

WETLAND MITIGATION PLAN

EAST SUMNER REGIONAL STORMWATER FACILITY PROJECT
SUMNER, PIERCE COUNTY, WASHINGTON

Prepared for:

City of Sumner
Public Works Dept.
1104 Maple Street, Suite 260
Sumner WA 98390

Prepared by:

Widener & Associates
10108 32nd Ave W
Ste D Bldg C-3
Everett, WA 98204-1302

March 2015

This page intentionally left blank for printing purposes.

Executive Summary

The City of Sumner (City) is proposing to build a stormwater detention facility west of the Sumner-Tapps Highway, between 64th Street East and 60th Street East. The project will also involve the realignment of approximately 1060 feet of Salmon Creek including a 16-foot wide concrete box culvert at the location of the relocated crossing under 60th Street East. The project area encompasses approximately 8.1 acres of vacant land with one residence in Sumner, Pierce County, Washington State. The proposed project area is located within Section 19 of Range 05E and Township 20N.

Three wetlands had been identified and delineated within the project area. The wetlands were delineated using the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (Environmental Laboratory 2010). Under the Cowardin system, the wetland within the project area has been classified as palustrine emergent (Cowardin *et al.* 1979). According to the Washington State Wetlands Rating System for Western Washington, the wetlands within the project area have been defined as a Category IV depressional wetlands (Hruby 2014). The City of Sumner's Wetlands Protection Ordinance also defines the wetlands within the project area as Category IV (Hruby 2014, City of Sumner 2013a).

The proposed project would permanently impact approximately 0.77 acres of Category IV wetland. Impacts to wetlands were avoided when possible. In order to minimize impacts to wetlands, standard erosion techniques will be used during construction and native vegetation removal will be kept to a minimum.

To mitigate for the unavoidable impacts, compensatory mitigation will be implemented in accordance with the Washington State Department of Ecology (DOE), U.S. Army Corps of Engineers (USACE), and Environmental Protection Agency (EPA) guidance, along with the City of Sumner's municipal code (DOE *et al.* 2006)(City of Sumner 2013a).

The 0.77 acres of Category IV wetland will be replaced at a ratio of 1.5:1 creation or 6:1 enhancement. Using these ratios, the project will create an additional 0.96 acres of Category III wetland offsite, along Salmon Creek and enhance 0.78 acres of Category IV wetland onsite. Both the DOE and the City of Sumner require that any wetland created, restored, or enhanced, as compensation for approved wetland alterations shall also include a buffer. The mitigation site will have 0.69 acres of enhanced forested wetland buffer as well as 0.5 acres of wetland creation which will function as paper buffer. The onsite enhancement area will include 0.4 acres of buffer enhancement and 0.52 acres of wetland enhancement to function as paper buffer.

The offsite mitigation proposed for this project would be conducted concurrently with proposed mitigation for the Sumner YMCA Project. That mitigation will be in the form of more wetland creation contiguous with the area proposed as well as enhancement of a portion of the existing wetland on the mitigation site.

The proposed mitigation wetland will provide similar functions to that of the existing wetland that would be impacted, since it has similar depressional hydro-geomorphic (HGM) components. The creation of the mitigation wetland will provide increased local capacity for the reduction of floodwaters: will act as a filter, trapping pollutants such as heavy metals and retain excess nutrients before entering the nearby Salmon Creek. The site chosen for wetland creation is currently an exposed and degraded grazing field, which provides little, to no, wildlife habitat and will particularly benefit from enhancement. It will also increase species richness. The enhanced depressional wetland and forested/scrub-shrub upland buffer will provide habitat for songbirds, birds-of-prey, and an array of mammals and amphibians and other taxon.

The proposed mitigation areas will be monitored for up to ten years to demonstrate the provision of intended functions. A site visit will be made the summer after planting and survival rates of plantings and aerial coverage will be assessed. Formal monitoring procedures will be performed in years one, three, five, seven and ten. Successful mitigation will be measured by attainment of the performance criteria described in this mitigation plan document. Monitoring will cease as soon as all success standards have been attained.

Long-term management of the mitigation site will be provided by the City of Sumner in order to preserve the intended functions of the mitigation wetland. Adaptive management measures will be implemented as necessary to ensure that the performance standards described in this document are met long-term.

Responsible Parties

Applicant: City of Sumner

Consultant: Widener and Associates

Preparers of Mitigation Plan: Christina Neff, Widener and Associates

Preparers of Construction Plan: KPG, Inc.

Party Responsible for Monitoring, Long-Term Maintenance, and Contingency Plans: City of Sumner

This page intentionally left blank for printing purposes.

Table of Contents

Executive Summary	i
Responsible Parties	iii
Project location	2
Baseline Conditions	2
Impacted Wetland Areas	6
Direct Impacts.....	6
Temporary Impacts	6
Wetland Functions Impacts.....	6
Vegetation.....	7
Soils.....	7
Hydrology	7
Wetland Category	7
Mitigation Approach	10
Mitigation Sequencing.....	10
Replacement Ratios	10
Buffers.....	11
Mitigation Strategy	12
Proposed Offsite Mitigation Area	14
Location	14
Site Ownership.....	14
Site Selection Rationale	15
Site Constraints	15
Baseline Conditions of Offsite Mitigation Area	18
History.....	18
Existing Wetlands	18
Other Aquatic Resources	19
Hydrology	19
Soils.....	20
Vegetation.....	23
Fauna.....	24
Wetland Functions and Rating.....	24
Buffers.....	24
Mitigation Site Plans/Design	26
Grading Plan	26
Water Regime	26
Soils.....	26
Planting Plan	32
Introduction.....	48
Goals	48
Functions and Values.....	48
Objectives and Performance Standards	50
Annual Performance Standards.....	53

Monitoring Plan	54
Methods.....	54
Sampling Locations	54
Schedule.....	54
Site Protection	55
Long-term Site Protection Measures	55
Site Protection Real Estate Instrument	55
Maintenance and Contingency Plans	56
Maintenance Plan.....	56
Contingency Plan.....	56
Implementation Schedule	58
Construction Sequence.....	58
Financial Assurances	59
References	60
Appendix A: Impact Site DOE Wetland Rating Forms	A-1
Appendix B: Mitigation Wetland Rating Form	B-1

Table of Contents (*cont.*)

List of Tables

Table 1: Wetland area required per DOE replacement ratios	10
Table 2: City of Sumner and DOE Wetland buffer requirements.....	11
Table 3: Upland Seed Mix.....	32
Table 4: Wetland Seed Mix.....	32
Table 5: Offsite Wetland Creation and Paper Buffer Plant List.....	34
Table 6: Onsite Wetland Enhancement and Paper Buffer Plant List.....	36
Table 7: Onsite Temporary Wetland Impact Restoration Plant List	38
Table 8: Buffer Enhancement Plant List	40
Table 9. Annual Performance Standards	53

List of Figures

Figure 1: Vicinity Map	3
Figure 2: Existing conditions	4
Figure 3: Wetland Impacts Map	7
Figure 4: Mitigation Site Existing Conditions.....	16
Figure 5: Mitigation Site Grading Plan	28
Figure 6: Mitigation Site Grading Plan Cross Section Views.....	30
Figure 7: Offsite Mitigation Wetland and Buffer Planting Plan.....	42
Figure 8: Consolidated Wetland Mitigation Site	44
Figure 9: Onsite Wetland Enhancement.....	46

List of Photos

Photo 1: Open grass pasture typical of a majority of mitigation site.....	14
Photo 2: Relic paddocks and corral fencing at mitigation site	18
Photo 3: Salmon Creek with dogwood wetland on left (west)	19
Photo 4: Soil saturation away from gravel begins at approx. 2 foot depth	20
Photo 5: Gravel layer beginning at 4 inches depth, at water line.....	21
Photo 6: Thick gravel layer starting at approx. 2 feet deep.....	22
Photo 7: Sand layer at several feet deep	22
Photo 8: Himalayan blackberry patches on western portion of mitigation site.....	24

This page left intentionally blank for printing purposes.

Proposed Development Project

Project Description

The City of Sumner (City) is proposing to build a stormwater detention facility west of the Sumner-Tapps Highway, between 64th Street East and 60th Street East. The project will also involve the realignment of approximately 1060 feet of Salmon Creek including a 16-foot wide concrete box culvert at the location of the relocated crossing under 60th Street East. An offsite location has been chosen in order to provide mitigation for wetland impacts created by the pond. Mitigation on that site would occur concurrently with mitigation for the Sumner YMCA project.

Project location

The proposed project area is an 8.1- acre area northeast of the corner of 64th St. E and 160th Ave. E. within the City of Sumner. The proposed project area is located within Section 19 of Range 05E and Township 20N. (See *Figure 1 – Vicinity Map*). The tax parcels involved include Pierce County tax parcel #'s 0520194012, 0520194071, 0520194091 and 0520194092. Also included are the adjacent road right-of-ways.

Baseline Conditions

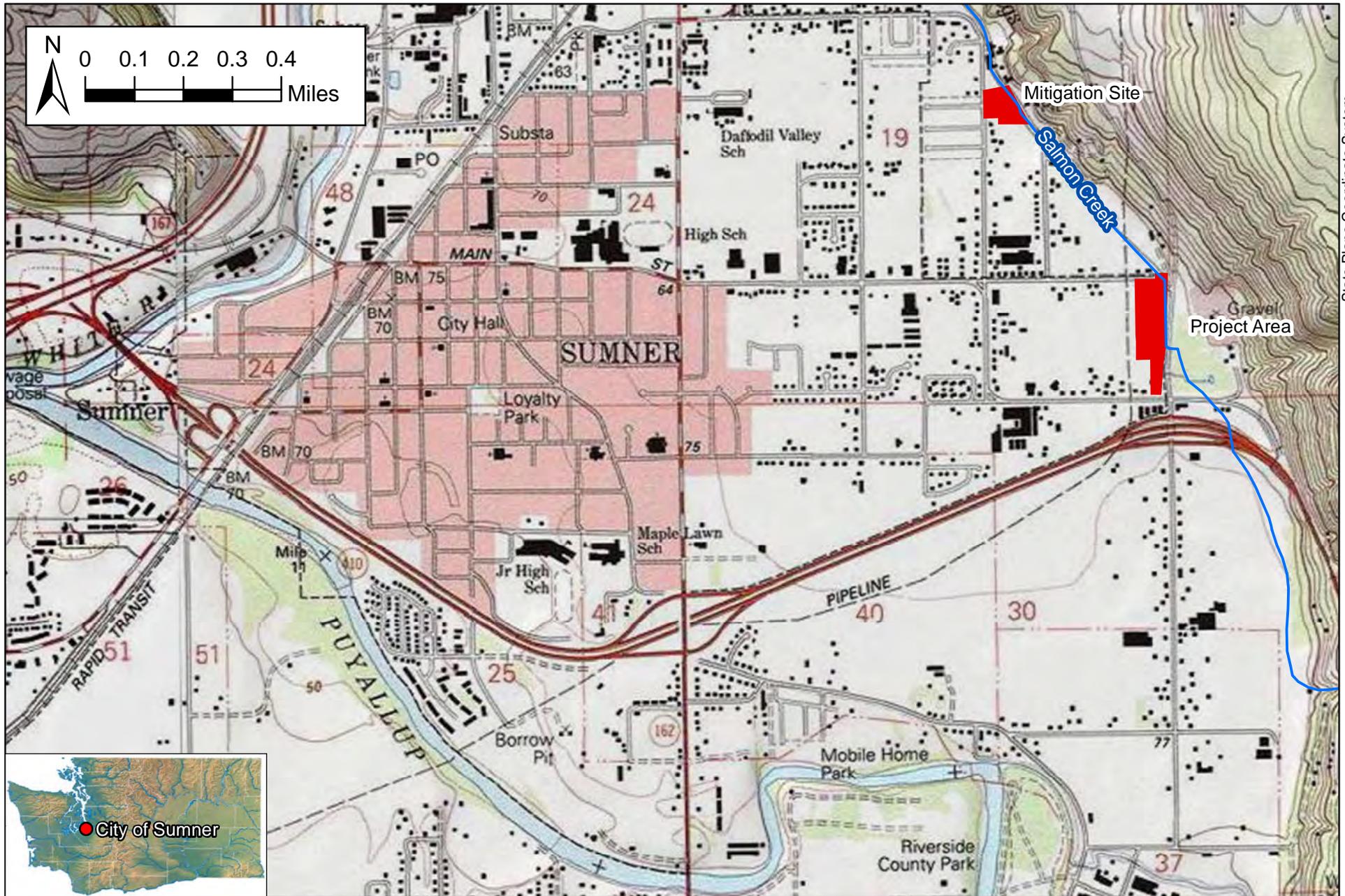
The study area encompasses unused, vacant land and abandoned farmland. The study area and surrounding properties are zoned neighborhood commercial and low or medium density residential by the City of Sumner (City of Sumner 2013b).

