTED POSITIONS. ALL MEASUREMENTS WERE MADE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S SPECIFICATIONS.
3. IN ACCORDANCE WITH THE REVISED CODE OF WASHINGTON (R.C.W.) 58.09 AND THE WASHINGTON ADMINISTRATIVE CODE (W.A.C.) 332-130, THIS SURVEY MAY DEPICT OCCUPATIONAL INDICATORS THAT DIFFER FROM THE DEEDED LOT LINES. THESE INDICATORS, IF AT ALL PRESENT, MAY REPRESENT A POTENTIAL FOR CLAIMS OF UNWRITTEN TITLE. THIS SURVEY DOES NOT PURPORT TO RESOLVE SUCH ITEMS.
4. FIELD WORK PERFORMED IN APRIL-MAY 2025, UNDER SITTS & HILL PROJECT NUMBER 20868.
5. UTILITIES AS SHOWN HEREON ARE BASED ON FIELD SURVEY OBSERVATION, NO UTILITY LOCATE SERVICES WERE PERFORMED FOR THIS SURVEY. UTILITIES OTHER THAN SHOWN MAY EXIST ON THE SITE. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE SURVEYOR DOES CERTIFY THAT THEY ARE SHOWN AS ACCURATELY AS POSSIBLE FROM FIELD SURVEY AND PAINTED UTILITY LOCATE LINES. COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA IS CONSISTENT WITH QUALITY LEVEL C OF THE ASCE STANDARD GUIDELINES 38-02.
6. SITTS & HILL ENGINEERS, INC. HAS RELIED UPON TITLE INFORMATION NOTED IN COMMITMENT FOR TITLE INSURANCE PREPARED BY CHICAGO TITLE INSURANCE COMPANY OF WASHINGTON, COMMITMENT NUMBER 251070-TC, DATED APRIL 3, 2025. IN PREPARATION OF THIS SURVEY, SITTS AND HILL ENGINEERS, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS SITTS AND HILL ENGINEERS, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND/OR DISCLOSED BY SAID TITLE COMPANY'S ORDER. SITTS & HILL ENGINEERS, INC. HAS RELIED WHOLLY ON SAID TITLE COMPANY'S REPORT AND THEREFORE QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
7. THIS SURVEY COMPLIES WITH W.A.C. 332-130-145. THE CONTOURS DEPICTED HEREON ARE BASED ON DATA FROM DIRECT FIELD MEASUREMENTS. SPOT ELEVATIONS ARE BASED ON DIRECT FIELD MEASUREMENTS AND ARE DEPICTED FOR REFERENCE. THE PURPOSE OF THIS TOPOGRAPHIC MAP IS TO SERVE AS A BASE MAP FOR CONTEMPLATED SITE IMPROVEMENTS AND DESIGN. THIS TOPOGRAPHIC SURVEY MAP HAS BEEN DEVELOPED FROM A BODY OF FIELD COLLECTED DATA POINTS AND RECORD INFORMATION, AS NOTED. NOT ALL UNDERLYING DATA POINTS EXISTING WITHIN THE CAD BASE DRAWING (AUTODESK CIVIL 3D FILE) ARE DEPICTED ON THE PDF DELIVERABLE. SEE THE DIGITAL CAD FILE FOR ALL FIELD COLLECTED DATA, AND CONTACT SITTS & HILL ENGINEERS IF THERE ARE ISSUES WITH MAKING THIS DATA VISIBLE.

Port of Tacoma
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MARK:	REVISION:	BY:	APPR:	DATE:

PRELIMINARY
STATE OF WASHINGTON
BRADLEY SCHILLING
20868
REGISTERED PROFESSIONAL LAND SURVEYOR

CHECKED BY	DATE

DIRECTOR ENG.	DATE	PROJ. ENGR	DATE

APPROVED:

PARCEL 37D
BOUNDARY AND TOPOGRAPHIC SURVEY
BOUNDARY AND TITLE INFORMATION

SV1.0
SH 1 OF 3

CONT/CONS:	071861	TOWNSHIP: 20	RANGE: 03	SECTION: 03	PRINTED BY: smootsr Jul 01, 2025
M. ID:	002349-20	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933		PORT ADDRESS:ONE SITCUM PLAZA
PHASE:		PARCEL: 37D	DRAWING SCALE: AS NOTED		TACOMA, WA 98401-1837

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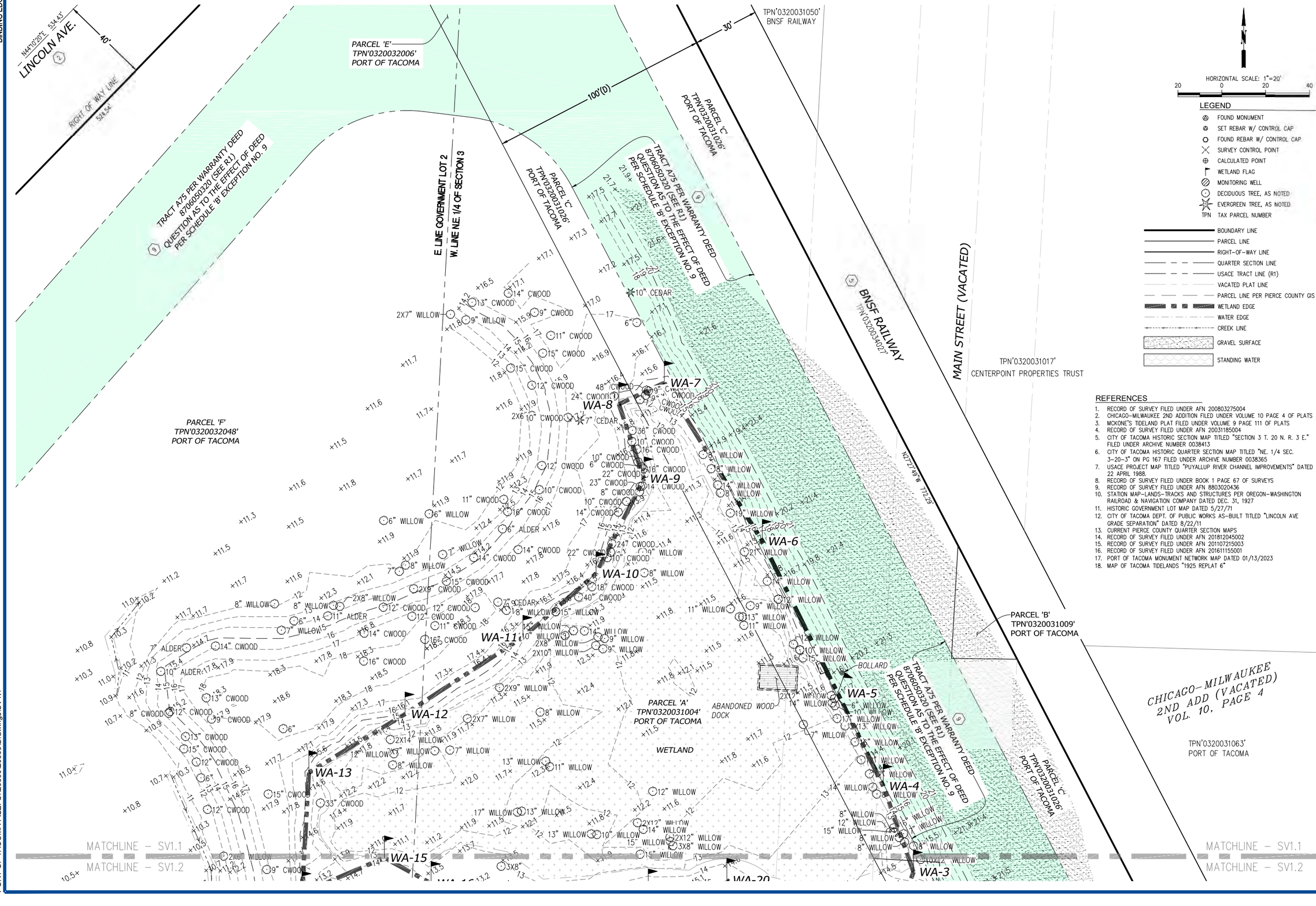
PORT OF TACOMA FILE: O:\20800\20868\Drawings\SV1.0

BINDING EDGE



HORIZONTAL SCALE: 1"=20'
20 0 20 40

LEGEND

- FOUND MONUMENT
- SET REBAR W/ CONTROL CAP
- FOUND REBAR W/ CONTROL CAP
- SURVEY CONTROL POINT
- CALCULATED POINT
- WETLAND FLAG
- MONITORING WELL
- DECIDUOUS TREE, AS NOTED
- EVERGREEN TREE, AS NOTED
- TPN TAX PARCEL NUMBER
- BOUNDARY LINE
- PARCEL LINE
- RIGHT-OF-WAY LINE
- QUARTER SECTION LINE
- USACE TRACT LINE (R1)
- VACATED PLAT LINE
- PARCEL LINE PER PIERCE COUNTY GIS
- WETLAND EDGE
- WATER EDGE
- CREEK LINE
- GRAVEL SURFACE
- STANDING WATER

REFERENCES

1. RECORD OF SURVEY FILED UNDER AFN 200803275004
2. CHICAGO-MILWAUKEE 2ND ADDITION FILED UNDER VOLUME 10 PAGE 4 OF PLATS
3. MCKONE'S TIDELAND PLAT FILED UNDER VOLUME 9 PAGE 111 OF PLATS
4. RECORD OF SURVEY FILED UNDER AFN 2003185004
5. CITY OF TACOMA HISTORIC SECTION MAP TITLED "SECTION 3 T. 20 N. R. 3 E." FILED UNDER ARCHIVE NUMBER 0038413
6. CITY OF TACOMA HISTORIC QUARTER SECTION MAP TITLED "NE. 1/4 SEC. 3-20-3" ON PG 167 FILED UNDER ARCHIVE NUMBER 0038365
7. USACE PROJECT MAP TITLED "PUYALLUP RIVER CHANNEL IMPROVEMENTS" DATED 22 APRIL 1988.
8. RECORD OF SURVEY FILED UNDER BOOK 1 PAGE 67 OF SURVEYS
9. RECORD OF SURVEY FILED UNDER AFN 8803020436
10. STATION MAP-LANDS-TRACKS AND STRUCTURES PER OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY DATED DEC. 31, 1927
11. HISTORIC GOVERNMENT LOT MAP DATED 5/27/71
12. CITY OF TACOMA DEPT. OF PUBLIC WORKS AS-BUILT TITLED "LINCOLN AVE GRADE SEPARATION" DATED 8/22/11
13. CURRENT PIERCE COUNTY QUARTER SECTION MAPS
14. RECORD OF SURVEY FILED UNDER AFN 201812045002
15. RECORD OF SURVEY FILED UNDER AFN 201107215003
16. RECORD OF SURVEY FILED UNDER AFN 201611155001
17. PORT OF TACOMA MONUMENT NETWORK MAP DATED 01/13/2023
18. MAP OF TACOMA TIDELANDS "1925 REPLAT 6"

Port of Tacoma
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MARK:	REVISION:	BY:	APPR:	DATE:

PRELIMINARY
STATE OF WASHINGTON
JAMES E. SCHILLING
18826
REGISTERED PROFESSIONAL LAND SURVEYOR

CHECKED BY	DATE

DIRECTOR, ENG.	DATE	PROJ. ENGR	DATE
		smootsr	Jul 01, 2025

APPROVED:

PRINTED BY: smootsr Jul 01, 2025
PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837

PARCEL 37D
BOUNDARY AND TOPOGRAPHIC SURVEY
SITE DETAILS

SV1.1
SH 2 OF 3

CONT/CONS:	071861	TOWNSHIP: 20	RANGE: 03
M. ID:	002349-20	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933
PHASE:		PARCEL: 37D	DRAWING SCALE: AS NOTED

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PORT OF TACOMA FILE: O:\20800\20868\Drawings\SV1.1

BINDING EDGE

MATCHLINE – SV1.1
MATCHLINE – SV1.2

WA-14 WA-15 WA-16 WA-17 WA-18 WA-19 WA-20 WA-21 WA-22 WA-1 WA-2 WA-3

TP-1 TP-2 TP-3 TP-4 TP-5

WETLAND

PARCEL 'D'
TPN'0320031027'
PORT OF TACOMA

PARCEL 'C'
TPN'0320031026'
PORT OF TACOMA

BNSF RAILWAY
TPN'0320034027'

TPN'0320031063'
PORT OF TACOMA

CHICAGO-MILWAUKEE
2ND ADD (VACATED)
VOL. 10, PAGE 4

FOUND 3 1/4" ALUMINUM MON W/ "X"
"LS 33133, ARMY CORPS. OF ENGINEERS"
TRACT A77E P.O.B. (R1)
(12/03/2024)

RCC #8
N: 704804.23
E: 1166396.13
EL: 22.81

30'
100'(D)

MONITORING WELL
GROUND EL=14.53'
RIM=17.36'
PIPE=16.68'

MONITORING WELL
GROUND EL=15.17'
RIM=18.45'
PIPE=18.40'

CALCULATED CENTER OF SECTION 3 (R1)
NOT FOUND.

S88°40'02"E 750.32'(C) 750.94'(D)

S. LINE GOVERNMENT LOT 2
N. LINE GOVERNMENT LOT 3

S. LINE, NE 1/4, OF SECTION 3
N. LINE GOVERNMENT LOT 4

ECOBLOCK

S. 21 ST. (VACATED)

TPN'0320031028'
PORT OF TACOMA

PARCEL 'C'
TPN'0320031026'
PORT OF TACOMA

TPN'0320034035'
PORT OF TACOMA

MCKONE'S TIDELAND PLAT
AFN 307302 (VACATED)
VOL. 9, PAGE 111

TPN'0320034051'
PORT OF TACOMA

TRACT A77E (SEE R1)

MAIN STREET (VACATED)

TRACT A75 PER WARRANTY DEED
8706050320 (SEE R1)
QUESTION AS TO THE EFFECT OF DEED
PER SCHEDULE 'B' EXCEPTION NO. 9

PARCEL 'G'
TPN '0320034052'
PORT OF TACOMA

PARCEL 'F'
TPN'0320032048'
PORT OF TACOMA

E. LINE GOVERNMENT LOT 3
W. LINE GOVERNMENT LOT 4

HORIZONTAL SCALE: 1"=20'
20 0 20 40

LEGEND

- FOUND MONUMENT
- SET REBAR W/ CONTROL CAP
- FOUND REBAR W/ CONTROL CAP
- SURVEY CONTROL POINT
- CALCULATED POINT
- WETLAND FLAG
- MONITORING WELL
- DECIDUOUS TREE, AS NOTED
- EVERGREEN TREE, AS NOTED
- TPN TAX PARCEL NUMBER

- BOUNDARY LINE
- PARCEL LINE
- RIGHT-OF-WAY LINE
- QUARTER SECTION LINE
- USACE TRACT LINE (R1)
- VACATED PLAT LINE
- PARCEL LINE PER PIERCE COUNTY GIS
- WETLAND EDGE
- WATER EDGE
- CREEK LINE
- GRAVEL SURFACE
- STANDING WATER

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APPROVED:

DIRECTOR ENG.	DATE	CHECKED BY	DATE
PRINTED BY:	smootsr Jul 01, 2025	PROJ. ENGR	DATE
PORT ADDRESS:	ONE SITCUM PLAZA		
	TACOMA, WA 98401-1837		

PARCEL 37D
BOUNDARY AND TOPOGRAPHIC SURVEY
SITE DETAILS

TOWNSHIP: 20	RANGE: 03	SECTION: 03
DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PARCEL: 37D	DRAWING SCALE: AS NOTED	

SV1.2
SH 2 OF 3

CONT/CONS: 071861
M. ID: 002349-20
PHASE:

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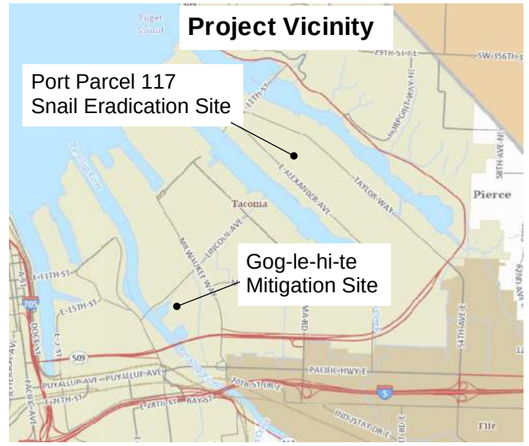
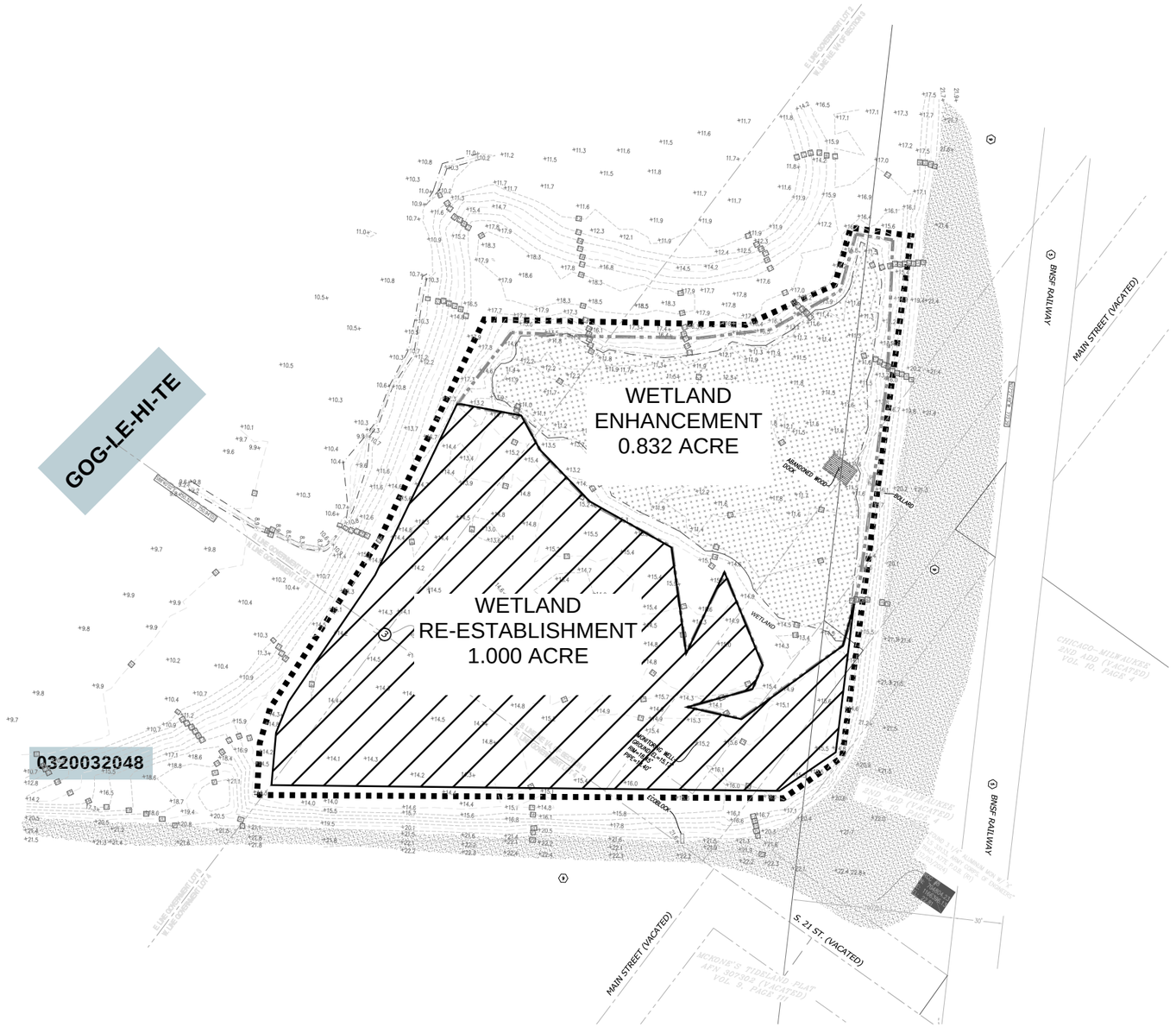
PORT OF TACOMA FILE: O:\20800\20868\Drawings\SV1.2

Appendix J

Gog-Le-Hi-Te Site Plans

PORT OF TACOMA GOG-LE-HI-TE - SITE INFORMATION





SITE ADDRESS
1402 LINCOLN AVE

TAX PARCELS (PORTIONS OF)
0320032048
0320031004
0320034052
0320032126

SITE AREA
2.12 ACRE

OWNER
PORT OF TACOMA
PO BOX 1837
TACOMA, WA 98401-1837

SCALE IN FEET
40 0 20 40 80

PERMIT SUBMITTAL - NOT FOR CONSTRUCTION

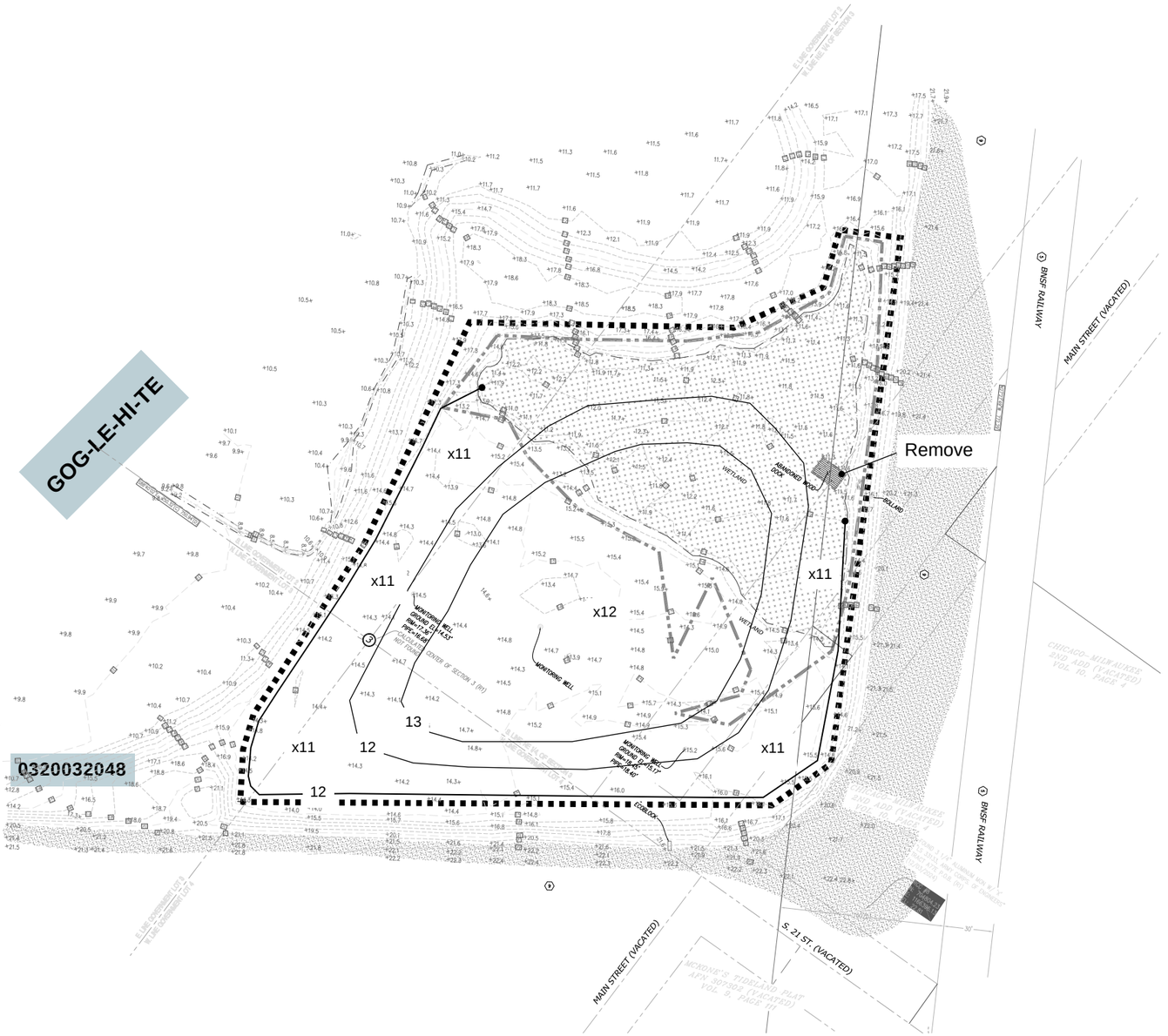
NO.	DATE	BY	APPR.	REVISIONS

CONFLUENCE ENVIRONMENTAL COMPANY

PORT PARCEL 117 SNAIL ERADICATION
GOG-LE-HI-TE - WETLAND MITIGATION AREA

MITIGATION LAYOUT

G-01 SHT 00 OF 00



SCALE IN FEET
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PORT PARCEL 117 SNAIL ERADICATION
GOG-LE-HI-TE - WETLAND MITIGATION AREA