A Wetland Investigation and Delineation Report was prepared by Widener and Associates (2014b) on behalf of the City of Sumner to locate and delineate the extent of 'waters of the US', including wetlands. Wetlands were delineated consistent with the routine delineation method outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (Environmental Laboratory 2010).

Three wetlands were delineated within the project area (Figure 2 – Wetland Impacts Map). Wetlands D, E, and F will be impacted by the proposed project. All were rated as category IV (Hruby 2014).

Salmon Creek is classified as a type 'F' stream. This creek flows north through the study area where it has been straightened along Sumner-Tapps Highway E. Salmon Creek is a tributary to the White River, which is a major tributary to the Puyallup River, which drains directly into Puget Sound at the Port of Tacoma, WA.

This page intentionally left blank for printing purposes.



State Plane Coordinate System
 NAD 83 HARN Washington North FIPS 4601

Figure 1: Vicinity Map

LAT/LONG: Approx. 47.200946 N / -122.208839 W
 LEGAL DESCRIPTION: 20 North 5 East Section 19

**East Sumner Neighborhood
 Regional Stormwater Facility**
 City of Sumner

March 27, 2014

This page intentionally left blank for printing purposes.

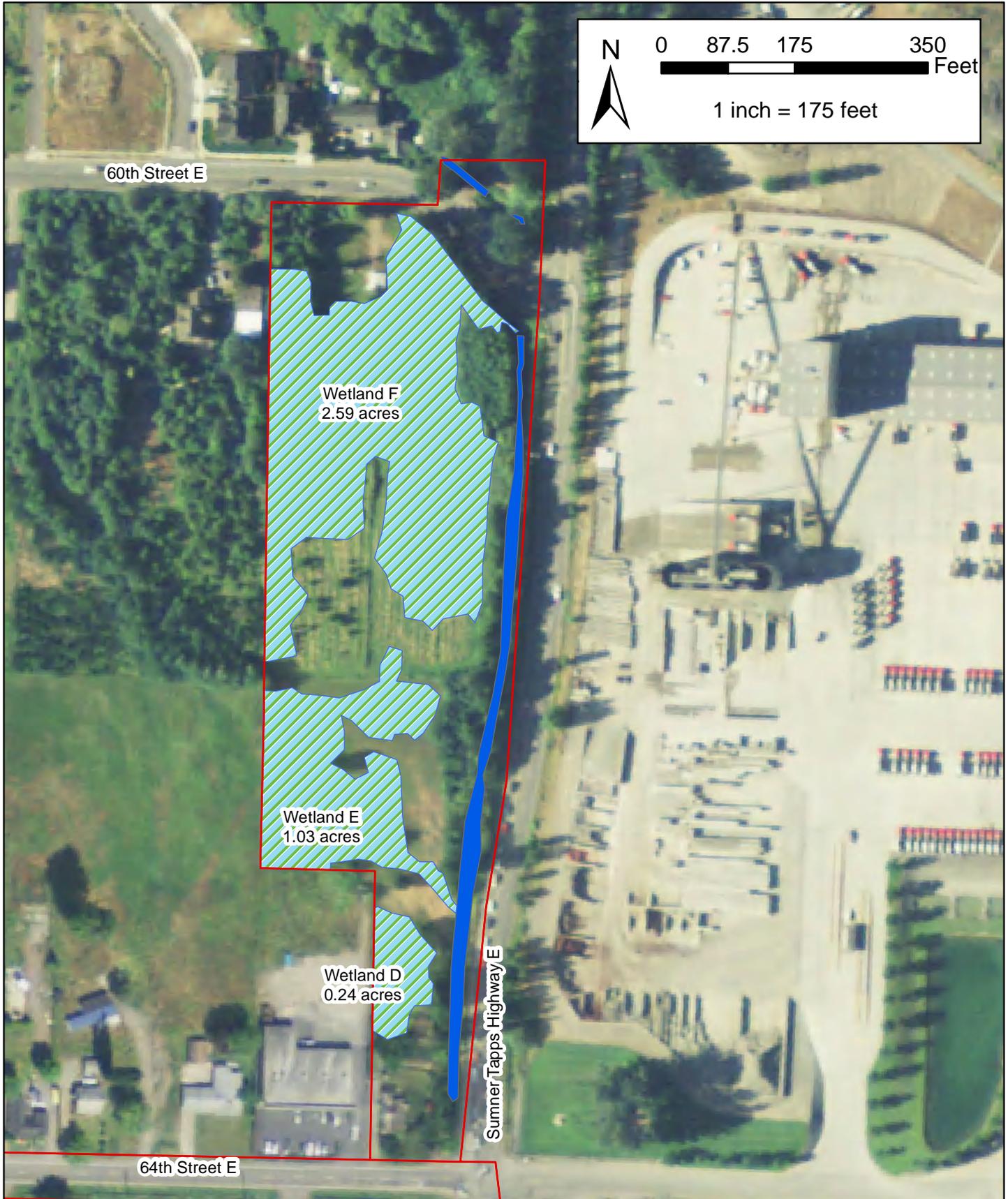


Figure 2: Existing Conditions

East Sumner Neighborhood Regional Stormwater Facility
City of Sumner

-  Jurisdictional Wetland
-  Salmon Creek
-  Study Area

This page intentionally left blank for printing purposes.

Impacted Wetland Areas

Direct Impacts

Permanent wetland impacts associated with this project will occur due to construction of the pond, outfall and the realigned stream channel; in total, 0.77 acres of wetland will be permanently impacted. Areas which will be permanently converted to open water below the ordinary high water mark of the new creek channel have been included in the permanent impacts. See Figure 3.

The City of Sumner Municipal Code Chapter 16.46.150 (E) allows for the construction of stormwater facilities within wetland buffers with the condition that no reasonable alternative on-site location exists. The proposed pond has been designed to minimize impacts to wetlands. In doing so however, more buffers had to be impacted. There is no reasonable alternative on-site which would not involve larger wetland impacts. Therefore, buffer impacts increased with reduction of wetland impacts. No buffer impacts for the project were calculated, as the construction is allowed under city code, the Corps does not regulate buffers and appropriate buffers will be created at the mitigation site to help protect the mitigation wetland.

Temporary Impacts

The construction of the new creek channel will require temporary impacts to an additional 0.19 acres of wetland. While this area will be graded to create the creek channel, it will remain wetland as it will be outside the ordinary high water mark and will slightly below the current elevation. All areas will be replanted with native species.

Wetland Functions Impacts

This project is not anticipated to result in any overall, long-term negative impacts to wetland functions, as the mitigation wetland will be similar to the wetland impacted and of greater area. There could be short-term impacts due to the temporary loss of wetland function while the mitigation wetland is establishing. The proposed mitigation wetland will be part of a larger, adjacent wetland complex on the same property, providing higher value to the Salmon Creek watershed than the disturbed wetland was able to provide, given previous land use. During construction, best management practices would be applied to reduce potential erosion.

Onsite mitigation will provide additional improvements to habitat within Salmon Creek by creating connectivity to surrounding wetland area, additional vegetated buffer area, and additional habitat structures. The creek location will increase the habitat diversity within the wetland and create opportunity for the wetland to attenuate flood waters at very high flows.

Vegetation

The project area is mostly open grass fields, some of which are mowed. Northern portions of the study area had been planted with conifers in the past, most likely by an adjacent resident. Plants identified on-site include: western red cedar (*Thuja plicata*), red alder (*Alnus rubra*), Himalayan blackberry (*Rubus armeniacus*), reed canarygrass (*Phalaris arundinacea*), common horsetail (*Equisetum arvense*), creeping buttercup (*Ranunculus arvense*) and unidentified grasses and rushes (*juncus* species).

Soils

The Pierce County soil survey and NRCS (2013) identifies the soils in the project area as Briscot loam and Puyallup fine sandy loam (NRCS 2013).

Briscot loam is found in the western portion of the study area. This is a somewhat poorly drained soil which frequently floods. It appears on floodplains and is formed from alluvium. Briscot loam is listed as hydric on the national list of soils (NRCS 2013).

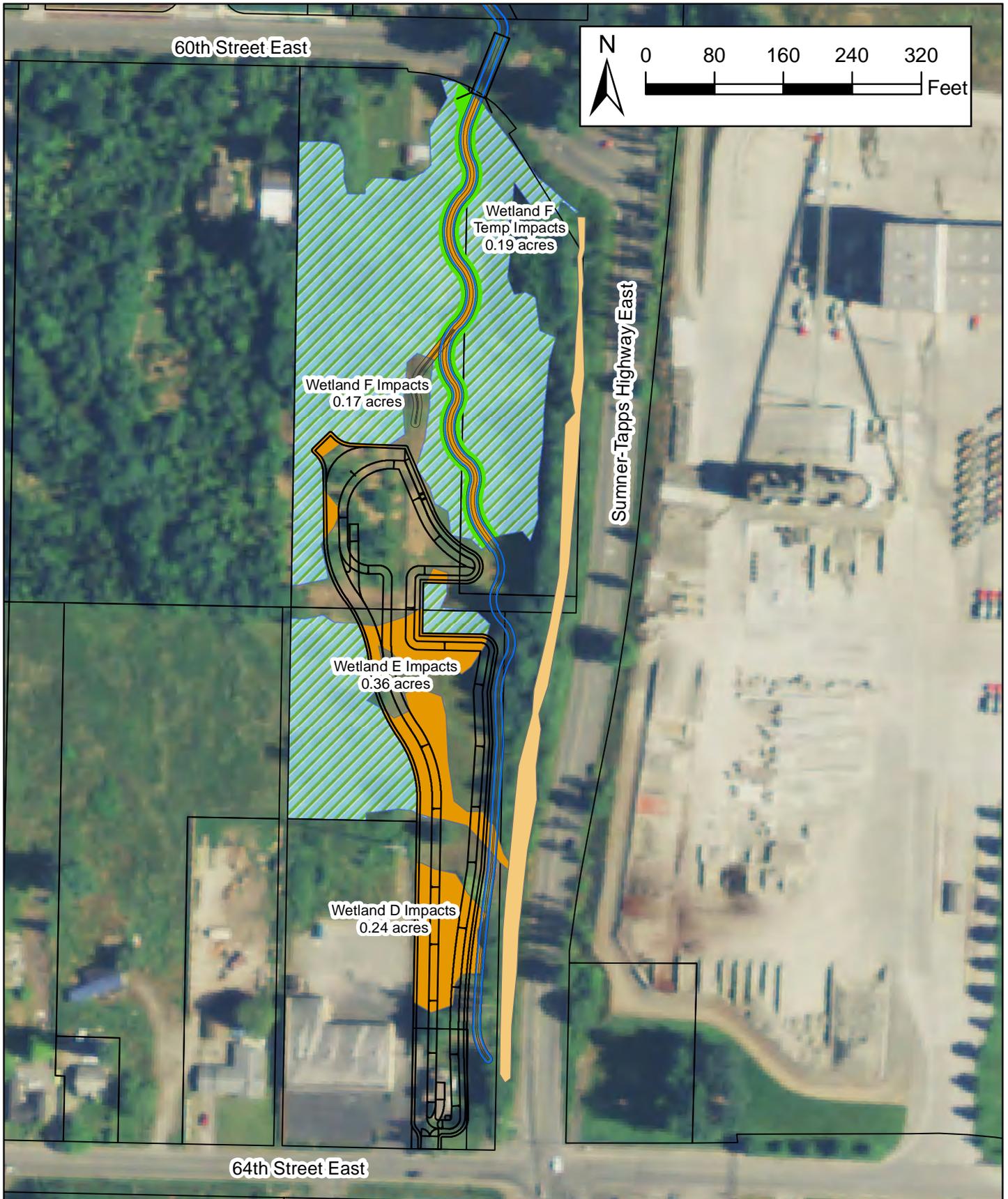
Puyallup fine sandy loam is found at the southern terminus of the project area. This soil is a well-drained soil found on flood plains and terraces. The parent material is alluvium. This soil does not meet hydric soil criteria (NRCS 2013).

Hydrology

The project area is located within the Puyallup-White River watershed in Water Resource Inventory Area 10 (WRIA 10). The principal source of hydrology to the area appears to be precipitation and groundwater. There is little opportunity for surface flow to contribute to the study area from any creek or water body.

Wetland Category

Wetlands D, E, and F were categorized in accordance with the Washington State Wetland Rating System for Western Washington (Hruby 2014). Refer to Appendix A.



- Stream Impacts
- Permanent Wetland Impacts
- Temporary Wetland Impacts
- Existing Wetlands

Figure 3: Wetland Impacts
 East Summer Neighborhood Regional Stormwater Facility

City of Sumner

This page intentionally left blank for printing purposes.

Mitigation Approach

Mitigation Sequencing

The plan of the site has been designed to maximize available upland space. Vegetation removal will be kept to a minimum. Standard erosion control techniques will be used during construction and clearing limits will be marked in the field.

The City of Sumner Municipal Code (SMC 16.16.170) requires that mitigation occur within city limits and does not allow in-lieu fee mitigation. The proposed mitigation site is consistent with the overall watershed improvements being pursued by the City of Sumner. The entire Salmon Creek watershed has been targeted for fish habitat improvements in consultation with the Puyallup Tribe. The Puyallup Tribal Fisheries 2011-2012 Annual Salmon, Steelhead, and Bull Trout Report (Marks et al. 2012) states that Salmon Creek supports adult Chinook, pink, coho, and chum spawners although the number of Coho is low. Due to the deficient riparian habitat, straightened channel, and other limiting factors, the majority of the spawning occurs in the lower 0.5 mile of the creek. In response to the limited habitat available in Salmon Creek above this point, many of the salmon continue upstream into Salmon Tributary, a spring fed tributary, which only contains about 700 feet of spawning habitat. The proposed mitigation wetland would provide greater habitat functions than the impacted wetland due to its proximity to Salmon Creek. In order to improve fish habitat in the area, the wetland adjacent to the proposed realignment of Salmon Creek onsite will also be enhanced.

Replacement Ratios

The compensation ratio was determined in accordance with the City of Sumner's Municipal Code (SMC) and the Washington State Department of Ecology's (DOE) Guidance on Wetland Mitigation in Washington State (City of Sumner 2013a, DOE, *et al.* 2006). The proposed project would permanently displace approximately 0.77 acres of wetland. This project proposes to create an additional 0.96 acres of Category III wetland offsite and will enhance 0.78 acres of Category IV wetland onsite. See Table 1.

Table 1: Wetland area required per DOE replacement ratios

Impacted Wetland			Mitigation Site			
Location	Category	Area (acres)	Category	DOE Ratio	Area Required (acres)	Area Proposed (acres)
Wetland D	IV	0.24	III	1.5:1 C	0.36 C	0.36 C
Wetland E		0.36			0.54 C	0.54 C
Wetland F		0.04			0.06 C	0.06 C
Wetland F		0.13	IV	6:1 E	0.78 E	0.78 E
					0.96 C and 0.78 E	0.96 C and 0.78 E

The proposed offsite mitigation area will provide creation of Category III wetland, a higher quality wetland in close proximity to Salmon Creek. The mitigation site will provide floodplain connectivity to Salmon Creek and riparian improvements which will benefit salmon known to use the creek. The site also allows for consolidation of mitigation wetlands with the Sumner YMCA creating a larger contiguous wetland area. The existing wetland provides little habitat value and is a highly disturbed grass field surrounded by residential development.

Offsite Mitigation Area Buffers

The DOE not only designates buffer widths based on the category of the wetland to be re-established/created, rehabilitated, enhanced and/or preserved, but also requires that surrounding land uses be evaluated. For Category III wetlands, the DOE requires 80-foot buffer be placed around wetlands surrounded by high-intensity land uses, a 60-foot buffer be placed around such wetlands surrounded by moderate-intensity land uses, and a 40-foot buffer be placed around such wetlands surrounded by low-intensity land uses. The lands currently surrounding the mitigation site are a mix of high and low land use. East of the proposed mitigation wetland is Salmon Creek and undisturbed forested areas. To the west, there are residential areas. To the north is another field used sometimes used for grazing and south is a private residence. The buffer requirement was determined to be 50-foot wide, which coincides with the buffer width recommended by the Corps of Engineers.

The regional plan includes further expansion of the mitigation site to the north. In order to eliminate impacts in the future from the expansion, the northern buffer will be additional wetland creation used as paper buffer. The creation of additional wetland to the property line will establish additional buffer on the adjoining property which cannot be developed. The majority of the mitigation site has the required 50-foot buffer with the exception of this northern border which is 35-feet. In order to provide the required area, a portion of the east bank of Salmon Creek will be enhanced.

The buffer proposed for the project will be highly functioning with dense vegetation and will provide habitat for songbirds, birds-of-prey, and an array of mammals, as well as enhance stream habitat. The native vegetation proposed will provide leaf litter which is a food source for fish and invertebrates; and woody debris recruitment for cover and aquatic habitat structure. As the proposed area of buffer enhancement is adjacent to Salmon Creek it will also aid in trapping excess sediments and retain excess nutrients which are a threat to water quality during high flows. See Table 2.

Onsite Mitigation Area Buffers

For Category IV wetlands, the DOE requires 50-foot buffer be placed around wetlands surrounded by high-intensity land uses, a 40-foot buffer be placed around such wetlands surrounded by moderate-intensity land uses, and a 25-foot buffer be placed around such wetlands surrounded by low-intensity land uses. As the lands currently surrounding the mitigation site are a mix of high and moderate land use, the buffer requirement was determined to be 45 feet wide.

The City of Sumner Municipal Code requires that Category IV wetlands have a 35-foot buffer. However, in accordance with 16.46.150, the planning director has the authority to approve smaller buffers which shall not be less than 25 feet. Adjacent portions of the wetland will be enhanced to provide at least a 25-foot area which will function as buffer (paper buffer). The majority of the wetland area is receiving the full 35-foot width. This enhancement will be highly functioning as it will provide wetland functions as well as the habitat functions which would be provided by an upland buffer in the same location. It will also provide benefits to Salmon Creek. The buffer enhancement proposed by this mitigation plan will improve the habitat function of the buffer to provide a net increase in protection of wetland function and value from its current degraded condition. Therefore, the areas of enhanced 25-foot paper buffer has been determined to sufficient. See Table 2.

Table 2: City of Sumner and DOE Wetland buffer requirements

Site Description				Buffer		
Location	Category	Activity	Wetland Area (acres)	DOE and City Requirement	Area Required (acres)	Area Proposed (acres)
Off-Site Mitigation	III	C	0.96	50-foot buffer	1.2	0.69 Enhanced 0.5 Paper Buffer (wetland creation)
On-site Mitigation	IV	E		35-foot buffer	1.1	0.83 Enhanced
					2.3	2.02

Mitigation Strategy

The project proposes to expand an existing 0.72 acre Category III depressional emergent and scrub/shrub wetland that borders Salmon Creek. It is located approximately 0.45 miles north of the project area and impacted wetland. This off-site location was chosen due to its proximity to Salmon Creek and the potential to increase habitat functions within the Salmon Creek riparian corridor. This site will be used to mitigate for all impacts associated with the pond construction.

All impacts associated with the construction of the relocated stream channel will be mitigated through the enhancement of a portion of the remaining Category IV wetland onsite. This area has been chosen as it abuts the relocated channel and will improve habitat within Salmon Creek as well as the wetland.

Wetland creation on the proposed mitigation site will involve grading to an appropriate elevation to support wetland hydrology. After grading is complete, hydrology will be assessed to determine if there is a high likelihood of wetland establishment within the creation area. If it is determined that there is still insufficient hydrology, additional grading will be performed in order to create appropriate site conditions for hydrophytic plant establishment.

Topsoil and compost will be added to the wetland creation area after final grading. The site will then be planted with a variety of native herbaceous, shrub, and tree species typical of riparian corridors within the Western hemlock (*Tsuga heterophylla*) major vegetation area (Franklin and Dyrness 1973).

Proposed Offsite Mitigation Area

Location

The proposed mitigation site is within 7.41 acre Pierce County tax parcel #9225000195. It is longitudinally bisected by Salmon Creek and has approximately 380 linear feet along 160th Ave E/Van Tassel Rd. While onsite mitigation is preferred, it could not reasonably be accomplished and the City of Sumner has allowances for offsite mitigation (SMC 16.46.170 M). The mitigation site is located within Township 20 N, Range 05 E, and Section 19 of the Willamette Meridian in Pierce County, WA. Refer to Figure 1. It is zoned by the Pierce County GIS website (Pierce County 2014) as Vacant Lot – Undeveloped (code 9100). It is mapped as Low Density Residential 12000 (LDR-12) by the City of Sumner Zoning Map of 2013 (City of Sumner 2013b).

The mitigation site is an open field used until recently as staging pasture for goats and sheep, prior to transfer to the slaughterhouse on the adjacent property to the north (Pierce County tax parcel # 9225000192) (*Photo 1*). A 0.72 acre Category III depressional emergent and scrub-shrub wetland is located on the property (Widener and Associates 2014). See Figure 4.



Photo 1: Open grass pasture typical of a majority of mitigation site

Site Ownership

The mitigation site is a portion of a single, 7.41-acre property (Pierce County tax parcel #9225000195, Pierce County 2014) that was purchased by the City of Sumner. A deed restriction will be placed on the mitigation site, including associated buffers, once this plan is approved in order to provide long-term site protection.

Site Selection Rationale

The mitigation site was chosen for the following reasons:

- The site is located in the vicinity of the impact area, both of which outlet to Salmon Creek, and mitigation close to impact locations is preferred by the USACE.
- Enhancement near Salmon Creek is particularly beneficial as this creek harbors anadromous salmonid species and is a known spawning tributary of the White River.
- The site has similar depressional hydro-geomorphic (HGM) components to the impacted wetlands.
- The creation area is adjacent to an existing Category III 0.72 acre depressional emergent and shrub-scrub wetland, a portion of which will be enhanced by a separate project.
- The off-site area currently has poor buffering capacity for the adjacent wetland due its grazing usage.
- Purchasing this land and using it for wetland creation will discontinue its use as a grazing site which particularly jeopardizes the current adjacent wetland with high sediment and excessive nutrient (feces) input.
- The created mitigation wetland will be contiguous with this current wetland, thus enhancing the size and function of the current wetland and further protecting Salmon Creek.
- Wetland creation and enhancement will also occur for another project (Sumner YMCA) on this property (i.e. same tax parcel). Thus, any disruption of human activities or impacts to neighborhoods can be minimized by combining the construction of the two mitigation projects and coordinating work schedules. The creation of this larger, contiguous wetland will provide greater overall functions than the lost functions of the impacted wetland.
- The site is currently poorly functioning as wildlife habitat since it suffers from;
 - a plant community of short, grazed grasses,
 - little physical or habitat complexity,
 - no screening from street by taller vegetation, and
 - disturbance by grazing animals which causes wildlife to avoid the area.

Site Constraints

The primary site constraint for the proposed mitigation site is the presence of a significant amount of gravel fill within the area proposed for wetland creation. Due to the uncertainty of the depth of this gravel throughout the site, the proposed grading elevations may need to be altered after initial grading to ensure that wetland hydrology will be present throughout the site. Soil saturation was recorded at 2 feet deep in areas where there was no gravel. The wetland does not currently receive regular overbank flooding from Salmon Creek and therefore has sufficient groundwater input to create wetland condition if the elevation is lowered. In addition, this would allow additional areas of the site to be within the Salmon Creek floodplain.



- ⊗ Upland Test Pit
- ⊙ Wetland Test Pit
- Salmon Creek
- ▨ Delineated Wetland
- ▭ Mitigation Site
- ▨ Approximate Gravel Fill
- Contours

Figure 4: Mitigation Site Existing Conditions

Sumner YMCA
City of Sumner

This page intentionally left blank for printing purposes.

Baseline Conditions of Offsite Mitigation Area

History

The proposed mitigation site has historically been used for agriculture and it is still occasionally used as a staging pasture for goats and sheep, prior to transfer to the slaughterhouse on the adjacent property to the north (Pierce County tax parcel # 9225000192) (*Photo 2*).



Photo 2: Relic paddocks and corral fencing at mitigation site

Existing Wetlands

Waters of the U.S., including wetlands, were delineated within the proposed mitigation area boundaries consistent with the routine wetland determination method and technical approaches outlined in the *USACE Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (Environmental Laboratory 2010). One Category III depressional emergent and scrub-shrub wetland was identified and delineated by a biologist with Widener and Associates on multiple days from June 27th to 30th of 2014. This wetland covers 0.72 acres within the mitigation site (*Figure 4*). This wetland is directly adjacent to Salmon Creek, with the creek as its eastern border (*Photo 3*). The area adjacent to the creek is dominated by red-osier dogwood (*Cornus sericea*) and the emergent area is dominated by miscellaneous grazed grass species and reed canarygrass. Refer to the attached *Wetland Investigation and Delineation Report* (Widener and Associates 2014).

Other Aquatic Resources

Salmon Creek is a perennial Type-F stream located immediately east of the proposed mitigation site (*Photo 3*). As this wetland significantly contributes to Salmon Creek and receives surface flow from Salmon Creek during periods of high flow, it is regulated by the USACE under Section 404 of the Clean Water Act. Salmon Creek is a tributary of the White River. The White River flows into the Puyallup River which empties into the Puget Sound. Salmon Creek will not be impacted by the proposed project.