GRADING CONCEPT

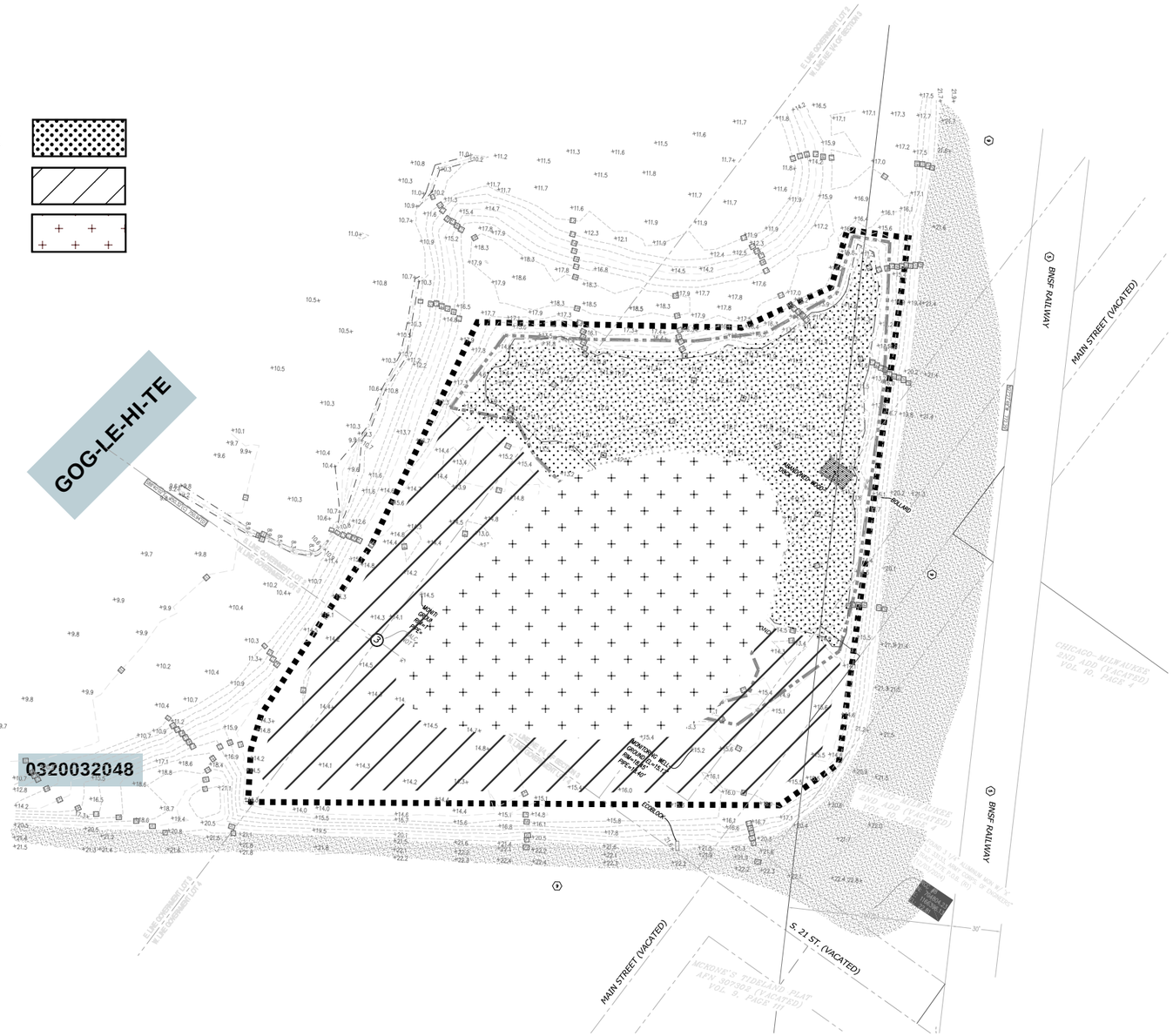
G-01 SHT 00 OF 00

PLANTING LEGEND

WETLAND ENHANCEMENT MIX

WETLAND SHRUB MIX

WETLAND EVERGREEN MIX



SCALE IN FEET
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PERMIT SUBMITTAL - NOT FOR CONSTRUCTION

NO.	DATE	BY	APPR.	REVISIONS

CONFLUENCE ENVIRONMENTAL COMPANY

PORT PARCEL 117 SNAIL ERADICATION
GOG-LE-HI-TE - WETLAND MITIGATION AREA

PLANTING CONCEPT

G-01

SHT 00 OF 00

PLANT SCHEDULE

WETLAND ENHANCMENT MIX

COMMON NAME	SCIENTIFIC NAME	QTY*	TYPE, SIZE	SPACING
TREES				
Western Redcedar	Thuja plicata	10%	bare root, 12"-18"	8' O.C., triangle
Sitka Spruce	Picea sitchensis	10%	bare root, 12"-18"	8' O.C., triangle
Oregon Ash	Fraxinus latifolia	20%	bare root, 12"-18"	8' O.C., triangle
Pacific Willow	Salix lucida ssp. lasiandra	15%	live stake	8' O.C., triangle
SHRUBS				
Scouler's Willow	Salix scouleriana	15%	live stake	5' O.C., triangle
Hooker's Willow	Salix hookeriana	15%	live stake	5' O.C., triangle
Redtwig Dogwood	Cornus sericea	15%	bare root, 12"-18"	5' O.C., triangle

* Plant quantities shall be determined per the layout and spacing noted in the plant schedule and details.

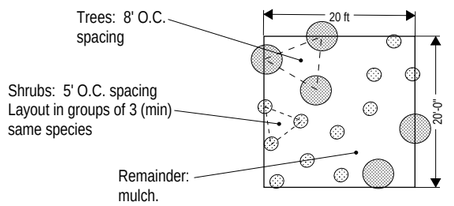
WETLAND SHRUB MIX

COMMON NAME	SCIENTIFIC NAME	QTY*	TYPE, SIZE	SPACING
TREES				
Pacific Willow	Salix lucida ssp. lasiandra	25%	live stake	8' O.C., triangle
SHRUBS				
Scouler's Willow	Salix scouleriana	25%	live stake	5' O.C., triangle
Hooker's Willow	Salix hookeriana	25%	live stake	5' O.C., triangle
Sitka Willow	Salix sitchensis	25%	live stake	5' O.C., triangle

WETLAND EVERGREEN MIX

COMMON NAME	SCIENTIFIC NAME	QTY*	TYPE, SIZE	SPACING
TREES				
Western Redcedar	Thuja plicata	20%	bare root, 12"-18"	8' O.C., triangle
Sitka Spruce	Picea sitchensis	20%	bare root, 12"-18"	8' O.C., triangle
Oregon Ash	Fraxinus latifolia	20%	bare root, 12"-18"	8' O.C., triangle
Pacific Willow	Salix lucida ssp. lasiandra	10%	live stake	8' O.C., triangle
SHRUBS				
Scouler's Willow	Salix scouleriana	10%	live stake	5' O.C., triangle
Hooker's Willow	Salix hookeriana	10%	live stake	5' O.C., triangle
Sitka Willow	Salix sitchensis	10%	live stake	5' O.C., triangle

Adjust plant layout and density in enhancement zones for existing trees and shrubs.



TYPICAL PLANTING COMPOSITION IN A 400 SQUARE FOOT AREA.

PROVIDE IMPORTED PLANT MATERIALS PER THE SPECIES, SIZE/TYPE, AND SPACING TO VEGETATE 100% OF EACH PLANTING ZONE.

PLANTING LAYOUT
SCALE: NTS

PERMIT SUBMITTAL - NOT FOR CONSTRUCTION

NO.	DATE	BY	APPR.	REVISIONS

CONFLUENCE ENVIRONMENTAL COMPANY

PORT PARCEL 117 SNAIL ERADICATION
GOG-LE-HI-TE - WETLAND MITIGATION AREA

PLANTING SCHEDULE AND DETAILS

L-02 | SHT 00 OF 00



CONFLUENCE
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Appendix D

Updated Wetland Rating Forms and Credit-Debit Worksheet

Wetland name or number: Parcel 12 Existing Conditions

RATING SUMMARY - Western Washington

Name of wetland (or ID#): Parcel 12 Existing Conditions **Date of site visit:** 07/23/2025
Rated By: Beatrice Renaud **Trained by Ecology? Yes** [X] **No** [ ] **Date of Training:** 10/20/2023
HGM Class used for rating: Depressional
Wetland has multiple HGM classes? Yes [ ] **No** [X]

NOTE: Form is not complete without the figures requested *(figures can be combined).*
Source of base aerial photo/map: ESRI World Imagery

OVERALL WETLAND CATEGORY: [**Category III**] (based on functions [X] or special characteristics [ ])

1. Category of wetland based on FUNCTIONS

[ ] **Category I** - Total score = 23 - 27
[ ] **Category II** - Total score = 20 - 22
[X] **Category III** - Total score = 16 - 19
[ ] **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	**M**	**M**	**L**	
Landscape Potential	**M**	**H**	**L**	
Value	**H**	**H**	**M**	**Total**
Score Based on Ratings	**7**	**8**	**4**	**19**

Score for each function based on three ratings (order of ratings is not important)
9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested	
Coastal Lagoon	
Interdunal	
None of the above	**Not Applicable**

Wetland name or number: Parcel 12 Existing Conditions

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Wetland name or number: Parcel 12 Existing Conditions

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0 Does the site have the potential to improve water quality?

D 1.1 What are the characteristics of surface water outflows from the wetland?		
Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	**Score: 3**
D 1.2 Is the soil 2 in. below the surface a true clay or organic soil?		
Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	**Score: 0**
D 1.3 What are the characteristics and distribution of persistent plants?		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	**Score: 3**
D 1.4 What are the characteristics of seasonal ponding or inundation in the wetland area?		
Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	**Score: 0**
	Total for D 1:	**6**

Rating of Site Potential [ ] **12-16 = H** [X] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 2.0 Does the landscape have the potential to support the water quality function of the site?

D 2.1 Does the wetland unit receive stormwater discharges?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 2.2 Is >10% of the area within 150ft of the wetland in land uses that generate pollutants in surface runoff?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 2.3 Are there septic systems within 250ft of the wetland?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 2.4 Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?		
Yes	points = 1	
No	points = 0	**Score: 0**

Wetland name or number: Parcel 12 Existing Conditions

D 2.5 What are the other sources of pollutants coming into the wetland?		
	Total for D 2:	**2**

Rating of Landscape Potential [ ] **3-4 = H** [X] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

D 3.0 Is the water quality improvement provided by the site valuable to society?		
D 3.1 Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 3.2 Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?		
Yes	points = 2	
No	points = 0	**Score: 0**
	Total for D 3:	**2**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradtion

D 4.0 Does the site have the potential to reduce flooding and erosion?		
D 4.1 What are the characteristics of surface water outflows from the wetland?		
Wetland has no surface water outlet.	points = 4	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	**Score: 4**
D 4.2 What is the depth of storage during the wet periods?		
Marks of ponding are 3ft or more above the surface or bottom of the outlet.	points = 7	
Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet.	points = 5	
Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet.	points = 3	
The wetland is a "headwater" wetland.	points = 3	
The wetland is flat but has small depressions on the surface that trap water.	points = 1	
Marks of ponding are less than 0.5ft (6in).	points = 0	**Score: 3**

Wetland name or number: Parcel 12 Existing Conditions

D 4.3 What is the contribution of the wetland to storage in the watershed?		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	**Score: 3**
	Total for D 4:	**10**

Rating of Site Potential [ ] **12-16 = H** [X] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 5.0 Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1 Does the wetland unit receive stormwater discharges?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 5.2 Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 5.3 Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?		
Yes	points = 1	
No	points = 0	**Score: 1**
	Total for D 5:	**3**

Rating of Landscape Potential [X] **3 = H** [ ] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

D 6.0 Are the hydrologic functions provided by the site valuable to society?		
D 6.1 Is the wetland in a landscape that has flooding problems?		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	**Score: 2**
D 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
Yes	points = 2	
No	points = 0	**Score: 0**
	Total for D 6:	**2**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: Parcel 12 Existing Conditions

HABITAT FUNCTIONS

These questions apply to wetlands of all HGM classes - Indicators that the site functions to provide important habitat

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

- [ ] Aquatic Bed
- [ ] Emergent
- [ ] Scrub-shrub
- [x] Forested
- [ ] Multiple strata within the Forested class (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)

4 structures or more	points = 4	
3 structures	points = 2	
2 structures	points = 1	
1 structure	points = 0	
No structures present	points = 0	**Score: 0**

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

- [ ] Permanently flooded or inundated
- [x] Seasonally flooded or inundated
- [ ] Occasionally flooded or inundated
- [x] Saturated only
- [ ] Permanently flowing stream or river in, or adjacent to, the wetland
- [ ] Seasonally flowing stream in, or adjacent to, the wetland
- [ ] Lake Fringe wetland
- [ ] Freshwater Tidal wetland

4 or more types present	points = 3	
3 types present or Lake Fringe / Freshwater Tidal Fringe	points = 2	
2 types present	points = 1	
1 type present	points = 0	
None present	points = 0	**Score: 1**

H 1.3 What is the richness of the plant species in the wetland?

>19 species	points = 2	
5-19 species	points = 1	
<5 species	points = 0	**Score: 1**

Wetland name or number: Parcel 12 Existing Conditions

H 1.4 What is the interspersion of habitats?

High	points = 3	
Moderate	points = 2	
Low	points = 1	
None	points = 0	**Score: 0**

H 1.5 What are the special habitat features in the wetland?

- [ ] Large, downed, woody debris within the wetland (>4in diameter and 6ft long).
- [ ] Standing snags (dbh >4in) within the wetland
- [ ] Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)
- [ ] Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)
- [ ] At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)
- [ ] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)

6 habitats selected	points = 6	
5 habitats selected	points = 5	
4 habitats selected	points = 4	
3 habitats selected	points = 3	
2 habitats selected	points = 2	
1 habitat selected	points = 1	
No habitats selected	points = 0	**Score: 0**

Total for H 1: 2

Rating of Site Potential [ ] **15-18 = H** [ ] **7-14 = M** [X] **0-6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat functions of the site?

H 2.1 What is the percentage of accessible habitat within 1km of the wetland?

>33% of 1km Polygon	points = 3	
20-33% of 1km Polygon	points = 2	
10-19% of 1km Polygon	points = 1	
<10% of 1km Polygon	points = 0	**Score: 0**

H 2.2 What is the percentage of total habitat in a 1km polygon around the wetland?

Total habitat is >50% of the Polygon	points = 3	
Total habitat is 10-50% of the Polygon and in 1-3 patches	points = 2	
Total habitat is 10-50% of the Polygon and in >3 patches	points = 1	
Total habitat is <10% of the Polygon	points = 0	**Score: 2**

Wetland name or number: Parcel 12 Existing Conditions

H 2.3 What is the land use intensity in the 1km polygon?

50% of the Polygon is high intensity land use	points = -2	
<50% of the Polygon is high intensity land use	points = 0	**Score: -2**
	Total for H 2:	**0**

Rating of Landscape Potential [ ] **4-6 = H** [ ] **1-3 = M** [X] **0 = L** *Record the rating on the first page*

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?

- [ ] Aspen Stands
- [ ] Biodiversity Areas and Corridors
- [ ] Herbaceous Balds
- [ ] Old-growth/Mature Forests
- [ ] Oregon White Oak
- [✓] Riparian
- [ ] Westside Prairie
- [ ] Fresh Deepwater
- [✓] Instream
- [ ] Nearshore (Coastal, Open Coast, Puget Sound)
- [ ] Caves
- [ ] Cliffs
- [ ] Snags and Logs
- [ ] Talus

The following criteria automatically score 2 points:

- [ ] The wetland provides habitat for Threatened or Endangered species
- [ ] The wetland is mapped as a location for an individual WDFW priority species
- [ ] The wetland is a Wetland of High Conservation Value
- [ ] The wetland has been categorized as an important habitat site in a local plan

The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	**Score: 1**
	Total for H 3:	**1**

Rating of Value [ ] **2 = H** [X] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: Parcel 12 Existing Conditions

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

SC 1.1 Does the wetland meet all of the following criteria for Estuarine wetlands?

☐ The dominant water regime is tidal

☐ The wetland is vegetated

☐ The water salinity is greater than 0.5 ppt

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

Result: Not an Estuarine Wetland

SC 1.2 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

SC 1.3 Is the wetland unit at least 1ac in size and meets at least two of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species.

☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland

☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

SC 2.1 Does the wetland overlap with any known or historical rare plant or rare & high-quality ecosystem polygons on the WNHP Data Explorer?

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

SC 2.2 Does the wetland have a rare plant species, rare plant community, or high-quality common plant community that may qualify the site as a WHCV?

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

Result: Not a Wetland of High Conservation Value

Wetland name or number: Parcel 12 Existing Conditions

SC 3.0 Bogs

SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16in or more of the first 32in of the soil profile?

Yes - Go to SC 3.3
No - Go to SC 3.2 **Result: Go to SC 3.2**

SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?

Yes - Go to SC 3.3
No - Not a Bog Wetland **Result: Not a Bog Wetland**

SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least 30% cover of plant species listed in the table provided in the instructions?

Yes - Category I Bog Wetland
No - Go to SC 3.4 **Result:**

SC 3.4 Is an area with peats or mucks forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann Spruce, or western white pine AND any of the species (or combinations of species) listed in the table found in the instructions provide more than 30% of the cover under the canopy?

Yes - Category I Bog Wetland
No - Not a Bog Wetland **Result:**

SC 4.0 Forested Wetlands

SC 4.1 Does the wetland have at least 1 contiguous acre of forest that meets one of the following criteria?

- [ ] Old-growth forests
- [ ] Mature forests

Yes - Category I Forested Wetland
No - Not a Forested Wetland **Result: Not a Forested Wetland**

Wetland name or number: Parcel 12 Existing Conditions

SC 5.0 Wetlands in Coastal Lagoons

SC 5.1 Coastal Lagoons: Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or rocks

☐ The depression in which the wetland is located contains ponded water that is saline or brackish (>0.5 ppt) during most of the year in at least a portion of the open water area (measured near the bottom)

☐ The lagoon retains some of its surface water at low tide during spring tides

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

SC 5.2 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species).

☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ the wetland is larger than 0.10ac (4350 sqft)

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

SC 6.1 Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership WBUO)?

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

SC 6.2 Is the wetland 1ac or larger in size, or a mosaic that is 1ac or larger in size?

Wetland is larger than 1ac in size - Go to SC 6.3

Wetland is a mosaic larger than 1ac is size - Category II Interdunal Wetland

No - Go to SC 6.4

Result:

SC 6.3 Does the wetland score 8 or 9 points for the habitat functions?

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

SC 6.4 Is the wetland unit between 0.1ac and 1ac, or in a mosaic of wetlands that is between 0.1ac and 1ac in size?

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: Parcel 12 Existing Conditions

Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	**Special Characteristics Category: Not Applicable**



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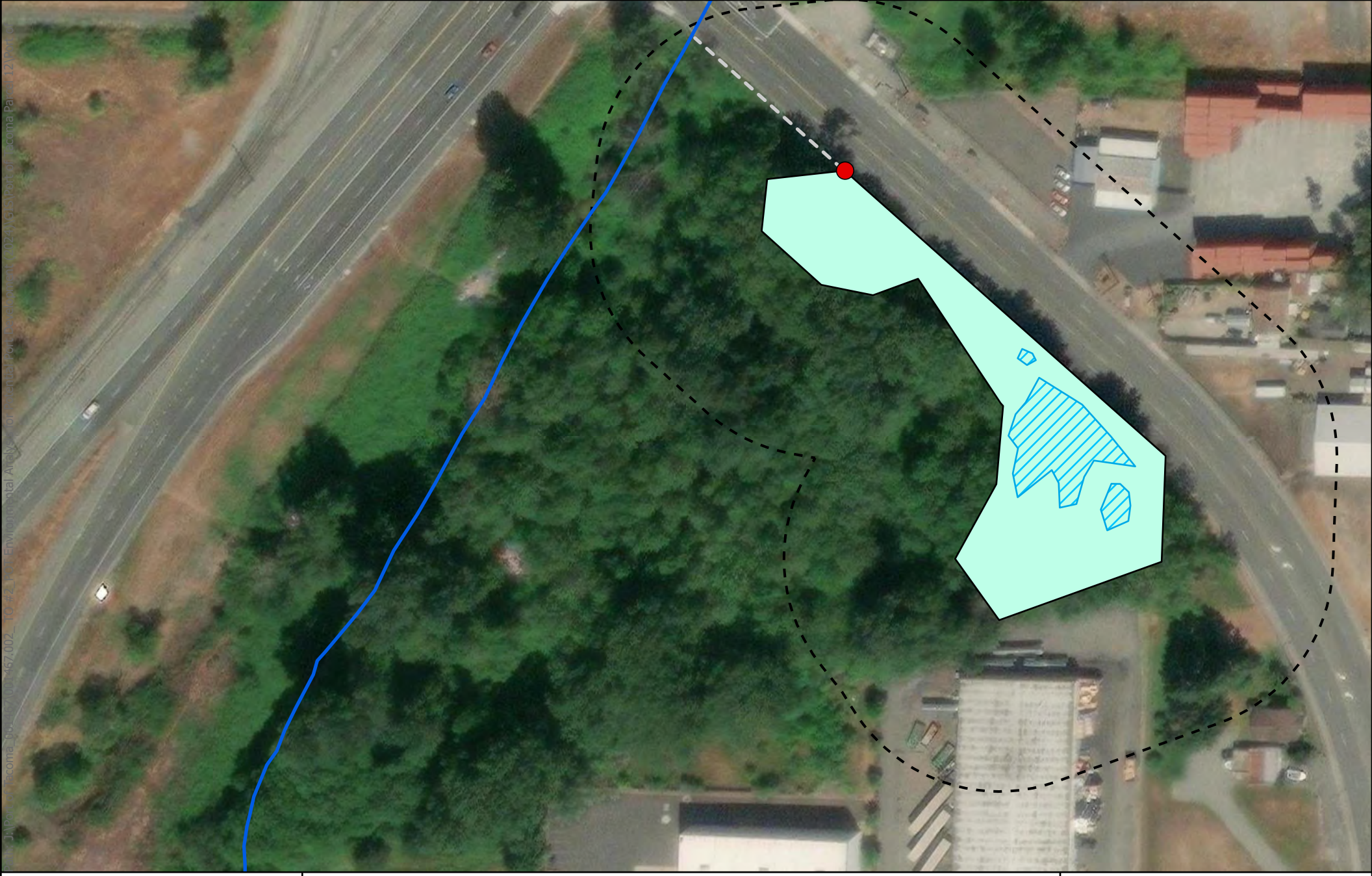
Cowardin Class
Forested
Stream

Note: Wetland A has persistent, ungrazed, plant >1/2 of area

N
0 50
Feet



CONFLUENCE
ENVIRONMENTAL COMPANY

Stream

Hydroperiod

Saturated

Seasonlly ponded

Wetland A 150 ft Buffer

Outlet

Ditch

Note: Wetland A is connected to the nearby stream via roadside ditch.