Photo 3: Salmon Creek with dogwood wetland on left (west)

*Note: Eastern shore (right) is a dense thicket of Himalayan blackberries (*Rubus armeniacus*).*

Hydrology

The primary sources of hydrology within the proposed mitigation site are precipitation and groundwater. There is little opportunity for surface flows from Salmon Creek due to the topography of the site. Small pockets of surface water form seasonally on the proposed mitigation site due to a restrictive layer of gravel having been installed atop the native soil in the past. Thus, at some upland locations saturation was found at the surface, with a shallow water table as well. A backhoe was used to dig below the gravel layer and observe the profile up to 5 feet deep. It was discovered that the gravel layer was restrictive and acted as a semi-impermeable water barrier and the shallow water observed was perched atop this imported fill. At places below this gravel, the soil was not saturated within 12 inches and the water table was found to be below 12 inches. Soil saturation was recorded at 2 feet deep in areas where there was no gravel (*Photo 4*).



Photo 4: Soil saturation away from gravel begins at approx. 2 foot depth

Note: This location is at approximately the same elevation as areas with shallow saturation above gravel.

Soils

Prior to European settlement, the proposed mitigation site and much of the White River valley would likely have been wetland. The upland area proposed to be used for wetland creation is a disturbed site that had been filled. A layer of gravel (likely from the quarry site on the same property) had been placed atop most of its surface. This was commonly done to create solid footing for agricultural and/or commercial activities, such as animal and machinery staging, etc. The site was filled with multiple feet of gravel and topsoil. The native soils in the area were disturbed by these activities and the profile is now not in a natural state due to the layer of gravel, which at points starts within an inch of the surface and up to 2 feet or more below it at others (Photos 1 & 2).



Photo 5: Gravel layer beginning at 4 inches depth, at water line



Photo 6: Thick gravel layer starting at approx. 2 feet deep

The soils on the upland portion of the site have also been significantly altered from their native state by the addition of a layer of topsoil. This was laid atop the layer of gravel that was installed to re-grade and reclaim what was likely a previous wetland area and use for livestock grazing. When excavation below the gravel layer was done, areas of native soil had a layer of native sand below (Photo 7).



Photo 7: Sand layer at several feet deep

This gravel layer varies in thickness from approximately one half-foot to 3 feet. Gravel coverage is patchy and while it covers the vast majority of the upland area, it does not cover it completely. This probably follows the historic topology, where fill (gravel) was placed where needed (depressions). Locations where the gravel was not present still had imported topsoil placed atop them. These sites still did not display hydric soil indicators necessary for a wetland determination.

The Pierce County soil survey identifies the site as being bisected longitudinally by two soil types; Briscot loam and Snohomish silty clay loam (NRCS 2013). Both of these soils are listed as hydric in the Natural Resources Conservation Service hydric soils list (NRCS 2012a). Refer to the attached *Wetland Investigation and Delineation Report* (Widener and Associates 2014) for a map of the NRCS delineated soil types within the proposed mitigation site.

Briscot loam is found in the western portion of the mitigation area out to 160th Ave E/Van Tassel Rd. This is a somewhat poorly drained soil which frequently floods. It appears on floodplains and is formed in alluvium. Snohomish silty clay loam is found in the eastern portion of the mitigation area, from out in the field east to Salmon Creek. This soil is found on flood plains and consists of alluvium. It is a poorly drained soil which occasionally floods (NRCS 2013).

Vegetation

The project is located within the Western hemlock (*Tsuga heterophylla*) major vegetation area (Franklin and Dyrness 1973). The proposed mitigation site is a single open field covered almost entirely in grasses, with patches of Himalayan blackberry (Photo 7). We believe the plant community present is due to the historic conversion of the site to a grazing pasture and the introduction of such vegetation. The vegetation has been kept very short (< 2”) by the herbivore grazing until the recent purchase by the City of Sumner. Areas of reed canarygrass are found in the emergent portions of the existing wetland along Salmon Creek. Where grazing animals were previously excluded, a willow and dogwood dominated portion of the wetland lines the creek. East of Salmon Creek, coniferous forest is found on the slope.



Photo 8: Himalayan blackberry patches on western portion of mitigation site

Fauna

There is limited wildlife utilization within the proposed mitigation site due to the fact that the field is frequently grazed by livestock. There are no trees or shrubs within the mitigation area to provide wildlife habitat other than a few patches of blackberry. There are also no standing snags or large woody debris to provide habitat features. Similar to the impacted wetland, the only wildlife that likely utilize the proposed mitigation area are animals typical of urban and suburban areas such as songbirds and small mammals. Larger animals have likely been excluded from the area by the presence of grazing livestock. It is unlikely that amphibians utilize the proposed mitigation site as seasonal inundation is not deep enough and there is not appropriate vegetation on site for egg-laying or cover.

Wetland Functions and Rating

The wetland adjacent to the proposed mitigation site and Salmon Creek was rated as a Category III palustrine scrub-shrub depressional wetland, in accordance with the Washington State Wetland Rating System for Western Washington (Hruby 2014). (*Refer to Appendix B – Mitigation Site Wetland Rating Form*). This wetland had medium scores for all functions.

Buffers

As previously described existing buffers on the mitigation site have been heavily disturbed by livestock grazing. Pasture grasses and patches of blackberries are the dominant vegetation. The topography rises steeply east of Salmon Creek and exposed soil is visible on the hillside. Coniferous forest is found at the top of the hill.

This page intentionally left blank for printing purposes.

Mitigation Site Plans/Design

Grading Plan

The grading of the offsite mitigation area will occur in the summer of 2015. The entire site will be cleared and grubbed to remove invasive species. Further excavation will be necessary in the wetland creation area. The buffer enhancement area east of the creek, including the paper buffer, will only be cleared and grubbed. The wetland creation areas will be graded to an elevation of 63.5 feet. The buffer enhancement areas west of the creek will be graded at a 20:1 slope from the wetland creation back to the existing elevations. Any gravel encountered will be removed and the area backfilled with topsoil to the proposed grade. See Figures 5 and 6 for the proposed grading plan and cross section views.

No grading will be necessary for the onsite wetland enhancement.

Water Regime

During the February site visits, in the existing wetland adjacent to the offsite mitigation area, soil was saturated to the surface and the water table was found to be at 4-9 inches. As this wetland is located at 64 ft. in elevation, this is the proposed rough elevation of the soil surface of the created wetland. The existing gravel fill will be excavated which will create more optimal conditions for hydrophytic plant establishment as the soil will be more connected to the water table. These measures will ensure that there is sufficient hydrology within the newly created wetland to support establishment of the planted hydrophytic vegetation. The newly created mitigation wetland will also occasionally receive surface flow during flooding of Salmon Creek. The proposed grading elevation will result in the entire wetland creation area being within the 25-year floodplain. If after initial grading of the site, sufficient wetland hydrology is not observed, additional grading will be performed in order to obtain elevations more optimal for hydrophytic plant establishment. Only after sufficient hydrology is observed will planting of the created wetland take place.

The onsite mitigation area is currently wetland which is relatively flat. This area has small pockets of surface inundation but the majority is only saturated. The existing alignment of Salmon Creek does not create opportunity for floodwaters to reach the wetland. The new location of Salmon Creek will allow for occasional flooding and greater connectivity of the creek to the floodplain.

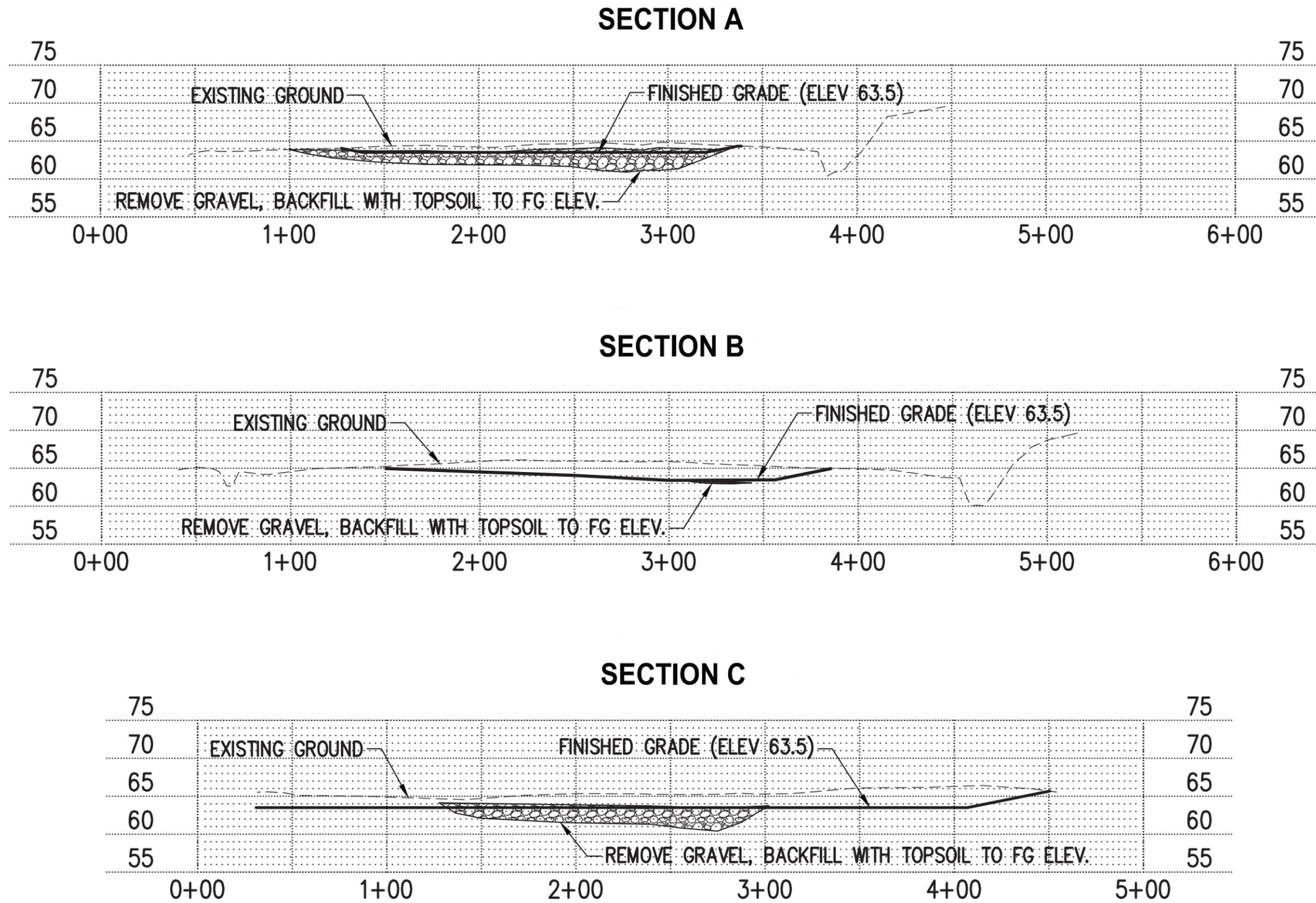
Soils

After final grading, the wetland creation area will be backfilled to within 4 inches of the proposed elevation with native topsoil. A 4-inch blanket of compost will then be tilled into the top 12 inches of soil.

This page intentionally left blank for printing purposes.

This page intentionally left blank for printing purposes.

K:\PROJECTS\SUMNER\13130 E. Sumner Neighborhood SW Facility\DESIGN\Drawings\Mitigation\13130 Mitigation Fig.dwg 7/7/2014 3:57 PM



**Figure 6:
Mitigation Site Grading Cross Section View**

This page intentionally left blank for printing purposes.

Planting Plan

All bare areas shall be hydro-seeded within 20 days of grading to reduce erosion and sediment input to the current wetland and Salmon Creek. Grass seed mix shall be applied at the rate of 100 pounds of Pure Live Seed (PLS) per acre. See Tables 3 and 4 for seed mixes.

Table 3: Upland Seed Mix

- To be spread over bare spots in the buffer enhancement area

Scientific Name	Common Name	Indicator Status	# PLS/ acre
<i>Bromus carinatus</i>	California Brome	UPL	39
<i>Bromus sitchensis</i>	Alaska Brome	UPL	13
<i>Danthonia californica</i>	California Oatgrass	FACU	9
<i>Danthonia spicata</i>	Common Wild Oats	UPL	4
<i>Elymus glaucus</i>	Blue Wildrye	FACU	29
<i>Festuca occidentalis</i>	Western Fescue	UPL	6

Note 1: Grass seed of the above composition, proportion, and quality shall be applied at the rate of 100 pounds of Pure Live Seed (PLS) per acre.

Note 2: Upland buffer seed mix prepared by WSDOT horticulturist, Susan Buis.