N

0 150 Feet



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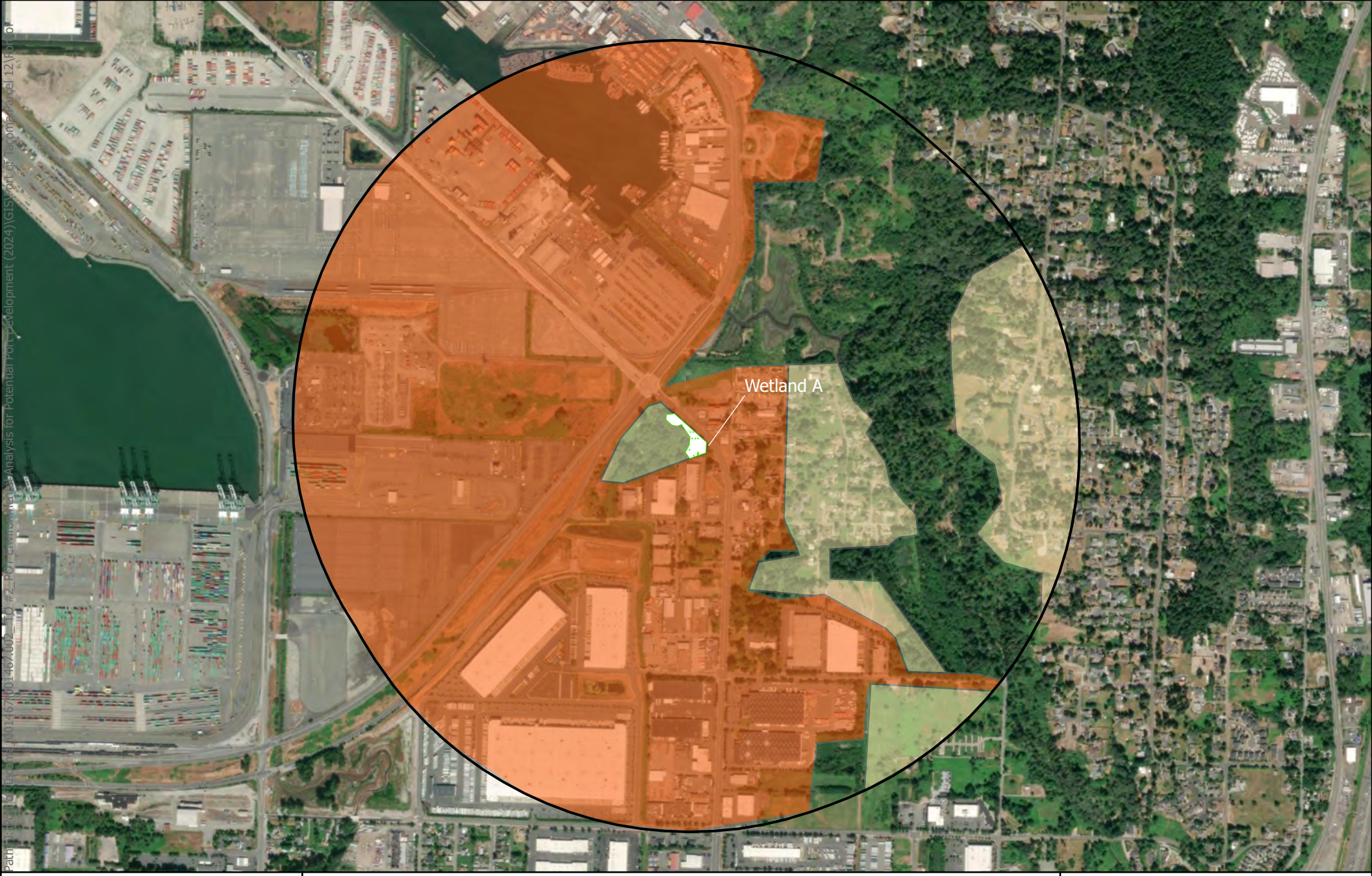
Wetland A
Stream
Topography - 2 ft interval (Tacoma 2004)
Contributing Basin

N
0 200
Feet



CONFLUENCE
ENVIRONMENTAL COMPANY

Wetland A
Wetland A 1km Buffer
LandUseIntensity
High Intensity Land Use
Moderate Intensity Land Use

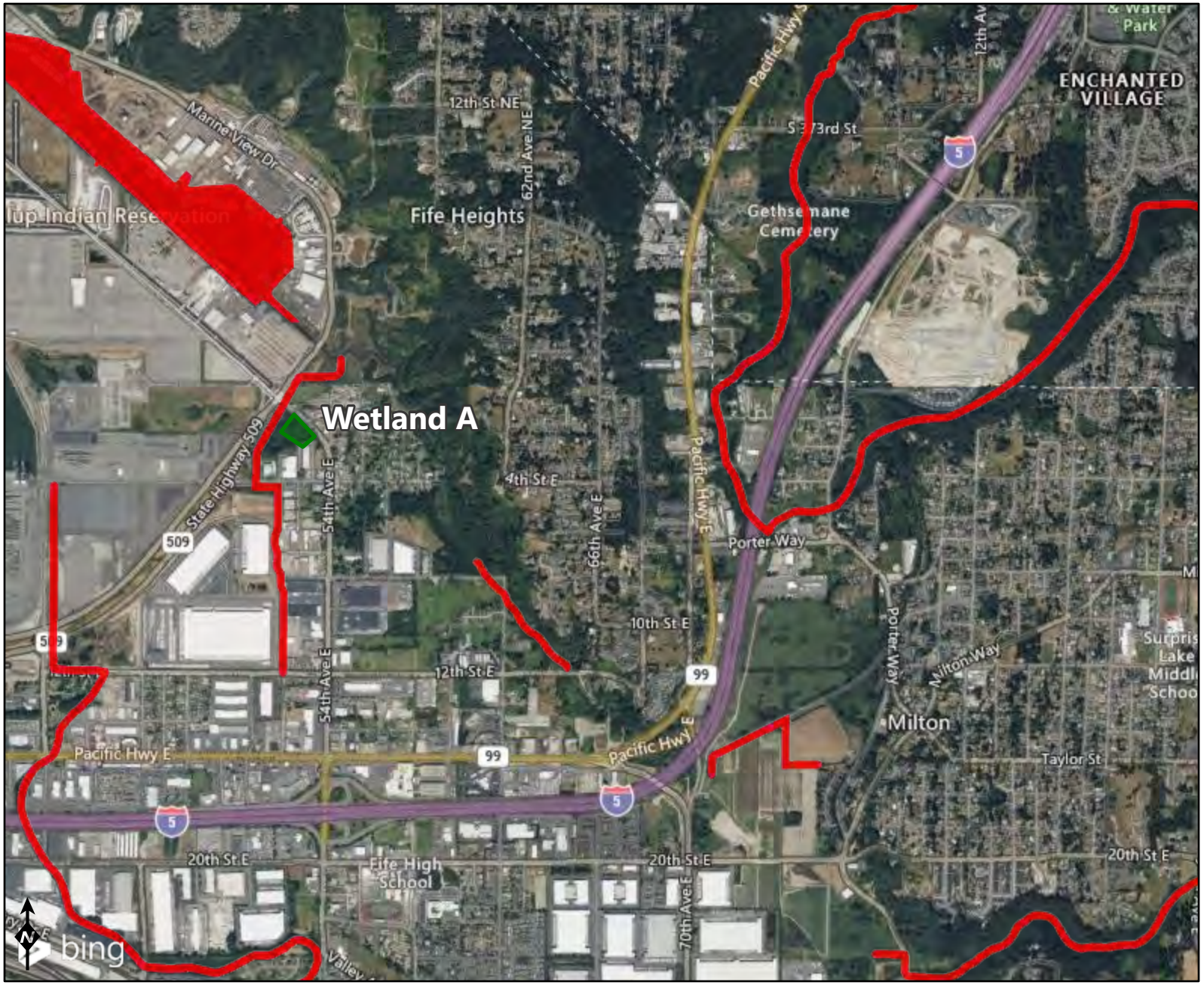
Note: unshaded areas represent relatively undisturbed habitats.

0 1,000 Feet

N

April 10, 2024

303(d) List



Esri, NASA, NGA, USGS, FEMA
King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management,

Miles
0 0.23 0.45 0.9

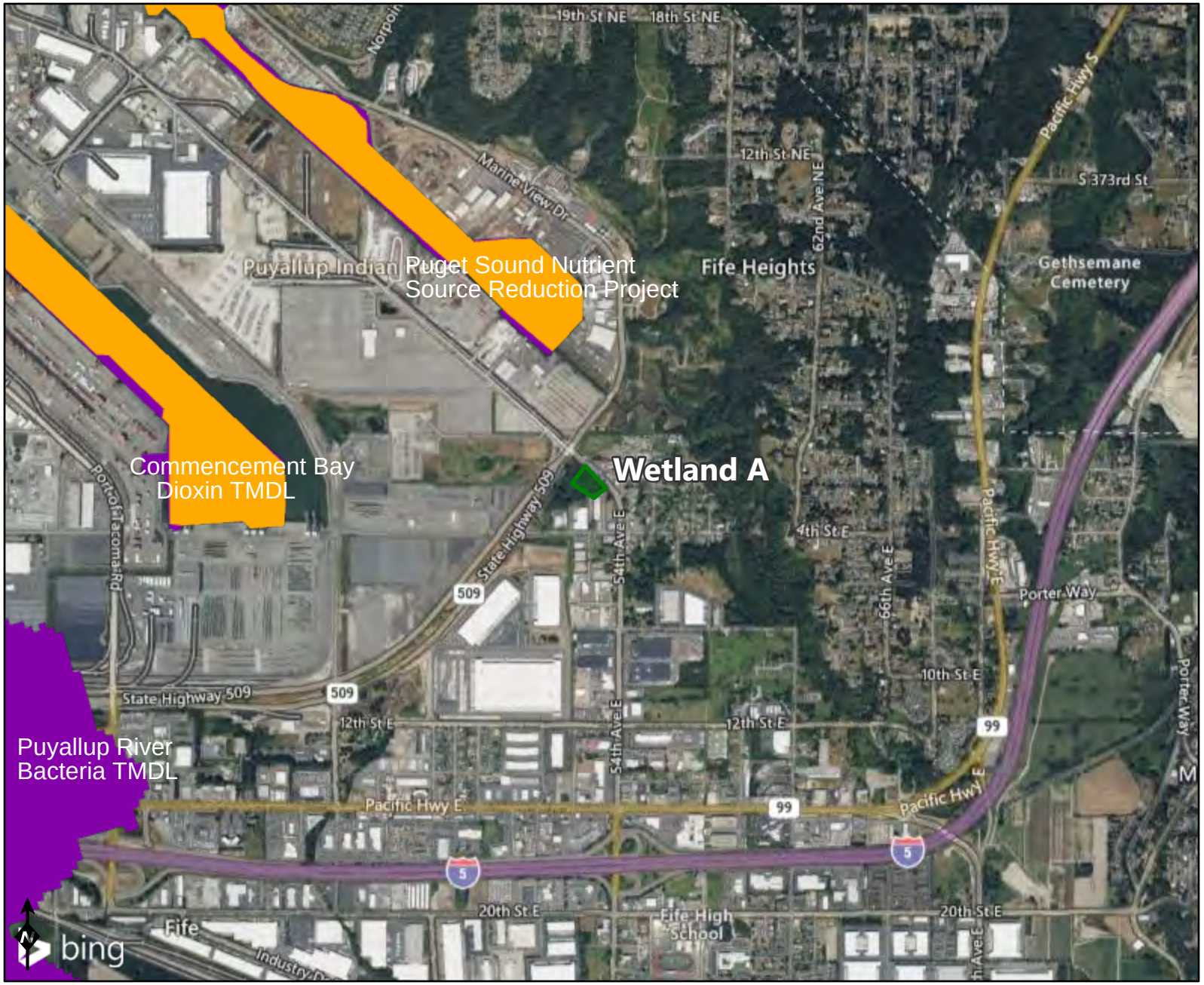
Assessed Water/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

April 10, 2024

TMDL



WQ Improvement Projects
- Approved
- In Development

Miles
0 0.23 0.45 0.9

City of Tacoma, King County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

Wetland name or number: Parcel 12 Proposed Conditions

RATING SUMMARY - Western Washington

Name of wetland (or ID#): Parcel 12 **Date of site visit:** 11/12/2025

Rated By: Beatrice Renaud **Trained by Ecology? Yes** [ ] **No** [X] **Date of Training:** N/A

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes [ ] **No** [X]

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map: Bing Imagery

OVERALL WETLAND CATEGORY: [**Category II**] (based on functions [X] or special characteristics [ ])

1. Category of wetland based on FUNCTIONS

[ ] **Category I** - Total score = 23 - 27

[X] **Category II** - Total score = 20 - 22

[ ] **Category III** - Total score = 16 - 19

[ ] **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	**M**	**H**	**M**	
Landscape Potential	**M**	**H**	**L**	
Value	**H**	**H**	**H**	**Total**
Score Based on Ratings	**7**	**9**	**6**	**22**

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested	
Coastal Lagoon	
Interdunal	
None of the above	**Not Applicable**

Wetland name or number: Parcel 12 Proposed Conditions

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	4
Map of the contributing basin	D 4.3, D 5.3	6
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	7
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	8

Wetland name or number: Parcel 12 Proposed Conditions

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0 Does the site have the potential to improve water quality?

D 1.1 What are the characteristics of surface water outflows from the wetland?		
Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	**Score: 3**
D 1.2 Is the soil 2 in. below the surface a true clay or organic soil?		
Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	**Score: 0**
D 1.3 What are the characteristics and distribution of persistent plants?		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	**Score: 5**
D 1.4 What are the characteristics of seasonal ponding or inundation in the wetland area?		
Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	**Score: 2**
	Total for D 1:	**10**

Rating of Site Potential [ ] **12-16 = H** [X] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 2.0 Does the landscape have the potential to support the water quality function of the site?

D 2.1 Does the wetland unit receive stormwater discharges?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 2.2 Is >10% of the area within 150ft of the wetland in land uses that generate pollutants in surface runoff?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 2.3 Are there septic systems within 250ft of the wetland?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 2.4 Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?		
Yes	points = 1	
No	points = 0	**Score: 0**

Wetland name or number: Parcel 12 Proposed Conditions

D 2.5 What are the other sources of pollutants coming into the wetland?		
	Total for D 2:	**2**

Rating of Landscape Potential [ ] **3-4 = H** [X] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

D 3.0 Is the water quality improvement provided by the site valuable to society?		
D 3.1 Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 3.2 Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?		
Yes	points = 2	
No	points = 0	**Score: 2**
	Total for D 3:	**4**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradtion

D 4.0 Does the site have the potential to reduce flooding and erosion?		
D 4.1 What are the characteristics of surface water outflows from the wetland?		
Wetland has no surface water outlet.	points = 4	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	**Score: 4**
D 4.2 What is the depth of storage during the wet periods?		
Marks of ponding are 3ft or more above the surface or bottom of the outlet.	points = 7	
Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet.	points = 5	
Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet.	points = 3	
The wetland is a "headwater" wetland.	points = 3	
The wetland is flat but has small depressions on the surface that trap water.	points = 1	
Marks of ponding are less than 0.5ft (6in).	points = 0	**Score: 3**

Wetland name or number: Parcel 12 Proposed Conditions

D 4.3 What is the contribution of the wetland to storage in the watershed?		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	**Score: 5**
	Total for D 4:	**12**

Rating of Site Potential [X] **12-16 = H** [ ] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 5.0 Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1 Does the wetland unit receive stormwater discharges?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 5.2 Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 5.3 Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?		
Yes	points = 1	
No	points = 0	**Score: 1**
	Total for D 5:	**3**

Rating of Landscape Potential [X] **3 = H** [ ] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

D 6.0 Are the hydrologic functions provided by the site valuable to society?		
D 6.1 Is the wetland in a landscape that has flooding problems?		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	**Score: 2**
D 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
Yes	points = 2	
No	points = 0	**Score: 0**
	Total for D 6:	**2**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: Parcel 12 Proposed Conditions

HABITAT FUNCTIONS

These questions apply to wetlands of all HGM classes - Indicators that the site functions to provide important habitat

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

- [ ] Aquatic Bed
- [ ] Emergent
- [x] Scrub-shrub
- [x] Forested
- [ ] Multiple strata within the Forested class (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)

4 structures or more	points = 4	
3 structures	points = 2	
2 structures	points = 1	
1 structure	points = 0	
No structures present	points = 0	**Score: 1**

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

- [ ] Permanently flooded or inundated
- [x] Seasonally flooded or inundated
- [ ] Occasionally flooded or inundated
- [x] Saturated only
- [ ] Permanently flowing stream or river in, or adjacent to, the wetland
- [ ] Seasonally flowing stream in, or adjacent to, the wetland
- [ ] Lake Fringe wetland
- [ ] Freshwater Tidal wetland

4 or more types present	points = 3	
3 types present or Lake Fringe / Freshwater Tidal Fringe	points = 2	
2 types present	points = 1	
1 type present	points = 0	
None present	points = 0	**Score: 1**

H 1.3 What is the richness of the plant species in the wetland?

>19 species	points = 2	
5-19 species	points = 1	
<5 species	points = 0	**Score: 1**

Wetland name or number: Parcel 12 Proposed Conditions

H 1.4 What is the interspersion of habitats?

High	points = 3	
Moderate	points = 2	
Low	points = 1	
None	points = 0	**Score: 2**

H 1.5 What are the special habitat features in the wetland?

- [✓] Large, downed, woody debris within the wetland (>4in diameter and 6ft long).
- [✓] Standing snags (dbh >4in) within the wetland
- [ ] Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)
- [ ] Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)
- [ ] At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)
- [✓] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)

6 habitats selected	points = 6	
5 habitats selected	points = 5	
4 habitats selected	points = 4	
3 habitats selected	points = 3	
2 habitats selected	points = 2	
1 habitat selected	points = 1	
No habitats selected	points = 0	**Score: 3**

Total for H 1: 8

Rating of Site Potential [ ] **15-18 = H** [X] **7-14 = M** [ ] **0-6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat functions of the site?

H 2.1 What is the percentage of accessible habitat within 1km of the wetland?

>33% of 1km Polygon	points = 3	
20-33% of 1km Polygon	points = 2	
10-19% of 1km Polygon	points = 1	
<10% of 1km Polygon	points = 0	**Score: 0**

H 2.2 What is the percentage of total habitat in a 1km polygon around the wetland?

Total habitat is >50% of the Polygon	points = 3	
Total habitat is 10-50% of the Polygon and in 1-3 patches	points = 2	
Total habitat is 10-50% of the Polygon and in >3 patches	points = 1	
Total habitat is <10% of the Polygon	points = 0	**Score: 1**

Wetland name or number: Parcel 12 Proposed Conditions

H 2.3 What is the land use intensity in the 1km polygon?

50% of the Polygon is high intensity land use	points = -2	
<50% of the Polygon is high intensity land use	points = 0	**Score: -2**
	Total for H 2:	**-1**

Rating of Landscape Potential [ ] **4-6 = H** [ ] **1-3 = M** [X] **0 = L** *Record the rating on the first page*

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?

- [ ] Aspen Stands
- [ ] Biodiversity Areas and Corridors
- [ ] Herbaceous Balds
- [ ] Old-growth/Mature Forests
- [ ] Oregon White Oak
- [ ] Riparian
- [ ] Westside Prairie
- [ ] Fresh Deepwater
- [ ] Instream
- [ ] Nearshore (Coastal, Open Coast, Puget Sound)
- [ ] Caves
- [ ] Cliffs
- [✓] Snags and Logs
- [ ] Talus

The following criteria automatically score 2 points:

- [ ] The wetland provides habitat for Threatened or Endangered species
- [✓] The wetland is mapped as a location for an individual WDFW priority species
- [ ] The wetland is a Wetland of High Conservation Value
- [ ] The wetland has been categorized as an important habitat site in a local plan

The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	**Score: 2**
	Total for H 3:	**2**

Rating of Value [X] **2 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: Parcel 12 Proposed Conditions

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

SC 1.1 Does the wetland meet all of the following criteria for Estuarine wetlands?

☐ The dominant water regime is tidal

☐ The wetland is vegetated

☐ The water salinity is greater than 0.5 ppt

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

Result: Not an Estuarine Wetland

SC 1.2 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

SC 1.3 Is the wetland unit at least 1ac in size and meets at least two of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species.

☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland

☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

SC 2.1 Does the wetland overlap with any known or historical rare plant or rare & high-quality ecosystem polygons on the WNHP Data Explorer?

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

SC 2.2 Does the wetland have a rare plant species, rare plant community, or high-quality common plant community that may qualify the site as a WHCV?

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

Result: Not a Wetland of High Conservation Value

Wetland name or number: Parcel 12 Proposed Conditions

SC 3.0 Bogs

SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16in or more of the first 32in of the soil profile?

Yes - Go to SC 3.3
No - Go to SC 3.2 **Result: Go to SC 3.2**

SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?

Yes - Go to SC 3.3
No - Not a Bog Wetland **Result: Not a Bog Wetland**

SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least 30% cover of plant species listed in the table provided in the instructions?

Yes - Category I Bog Wetland
No - Go to SC 3.4 **Result:**

SC 3.4 Is an area with peats or mucks forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann Spruce, or western white pine AND any of the species (or combinations of species) listed in the table found in the instructions provide more than 30% of the cover under the canopy?

Yes - Category I Bog Wetland
No - Not a Bog Wetland **Result:**

SC 4.0 Forested Wetlands

SC 4.1 Does the wetland have at least 1 contiguous acre of forest that meets one of the following criteria?

☐ Old-growth forests
☐ Mature forests

Yes - Category I Forested Wetland
No - Not a Forested Wetland **Result: Not a Forested Wetland**

Wetland name or number: Parcel 12 Proposed Conditions

SC 5.0 Wetlands in Coastal Lagoons

SC 5.1 Coastal Lagoons: Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or rocks

☐ The depression in which the wetland is located contains ponded water that is saline or brackish (>0.5 ppt) during most of the year in at least a portion of the open water area (measured near the bottom)

☐ The lagoon retains some of its surface water at low tide during spring tides

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland **Result: Not a Coastal Lagoon Wetland**

SC 5.2 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species).

☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ the wetland is larger than 0.10ac (4350 sqft)

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon **Result:**

SC 6.0 Interdunal Wetlands

SC 6.1 Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership WBUO)?

Yes - Go to SC 6.2

No - Not an Interdunal Wetland **Result: Not an Interdunal Wetland**

SC 6.2 Is the wetland 1ac or larger in size, or a mosaic that is 1ac or larger in size?

Wetland is larger than 1ac in size - Go to SC 6.3

Wetland is a mosaic larger than 1ac is size - Category II Interdunal Wetland

No - Go to SC 6.4 **Result:**

SC 6.3 Does the wetland score 8 or 9 points for the habitat functions?

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland **Result:**

SC 6.4 Is the wetland unit between 0.1ac and 1ac, or in a mosaic of wetlands that is between 0.1ac and 1ac in size?