Note 3: Upland buffer seeding mix seed provenance limited to the coastal Pacific Northwest, from southwest B.C. to the Willamette Valley and from the western slopes of the Cascade Mountains west to the Pacific Ocean, only elevations below 1000 feet. Provenance shall be certified in writing by the seed supplier.

Table 4: Wetland Seed Mix

- To be spread over bare spots in the wetland creation area

Scientific Name	Common Name	Indicator Status	# PLS/ acre
<i>Agrostis exarata</i>	Spike Bentgrass	FACW	2
<i>Calamagrostis canadensis</i>	Canada Reed	FACW+	2
<i>Deschampsia cespitosa</i>	Tufted Hairgrass	FACW	6
<i>Glyceria occidentalis</i>	Western Manna Grass	OBL	90

Note 1: Grass seed of the above composition, proportion, and quality shall be applied at the rate of 100 pounds of Pure Live Seed (PLS) per acre.

Note 2: Wetland seed mix prepared by WSDOT horticulturist, Susan Buis.

Note 3: Wetland seeding mix seed provenance limited to the coastal Pacific Northwest, from southwest B.C. to the Willamette Valley and from the western slopes of the Cascade Mountains west to the Pacific Ocean, only elevations below 1000 feet. Provenance shall be certified in writing by the seed supplier.

In the spring of 2016, the onsite and offsite mitigation areas shall be planted with native species, as displayed in the wetland planting plans (Figures 7 and 9). Large trees in the wetland creation area and buffer enhancement area will not be planted within 30 feet of 160th Ave E/Van Tassel Rd in order to reduce maintenance and protect utilities. See Tables 5-8 for plant list.

Species have been chosen based on their suitability for the site conditions. Any changes to the species composition or proportions due to lack of availability would be made at the discretion of the wetland biologist implementing the mitigation plan. Species have been selected based on common stock at local native plant nurseries.

This page intentionally left blank for printing purposes.

Table 5: Offsite Wetland Creation and Paper Buffer Plant List

Scientific Name	Common Name	Indicator Status	Planting Density	Proportion of Planting in Strata (%)	Size of Plants
<u>Trees:</u>					
<i>Salix lucida</i>	Pacific Willow	FACW	12' on center	40	1 gallon/stake
<i>Thuja plicata</i>	Western Red Cedar	FAC	12' on center	30	1 gallon
<i>Rhamnus purshiana</i>	Cascara	FAC	12' on center	30	1 gallon
<u>Shrubs:</u>					
<i>Cornus sericea</i>	Red Osier Dogwood	FACW	4' on center	25	1 gallon
<i>Lonicera involucrata</i>	Black Twinberry	FAC	4' on center	30	1 gallon
<i>Ribes lacusre</i>	Black Gooseberry	FAC	4' on center	15	1 gallon
<i>Malus fusca</i>	Western Crabapple	FACW	4' on center	20	1 gallon
<u>Emergents:</u>					
<i>Carex stipata</i>	Awlfruit Sedge	OBL	2' on center	30	Bareroot/plug
<i>Tolmeia menziesii</i>	Piggyback Plant	FAC	2' on center	20	Bareroot/plug
<i>Geum macrophyllum</i>	Largeleaf Avens	FACW	2' on center	20	Bareroot/plug
<i>Juncus tenuis</i>	Slender Rush	FACW	2' on center	30	Bareroot/plug

This page intentionally left blank for printing purposes.

Table 6: Onsite Wetland Enhancement and Paper Buffer Plant List

Scientific Name	Common Name	Indicator Status	Planting Density	Proportion of Planting in Strata (%)	Size of Plants
<u>Trees:</u>					
<i>Salix lucida</i>	Pacific Willow	FACW	12' on center	40	1 gallon/stake
<i>Thuja plicata</i>	Western Red Cedar	FAC	12' on center	30	1 gallon
<i>Rhamnus purshiana</i>	Cascara	FAC	12' on center	30	1 gallon
<u>Shrubs:</u>					
<i>Cornus sericea</i>	Red Osier Dogwood	FACW	4' on center	25	1 gallon
<i>Lonicera involucrata</i>	Black Twinberry	FAC	4' on center	30	1 gallon
<i>Ribes lacusre</i>	Black Gooseberry	FAC	4' on center	15	1 gallon
<i>Malus fusca</i>	Western Crabapple	FACW	4' on center	20	1 gallon

This page intentionally left blank for printing purposes.

Table 7: Onsite Temporary Wetland Impact Restoration Plant List

Scientific Name	Common Name	Indicator Status	Planting Density	Proportion of Planting in Strata (%)	Size of Plants
<u>Shrubs:</u>					
<i>Cornus sericea</i>	Red Osier Dogwood	FACW	4' on center	100	1 gallon
<u>Emergents:</u>					
<i>Carex stipata</i>	Awlfruit Sedge	OBL	2' on center	30	Bareroot/plug
<i>Scirpus microcarpus</i>	Small-fruited Bulrush	OBL	2' on center	20	Bareroot/plug
<i>Eleocharis palustris</i>	Common Spikerush	OBL	2' on center	20	Bareroot/plug
<i>Juncus tenuis</i>	Slender Rush	FACW	2' on center	30	Bareroot/plug

This page intentionally left blank for printing purposes.

Table 8: Buffer Enhancement Plant List

Scientific Name	Common Name	Indicator Status	Planting Density	Proportion of Planting in Strata (%)	Size of Plants
<u>Trees:</u>					
<i>Acer macrophyllum</i>	Bigleaf Maple	FACU	12' on center	30	1 gallon
<i>Pseudotsuga menziesii</i>	Douglas Fir	FACU	12' on center	20	1 gallon
<i>Thuja plicata</i>	Western Red Cedar	FAC	12' on center	20	1 gallon
<i>Alnus rubra</i>	Red Alder	FAC	12' on center	30	1 gallon
<u>Shrubs:</u>					
<i>Acer circinatum</i>	Vine Maple	FAC-	4' on center	30	1 gallon
<i>Gaultheria shallon</i>	Salal	FACU	4' on center	15	1 gallon
<i>Oemleria cerasiformis</i>	Indian Plum	FACU	4' on center	15	1 gallon
<i>Sambucus racemosa</i>	Red Elderberry	FACU	4' on center	20	1 gallon
<i>Symphoricarpos albus</i>	Common Snowberry	FACU	4' on center	20	1 gallon

This page intentionally left blank for printing purposes.



- Mitigation Site
- Paper Buffer Pond
- Buffer Pond
- Wetland
- Salmon Creek

**Figure 7: Mitigation Site
Planting Plan**
City of Sumner

This page intentionally left blank for printing purposes.

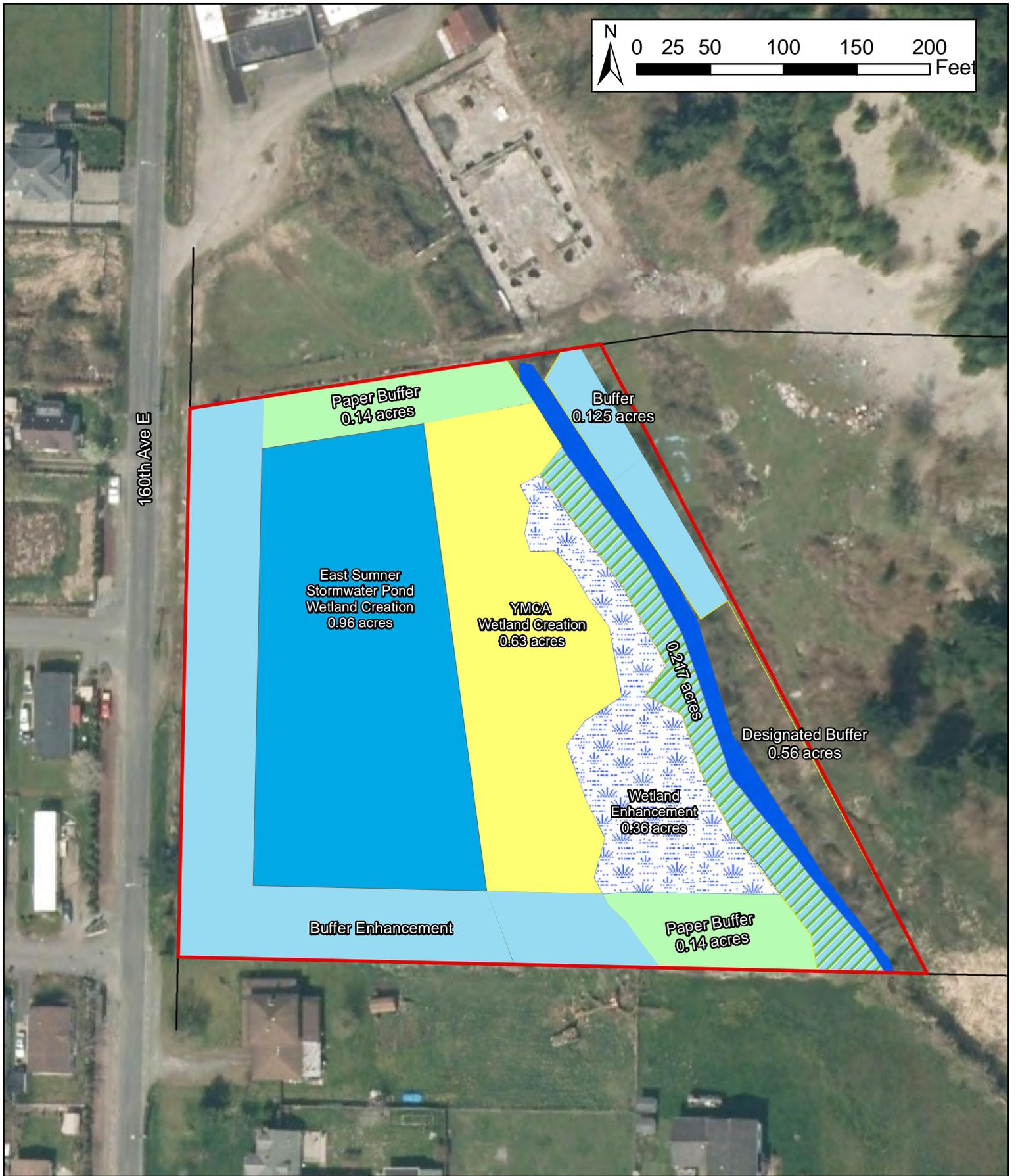
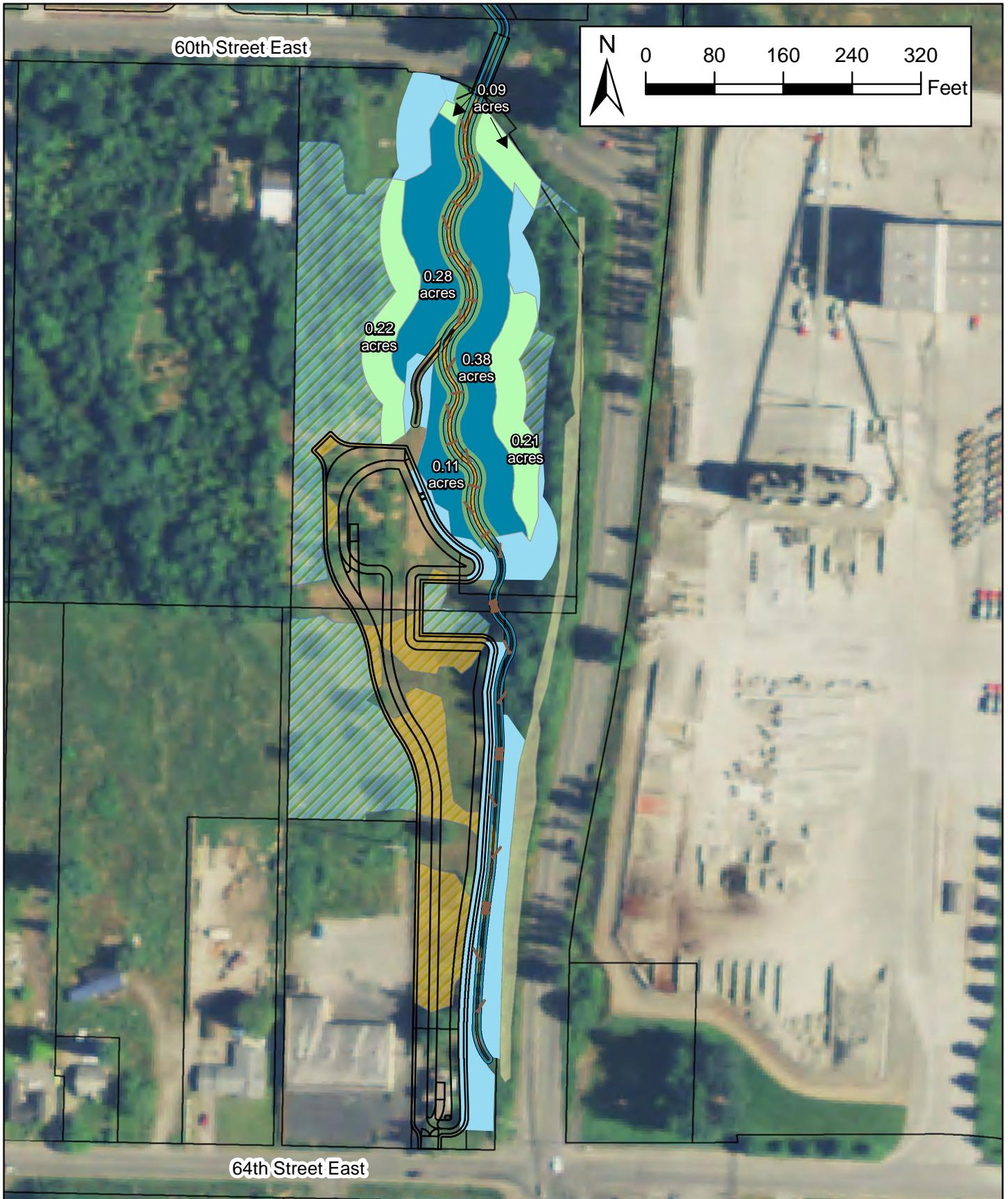


Figure 8: Consolidated Mitigation Site Plan
City of Sumner

This page intentionally left blank for printing purposes.