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland **Result:**

Wetland name or number: Parcel 12 Proposed Conditions

Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	**Special Characteristics Category: Not Applicable**



Note: Wetland vegetation will meet the requirements for moderate habitat interspersion

Cowardin Plant Class Items

Cowardin Classes

- Forested
- Scrub-shrub
- Emergent
- Aquatic bed
- Open water
- Wetland/Unmapped wetland

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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Cowardin, Plant Cover

Port of Tacoma - Parcel 12

GeoEngineers

Figure 1

0918618400 Date Exported: 06/07/23



Hydroperiod Items

- Permanent Stream
- Seasonal Stream
- Permanently
- Seasonally
- Occasionally
- Saturated only
- Wetland/Unmapped wetland

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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Hydroperiods and Ponded Depressions

Port of Tacoma - Parcel 12

GeoEngineers

Figure 2

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Location of Outlet Items

Wetland

Outlet location

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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Outlet Location	
Port of Tacoma - Parcel 12	
GeoEngineers	Figure 3

0918618400 Date Exported: 06/07/23



Land Use Items

- Generates excessive runoff
- Generates pollutants
- Generates excessive runoff and pollutants
- Upland within 150' wetland buffer
- Wetland
- Wetland buffer (150')

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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150 ft Boundary

Port of Tacoma - Parcel 12

GeoEngineers

Figure 4

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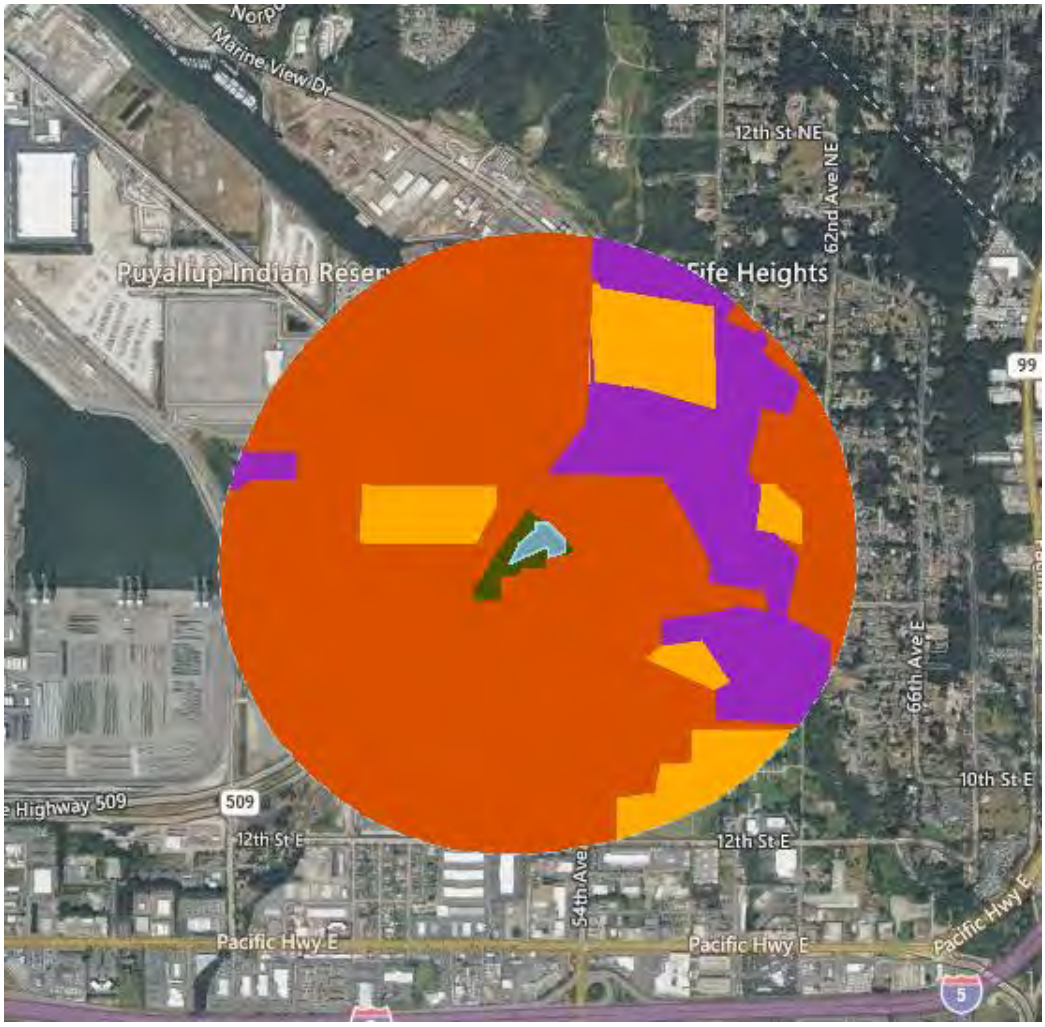

Habitat Items

- Relatively undisturbed - accessible
- Low/Moderate intensity - accessible
- Relatively undisturbed - not accessible
- Low/Moderate intensity - not accessible
- High Intensity
- Wetland

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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00570-184-00 Date Exported: 06/07/23

1km Habitat

Port of Tacoma - Parcel 12

GeoEngineers

Figure 5



Contributing Basin Items

Wetland

Contributing basin

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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Contributing Basin	
Port of Tacoma - Parcel 12	
GeoEngineers	**Figure 6**

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Wetland Width Items

Wetland

Distance: wetland to nearest 303(d) listing

303(d) List

Category 5 Water

Category 5 Sediment

Subbasins (12 digit HUCs)

HUC boundary

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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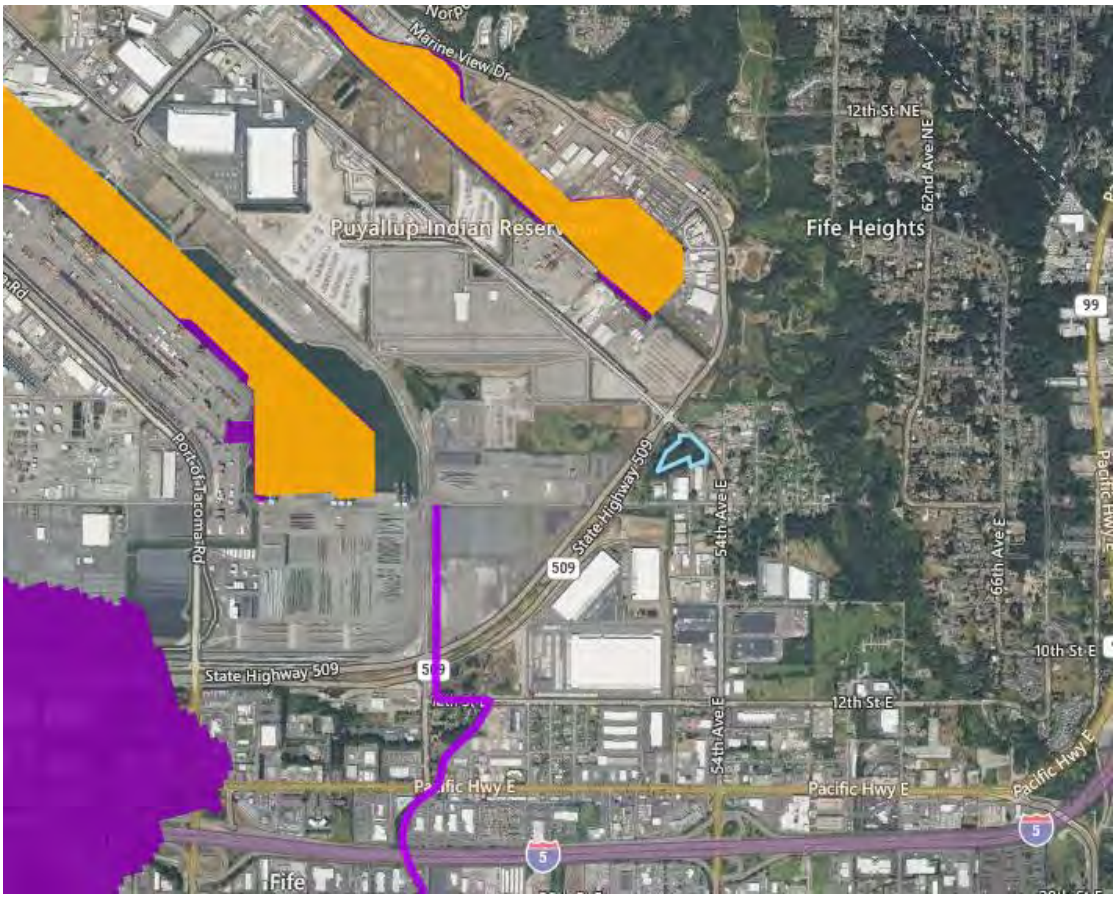
303d Listed Water

Port of Tacoma - Parcel 12

GeoEngineers

Figure 7

0918618400 Date Exported: 06/07/23



TMDL Items

Wetland

305(b) List

Category 4A Water

Category 4A Sediment

Category 4B Water

Category 4B Sediment

Category 4C Water

Subbasins (12 digit HUCs)

HUC boundary

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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TMDLs	
Port of Tacoma - Parcel 12	
GeoEngineers	**Figure 8**

0918618400 Date Exported: 06/07/23

Wetland name or number: Parcel 37D Existing Conditions

RATING SUMMARY - Western Washington

Name of wetland (or ID#): Parcel 37D Existing Conditions **Date of site visit:** 05/06/2025
Rated By: Beatrice Renaud **Trained by Ecology? Yes** [X] **No** [ ] **Date of Training:** 10/20/2023
HGM Class used for rating: Depressional
Wetland has multiple HGM classes? Yes [ ] **No** [X]

NOTE: Form is not complete without the figures requested *(figures can be combined).*
Source of base aerial photo/map: ESRI World Imagery

OVERALL WETLAND CATEGORY: [**Category II**] (based on functions [X] or special characteristics [ ])

1. Category of wetland based on FUNCTIONS

[ ] **Category I** - Total score = 23 - 27
[X] **Category II** - Total score = 20 - 22
[ ] **Category III** - Total score = 16 - 19
[ ] **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	**M**	**H**	**M**	
Landscape Potential	**M**	**M**	**L**	
Value	**H**	**H**	**H**	**Total**
Score Based on Ratings	**7**	**8**	**6**	**21**

Score for each function based on three ratings (order of ratings is not important)
9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested	
Coastal Lagoon	
Interdunal	
None of the above	**Not Applicable**

Wetland name or number: Parcel 37D Existing Conditions

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Wetland name or number: Parcel 37D Existing Conditions

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0 Does the site have the potential to improve water quality?

D 1.1 What are the characteristics of surface water outflows from the wetland?		
Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	**Score: 3**
D 1.2 Is the soil 2 in. below the surface a true clay or organic soil?		
Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	**Score: 0**
D 1.3 What are the characteristics and distribution of persistent plants?		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	**Score: 3**
D 1.4 What are the characteristics of seasonal ponding or inundation in the wetland area?		
Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	**Score: 4**
	Total for D 1:	**10**

Rating of Site Potential [ ] **12-16 = H** [X] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 2.0 Does the landscape have the potential to support the water quality function of the site?

D 2.1 Does the wetland unit receive stormwater discharges?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 2.2 Is >10% of the area within 150ft of the wetland in land uses that generate pollutants in surface runoff?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 2.3 Are there septic systems within 250ft of the wetland?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 2.4 Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?		
Yes	points = 1	
No	points = 0	**Score: 1**

Wetland name or number: Parcel 37D Existing Conditions

D 2.5 What are the other sources of pollutants coming into the wetland? Occasional dogs, dumping	
Total for D 2:	**2**

Rating of Landscape Potential [ ] **3-4 = H** [X] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

D 3.0 Is the water quality improvement provided by the site valuable to society?		
D 3.1 Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 3.2 Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?		
Yes	points = 2	
No	points = 0	**Score: 2**
Total for D 3:		**3**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradtion

D 4.0 Does the site have the potential to reduce flooding and erosion?		
D 4.1 What are the characteristics of surface water outflows from the wetland?		
Wetland has no surface water outlet.	points = 4	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	**Score: 4**
D 4.2 What is the depth of storage during the wet periods?		
Marks of ponding are 3ft or more above the surface or bottom of the outlet.	points = 7	
Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet.	points = 5	
Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet.	points = 3	
The wetland is a "headwater" wetland.	points = 3	
The wetland is flat but has small depressions on the surface that trap water.	points = 1	
Marks of ponding are less than 0.5ft (6in).	points = 0	**Score: 7**

Wetland name or number: Parcel 37D Existing Conditions

D 4.3 What is the contribution of the wetland to storage in the watershed?		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	**Score: 5**
	Total for D 4:	**16**

Rating of Site Potential [X] **12-16 = H** [ ] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 5.0 Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1 Does the wetland unit receive stormwater discharges?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 5.2 Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 5.3 Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?		
Yes	points = 1	
No	points = 0	**Score: 0**
	Total for D 5:	**1**

Rating of Landscape Potential [ ] **3 = H** [X] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

D 6.0 Are the hydrologic functions provided by the site valuable to society?		
D 6.1 Is the wetland in a landscape that has flooding problems?		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	**Score: 0**
D 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
Yes	points = 2	
No	points = 0	**Score: 2**
	Total for D 6:	**2**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: Parcel 37D Existing Conditions

HABITAT FUNCTIONS

These questions apply to wetlands of all HGM classes - Indicators that the site functions to provide important habitat

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

- [ ] Aquatic Bed
- [x] Emergent
- [x] Scrub-shrub
- [x] Forested
- [ ] Multiple strata within the Forested class (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)

4 structures or more	points = 4	
3 structures	points = 2	
2 structures	points = 1	
1 structure	points = 0	
No structures present	points = 0	**Score: 2**

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

- [ ] Permanently flooded or inundated
- [x] Seasonally flooded or inundated
- [ ] Occasionally flooded or inundated
- [x] Saturated only
- [ ] Permanently flowing stream or river in, or adjacent to, the wetland
- [ ] Seasonally flowing stream in, or adjacent to, the wetland
- [ ] Lake Fringe wetland
- [ ] Freshwater Tidal wetland

4 or more types present	points = 3	
3 types present or Lake Fringe / Freshwater Tidal Fringe	points = 2	
2 types present	points = 1	
1 type present	points = 0	
None present	points = 0	**Score: 1**

H 1.3 What is the richness of the plant species in the wetland?

>19 species	points = 2	
5-19 species	points = 1	
<5 species	points = 0	**Score: 2**

Wetland name or number: Parcel 37D Existing Conditions

H 1.4 What is the interspersion of habitats?

High	points = 3	
Moderate	points = 2	
Low	points = 1	
None	points = 0	**Score: 2**

H 1.5 What are the special habitat features in the wetland?

- [✓] Large, downed, woody debris within the wetland (>4in diameter and 6ft long).
- [✓] Standing snags (dbh >4in) within the wetland
- [✓] Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)
- [✓] Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)
- [✓] At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)
- [ ] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)

6 habitats selected	points = 6	
5 habitats selected	points = 5	
4 habitats selected	points = 4	
3 habitats selected	points = 3	
2 habitats selected	points = 2	
1 habitat selected	points = 1	
No habitats selected	points = 0	**Score: 5**

Total for H 1: 12

Rating of Site Potential [ ] **15-18 = H** [X] **7-14 = M** [ ] **0-6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat functions of the site?

H 2.1 What is the percentage of accessible habitat within 1km of the wetland?

>33% of 1km Polygon	points = 3	
20-33% of 1km Polygon	points = 2	
10-19% of 1km Polygon	points = 1	
<10% of 1km Polygon	points = 0	**Score: 1**

H 2.2 What is the percentage of total habitat in a 1km polygon around the wetland?

Total habitat is >50% of the Polygon	points = 3	
Total habitat is 10-50% of the Polygon and in 1-3 patches	points = 2	
Total habitat is 10-50% of the Polygon and in >3 patches	points = 1	
Total habitat is <10% of the Polygon	points = 0	**Score: 1**

Wetland name or number: Parcel 37D Existing Conditions

H 2.3 What is the land use intensity in the 1km polygon?

50% of the Polygon is high intensity land use	points = -2	
<50% of the Polygon is high intensity land use	points = 0	**Score: -2**

Total for H 2: **0**

Rating of Landscape Potential [ ] **4-6 = H** [ ] **1-3 = M** [X] **0 = L** *Record the rating on the first page*

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?

- [ ] Aspen Stands
- [ ] Biodiversity Areas and Corridors
- [ ] Herbaceous Balds
- [ ] Old-growth/Mature Forests
- [ ] Oregon White Oak
- [✓] Riparian
- [ ] Westside Prairie
- [ ] Fresh Deepwater
- [✓] Instream
- [ ] Nearshore (Coastal, Open Coast, Puget Sound)
- [ ] Caves
- [ ] Cliffs
- [ ] Snags and Logs
- [ ] Talus

The following criteria automatically score 2 points:

- [ ] The wetland provides habitat for Threatened or Endangered species
- [ ] The wetland is mapped as a location for an individual WDFW priority species
- [ ] The wetland is a Wetland of High Conservation Value
- [✓] The wetland has been categorized as an important habitat site in a local plan

The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	**Score: 2**

Total for H 3: **2**

Rating of Value [X] **2 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: Parcel 37D Existing Conditions

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

SC 1.1 Does the wetland meet all of the following criteria for Estuarine wetlands?

☐ The dominant water regime is tidal

☐ The wetland is vegetated

☐ The water salinity is greater than 0.5 ppt

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

Result: Not an Estuarine Wetland

SC 1.2 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

SC 1.3 Is the wetland unit at least 1ac in size and meets at least two of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species.

☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland

☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

SC 2.1 Does the wetland overlap with any known or historical rare plant or rare & high-quality ecosystem polygons on the WNHP Data Explorer?

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

SC 2.2 Does the wetland have a rare plant species, rare plant community, or high-quality common plant community that may qualify the site as a WHCV?

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

Result: Not a Wetland of High Conservation Value

Wetland name or number: Parcel 37D Existing Conditions

SC 3.0 Bogs

SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16in or more of the first 32in of the soil profile?

Yes - Go to SC 3.3
No - Go to SC 3.2 **Result: Go to SC 3.2**

SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?

Yes - Go to SC 3.3
No - Not a Bog Wetland **Result: Not a Bog Wetland**

SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least 30% cover of plant species listed in the table provided in the instructions?

Yes - Category I Bog Wetland
No - Go to SC 3.4 **Result:**

SC 3.4 Is an area with peats or mucks forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann Spruce, or western white pine AND any of the species (or combinations of species) listed in the table found in the instructions provide more than 30% of the cover under the canopy?

Yes - Category I Bog Wetland
No - Not a Bog Wetland **Result:**

SC 4.0 Forested Wetlands

SC 4.1 Does the wetland have at least 1 contiguous acre of forest that meets one of the following criteria?

- [ ] Old-growth forests
- [ ] Mature forests

Yes - Category I Forested Wetland
No - Not a Forested Wetland **Result: Not a Forested Wetland**

Wetland name or number: Parcel 37D Existing Conditions

SC 5.0 Wetlands in Coastal Lagoons

SC 5.1 Coastal Lagoons: Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or rocks

☐ The depression in which the wetland is located contains ponded water that is saline or brackish (>0.5 ppt) during most of the year in at least a portion of the open water area (measured near the bottom)

☐ The lagoon retains some of its surface water at low tide during spring tides

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

SC 5.2 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species).

☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ the wetland is larger than 0.10ac (4350 sqft)

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

SC 6.1 Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership WBUO)?

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

SC 6.2 Is the wetland 1ac or larger in size, or a mosaic that is 1ac or larger in size?

Wetland is larger than 1ac in size - Go to SC 6.3

Wetland is a mosaic larger than 1ac is size - Category II Interdunal Wetland

No - Go to SC 6.4

Result:

SC 6.3 Does the wetland score 8 or 9 points for the habitat functions?

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

SC 6.4 Is the wetland unit between 0.1ac and 1ac, or in a mosaic of wetlands that is between 0.1ac and 1ac in size?

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: Parcel 37D Existing Conditions

Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	**Special Characteristics Category: Not Applicable**

Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/29/2025**

About | Close

Add/Remove map data layers

Cowardin Plant Class Items

Cowardin Classes

- Forested
- Scrub-shrub
- Emergent
- Aquatic bed
- Open water
- Wetland/Unmapped wetland

Data transparency 10%



Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/29/2025**

About | Close

Add/Remove map data layers

Hydroperiod Items

- Permanent Stream
- Seasonal Stream
- Permanently
- Seasonally
- Occasionally
- Saturated only
- Wetland/Unmapped wetland

Areas labeled as permanently flooded are seasonally flooded

Data transparency 50%



Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/28/2025**

About | Close

Add/Remove map data layers

Location of Outlet Items

- Wetland
- Outlet location

Find address or place

Lidar Hillshade

30 m
60 ft

Data transparency 10%

Washington Geological Survey

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Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/28/2025**

About | Close

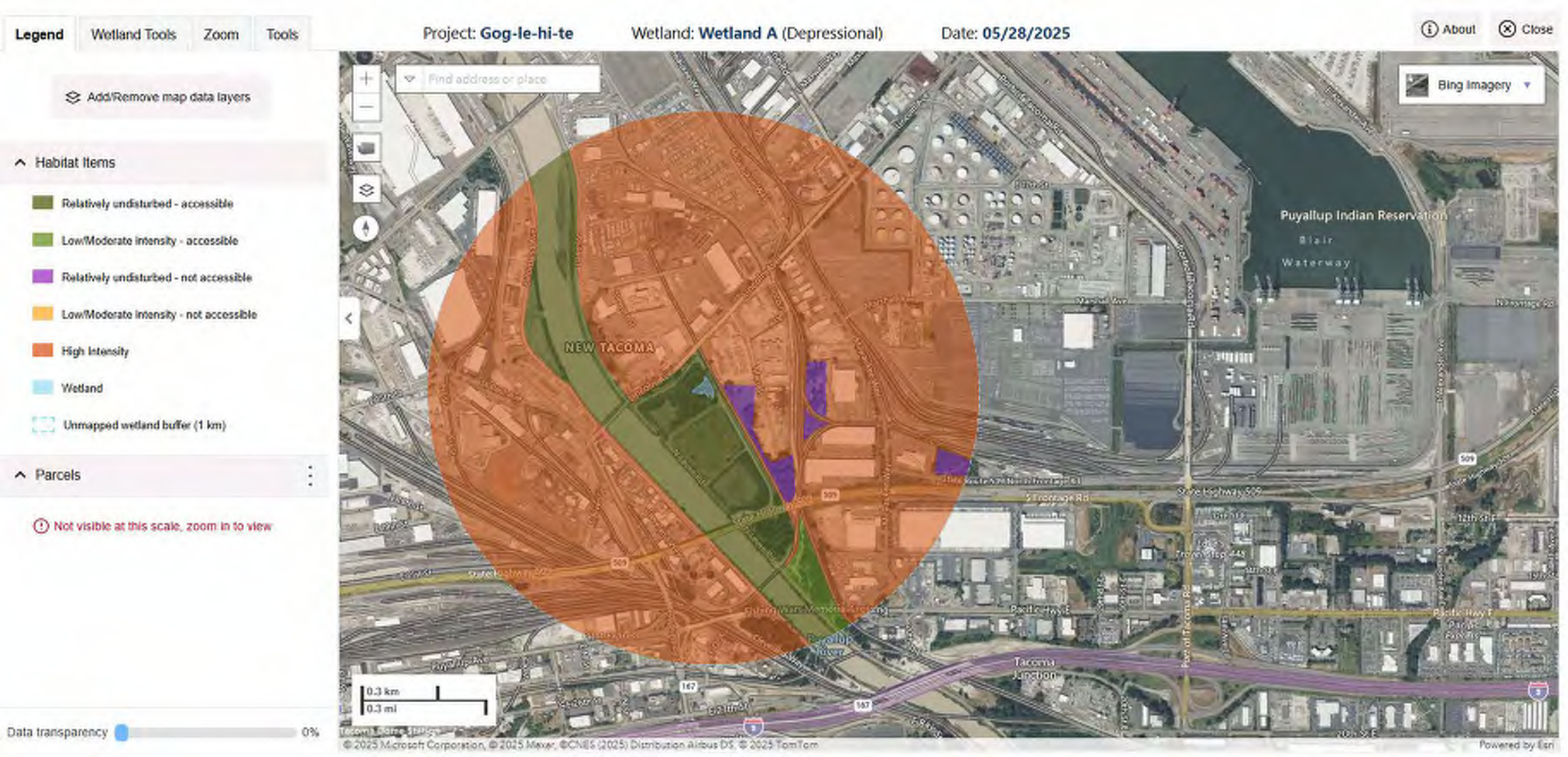
Add/Remove map data layers

Contributing Basin Items

- Wetland
- Contributing basin



Data transparency 10%


Legend
Wetland Tools
Zoom
Tools
Project: Gog-le-hi-te
Wetland: Wetland A (Depressional)
Date: 05/28/2025
About
Close
Add/Remove map data layers
Habitat Items
Relatively undisturbed - accessible
Low/Moderate intensity - accessible
Relatively undisturbed - not accessible
Low/Moderate intensity - not accessible
High Intensity
Wetland
Unmapped wetland buffer (1 km)
Parcels
Not visible at this scale, zoom in to view
Data transparency
0%
Find address or place
Bing Imagery
NEW TACOMA
Puyallup Indian Reservation
Blair
Waterway
Tacoma Junction
0.3 km
0.3 mi
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Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/28/2025**

About | Close

Add/Remove map data layers

Wetland Width Items

- Wetland
- Distance: wetland to nearest 303(d) listing

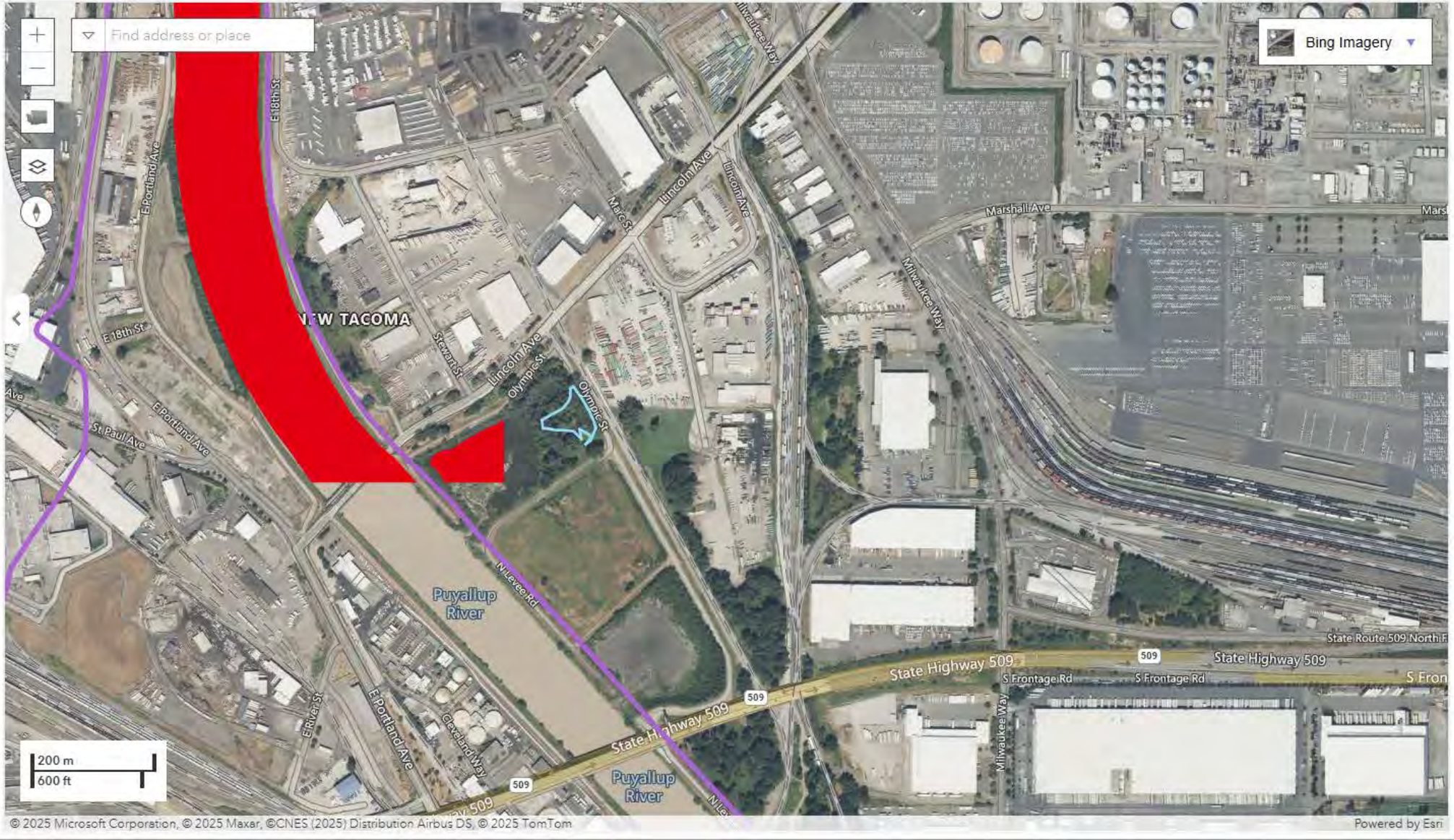
303(d) List

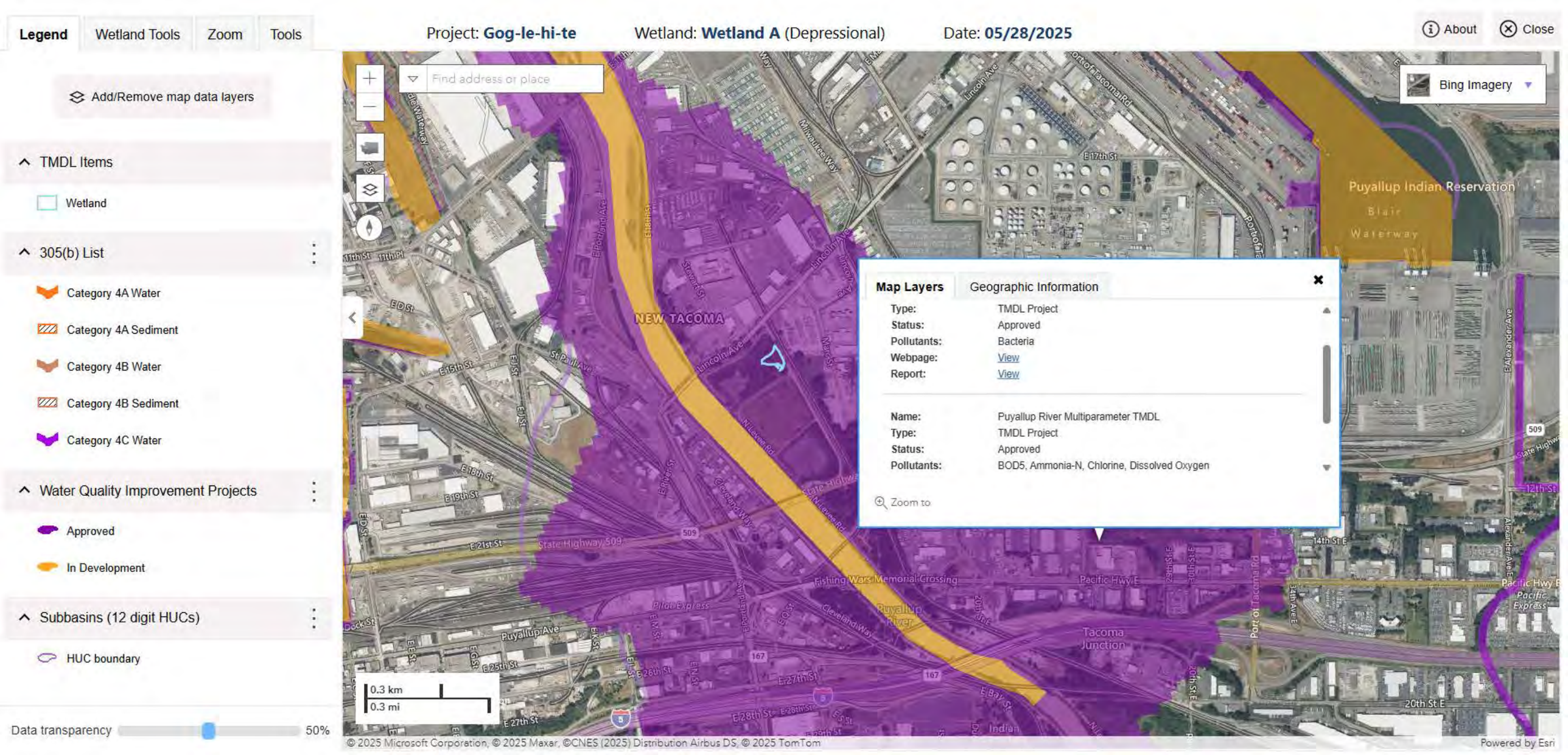
- Category 5 Water
- Category 5 Sediment

Subbasins (12 digit HUCs)

- HUC boundary

Data transparency 0%




Legend
Wetland Tools
Zoom
Tools
Project: Gog-le-hi-te
Wetland: Wetland A (Depressional)
Date: 05/28/2025
About
Close
Add/Remove map data layers
TMDL Items
Wetland
305(b) List
Category 4A Water
Category 4A Sediment
Category 4B Water
Category 4B Sediment
Category 4C Water
Water Quality Improvement Projects
Approved
In Development
Subbasins (12 digit HUCs)
HUC boundary
Data transparency
50%
Find address or place
Bing Imagery
Map Layers
Geographic Information
Type: TMDL Project
Status: Approved
Pollutants: Bacteria
Webpage: View
Report: View
Name: Puyallup River Multiparameter TMDL
Type: TMDL Project
Status: Approved
Pollutants: BOD5, Ammonia-N, Chlorine, Dissolved Oxygen
Zoom to
Puyallup Indian Reservation
NEW TACOMA
Tacoma Junction
Fishing Wars Memorial Crossing
Puyallup River
State Highway 509
0.3 km
0.3 mi
© 2025 Microsoft Corporation, © 2025 Maxar, ©CNES (2025) Distribution Airbus DS, © 2025 TomTom
Powered by Esri

Legend | Wetland Tools | Zoom | Tools

Project: **Gog-le-hi-te** Wetland: **Wetland A** (Depressional) Date: **05/28/2025**

About | Close

Add/Remove map data layers

Land Use Items

- Generates excessive runoff
- Generates pollutants
- Generates excessive runoff and pollutants
- Upland within 150' wetland buffer
- Wetland
- Wetland buffer (150')



Data transparency 50%

Wetland name or number: Parcel 37D

RATING SUMMARY - Western Washington

Name of wetland (or ID#): Parcel 37D **Date of site visit:** 11/12/2025
Rated By: Beatrice Renaud **Trained by Ecology? Yes** [X] **No** [ ] **Date of Training:** 10/20/2023
HGM Class used for rating: Depressional
Wetland has multiple HGM classes? Yes [ ] **No** [X]

NOTE: Form is not complete without the figures requested *(figures can be combined).*
Source of base aerial photo/map: Bing Imagery

OVERALL WETLAND CATEGORY: [**Category I**] (based on functions [X] or special characteristics [ ])

1. Category of wetland based on FUNCTIONS

[X] **Category I** - Total score = 23 - 27
[ ] **Category II** - Total score = 20 - 22
[ ] **Category III** - Total score = 16 - 19
[ ] **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	**H**	**H**	**H**	
Landscape Potential	**M**	**M**	**L**	
Value	**H**	**H**	**H**	**Total**
Score Based on Ratings	**8**	**8**	**7**	**23**

Score for each function based on three ratings (order of ratings is not important)
9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested	
Coastal Lagoon	
Interdunal	
None of the above	**Not Applicable**

Wetland name or number: Parcel 37D

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	4
Map of the contributing basin	D 4.3, D 5.3	6
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	7
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	8

Wetland name or number: Parcel 37D

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0 Does the site have the potential to improve water quality?

D 1.1 What are the characteristics of surface water outflows from the wetland?		
Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	**Score: 3**
D 1.2 Is the soil 2 in. below the surface a true clay or organic soil?		
Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	**Score: 0**
D 1.3 What are the characteristics and distribution of persistent plants?		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	**Score: 5**
D 1.4 What are the characteristics of seasonal ponding or inundation in the wetland area?		
Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	**Score: 4**
	Total for D 1:	**12**

Rating of Site Potential [X] **12-16 = H** [ ] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 2.0 Does the landscape have the potential to support the water quality function of the site?

D 2.1 Does the wetland unit receive stormwater discharges?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 2.2 Is >10% of the area within 150ft of the wetland in land uses that generate pollutants in surface runoff?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 2.3 Are there septic systems within 250ft of the wetland?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 2.4 Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?		
Yes	points = 1	
No	points = 0	**Score: 1**

Wetland name or number: Parcel 37D

D 2.5 What are the other sources of pollutants coming into the wetland? Encampments	
Total for D 2:	**2**

Rating of Landscape Potential [ ] **3-4 = H** [X] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

D 3.0 Is the water quality improvement provided by the site valuable to society?		
D 3.1 Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 3.2 Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?		
Yes	points = 2	
No	points = 0	**Score: 2**
Total for D 3:		**3**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradtion

D 4.0 Does the site have the potential to reduce flooding and erosion?		
D 4.1 What are the characteristics of surface water outflows from the wetland?		
Wetland has no surface water outlet.	points = 4	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	**Score: 4**
D 4.2 What is the depth of storage during the wet periods?		
Marks of ponding are 3ft or more above the surface or bottom of the outlet.	points = 7	
Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet.	points = 5	
Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet.	points = 3	
The wetland is a "headwater" wetland.	points = 3	
The wetland is flat but has small depressions on the surface that trap water.	points = 1	
Marks of ponding are less than 0.5ft (6in).	points = 0	**Score: 7**

Wetland name or number: Parcel 37D

D 4.3 What is the contribution of the wetland to storage in the watershed?		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	**Score: 5**
	Total for D 4:	**16**

Rating of Site Potential [X] **12-16 = H** [ ] **6-11 = M** [ ] **0-5 = L** *Record the rating on the first page*

D 5.0 Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1 Does the wetland unit receive stormwater discharges?		
Yes	points = 1	
No	points = 0	**Score: 0**
D 5.2 Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?		
Yes	points = 1	
No	points = 0	**Score: 1**
D 5.3 Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?		
Yes	points = 1	
No	points = 0	**Score: 0**
	Total for D 5:	**1**

Rating of Landscape Potential [ ] **3 = H** [X] **1-2 = M** [ ] **0 = L** *Record the rating on the first page*

D 6.0 Are the hydrologic functions provided by the site valuable to society?		
D 6.1 Is the wetland in a landscape that has flooding problems?		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	**Score: 0**
D 6.2 Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
Yes	points = 2	
No	points = 0	**Score: 2**
	Total for D 6:	**2**

Rating of Value [X] **2-4 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: Parcel 37D

HABITAT FUNCTIONS

These questions apply to wetlands of all HGM classes - Indicators that the site functions to provide important habitat

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

- [ ] Aquatic Bed
- [x] Emergent
- [x] Scrub-shrub
- [x] Forested
- [x] Multiple strata within the Forested class (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)

4 structures or more	points = 4	
3 structures	points = 2	
2 structures	points = 1	
1 structure	points = 0	
No structures present	points = 0	**Score: 4**

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

- [x] Permanently flooded or inundated
- [x] Seasonally flooded or inundated
- [ ] Occasionally flooded or inundated
- [x] Saturated only
- [ ] Permanently flowing stream or river in, or adjacent to, the wetland
- [ ] Seasonally flowing stream in, or adjacent to, the wetland
- [ ] Lake Fringe wetland
- [ ] Freshwater Tidal wetland

4 or more types present	points = 3	
3 types present or Lake Fringe / Freshwater Tidal Fringe	points = 2	
2 types present	points = 1	
1 type present	points = 0	
None present	points = 0	**Score: 2**

H 1.3 What is the richness of the plant species in the wetland?

>19 species	points = 2	
5-19 species	points = 1	
<5 species	points = 0	**Score: 2**

Wetland name or number: Parcel 37D

H 1.4 What is the interspersion of habitats?

High	points = 3	
Moderate	points = 2	
Low	points = 1	
None	points = 0	**Score: 2**

H 1.5 What are the special habitat features in the wetland?

- [✓] Large, downed, woody debris within the wetland (>4in diameter and 6ft long).
- [✓] Standing snags (dbh >4in) within the wetland
- [✓] Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)
- [✓] Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)
- [✓] At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)
- [✓] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)

6 habitats selected	points = 6	
5 habitats selected	points = 5	
4 habitats selected	points = 4	
3 habitats selected	points = 3	
2 habitats selected	points = 2	
1 habitat selected	points = 1	
No habitats selected	points = 0	**Score: 6**

Total for H 1: 16

Rating of Site Potential [X] **15-18 = H** [ ] **7-14 = M** [ ] **0-6 = L** *Record the rating on the first page*

H 2.0 Does the landscape have the potential to support habitat functions of the site?

H 2.1 What is the percentage of accessible habitat within 1km of the wetland?

>33% of 1km Polygon	points = 3	
20-33% of 1km Polygon	points = 2	
10-19% of 1km Polygon	points = 1	
<10% of 1km Polygon	points = 0	**Score: 1**

H 2.2 What is the percentage of total habitat in a 1km polygon around the wetland?

Total habitat is >50% of the Polygon	points = 3	
Total habitat is 10-50% of the Polygon and in 1-3 patches	points = 2	
Total habitat is 10-50% of the Polygon and in >3 patches	points = 1	
Total habitat is <10% of the Polygon	points = 0	**Score: 1**

Wetland name or number: Parcel 37D

H 2.3 What is the land use intensity in the 1km polygon?

50% of the Polygon is high intensity land use	points = -2	
<50% of the Polygon is high intensity land use	points = 0	**Score: -2**

Total for H 2: **0**

Rating of Landscape Potential [ ] **4-6 = H** [ ] **1-3 = M** [X] **0 = L** *Record the rating on the first page*

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?

- [ ] Aspen Stands
- [ ] Biodiversity Areas and Corridors
- [ ] Herbaceous Balds
- [ ] Old-growth/Mature Forests
- [ ] Oregon White Oak
- [✓] Riparian
- [ ] Westside Prairie
- [ ] Fresh Deepwater
- [✓] Instream
- [ ] Nearshore (Coastal, Open Coast, Puget Sound)
- [ ] Caves
- [ ] Cliffs
- [✓] Snags and Logs
- [ ] Talus

The following criteria automatically score 2 points:

- [ ] The wetland provides habitat for Threatened or Endangered species
- [✓] The wetland is mapped as a location for an individual WDFW priority species
- [ ] The wetland is a Wetland of High Conservation Value
- [ ] The wetland has been categorized as an important habitat site in a local plan

The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	**Score: 2**

Total for H 3: **2**

Rating of Value [X] **2 = H** [ ] **1 = M** [ ] **0 = L** *Record the rating on the first page*

Wetland name or number: Parcel 37D

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

SC 1.1 Does the wetland meet all of the following criteria for Estuarine wetlands?

☐ The dominant water regime is tidal

☐ The wetland is vegetated

☐ The water salinity is greater than 0.5 ppt

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

Result: Not an Estuarine Wetland

SC 1.2 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

SC 1.3 Is the wetland unit at least 1ac in size and meets at least two of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species.

☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland

☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

SC 2.1 Does the wetland overlap with any known or historical rare plant or rare & high-quality ecosystem polygons on the WNHP Data Explorer?

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

SC 2.2 Does the wetland have a rare plant species, rare plant community, or high-quality common plant community that may qualify the site as a WHCV?

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

Result: Not a Wetland of High Conservation Value

Wetland name or number: Parcel 37D

SC 3.0 Bogs

SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16in or more of the first 32in of the soil profile?

Yes - Go to SC 3.3
No - Go to SC 3.2 **Result: Go to SC 3.2**

SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?

Yes - Go to SC 3.3

No - Not a Bog Wetland **Result: Not a Bog Wetland**

SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least 30% cover of plant species listed in the table provided in the instructions?

Yes - Category I Bog Wetland
No - Go to SC 3.4 **Result:**

SC 3.4 Is an area with peats or mucks forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann Spruce, or western white pine AND any of the species (or combinations of species) listed in the table found in the instructions provide more than 30% of the cover under the canopy?

Yes - Category I Bog Wetland
No - Not a Bog Wetland **Result:**

SC 4.0 Forested Wetlands

SC 4.1 Does the wetland have at least 1 contiguous acre of forest that meets one of the following criteria?

☐ Old-growth forests
☐ Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland **Result: Not a Forested Wetland**

Wetland name or number: Parcel 37D

SC 5.0 Wetlands in Coastal Lagoons

SC 5.1 Coastal Lagoons: Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or rocks

☐ The depression in which the wetland is located contains ponded water that is saline or brackish (>0.5 ppt) during most of the year in at least a portion of the open water area (measured near the bottom)

☐ The lagoon retains some of its surface water at low tide during spring tides

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

SC 5.2 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species).

☐ At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ the wetland is larger than 0.10ac (4350 sqft)

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

SC 6.1 Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership WBUO)?

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

SC 6.2 Is the wetland 1ac or larger in size, or a mosaic that is 1ac or larger in size?

Wetland is larger than 1ac in size - Go to SC 6.3

Wetland is a mosaic larger than 1ac is size - Category II Interdunal Wetland

No - Go to SC 6.4

Result:

SC 6.3 Does the wetland score 8 or 9 points for the habitat functions?

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

SC 6.4 Is the wetland unit between 0.1ac and 1ac, or in a mosaic of wetlands that is between 0.1ac and 1ac in size?