- Buffer Enhancement
- Wetland Enhancement
- Wetland Enhancement (Paper Buffer)
- Temporary Impacts
- Stream Impacts
- Wetland Impacts
- Existing Wetlands

Figure 9: Onsite Wetland Enhancement Planting Plan
East Sumner Neighborhood Regional Stormwater Facility
 City of Sumner

This page intentionally left blank for printing purposes.

Goals, Objectives, and Performance Standards

Introduction

The purpose of this section is to describe the measures proposed in order to assist the City of Sumner and Corps in determining if the project complies with the regulatory requirements. The regulatory requirement is the replacement of the 0.77 acre of lost area of the impacted emergent wetland with at least 0.96 acre of Category III created forested/scrub-shrub wetland and 0.78 acres of enhanced Category IV forested/scrub-shrub wetland. These areas meet the requirements of the compensation ratios as agreed by the City of Sumner, Corps of Engineers, and Department of Ecology.

Performance standards refer to conditions used to establish whether a compensatory mitigation project is achieving its goals and objectives, and therefore, regulatory requirements. To the extent that the following performance standards are necessary to meet the regulatory requirement, they are themselves regulatory.

Goals

The following list describes the project-specific goals of the proposed compensatory wetland mitigation.

- 1) Replacement of 0.64 acres of lost area of the impacted emergent wetland with at least 0.96 acre of created forested/scrub-shrub wetland within the Salmon Creek watershed.
- 2) Replacement of 0.13 acres of lost area with at least 0.78 acres of forested/scrub-shrub wetland onsite.
- 3) Restoration of 0.19 acres of temporarily impacted wetland with emergent plants and shrubs along creek channel.
- 4) Replacement of the lost functions of the impacted wetland.
- 5) Establishment of sufficient wetland hydrology within the created wetland area.
- 6) Establishment of native riparian trees and shrubs within the proposed mitigation areas, including the enhanced buffer.
- 7) Exclusion of noxious weeds within the mitigation areas in order to ensure establishment of native wetland and buffer vegetation.
- 8) Creation of a wetland with greater wildlife habitat functions than the impacted wetland.

Functions and Values

The following is an itemized list of functions and values that will be provided by the proposed mitigation site.

Sediment Removal

The increase in vegetation along the enhanced forested/scrub-shrub wetland and buffer will trap excess sediments during high flows and retain excess nutrients which are a threat to water quality during high flows.

Emergent vegetation in the wetland will act as a filter trapping pollutants such as heavy metals before entering Salmon Creek and retaining excess nutrients.

Flood Flow Alteration

The excavation of the wetland to lower elevations will provide increased capacity for the reduction of floodwaters. The offsite wetland creation will be within the 25-year floodplain. Onsite wetland enhancement will range from just outside the OHWM to above the 100 year floodplain.

Fish Habitat

The created/enhanced riparian forested/scrub-shrub wetland and enhanced riparian forested/scrub-shrub wetland buffer will provide: shaded cover, which will help control the water temperature; leaf litter, which is a food source for fish and invertebrates; and woody debris recruitment for cover and aquatic habitat structure.

General Wildlife Habitat

The enhanced scrub/shrub and forested wetland and buffer will be planted with native trees and various understory shrubs providing habitat for songbirds, birds-of-prey, and an array of mammals. The addition of LWD and standing snags to the wetlands will provide additional habitat complexity.

Objectives and Performance Standards

The following list describes the objectives and specific performance standards that will determine site success and guide management.

Objective 1

The offsite mitigation area will create at least 0.96 acre of new wetland in order to compensate for the loss of 0.64 acres of wetland.

Performance Standard 1

At year seven or the final monitoring year the mitigation site will be delineated in the spring using current methods to assure that the creation area of the mitigation site contains at least the desired 0.96 acres of wetland.

Success Standard

At least 0.96 acres of wetland will be delineated at the end of year seven or the final monitoring year. Monitoring may be extended until this success standard and other success standards are met.

Objective 2

The offsite mitigation area will at least replicate the lost functions of the impacted wetland.

Performance Standard 2

At year seven the mitigation site will be rated using the Washington State Wetland Rating System for Western Washington (Hruby 2014). The wetland will be rated as a Category III wetland or higher.

Success Standard

The delineated wetland off site will be rated as a Category III wetland or higher once fully established.

Objective 3

The mitigation site will provide ground saturation or surface water inundation sufficient to support the proposed wetland creation area.

Performance Standard 3

In monitoring years one, two, three, five and seven soils will incur inundation or saturation to the surface, for 30 days during the growing season¹. This is to be achieved in years when rainfall meets or exceeds the 30 year average using indicators of wetland hydrology identified in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 2010) to qualitatively evaluate the presence of wetland hydrology.

¹ The growing season (28°F; 50%) is defined as March 6 to November 23 (NRCS 1990).

Success Standard

At year seven or the final monitoring year the mitigation site will be delineated in the spring using current methods to assure that at least 0.96 acre of the creation area of the mitigation site has wetland hydrology.

Objective 4

Native riparian trees and shrubs will dominate the forested/scrub-shrub wetland buffer enhancement (including paper buffer), wetland enhancement, and wetland creation areas within the mitigation site.

Performance Standard 4

- At the end of year one after approval of the “As Built” report, all woody plant material will exhibit a survival rate of 100%.
- At year two, all woody plant material will exhibit a survival rate of at least 80%.
- At year three, native woody species will maintain a stem density of at least 11 plants per 100 square feet.
- At year five and seven, aerial cover of native woody species will be at least 60 percent.

Success Standard

At year ten or the final monitoring year, aerial cover of native woody species will be at least 80 percent in the enhanced riparian forested/scrub-shrub wetland buffer, wetland enhancement, and wetland creation areas.

Objective 5

Installed habitat features including any snags or downed logs will be functioning as intended.

Performance Standard 5

Habitat features, including any snags or downed logs, will be inspected to determine if they are secure and functioning as designed per the approved plans.

Success Standard

At year ten or the final monitoring year, installed habitat features will still be secure and functioning as intended.

Objective 6–

The site will provide a variety of plant species in order to enhance wildlife habitat and prevent a monoculture of vegetation.

Performance Standard 6

In monitoring year seven, three species of tree will provide at least 10% aerial cover in the wetland creation and enhancement areas. No single species will comprise greater than 50% aerial cover.

Success Standard

At year ten or the final monitoring year, three tree species will each provide at least 10% aerial cover in wetland creation and enhancement areas. No single species will comprise greater than 50% aerial cover.

Objective 7–

Control growth and spread of all state and county listed noxious weeds throughout both wetland mitigation sites to ensure the success of performance objective 4.

Performance Standard 6

In monitoring years one, two, three, five and seven all state and county listed noxious weeds will not exceed 15% coverage in any of the aforementioned areas. The wetland and buffer area shall have zero percent cover of knotweed.

Success Standard

At year ten or the final monitoring year, all state and county listed noxious weeds will not exceed 15% coverage in any of the aforementioned areas. The wetland and buffer area shall have zero percent cover of knotweed.

Annual Performance Standards

The following table (Table 9) lists the performance standards that must be met for the proposed mitigation areas. The year 10 performance standards are the success standards that must be met before monitoring can be concluded. These performance standards will all specifically be addressed in each monitoring report submitted to the Corps and the City of Sumner.

Table 9. Annual Performance Standards

Year	Performance Standards
1	-Inundation or saturation to surface for 30 days during the growing season -100% plant survival -Habitat features secured and functioning -Less than 15% total invasive coverage, zero percent knotweed coverage.
2	-Inundation or saturation to surface for 30 days during the growing season -80% plant survival -Habitat features secure and functioning -Less than 15% total invasive coverage, zero percent knotweed coverage.
3	-Inundation or saturation to surface for 30 days during the growing season -11 woody stems per 100 sq. ft. -Habitat features secure and functioning -Less than 15% total invasive coverage, zero percent knotweed coverage.
5	-Inundation or saturation to surface for 30 days during the growing season -60% aerial coverage of woody plants -Habitat features secure and functioning -Less than 15% total invasive coverage, zero percent knotweed coverage.
7	-Inundation or saturation to surface for 30 days during the growing season -60% aerial coverage of woody plants -Habitat features secure and functioning -Less than 15% total invasive coverage, zero percent knotweed coverage. -3 tree species will provide at least 10% aerial cover. No species will have greater than 50% cover. -Offsite wetland creation Category III or lower rating
10	-80% aerial coverage of woody plants -Habitat features secure and functioning -Less than 15% total invasive coverage, zero percent knotweed coverage. -At least 0.71 acres of delineated creation -3 tree species will provide at least 10% aerial cover. No species will have greater than 50% cover. - Offsite wetland creation Category III or lower rating

Monitoring Plan

Methods

All wetland mitigation areas will be monitored for a period of ten years, or until success standards have been met. This exceeds the City of Sumner requirement of 5 years of monitoring (Sumner Municipal Code 16.46.180 H3 & (Ord. 2212 § 14, 2007: Ord. 1542 § 1 (part), 1992). Upon project completion, an “As Built” report will be submitted to the City of Sumner and the Corps of Engineers documenting the final design of the wetland mitigation site. This report will include both the proposed planting plan and the “As Built” planting plan showing densities, sizes, and locations of planted vegetation as well as which nurseries supplied the plants, the time of plantings, locations of reference points established as photo points, and sampling plot locations. It will also provide an analysis of any changes to the mitigation plan that occurred during construction.

Approval of the “As Built” report will establish the beginning of the monitoring period. A site visit will be made the summer after planting and survival rates of plantings will be assessed. Formal monitoring procedures will be performed in years one, two, three, five, seven and ten after initial acceptance of the “As Built” report. Successful mitigation will be measured by attainment of the performance standards described in this mitigation plan document.

The variables that will be measured during each monitoring year include stem density of woody plants and percent cover of herbaceous, shrub, and tree strata within each sampling plot as well as hydrology indicators such as depth of saturation/inundation, depth to the water table, or indirect evidence of hydrology.

Photo points will also be established to create a representative view of the entire planted mitigation area. A total of eight photo points will be established, with photos taken in each cardinal direction (N, S, E, and W) during each monitoring year. A panoramic photo(s) will also be created showing as much of the mitigation site as possible. These photos will be submitted with each monitoring report.

Sampling Locations

Sampling plots will be randomly established within the wetland creation area, wetland enhancement, and buffer enhancement areas. Two plots will be randomly established in each of the aforementioned areas for a total of four monitoring plots on each site. These sampling plots will be 10 feet by 10 feet square plots demarcated in the field with a steel post as the center of the plot. Some of the plot centers will likely be used as photo points.

Schedule

Formal monitoring will be performed during the growing season in years one, two, three, five, seven, and ten after approval of the “As Built” report. Monitoring reports will be submitted to both the City of Sumner and the Corps of Engineers before the end of each monitoring year. Monitoring plans will be prepared as described in the USACE Mitigation Monitoring Report Format dated October 10, 2008.

Site Protection

Long-term Site Protection Measures

City-approved “Sensitive Area” signs will be installed in the buffer area, facing the street (Sumner Municipal Code 16.46.150 H) every 100 linear feet around the perimeter of the overall mitigation area (wetland and buffer) on each site. Separated-rail fencing shall be installed along the outer edge of the buffer (Sumner Municipal Code 16.46.150 H and Ord. 2212 § 11, 2007; Ord. 1542 § 1 (part), 1992). This will help discourage human intrusion into the site, which will help plant establishment and deter littering and vandalism.

Site Protection Real Estate Instrument

A deed restriction will be placed on a portion of Pierce County tax parcel #9225000195 for the offsite mitigation area. This deed restriction will cover all wetland creation and buffer enhancement areas within the parcel in order to protect these areas in perpetuity.

Maintenance and Contingency Plans

Maintenance Plan

The City of Sumner will be responsible for the long-term maintenance of the mitigation areas after the monitoring period has concluded. Site inspections will occur every 8 years at the same time the City of Sumner completes required Growth Management Act (GMA) updates per RCW 36.70A.130(5)a. Management/ maintenance activities will include the inspection of mitigation site planting areas to assess plant survival with replacement as necessary. Pierce County listed noxious weeds will also be assessed and controlled as necessary. Trash will also be removed, vandalism will be repaired, and signage/fencing will be repaired/replaced as necessary. The City of Sumner will submit a status report to the Corps Project Manager every 8 years in conjunction with the GMA updates. Long-term maintenance and management will be funded by the City of Sumner.

Contingency Plan

The following contingency actions may occur if deemed necessary to promote successful development of the site:

Failure to meet a 100 percent survival rate at any of the aforementioned sites one year after planting will result in the following contingency actions:

Replanting will be conducted to replace all dead woody plantings or emergent species.

Failure to meet the aforementioned aerial cover or stem density performance measures in a given year within planted creation or enhancement areas, including the enhanced buffer, will result in the following contingency actions:

A review of vegetation management will be conducted with the Corps and Department of Ecology to determine a corrective course of action if the aerial coverage performance measures are not met.

Failure to meet non-native invasive species performance measures and standards in a given year, at a given site will result in the following contingency actions:

The area in question will receive biological and/or mechanical weed control and if deemed necessary, chemical applications will be made by licensed applicators with a valid aquatic endorsement in accordance with Department of Ecology guidelines.

A map will be made providing the location of any knotweed specimens and these will be eradicated during the growing season of the same year. Additional species may be added to this list based on site conditions, as negotiated by the City of Sumner with the Corps and Department of Ecology.

Failure to create necessary wetland hydrology within the created wetland area, while unlikely due to the analysis of hydrology prior to planting will result in the following contingency actions:

The need for corrective actions if the mitigation does not reach the 30 days of saturation will be evaluated based on the precipitation record and potential risk of wetland failure. Any area deemed to not have sufficient wetland hydrology within the created wetland area may be regraded after consultation with the Corps and Department of Ecology. Irrigation may be installed in order to assure plant survival before regrading is approved. The final wetland delineation is based on the 14-day technical guidance included in the regional supplement. If the 30-day hydrology standard was not reached, the mitigation site would be deemed successful if the goals of wetland acreage are met during this delineation.

Any revisions to the mitigation plan will be coordinated with and approved by the resource agencies prior to implementation.

Implementation Schedule

Construction Sequence

Offsite Mitigation

Site preparation will begin with installation of temporary erosion and sedimentation control (TESC) measures, including silt fencing and straw bales/wattles, in order to protect the existing wetland on site as well as Salmon Creek during construction. After appropriate TESC measures are installed, the wetland creation areas and buffer enhancement area will be cleared and grubbed.

After vegetation has been removed, the mitigation site will be graded consistent with the grading plan discussed previously. Areas of gravel will be removed and the area backfilled with topsoil to create the proposed elevation. The proposed elevation, after addition of topsoil and compost, is 63.5 feet in the wetland creation area. Buffers will be graded to a 20:1 slope from the wetland creation to reach existing elevations. There will be no grading within the existing wetland where trees and shrubs have been established. No work below the ordinary high water mark of Salmon Creek will occur. Once the topsoil elevations have been finalized, a four-inch layer of compost will be tilled into the top 12 inches of soil in all planting areas. All exposed soil will be hydro-seeded within 20 days in order to protect the aquatic resources on site.

In the spring following grading, hydrology will be analyzed utilizing hand bored test pits throughout the wetland creation area. If it is determined that the initial grading will not be sufficient to create appropriate wetland hydrology, additional grading will be performed until it is determined that wetland hydrology will be sustained.

The offsite mitigation will be planted according to the previously discussed planting plan. Prior to planting, one piece of large woody debris (LWD) and 1 standing snag will be installed within the wetland creation area.

Trees will then be randomly planted on 12 ft. centers, shrubs will be randomly planted on 4 ft. centers and emergents will be randomly planted on 2 ft. centers. Irrigation will be provided as necessary for plant survival.

Bark mulch rings 3 inches in depth will be placed in 3 ft. diameter circles around trees and shrubs in all planting areas. Woody species will receive herbivory guards to reduce mortality from rodents, such as mice and voles. Plantings will be monitored for damage from larger animals (deer, etc.), with protective devices installed as necessary.

Onsite Mitigation

The onsite mitigation will be planted according to the previously discussed planting plan. Prior to planting, the realigned creek channel will be constructed and large woody debris placed within the channel. Smaller pieces of woody debris may also be added to the wetland from trees removed during construction of the pond.

Trees will then be randomly planted on 12 ft. centers, shrubs will be randomly planted on 4 ft. centers and emergents will be randomly planted on 2 ft. centers. Irrigation will be provided as necessary.

Bark mulch rings 3 inches in depth will be placed in 3 ft. diameter circles around trees and shrubs in all planting areas. Woody species will receive herbivory guards to reduce mortality from rodents, such as mice and voles. Plantings will be monitored for damage from larger animals (deer, etc.), with protective devices installed as necessary.

Financial Assurances

The City of Sumner is responsible for setting aside sufficient funds for the construction, monitoring, and long-term maintenance of the proposed mitigation site.

References

- City of Sumner. 2007. Wetland Inventory Map. Accessed February 7, 2014.
http://ci.sumner.wa.us/wp-content/uploads/2013/10/Wetland_Map_2007.pdf
- _____. 2013a. Chapter 16.46 Wetlands Protection. City of Sumner Municipal Code.
<http://www.codepublishing.com/wa/sumner/>
- _____. 2013b. Zoning Map. Accessed February 7, 2014.
http://ci.sumner.wa.us/wp-content/uploads/2013/12/sumner_zoning_map.pdf
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe (Cowardin, L.M. *et. al.*). 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service. Publication # FWS/OBS-79/31. 131p.
- Environmental Laboratory. 1987. Corps of Engineers wetland delineation manual. Technical Report Y-87-1, Environmental Laboratory, Department of the Army, Waterways Experiment Station, Vicksburg, MI.
- _____. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). Environmental Laboratory, US Army Engineer Research and Development Center, Vicksburg, MI.
- Hruby, T. (2014). Washington State Wetland Rating System for Western Washington: 2014 Update. (Publication #14-06-029). Olympia, WA: Washington Department of Ecology.
- Lichvar, R.W. 2013. The National Wetland Plant List: 2013 Wetland ratings. *Phytoneuron* 2013-49: 1-241
<http://rsgisias.crrel.usace.army.mil/NWPL/>
- NRCS (Natural Resources Conservation Service). 1990. Climate Information for Pierce County in the State of Washington. Natural Resource Conservation Service. Accessed November 13, 2013.
<http://www.wcc.nrcs.usda.gov/ftpref/support/climate/frost/wa/53053.txt>
- _____. 2012. National List of Hydric Soils in Washington. Natural Resource Conservation Service. Last modified April. Accessed November 12, 2013.
<http://soils.usda.gov/use/hydric/>
- _____. 2013. NRCS Web Soil Survey. US Department of Agriculture, Natural Resource Conservation Service. Accessed November 16, 2013
<http://web.soilsurvey.sc.egov.usda.gov/App/HomePage.htm>

Pierce County. 2014. Pierce County. Washington. PublicGIS. Accessed February 7, 2014. <http://matterhorn3.co.pierce.wa.us/publicgis/>

Washington State Department of Ecology, U.S. Army Corps of Engineers Seattle District, and the U.S. Environmental Protection Agency Region 10 (DOE, *et. al.*). 2006. Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance (Version 1). Washington State Department of Ecology. Publication # 06-06-011a. Olympia, WA.

Widener and Associates. 2014. Wetland Investigation and Delineation Report: Sumner YMCA Mitigation Site. July, 2014.

_____. 2014b. Wetland Investigation and Delineation Report: East Sumner Neighborhood Regional Stormwater Facility. January.

Appendix A: Impact Site DOE Wetland Rating Forms

This page intentionally left blank for printing purposes.

Wetland name or number D

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland D Date of site visit: _____
 Rated by Christina Neff Trained by Ecology? Yes No Date of training _____
 HGM Class used for rating Depressional Wetland has multiple HGM classes? Y N

NOTE: Form is not complete without the figures requested (figures can be combined).
 Source of base aerial photo/map NRCS 2013

OVERALL WETLAND CATEGORY IV (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
 _____ **Category III** – Total score = 16 - 19
 X _____ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
<i>Circle the appropriate ratings</i>										
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	
Score Based on Ratings	6			6			3			15

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	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Wetland name or number D

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	1
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	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	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	4

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 (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	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 (<i>can be added to another figure</i>)	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 (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	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 Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the 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.

Wetland name or number D

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.*

Wetland name or number D

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. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	2 points = 3 points = 2 points = 1 points = 1
D 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).</u> Yes = 4 No = 0	0
D 1.3. <u>Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</u> Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > 1/2 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants < 1/10 of area	3 points = 5 points = 3 points = 1 points = 0
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > 1/2 total area of wetland Area seasonally ponded is > 1/4 total area of wetland Area seasonally ponded is < 1/4 total area of wetland	0 points = 4 points = 2 points = 0
Total for D 1	5 Add the points in the boxes above

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	2 Add the points in the boxes above

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 2
Total for D 3	3 Add the points in the boxes above

Rating of Value If score is: 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number D _____

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.		1
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	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 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland 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.		0
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	
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	0

Rating of Value If score is: 2-4 = H 1 = M 0 = L *Record the rating on the first page*

Wetland name or number D

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.*

0

- 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

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*).

1

- 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 type 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**

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

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

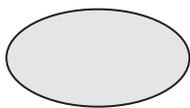
1

- If you counted: > 19 species points = 2
- 5 - 19 species points = 1
- < 5 species points = 0

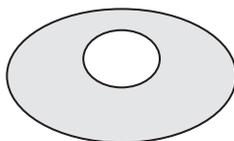
H 1.4. Interspersion of habitats

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.*

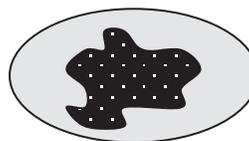
0



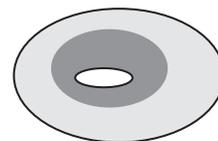
None = 0 points



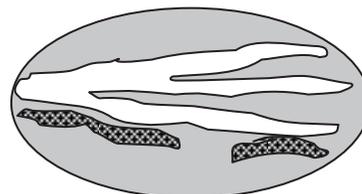
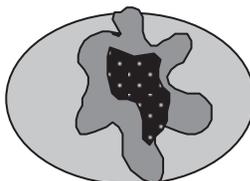
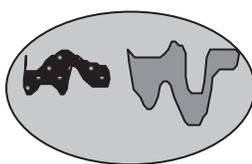
Low = 1 point



Moderate = 2 points



All three diagrams in this row are **HIGH** = 3points



Wetland name or number D

<p>H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> 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) <input type="checkbox"/> 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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	1
<p>Total for H 1</p>	<p style="text-align: right;">Add the points in the boxes above</p> <p style="text-align: center;">3</p>

Rating of Site Potential If score is: 15-18 = H 7-14 = M 0-6 = L *Record the rating on the first page*

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u>1.5</u> % 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</p>	0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u> % 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</p>	0
<p>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 1 km Polygon is high intensity points = 0</p>	-2
<p>Total for H 2</p>	<p style="text-align: right;">Add the points in the boxes above</p> <p style="text-align: center;">-2</p>

Rating of Landscape Potential If score is: 4-6 = H 1-3 = M < 1 = L *Record the rating on the first page*

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i> Site meets ANY of the following criteria: points = 2 <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> 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) within 100 m points = 1 Site does not meet any of the criteria above points = 0</p>	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.