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: Parcel 37D

Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	**Special Characteristics Category: Not Applicable**



Cowardin Plant Class Items

Cowardin Classes

- Forested
- Scrub-shrub
- Emergent
- Aquatic bed
- Open water
- Wetland/Unmapped wetland

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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Cowardin, Plant Cover

Port of Tacoma - Parcel 37D

GeoEngineers

Figure 1

0918618400 Date Exported: 06/07/23



Hydroperiod Items

- Permanent Stream
- Seasonal Stream
- Permanently
- Seasonally
- Occasionally
- Saturated only
- Wetland/Unmapped wetland

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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Hydroperiods and Ponded Depressions

Port of Tacoma - Parcel 37D

GeoEngineers

Figure 2

0918618400 Date Exported: 06/07/23



Location of Outlet Items

Wetland

Outlet location

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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Outlet Location

Port of Tacoma - Parcel 37D

GeoEngineers

Figure 3

0918618400 Date Exported: 06/07/23



Land Use Items

- Generates excessive runoff
- Generates pollutants
- Generates excessive runoff and pollutants
- Upland within 150' wetland buffer
- Wetland
- Wetland buffer (150')

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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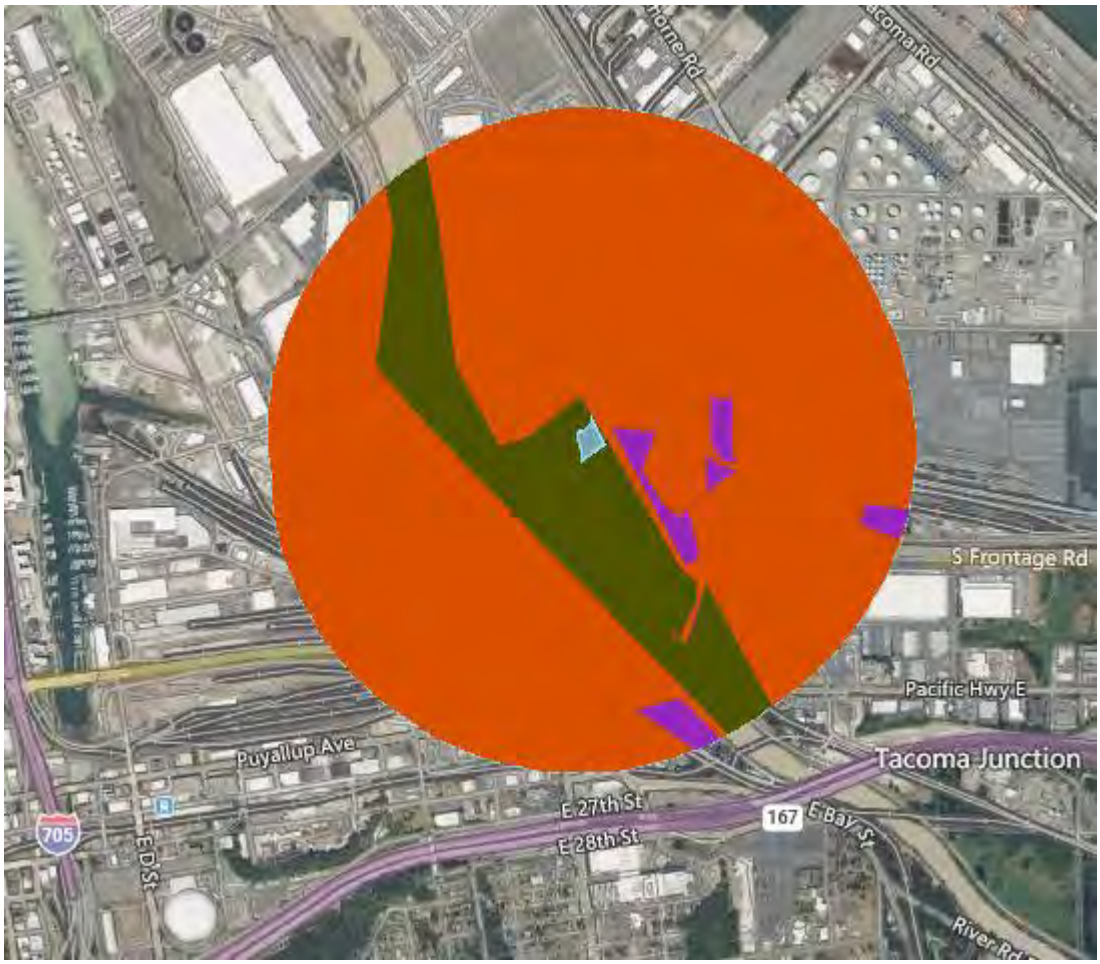
150 ft Boundary

Port of Tacoma - Parcel 37D

GeoEngineers

Figure 4

0918618400 Date Exported: 06/07/23



Habitat Items

- Relatively undisturbed - accessible
- Low/Moderate intensity - accessible
- Relatively undisturbed - not accessible
- Low/Moderate intensity - not accessible
- High Intensity
- Wetland

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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1km Habitat

Port of Tacoma - Parcel 37D

GeoEngineers

Figure 5

00570-184-00 Date Exported: 06/07/23



Contributing Basin Items

Wetland

Contributing basin

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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Contributing Basin

Port of Tacoma - Parcel 37D

GeoEngineers

Figure 6

0918618400 Date Exported: 06/07/23



Wetland Width Items

Wetland

Distance: wetland to nearest 303(d) listing

303(d) List

Category 5 Water

Category 5 Sediment

Subbasins (12 digit HUCs)

HUC boundary

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

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303d Listed Water

Port of Tacoma - Parcel 37D

GeoEngineers

Figure 7

0918618400 Date Exported: 06/07/23



- TMDL Items
  - Wetland
- 305(b) List
  - Category 4A Water
  - Category 4A Sediment
  - Category 4B Water
  - Category 4B Sediment
  - Category 4C Water
- Subbasins (12 digit HUCs)
  - HUC boundary

N

Not to Scale

Source(s): Washington Tool for Online Rating (WATOR)

Disclaimer: This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

TMDLs	
Port of Tacoma - Parcel 37D	
GeoEngineers	**Figure 8**

0918618400 Date Exported: 06/07/23

Calculating Credits and Debits for Compensatory Mitigation in Wetlands of Washington

Debit Worksheet (corrected 2/20/18) **Project** NEPTUNE DEVELOPMENT

Mitigation Project is: Advanced [ ] Concurrent: [X] Delayed: [ ]

Only fill in boxes that are highlighted. Use Temporal Loss Factors from the table below (Appendix E).

Input Ratings for Functions from Scoring Sheet

	Wetland Unit Altered (#1)			**Wetland Unit Altered (#2)**			**Wetland Unit Altered (#3)**		
	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat
Site Potential (H,M,L)	L	M	L	M	M	L	L	M	L
Landscape Potential (H,M,L)	H	H	L	H	H	L	H	M	L
Value (H,M,L)	H	H	L	H	H	L	M	H	L
Score for Wetland Unit	7	8	3	8	8	3	6	7	3
Acres of **non-forested** areas impacted	0.234			3.388			0.024		
Basic mitigation requirement (BMR)	1.638	1.872	0.702	27.104	27.104	10.164	0.144	0.168	0.072
Temporal loss factor (see below)	1.4			1.4			1.4		
DEBITS	2.2932	2.6208	0.9828	37.9456	37.9456	14.2296	0.2016	0.2352	0.1008
Acres of Deciduous **forest** impacted									
Basic mitigation requirement (BMR)	0	0	0	0	0	0	0	0	0
Temporal loss factor									
DEBITS	0	0	0	0	0	0	0	0	0
Acres of **Evergreen Forest** impacted									
Basic mitigation requirement (BMR)	0	0	0	0	0	0	0	0	0
Temporal loss factor (see below)									
DEBITS	0	0	0	0	0	0	0	0	0
Acres of **Cat. 1 Deciduous forest**									
Basic mitigation requirement (BMR)	0	0	0	0	0	0	0	0	0
Temporal loss factor (see below)									
DEBITS	0	0	0	0	0	0	0	0	0
Acres of **Cat. 1 Evergreen forest**									
Basic mitigation requirement (BMR)	0	0	0	0	0	0	0	0	0
Temporal loss factor (see below)									
DEBITS	0	0	0	0	0	0	0	0	0

TOTALS

	Wetland Unit Altered (#1)			**Wetland Unit Altered (#2)**			**Wetland Unit Altered (#3)**		
Function	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat
Acre-points	**2.2932**	**2.6208**	**0.9828**	**37.9456**	**37.9456**	**14.2296**	**0.2016**	**0.2352**	**0.1008**

Total Debits by Function	Improving Water Quality	Hydrologic	Habitat
Acre-points	**40.4404**	**40.8016**	**15.313**

Timing of Mitigation	**Temporal Loss Factor**
Advance – At least two years has passed since plantings were completed ~~or one year since "as-built" plans were submitted to regulatory agencies~~	1.25
Concurrent – Physical alterations at mitigation site are completed within a year of the impacts, but planting may be delayed by up to 2 years if needed to optimize conditions for success.	
For impacts to an emergent or shrub community	1.5
For impacts to a deciduous forested wetland community	2.0
For impacts to an evergreen forested wetland community	2.5
For impacts to a deciduous Category I forested wetland community	3
For impacts to an evergreen Category I forested wetland community	3.5
Delayed - Construction is not completed within one year of impact, but is completed (including plantings if required) within 5 growing seasons of impact.	
For impacts to an emergent or shrub community	3
For impacts to a deciduous forested wetland community	4
For impacts to an evergreen forested wetland community	5
For impacts to a deciduous Category I forested wetland community	6
For impacts to an evergreen Category I forested wetland community	7

Calculating Credits and Debits for Compensatory Mitigation in Wetlands of Washington

Credit Worksheet (corrected 2/20/18) **Project** NEPTUNE

Only fill in boxes that are highlighted. Use risk factors in table below.

Mitigation Project is: Advanced [ ] Concurrent [X]

This spreadsheed can calculate credits for three <u>separate</u> mitigation sites.

Input Ratings for Functions from Scoring Sheet.

	Site 1	Parcel 12		Site 2	Parcel 37D		Site 3		
Insert a "1" in cell if creation or re-establishment									
Rating of Unit BEFORE mitigation	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat
Site Potential (H,M,L)	M	M	L	M	H	M			
Landscape Potential (H,M,L)	M	H	L	M	M	L			
Value (H,M,L)	H	H	M	H	H	H			
Score for Wetland Unit	7	8	4	7	8	6	3	3	3

	Site 1			Site 2			Site 3		
Rating of Unit AFTER mitigation	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat
Site Potential (H,M,L)	M	H	M	H	H	H			
Landscape Potential (H,M,L)	M	H	L	M	M	L			
Value (H,M,L)	H	H	H	H	H	H			
Score for Wetland Unit	7	9	6	8	8	7	3	3	3
Lift in Functions	0	1	2	1	0	1	0	0	0

CREATION and RE-ESTABLISHMENT									
Acres created or re-established **(aquatic bed, shrub, forest)**									
Basic mitigation Credit	0	0	0	0	0	0	0	0	0
Risk Factor (see below)									
CREDITS	0	0	0	0	0	0	0	0	0
Acres created or re-established **(emergent)**									
Basic mitigation Credit	0	0	0	0	0	0	0	0	0
Risk Factor (see below)									
CREDITS	0	0	0	0	0	0	0	0	0
REHABILITATION AND ENHANCEMENT									
Acres rehabilitated or enhanced **(aquatic bed, shrub, forest)**	0			0.832					
Basic mitigation Credit	0	0	0	0.832	0	0.832	0	0	0
Risk Factor (see below)	0			0.9					
CREDITS	0	0	0	0.7488	0	0.7488	0	0	0
Acres rehabilitated or enhanced (**emergent**)									
Basic mitigation Credit	0	0	0	0	0	0	0	0	0
Risk Factor (see below)									
CREDITS	0	0	0	0	0	0	0	0	0
PRESERVATION									
Acres of **wetlands preserved**									
Score for wetland functions from Scoring Sheet									
Sum of scaling factors (Appendix E)									
CREDITS	0	0	0	0	0	0	0	0	0
Acres of **upland preserved**									
Habitat score for upland									
Sum of scaling factors (Appendix E)									
CREDITS			0			0			0

TOTALS	**Site 1**			**Site 2**			**Site 3**		
Function	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat
Acre-points	**0**	**0**	**0**	**0.7488**	**0**	**0.7488**	**0**	**0**	**0**

Total Credits by Function for Project	Improving Water Quality	Hydrologic	Habitat
Acre-points	**0.7488**	**0**	**0.7488**

Calculating Credits and Debits for Compensatory Mitigation in Wetlands of Washington

Credit Worksheet (corrected 2/20/18) **Project** NEPTUNE

Only fill in boxes that are highlighted. Use risk factors in table below.

Mitigation Project is: Advanced [ ] Concurrent [X]

This spreadsheed can calculate credits for three <u>separate</u> mitigation sites.

Input Ratings for Functions from Scoring Sheet.

	Site 1	Parcel 12		Site 2	Parcel 37D		Site 3		
Insert a "1" in cell if creation or re-establishment	1			1					
Rating of Unit BEFORE mitigation	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat
Site Potential (H,M,L)									
Landscape Potential (H,M,L)									
Value (H,M,L)									
Score for Wetland Unit	0	0	0	0	0	0	3	3	3

	Site 1			Site 2			Site 3		
Rating of Unit AFTER mitigation	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat
Site Potential (H,M,L)	M	H	M	H	H	H			
Landscape Potential (H,M,L)	M	H	L	M	M	L			
Value (H,M,L)	H	H	H	H	H	H			
Score for Wetland Unit	7	9	6	8	8	7	3	3	3
Lift in Functions	7	9	6	8	8	7	0	0	0

CREATION and RE-ESTABLISHMENT									
Acres created or re-established **(aquatic bed, shrub, forest)**	3.022			1.106					
Basic mitigation Credit	21.154	27.198	18.132	8.848	8.848	7.742	0	0	0
Risk Factor (see below)	0.9			0.9					
CREDITS	19.0386	24.4782	16.3188	7.9632	7.9632	6.9678	0	0	0
Acres created or re-established **(emergent)**									
Basic mitigation Credit	0	0	0	0	0	0	0	0	0
Risk Factor (see below)									
CREDITS	0	0	0	0	0	0	0	0	0
REHABILITATION AND ENHANCEMENT									
Acres rehabilitated or enhanced **(aquatic bed, shrub, forest)**									
Basic mitigation Credit	0	0	0	0	0	0	0	0	0
Risk Factor (see below)									
CREDITS	0	0	0	0	0	0	0	0	0
Acres rehabilitated or enhanced (**emergent**)									
Basic mitigation Credit	0	0	0	0	0	0	0	0	0
Risk Factor (see below)									
CREDITS	0	0	0	0	0	0	0	0	0
PRESERVATION									
Acres of **wetlands preserved**									
Score for wetland functions from Scoring Sheet									
Sum of scaling factors (Appendix E)									
CREDITS	0	0	0	0	0	0	0	0	0
Acres of **upland preserved**									
Habitat score for upland									
Sum of scaling factors (Appendix E)									
CREDITS			0			0			0

TOTALS	**Site 1**			**Site 2**			**Site 3**		
Function	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat	Improving Water Quality	Hydrologic	Habitat
Acre-points	**19.0386**	**24.4782**	**16.3188**	**7.9632**	**7.9632**	**6.9678**	**0**	**0**	**0**

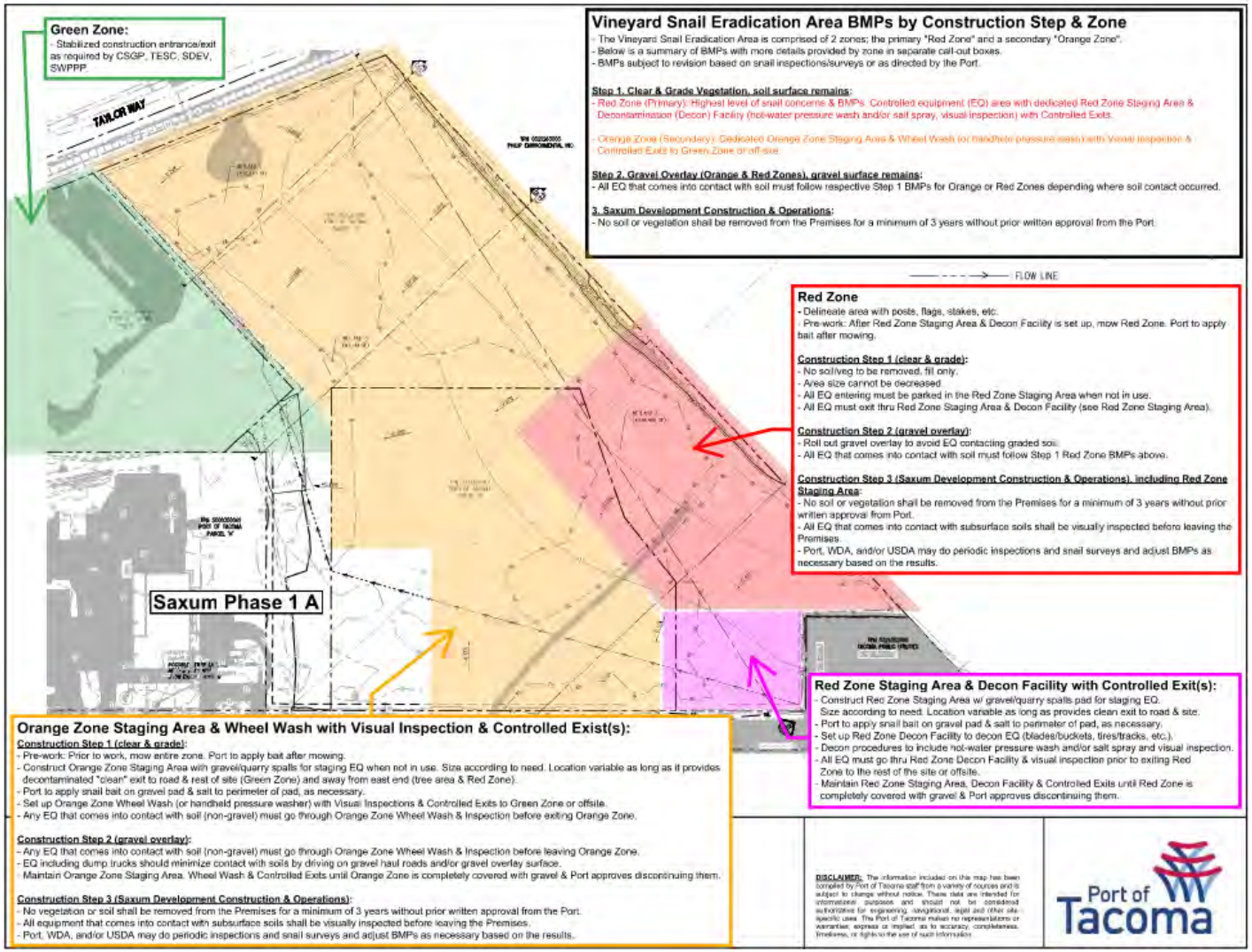
Total Credits by Function for Project	Improving Water Quality	Hydrologic	Habitat
Acre-points	**27.0018**	**32.4414**	**23.2866**

Risk Factors:

Type of Mitigation	Risk Factor
Advance Mitigation The site meets **criteria in Charts 1 and 3** of the site selection guidance [i.e., identified in a local plan and is sustainable] **AND** meets the **criteria in Charts 4-11** for the appropriate functions. (All worksheets for Chart 3 and in Appendix B of Ecology publication #09-06-032 for western Washington or #10-06-007 for eastern Washington are submitted) ***Advance*** *means that at least two years has passed since plantings were completed ~~or one year since "as-built" plans were submitted to regulatory agencies~~.*	1.0
Advance mitigation without meeting criteria in Ecology publication #09-06-032 or #10-06-007	0.83
Concurrent Mitigation Mitigation site meets **criteria in Charts 1 and 3** of the site selection guidance [i.e., identified in a local plan and is sustainable] **AND** meets the **criteria in Charts 4-11** for the appropriate functions. (All worksheets for Chart 3 and in Appendix B of Ecology publication #09-06-032 or #10-06-007 are submitted) *Risk factor applies to all types of mitigation.*	0.9
Mitigation site chosen meets the **criteria in Charts 2 and 3** of the site selection guidance [i.e., identified as a site with potential and that is sustainable]; **AND** meets **criteria in Charts 4-11** for the appropriate functions. (All worksheets for Chart 3 and in Appendix B of Ecology publication #09-06-032 or #10-06-007 are submitted) *Risk factor applies to all types of mitigation.*	0.80
Site does not meet criteria in site selection guide, or guide was not used. **Re-establishment, rehabilitation, or enhancement** that results in an aquatic bed, shrub, or forest community	0.67
Re-establishment, rehabilitation, or enhancement that results in an emergent community	0.5
Creation of an aquatic bed, shrub, or forest community with data showing there is adequate water to maintain wetland conditions 5 years out of every 10.	0.67
Creation of an emergent community with data showing there is adequate water to maintain wetland conditions 5 years out of every 10.	0.5
Creation of an aquatic bed, shrub, or forest community without adequate hydrologic data.	0.5
Creation of an emergent community without adequate hydrologic data.	0.4

	WQ	Hydro	Hab	Grand total
Impacts	40.44	40.802	15.31	
Total Debit	**40.44**	**40.802**	**15.31**	96.552
Creation	27.0018	32.4414	22.2912	
Enhancement	0.7488	0	0	
Total Credit	**27.7506**	**32.4414**	**22.2912**	82.4832

Appendix E
Snail Eradication BMPs Figure



Not to Scale

Source(s): Port of Tacoma

Snail Eradication BMPs

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure E-1

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Appendix F
LWCHP Credit Use Programs

Appendix F

Lower Wapato Creek Advance Mitigation Site

Use Plan

for

Port of Tacoma's Neptune Development Project

Aquatics ID No. 145084

March 10, 2026

1. Project Description

The Port proposes to eradicate the highly invasive vineyard snail by placing approximately 6 inches of consolidated fill material in the 5.446 acres of disturbed palustrine emergent (PEM) wetlands located on 2 parcels collectively known as Port Parcel 117 at 1212 Taylor Way in Tacoma, Washington. (Figure 1, Parcel 117 Wetlands Map). Washington State Department of Agriculture will monitor the site for 3 years post-construction to confirm the eradication of the invasive snails. The Port proposes to offset the loss of these wetlands through the construction of two permittee-responsible concurrent mitigation sites at Parcels 12 (Figure 2, Parcel 12 Initial Mitigation Concept) and 37D (Figure 3, Parcel 37D (Gog-le-hi-te) Initial Mitigation Concept) and use advance mitigation credits generated at the Lower Wapato Creek Habitat Project (LWCHP) Advance Mitigation Site (AMS).

2. Existing Conditions of Wetlands and Other Aquatic Resources

A wetland delineation was conducted for the Project and is documented in the *Parcel 117 Snail Eradication Project Compensatory Mitigation Plan* (GeoEngineers, March 10, 2026). The Project site includes 5.446 ac of Category III (PEM depressional) wetlands as summarized in Table 1 and depicted on Figure 1.

Table 1. Existing Conditions of Wetlands and Buffers

Resource identifier	Wetland area (acres)	Buffer area (acres) within parcel boundary	Ecology rating	Local jurisdiction rating	Cowardin classification	HGM classification
Wetland 1	0.234	0.99	III	III	PEM	Depressional and Flats
Wetland 2	5.188	4.39	III	III	PEM	Depressional and Flats
Wetland 3	0.024	0.63	III	III	PEM	Depressional and Flats
TOTALS	**5.446**	5.80[1]				

NOTE: 1) 0.21 acres of buffer overlap between Wetland 2 and Wetland 3

Three wetlands were delineated on the Project site (Confluence 2025). The wetlands have formed in the fill layer above the historic Commencement Bay tideflats. Surrounding land uses are industrial and port maritime uses. The wetlands are emergent wetlands and are hydrogeomorphically classified as depressional and flats wetlands.

Vegetation

There is no tree or shrub canopy associated with these wetlands as vegetation within the buffer and wetlands is mowed to reduce snail habitat and the likelihood of the snails being transported off property. The wetlands have also been impacted by "steaming" large areas of the soil to kill all life stages of the snail. Vegetation is dominated by grass and invasive weeds.

Hydrology

Hydrology for Wetlands 1, 2 and 3 is primarily provided by a high groundwater table and direct precipitation. The U.S. Army Corps of Engineers has determined that Wetlands 1, 2 and 3 are not waters of the U.S.

No other waters of the U.S. are present within the Project area.

Hydric Soils

Soils observed within Wetlands 1, 2 and 3 meet the definition of a hydric soil.

Wetland 1: The soil consisted of only 1 layer (0-9 inches) and was dark gray (10YR 4/1) sand with cobbles with 40% dark brown (10YR 3/3) redoximorphic concentrations in the matrix. Confluence could not dig deeper than 9 inches due to the presence of a restrictive layer (compacted fill). The soils met the Sandy Redox (S5) hydric soil indicator.

Wetland 2: Soil in the top layer (0-8 inches) was a black (10YR 2/1) sandy loam. Soil in the second layer (8-16 inches) was a black (10YR 2/1) sandy loam with 20% very dark grayish brown depletions (2.5Y 3/2) in the matrix and 5% dark yellowish brown (10YR 4/4) redoximorphic concentrations in the matrix. The soils met the Redox Dark Surface (F6) hydric soil indicator.

Wetland 3: The soils in the top layer (0-5 inches) was a black (10YR 2/1) sandy loam. Soil in the second layer (5-16 inches) was a very dark gray (10YR 3/1) sand with 2% dark yellowish brown (10YR 4/6) redoximorphic concentrations in the matrix. The soils met the Sandy Redox (S5) hydric soil indicator.

3. Avoidance and Minimization of Wetland and Other Aquatic Resource Impacts

The Mediterranean vineyards snails occur on Port Parcel 117 including within onsite wetland areas. There is no option for using an alternative site as the goal of the project is to eradicate the snail from the property.

4. Unavoidable Aquatic Resource Impact Acreage

The acreage of unavoidable wetland impacts associated with the Project are summarized in Table 2.

Table 2: Anticipated Unavoidable Impacts to Wetlands

Wetland Identifier	Wetland Area (acres)	Permanently Filled Wetland Area (acres)	Temporarily Impacted Wetland Area (acres)	Indirect Impact Area (acres)	Cowardin Classification	HGM Classification	Ecology Rating	Local Jurisdiction Rating
1	0.234	0.234	0	0	PEM	Depressional and Flats	III	III
2	5.188	5.188	0	0	PEM	Depressional and Flats	III	III
3	0.024	0.024	0	0	PEM	Depressional and Flats	III	III
TOTALS	**5.446**	**5.446**	**0**	**0**				

5. Impacted Wetland and Aquatic Resource Functions

Wetlands 1, 2 and 3 along with their associated buffer, will be entirely filled and all associated functions will be lost as summarized below.

- Water Quality & Hydrologic Functions – As discussed in Section 2, wetland hydrology is primarily provided by a high groundwater table, direct precipitation, and to a lesser extent, stormwater runoff. No surface water is discharged offsite and therefore water infiltrates onsite.

- Habitat Functions – The degraded, isolated wetlands are an emergent vegetation community predominantly consisting of mowed grasses. There is no interspersion of habitats, corridor connectivity, or plant species richness, and there is no fish habitat. The buffers of wetlands 1 and 2 are interrupted by roads, railroads, pavement, and compacted gravel areas.

6. Wetland and Other Aquatic Resource Compensation Site Selection Rationale

The Project application identifies a combined mitigation approach for wetland compensation that includes construction of two permittee-responsible concurrent mitigation sites at Parcels 12 (Figure 2, Parcel 12 Initial Mitigation Concept) and 37D (Figure 3, Parcel 37D (Gog-le-hi-te) Initial Mitigation Concept), and use of 1.8 EEM advance mitigation acreage generated at the Lower Wapato Creek AMS (Figure 4, LWCHP AMS Constructed Habitat) .

The Project is located within the service area of the Lower Wapato Creek AMS which is the portion of Water Resource Inventory Area (WRIA) 10 – Puyallup-White within the Eastern Puget Riverine Lowlands ecoregion from Commencement Bay eastward to State Route (SR) 512/167. As of March 10, 2026, there are 3.42 EEM credits available from Lower Wapato Creek AMS. See Figure 5, Service Area map.

There are no practicable methods for reducing wetland impacts or performing on-site mitigation on the Project site while still meeting the Project goals. Compensating for the wetlands that are impacted by the Project meets the following goal of the Lower Wapato Creek AMS:

- "Replace aquatic resource (wetland) acreage and functions that are lost or impacted by future Port projects."

Wetlands 1, 2 and 3 at the Project site were specifically listed as potential future impacts/mitigation needs in the Lower Wapato Creek Habitat Project Advance Mitigation Plan, Section 3 (Geographic Service Area), Table 2 – Potential Future Development Sites (Port of Tacoma, March 2021).

7. Wetland and Other Aquatic Resource Functions Compensated at the Advance Mitigation Site

The impacted Project wetlands (Wetlands 1, 2 & 3) are isolated, depressional and flat, degraded, Category III emergent wetlands that provide minimal water quality, hydrologic, and habitat functions, and have highly interrupted buffers. The Lower Wapato Creek AMS is a diverse mosaic of interconnected estuary, emergent and forested wetlands, and riparian habitat. The mitigation site also removes a fish passage barrier, reduces streamflow velocities, and improves flood conveyance, water quality, fish and riparian habitat, and natural stream processes.

The Lower Wapato Creek AMS will offset and be an improvement to the water quality, hydrologic, and habitat functions that will be lost at Wetlands 1, 2 and 3. Specifically, the restoration objectives of the Lower Wapato Creek AMS include the following:

- Objective 1: Restore Wapato Creek from a straight ditch to a meandering, tidally-influenced channel with a functioning floodplain and in-stream habitat features;
- Objective 2: Re-establish intertidal mudflats and hydrologically connected estuarine emergent and palustrine forested wetlands;
- Objective 3: Establish and preserve a dense forested riparian upland; and
- Objective 4: Improve fish passage at the 12th Street East crossing.

Water Quality Functions

Water Quality will be improved at the Lower Wapato Creek AMS over the impacted Project wetlands by the reestablishment of approximately 10 ac of mudflat, freshwater and/or estuarine emergent, and forested wetlands, and approximately 8.5 ac of associated forested upland riparian buffer habitat.

In general, the diverse assemblage of emergent vegetation, woody-stemmed shrubs and trees, large woody material (LWM) and other surface roughening features at the Lower Wapato Creek AMS act to remove pollutants. The installation of these features roughen the wetland and buffer surfaces to slow flow, increasing the Lower Wapato Creek AMS wetlands and buffer's abilities to remove sediments, nutrients and toxins from surface flows prior to entering Wapato Creek. The Project-impacted wetlands provide some water quality function; however, the size and isolation of those wetlands means the Lower Wapato Creek AMS provides more water quality function to the region as a whole.

Hydrology Functions

The Lower Wapato Creek AMS rerouted the creek channel from its previously ditched alignment, and re-establishes approximately 10 ac of intertidal mudflat, freshwater/estuarine emergent and forested wetland habitats adjacent to the channel, and reconnects Wapato Creek to a functional floodplain. The reconfigured creek channel, re-established floodplain, installed LWM structures, and native shrub and forested habitats increases the mitigation site's ability to regulate flood flows, provides additional flood storage capacity and helps increase overall hydrologic functions.

Similar to the Project-impacted wetlands (Wetlands 1, 2 and 3), hydrology at the Lower Wapato Creek AMS is influenced by a high groundwater table and precipitation; however, the hydrologic function at the Lower Wapato Creek AMS is much higher than the Project site. The Project-impacted wetlands are the result of being the lowest area (topographically) within the Project's immediate surrounding area. The Lower Wapato Creek AMS improves area hydrologic function by reestablishing approximately 10 ac of wetlands influenced by groundwater, precipitation, stream flow, and tidal interactions. The Lower Wapato Creek AMS creates a substantial increase in the flood storage capacity within the Wapato Creek Base Flood Elevation (BFE) and the

Puyallup River Overtopping BFE; an increase of 28.61 acre-feet and 79.78 acre-feet, respectively (GeoEngineers 2020, Port of Tacoma 2021).

Habitat Functions

Habitat functions at the Project-impacted wetlands (Wetlands 1, 2 & 3) are extremely limited. The size and isolation of the wetlands provides little habitat capable of sustaining viable populations of wildlife, and there is no connectivity to a fish-bearing stream or watercourse. In addition, vegetation consists primarily of mowed grasses and invasives.

Habitat functions at the Lower Wapato Creek AMS will be an improvement over the Project-impacted wetlands because the restoration actions remove invasive plants (including root stock and seed bank), increase the diversity and areal extent of aquatic habitats, install a diverse assemblage of native trees, shrubs, grasses, and emergent species, provide approximately 230 pieces of LWM structures, re-meander the creek channel and reconnect the floodplain, add off-channel habitat, and provide habitat interspersion and connectivity between the different habitat types. The existing mature deciduous trees at the Lower Wapato Creek AMS were retained to the greatest extent practicable and provide key benefits (e.g., shade, forage opportunity, etc.) while the rest of the site establishes and matures. Approximately 230 pieces of LWM (habitat structures) are installed throughout the wetland complex, providing many opportunities for fish and wildlife to forage and find refuge. The Lower Wapato Creek AMS increases the overall biodiversity of the area and adds significant habitat availability to the Wapato Creek wildlife corridor. The Lower Wapato Creek AMS habitat functions will increase substantially for aquatic, amphibian, terrestrial, and avian species as compared to the current habitat functions provided by the Project site.

8. Wetland and Other Aquatic Resource Functions Not Compensated at the Advance Mitigation Site

Not applicable. All wetland functions of the Project-impacted wetlands will be compensated for at the Lower Wapato Creek AMS. In addition, the advance mitigation site provides added ecological benefit by offering fish, estuarine, and riparian habitat, and floodplain improvements. Refer to the *Lower Wapato Creek Habitat Project, Advance Mitigation Plan* (Port of Tacoma, March 2021) for further details.

9. Credit Use Ratios

The Lower Wapato Creek AMS wetland credits (calculated in acre-credits) were generated using the mitigation ratio method (Ecology and USACE 2013). The acre-credits were generated based on the increase in functions, values, and areal extent of aquatic systems resulting from the re-establishment of estuarine and palustrine forested habitat, and enhancement of associated uplands on the on the Lower Wapato Creek AMS. Two types of wetland credits were generated: estuarine emergent (EEM) wetland credits and palustrine forested (PFO) wetland credits. Because of numerous and variable environmental factors, the number of each type of credits generated will be determined during the monitoring period based on actual on-site conditions. The Advance Mitigation Plan originally estimated the site will generate approximately 6.27 EEM acre-credits and 3.08 to 3.75 PFO acre-credits for a total of 9.35 to 10.02 acre-credits. Based on the *Lower Wapato Creek Habitat Project Year 1 Monitoring Report* (GeoEngineers, February 26, 2025) the Lower Wapato Creek AMS generated 7.13 EEM acre-credits and 2.89 PFO acre-credits for a total of 10.02 acre-credits.

Tables 3 and 4 have been reproduced from the *Advance Mitigation Plan*, "AMP" (Port of Tacoma, March 2021). Table 3 (AMP Table 16) specifies credit use ratios for estuarine and palustrine wetland impacts. Table 4 (AMP Table 17) specifies credit use ratios for palustrine wetland impacts only.

Table 3: Credit Use Ratios for EEM Wetland Credits from Advance Mitigation Plan

Age of the Site (Years)	Category I Estuarine and Palustrine[1]	Category II Estuarine and Palustrine	Category III	Category IV	Stormwater Ditches
0 & 1	Case-by-case	3:1	2:1	1.5:1	1:1
2	Case-by-case	2.5:1	1.8:1	1.4:1	0.9:1
3	Case-by-case	1.8:1	1.6:1	1.3:1	0.8:1
4 & 5	Case-by-case	1.6:1	1.3:1	1.2:1	0.6:1
6 & 7	Case-by-case	1.4:1	1.2:1	1:1	0.6:1
8 & 9	Case-by-case	1.25:1	1:1	0.85:1	0.5:1
10 & Beyond	Case-by-case	1:1	0.9:1	0.75:1	0.5:1

[1] Ratios for Category I wetland impacts will be higher than the ratios listed for Category II.

At Ecology's suggestion, this advance mitigation site Use Plan was developed based on the Mitigation Bank Interagency Review Team's guidance/template for a Bank Use Plan (August 2021 version). That guidance states to provide rationale if proposed ratios for determining the credits needed differ from those suggested in the MBI (or, in this case, the advance mitigation plan). The guidance states: factors that may affect the actual number of bank (advance mitigation) credits needed to compensate for an adverse impact to wetlands and other aquatic resources include:

- whether the impact is permanent or temporary,
- the extent to which the functions are affected due to indirect impacts,
- whether some of the functions affected by a project are compensated elsewhere,
- the extent to which the functions provided at the bank (advance mitigation site) differ from the impacted functions,
- out-of-service area requests based on the distance from the impact location and type of impact,
- and other factors.

The Port is proposing slightly different credit use ratios because the functions provided at the Lower Wapato Creek AMS are significantly higher than the limited functions of the impacted wetlands being compensated and for the other factors as described below.

- The construction timing of the advance mitigation site is not traditional, in that the creek is reconnected, and the site is graded and seeded, to allow the site to begin to improve water quality, hydrology, and habitat functions prior to planting shrubs and trees. This alters the official "Age of the Site (Years)" in Table 3 above. The Lower Wapato Creek AMS construction started in July 2021. All wetland/habitat area construction, habitat features, emergent and grass seeding, and mature tree preservation was completed by December 2021. The plant installation occurred in the Fall 2022/Spring 2023 planting season after the site has had a year to establish hydrologic connectivity and to help determine the extent of the saltwater wedge. With this construction schedule, "Year 0" didn't occur until 2023 with the As-Built report. However, most water quality and hydrology functions and some habitat functions will be present and will begin to establish/function immediately upon reconnection of the creek channel and earthwork completion in 2021. Hydrologic monitoring began in 2021 and all construction activities except the installation of plants were documented in the *Phase 1 Lower Wapato Creek Habitat Project As-Built Report* (GeoEngineers, December 14, 2022). The *Phase 2 Lower Wapato Creek Habitat Project As-Built Report* (GeoEngineers, August 18, 2023) was prepared after the installation of all plants in fall 2022/spring 2023.

The Phase 1 and Phase 2 As-built conditions, Year 1 and Year 2 performance monitoring results were documented in the following reports, respectively:

- *Phase 1 Lower Wapato Creek Habitat Project As-Built Report* (GeoEngineers, December 14, 2022)
- *Phase 2 Lower Wapato Creek Habitat Project As-Built Report* (GeoEngineers, August 18, 2023)
- *Lower Wapato Creek Habitat Project Year 1 Monitoring Report* (GeoEngineers, February 26, 2025)
- *Lower Wapato Creek Habitat Project Year 2 Monitoring Report Revision No. 1* (GeoEngineers, March 9, 2026)

The LWCHP Year 2 Monitoring Report documents that the site meets or exceeds all Year 2 performance standards (PSs), except PS 4D (fish passage) was not met at low tide because the creek itself was dry upstream of the site with no flow into the site. Ecology provided comments on the Year 2 monitoring report that recognized the lack of creek flow into the site is out of the Port's control. In addition, the Year 2 data documented performance conditions well above the Year 2PSs for EEM including the following:

- *PS 2D: The total native emergent vegetation cover for mudflat & EEM native vegetation was approximately 55 percent and already exceeds the Year 10 PS of 50%.*
- *PS 2H: The site established more than 5 acres of Saltwater Tidal Fringe (Estuarine) exceeding the PS 2H requirement of at least 1 acre.*
- *PS 2I: The report documented 6.95 acres of EEM habitat inundated at high tide with the PS 2I requiring at least 6 acres be inundated during Year 1 and 2.*

- The impact Project construction is anticipated to start in the 3rd Quarter of 2026. Wetland, estuary, and stream water quality and hydrology functions at Lower Wapato Creek AMS began upon completion of construction in 2021. Mature trees were retained, creek channel reconnection, grading, and seeding with native species, the Lower Wapato Creek AMS functioned ecologically at the same level or higher than the Project-impacted wetlands upon the completion of 2021 (Phase 1) construction.
- The Project-impacted wetlands will be mitigated with a higher value (higher category) wetland. The Project-impacted wetlands are degraded, depressional and isolated, Category III PEM wetlands. In comparison, the Lower Wapato Creek AMS has been designed and constructed as a Category I estuarine and freshwater wetland complex consisting of intertidal mudflat, estuarine, freshwater emergent and palustrine forested wetlands surrounded by a forested upland buffer.
- The Project-impacted wetlands do not have any fish habitat and are not a riparian area. The Lower Wapato Creek AMS provides fish habitat for non-Endangered Species Act (ESA) listed species and riparian areas as complementary and additional ecological benefits that will function above and beyond wetland functions alone.
- Water quality functions of the Project-impacted wetlands are limited to infiltrating precipitation and some stormwater runoff. The development Project will include stormwater provisions as outlined in the stormwater management manual and City code. As described in Section 7, the Lower Wapato Creek AMS will greatly improve water quality functions over that of the wetlands to be impacted by re-establishing approximately 10 ac of wetland mosaic and 8.5 ac of upland riparian buffer which will remove sediments, nutrients, and toxins. These functions began immediately upon Phase 1 construction completion as the seeding and wetland hydrology are established, allowing water to filter through the soils and as the existing trees and planted emergent vegetation and native grasses grow and mature.

- Hydrology functions of the Project-impacted wetlands are limited to high groundwater, precipitation, and some stormwater flow. The Project-impacted wetlands are not connected to a floodplain or estuary. The Lower Wapato Creek AMS greatly improves hydrologic function through influences by groundwater, precipitation, stream flow, and tidal interactions. It reconnects approximately 10 ac of the Wapato Creek floodplain and provides a substantial increase in flood storage capacity as described in Section 7.
- Habitat functions of the Project-impacted wetlands are low functioning (habitat score of 3) Category III isolated palustrine emergent wetlands. The wetlands have been heavily impacted by nearly 20 years of eradication efforts to control the highly invasive Mediterranean vineyard snails (*Cernuella virgata*). There is no tree or shrub canopy associated with these wetlands as vegetation within the buffer and wetlands is mowed to reduce snail habitat and the likelihood of the snails being transported off property. The wetlands have also been impacted by "steaming" large areas of the soil to kill all life stages of the snail. Vegetation is dominated by grass and invasive weeds. Additionally, the wetlands are located immediately adjacent to the Taylor Way and Alexander Fill Area contaminated site (Agreed Order No. DE 14260 and Enforcement Order No. DE 19410). The site's historical use includes an unpermitted landfill for industrial waste. The Lower Wapato Creek AMS increases the overall biodiversity of the area and adds significant habitat availability to aquatic, amphibian, terrestrial, and avian wildlife by providing over 18.5 ac of high-quality habitat within the Wapato Creek wildlife corridor.

- The buffer of the wetlands to be impacted have already been significantly impacted. The buffer consists of degraded emergent upland habitat consisting of mowed grass and invasive and noxious weeds.

10. Proposed Mitigation Credits

The required compensation amount was calculated using the Credit-Debit Method described in the current Ecology wetland mitigation guidance (Ecology 2021) per the recommendation from Ecology (April 7, 2025 email from Brook Swensen to Kristin Evered). To offset the Project impacts, the Port proposes to construct two permittee-responsible concurrent mitigation sites and apply 1.8 acres of EEM wetland from LWCHP to meet the required compensation amount. Because LWC is an estuarine wetland, the credit-debit method is not applicable. Instead, 1.8 acres were subtracted from the area of Wetland 2 to reduce the total impacts in the debit. The amount of EEM acreage was approved by Ecology on January 9, 2026 (virtual meeting between Brook Swensen and Kristin Evered). A credit use ratio of 1.3:1 or 2.34 credits was approved by Ecology on September 29, 2025 (email from Brook Swensen to Kristin Evered). Table 5 below identifies the application of 1.8 acres of LWC EEM wetland habitat to mitigate 1.8 acres of permanent impacts to Wetland 2 at Parcel 117.

Table 5: Lower Wapato Creek AMS Credits Proposed for Use by Impact Project

Parcel 117 Wetland	Total Wetland Area (acres)	Permanently Filled/Mitigated Wetland Area (acres)	Ecology Rating	LWC EEM Proposed for use (acres)	Remaining Permanently Filled/Mitigated Wetland Area (acres)
1	0.234	0.234	III	0.0	0.234
2	5.188	5.188	III	1.8	3.388
3	0.024	0.024	III	0.0	0.024
TOTAL	**5.446**	**5.446**		**1.8**	**3.646**

11. Credit/Debit Accounting

Upon approval of this revised final Use Plan by the City of Tacoma, Ecology, and the Corps an updated ledger will be provided to the regulatory agencies as described in AMP Section 11.3 (Credit/Debit Accounting).

12. References

GeoEngineers. 2020. Lower Wapato Creek Habitat Project Floodplain Memo. Memorandum to Port of Tacoma. May 1, 2020.

GeoEngineers. 2022. Phase 1 Lower Wapato Creek Habitat Project As-Built Report. December 14, 2022.

GeoEngineers. 2023. Phase 2 Lower Wapato Creek Habitat Project As-Built Report. August 18, 2023.

GeoEngineers. 2025. Lower Wapato Creek Habitat Project Year 1 Monitoring Report. February 26, 2025.

GeoEngineers. 2026. Lower Wapato Creek Habitat Project Year 2 Monitoring Report Revision No. 1. March 9, 2026.

Grette & Associates. 2021. Port of Tacoma Off-Dock Container Yard and Stormwater Project Wetland Analysis Report. September 2021.

Mitigation Bank Interagency Review Team (IRT) for Washington State. 2021. Bank Use Plan Template Version: [August 2021]. Retrieved from: https://ecology.wa.gov/Water-Shorelines/Wetlands/Mitigation/Wetland-mitigation-banking/Templates-guidance-documents.

Port of Tacoma. 2021. Lower Wapato Creek Habitat Project, Advance Mitigation Plan. March 2021.

Washington State Department of Ecology and U.S. Army Corps of Engineers. 2013. Credit Guide for Wetland Mitigation Banks. Published by Washington State Department of Ecology Shorelands and Environmental Assistance Program and U.S. Army Corps of Engineers, Seattle District, Regulatory Branch. Ecology Publication No. 12-06-014. February 2013. Retrieved from: https://apps.ecology.wa.gov/publications/documents/1206014.pdf

Attachments:

Figure 1. Parcel 117 Wetlands Map
Figure 2. Parcel 12 Initial Mitigation Concept
Figure 3. Figure 2, Parcel 37D (Gog-le-hi-te) Initial Mitigation Concept
Figure 4. LWCHP AMS Constructed Habitat
Figure 5. Service Area Map



Parcel 117 Wetlands Map

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure 1

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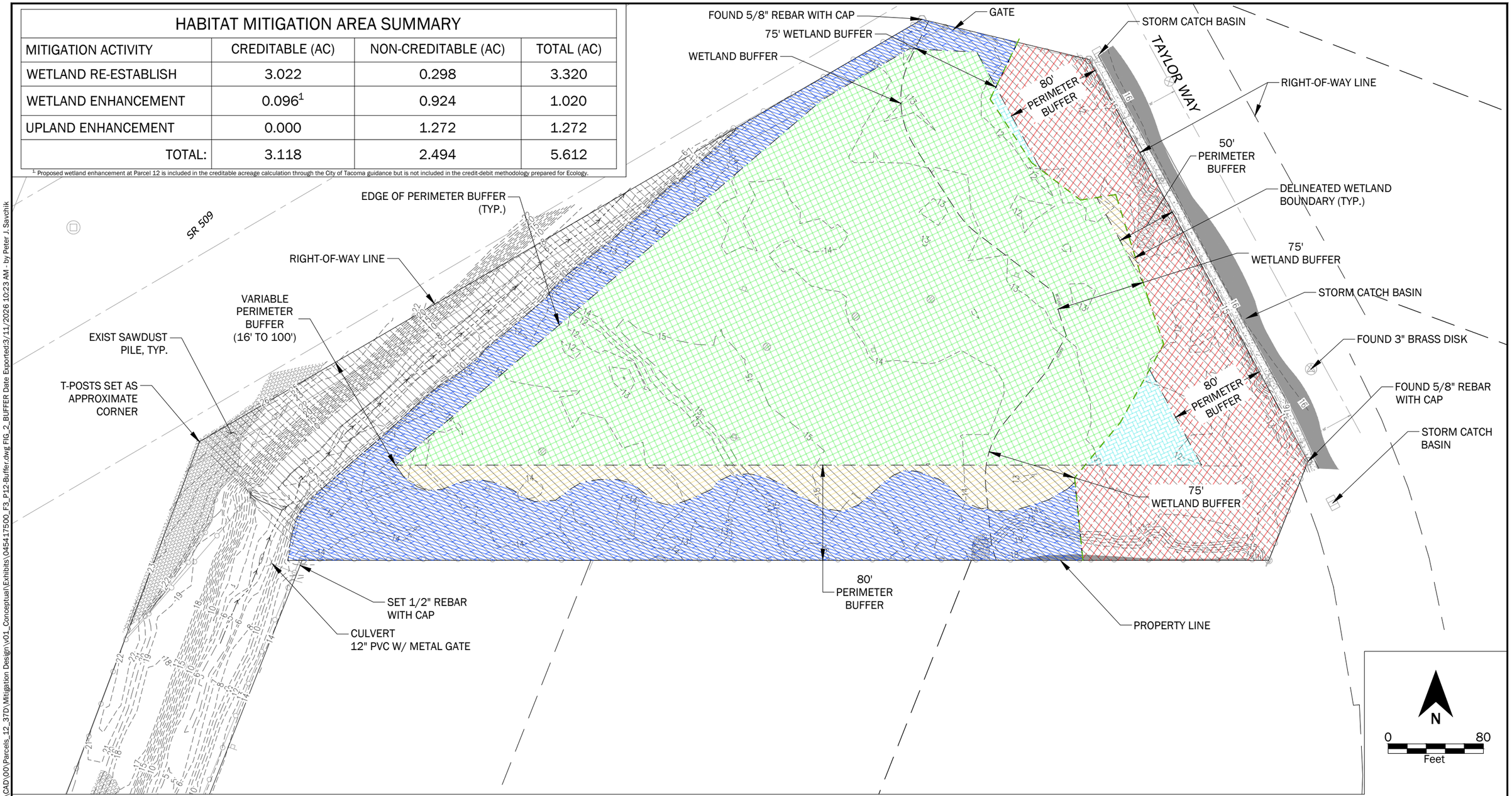
HABITAT MITIGATION AREA SUMMARY			
MITIGATION ACTIVITY	CREDITABLE (AC)	NON-CREDITABLE (AC)	TOTAL (AC)
WETLAND RE-ESTABLISH	3.022	0.298	3.320
WETLAND ENHANCEMENT	0.096[1]	0.924	1.020
UPLAND ENHANCEMENT	0.000	1.272	1.272
TOTAL:	3.118	2.494	5.612

[1] Proposed wetland enhancement at Parcel 12 is included in the creditable acreage calculation through the City of Tacoma guidance but is not included in the credit-debit methodology prepared for Ecology.



Note(s):

1. Limits of wetland re-establishment are approximate.

Source(s):

- Survey topography from Sitts & Hill, dated April and May 2025
- GPS Data provided by AquaTerra on October 10, 2025

Projection: Washington Plane Coordinate system, South Zone, NAD 83/2011
Vertical Datum: MLLW , Per Port of Tacoma Survey Control Map, Dated 2016

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Legend

- WETLAND RE-ESTABLISHMENT
- WETLAND RE-ESTABLISHMENT IN PERIMETER BUFFER
- WETLAND ENHANCEMENT
- WETLAND ENHANCEMENT IN PERIMETER BUFFER
- UPLAND ENHANCEMENT
- PERIMETER BUFFER
- EXIST DITCH THALWEG
- EXIST FENCE
- EXIST MONITORING WELL
- EXIST UTILITY POLE
- EXIST SIGN

Parcel 12
Initial Mitigation Concept

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure 2

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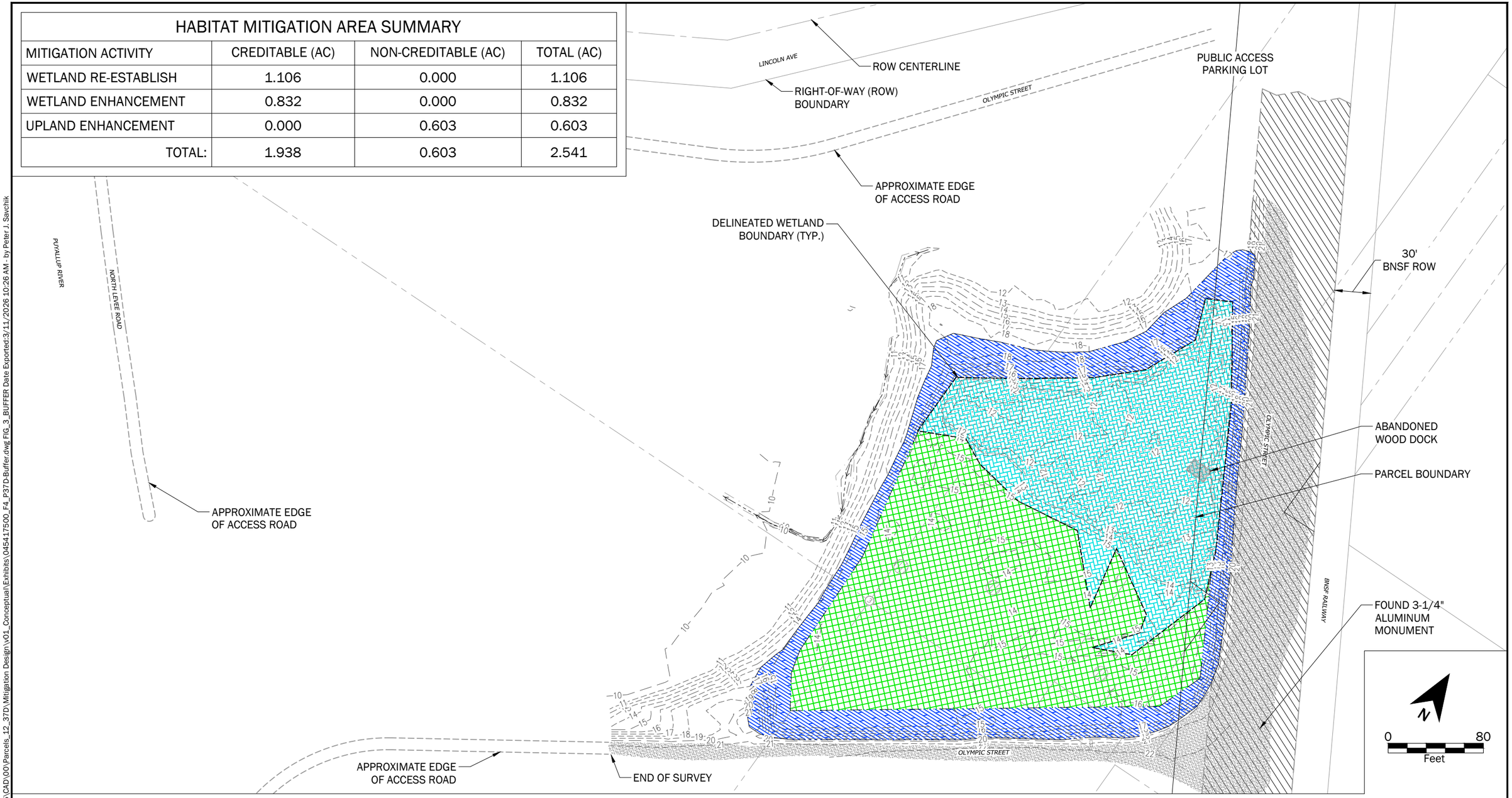
HABITAT MITIGATION AREA SUMMARY			
MITIGATION ACTIVITY	CREDITABLE (AC)	NON-CREDITABLE (AC)	TOTAL (AC)
WETLAND RE-ESTABLISH	1.106	0.000	1.106
WETLAND ENHANCEMENT	0.832	0.000	0.832
UPLAND ENHANCEMENT	0.000	0.603	0.603
TOTAL:	1.938	0.603	2.541



Note(s):

1. Limits of wetland re-establishment are approximate.

Source(s):

- Survey topography from Sitts & Hill, dated April and May 2025
- GPS Data provided by AquaTerra on October 10, 2025

Projection: Washington Plane Coordinate system, South Zone, NAD 83/2011
Vertical Datum: MLLW , Per Port of Tacoma Survey Control Map, Dated 2016

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Legend

- WETLAND RE-ESTABLISHMENT
- WETLAND ENHANCEMENT
- UPLAND ENHANCEMENT
- PERIMETER BUFFER
- EXIST FLOWLINE THALWEG
- EXIST FENCE
- EXIST MONITORING WELL
- EXIST UTILITY POLE
- EXIST SIGN

Parcel 37D (Gog-le-hi-te)
Initial Mitigation Concept

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure 3

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TABLE 5. CONSTRUCTED HABITAT TYPES

COWARDIN CLASSIFICATION	CREDITABLE (ACRES)	NON-CREDITABLE (ACRES)	TOTAL (ACRES)[1]
EEM Mosaic	7.13	0.29	7.42
PFO Mosaic	2.89	0.14	3.03
Forested Upland	0.00	7.21	7.21
Total:	**10.02**	**7.64**	**17.67**

Notes:

1. Discrepancies of up to 0.01 acres are a result of rounding.



Notes:
1. Areas shown are approximate

Source(s):
- Google Maps aerial from approximately 2024
- Field verification site visits on March 22, April 2, July 22, July 29, August 6-8, and December 14, 2024.

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet

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Legend

- Wapato Creek Centerline
- LWCHP Site Boundary
- Wetland Area

Habitat Areas

- Estuarine Emergent Wetland (EEM) Mosaic
- Palustrine Forested Wetland (PFO) Mosaic
- Forested Upland (UPL)

N

0 125

Feet

LWCHP AMS Constructed Habitat

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure 4

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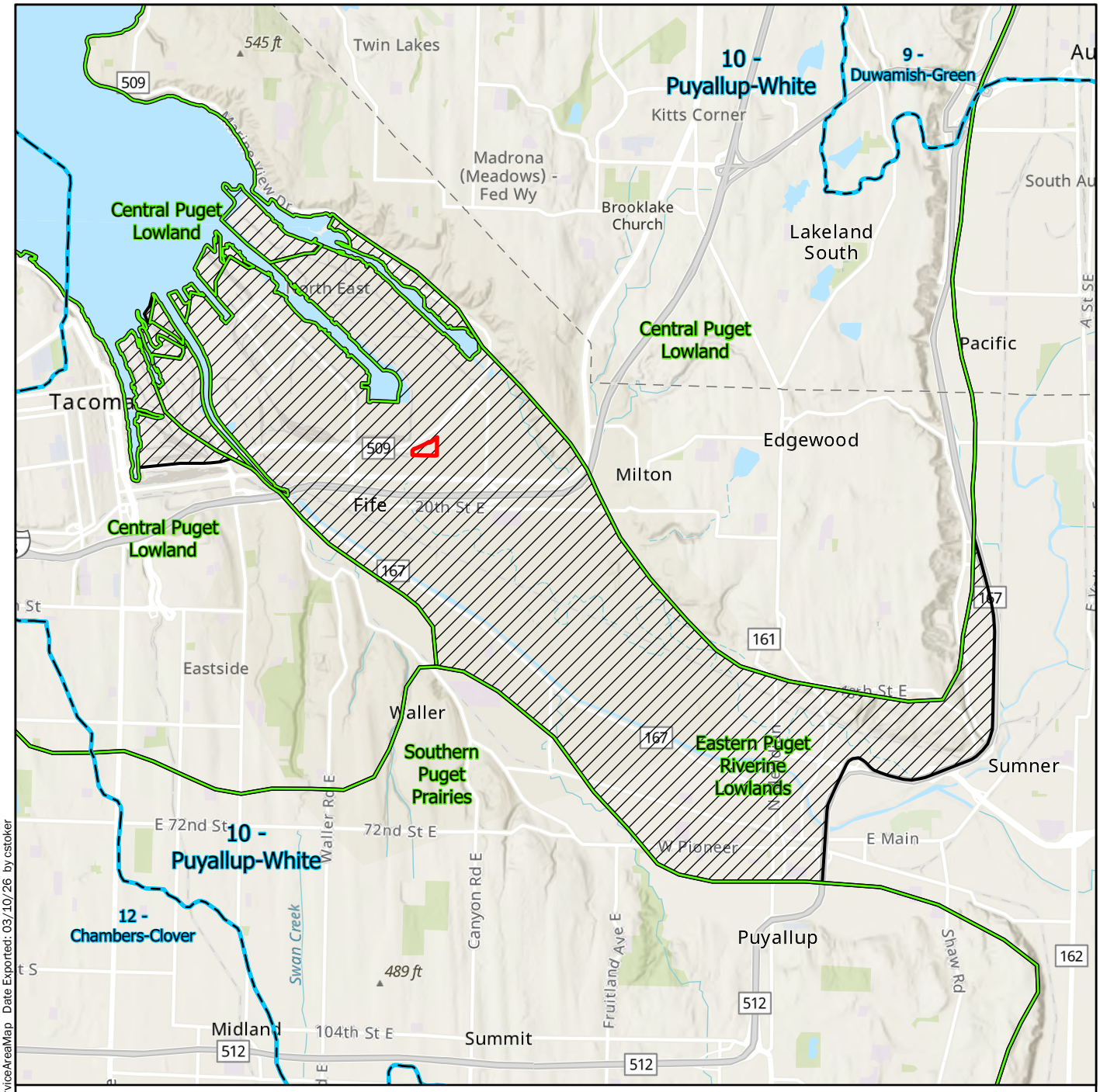

Legend

- Project Site
- Water Resource Inventory Areas
- Washington State Department of Ecology Ecoregions
- Geographic Service Area

0 1.5
Miles

N

Source(s):
- Washington State Department of Ecology
- ESRI Basemap

Coordinate System: NAD 1983 HARN StatePlane Washington South FIPS 4602 Feet

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Service Area Map

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

GeoEngineers

Figure 5

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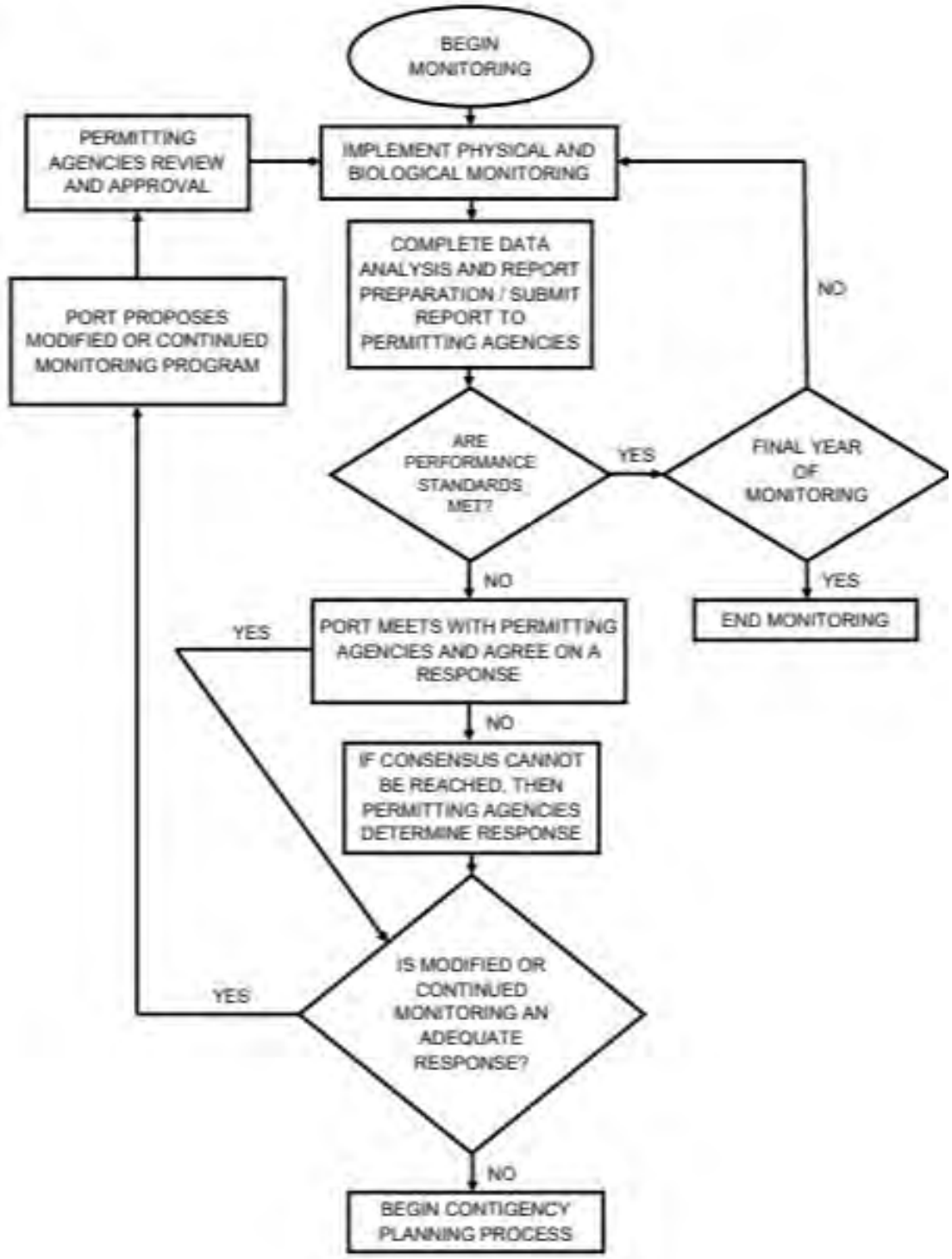
Advance Mitigation Project (AMP) Name:				Lower Wapato Creek Advance Mitigation Site			**Ledger Submittal Date:**			
Contact Name (email or phone number):				Mark Rettmann (253-592-6716)			**Potential EEM Wetland Credits Available:**			7.13
Permit #s associated with approval of the AMP:				NWS-2020-457-WRD, ECY AO 19520 & CZM, EPA & PTOI WQCs, City of Tacoma CAPO LU20-0113, WDFW HPA 2021-6-181+01			**EEM Wetland Credit Balance:**			**1.08**
Date	Project Name	Project Location	Corps permit # (Issue Date)	Ecology Order # (Issue Date)	Local permit # (Issue Date)	Impact Type (e.g., WL Category)	Impact Area (in acres)	Use Ratio Applied	EEM Wetland Credits Used	Comments/ Remarks
11/2/2023 (Revised 10/24/25)*	Off-Dock Container Suport Facility	1451 & 1721 Thorne Rd & 1702 Port of Tacoma Rd	NWS-2020-557-WRD (09-15-23)	WQC No. 21410 (10-07-22)	LU22-0140 (04-18-23)	Cat. III - PFO	2.856	1.3:1	3.71	Adv Mit Site was graded in 2022, planted in 2023, and Year 1 mtrg in 2024. As-built Rpts were approved by ECY on 10/24/23. *The original 11/2/23 ledger submited was based on the Final Revised AMP (Mar. 2021) credit projections, the final number and type of wetland credits generated at the Lower Wapato Creek AMS was not known, and noted that they would be adjusted in the future pending the final number and type of wetland acre-credits generated. The approved Year 1 Monitoring Report (09-22-25) documents the final credits generated at the LWCHP and this revised ledger reflects those final generated credits.
3/5/2026	Neptune Development Project	1212 Taylor Way	NA	Aquatics ID No. 145084 TBD	LU25-0176 TBD	Cat. III -PEM	1.8	1.3:1	2.34	Two permittee-responisble concurrent mitigation sites and application of 1.8 acres of of EEM wetland from Lower Wapato will be applied to offset project impacts. Comensation amount approved by ECY on 1/9/2026.
TOTAL							**4.656**		**6.05**	

Appendix G
Mitigation Flow Charts



Problem Recognition Flow Chart

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

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Figure G-1

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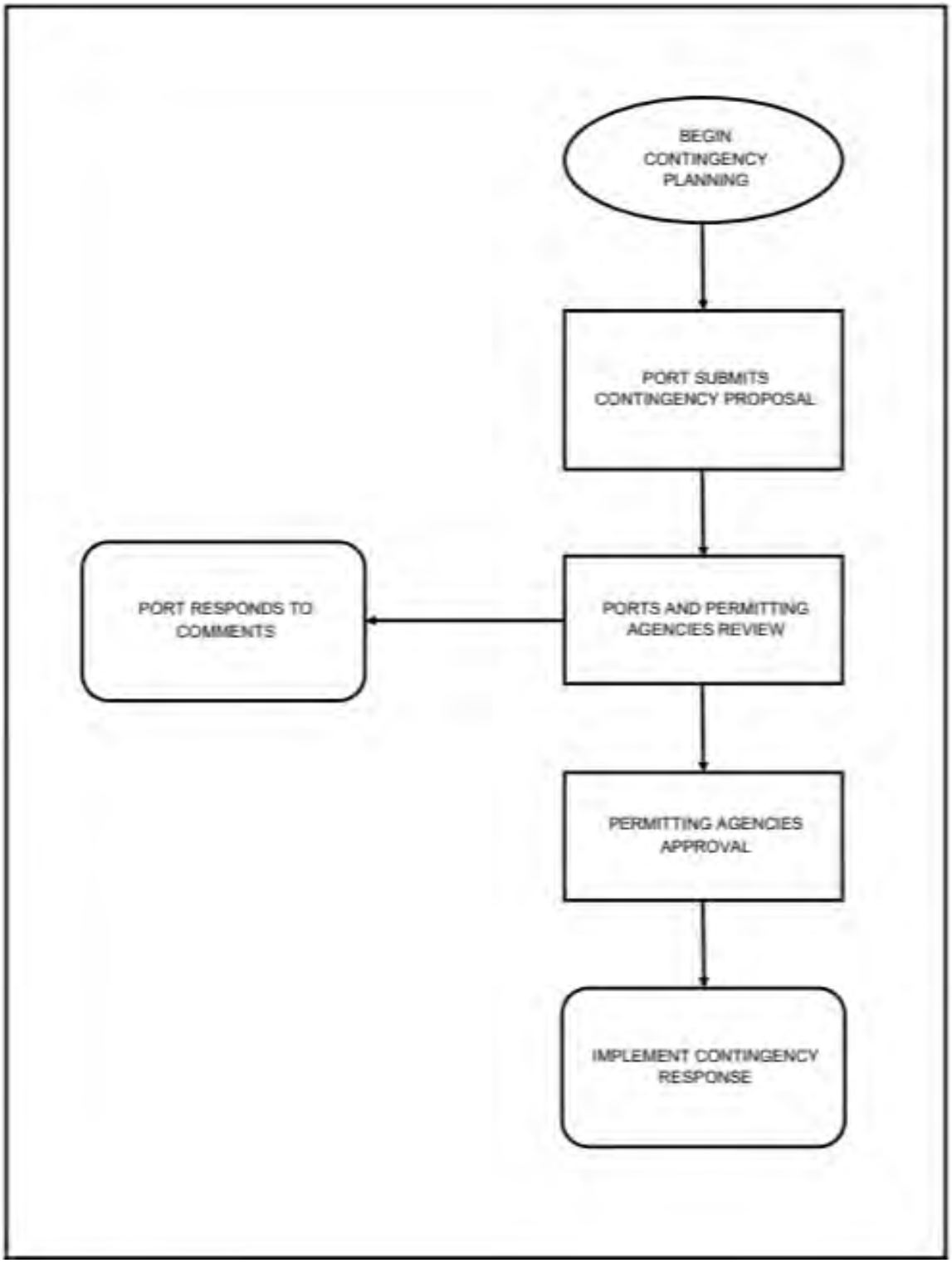

Contingency Planning and Response Flow Chart

Parcel 117 Snail Eradication Mitigation Project
Tacoma, Washington

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Figure G-2

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