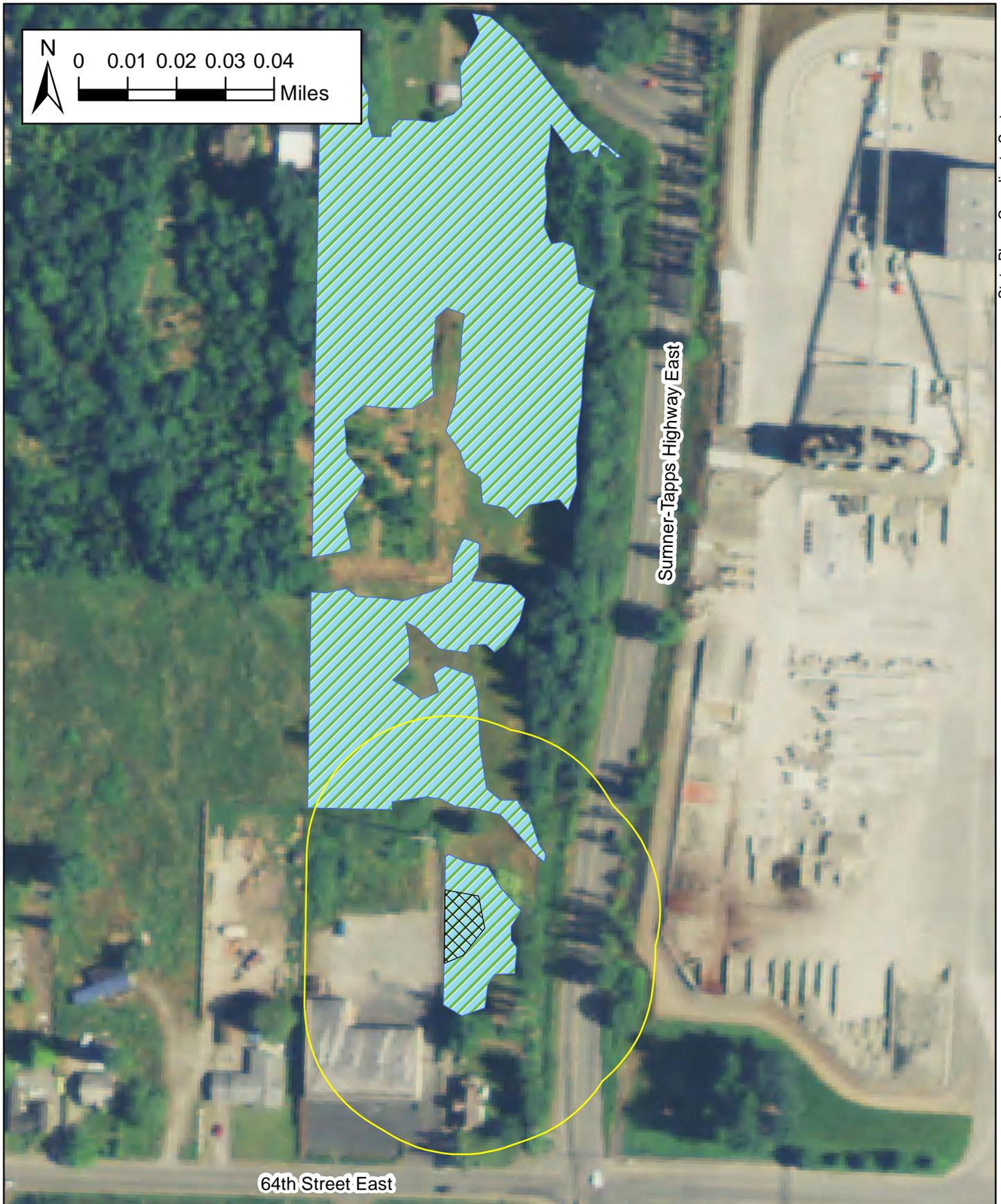
CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands</p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <p style="text-align: right;">Yes –Go to SC 1.1 No= Not an estuarine wetland</p>	
<p>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?</p> <p style="text-align: right;">Yes = Category I No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <ul style="list-style-type: none"> — 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 <i>Spartina</i>, 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 unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</p> <p style="text-align: right;">Yes – Go to SC 2.2 No – Go to SC 2.3</p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p> <p>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</p> <p style="text-align: right;">Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV</p> <p>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?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>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?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No – Go to SC 3.2</p> <p>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?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No = Is not a bog</p> <p>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?</p> <p style="text-align: right;">Yes = Is a Category I bog No – Go to SC 3.4</p> <p>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.</p> <p>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?</p> <p style="text-align: right;">Yes = Is a Category I bog No = Is not a bog</p>	Cat. I

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife’s forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — 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). <p style="text-align: right;">Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — 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 (<i>needs to be measured near the bottom</i>) <p style="text-align: right;">Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — 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 ft²) <p style="text-align: right;">Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — 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 <p style="text-align: right;">Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>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</p> <p>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</p> <p>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</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p>NA</p>

Wetland name or number D

This page left blank intentionally

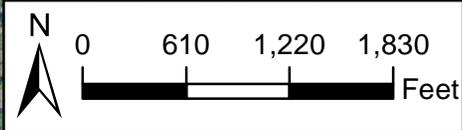
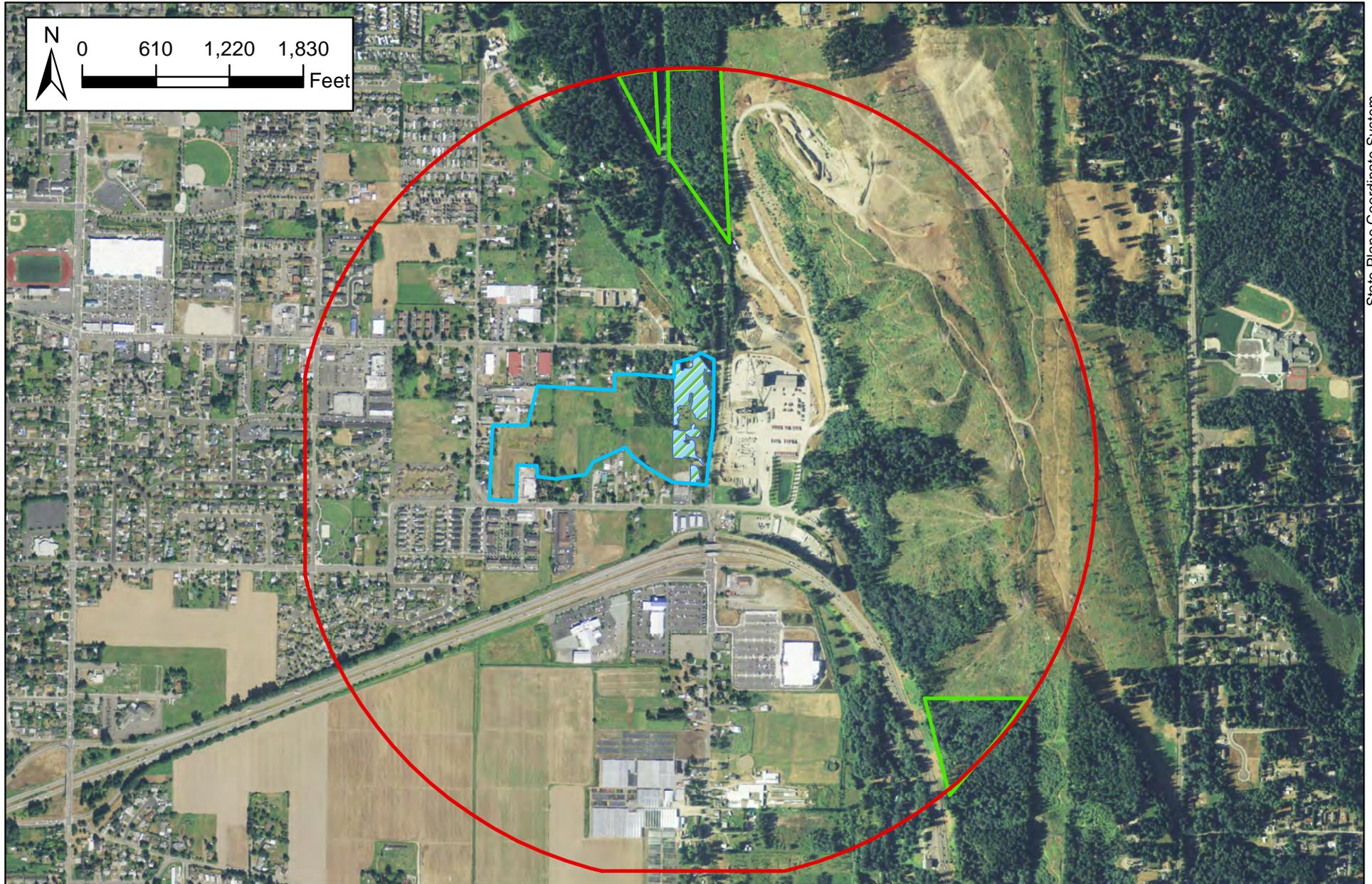


State Plane Coordinate System
 NAD 83 HARN Washington North FIPS 4601

-  Seasonal Inundation
-  Delineated Wetlands
-  150 ft Buffer

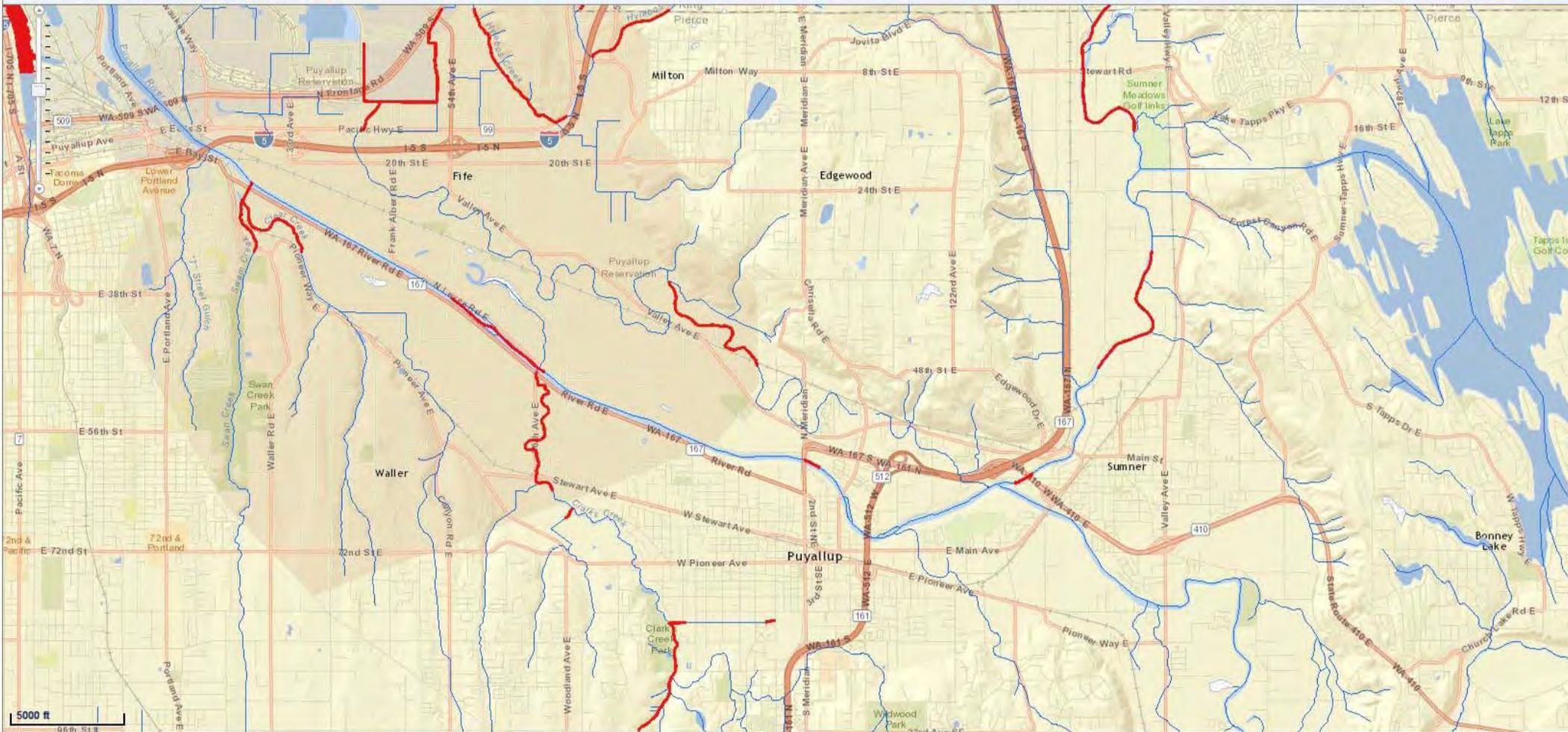
Figure 1: Wetland D Buffer and Hydrology

Sumner YMCA
 City of Sumner



- 1 km
- Accessible Habitat
- Relatively Undisturbed
- Delineated Wetlands

Figure 2: Land Use Polygons
*East Sumner Neighborhood
 Regional Stormwater Facility
 City of Sumner*

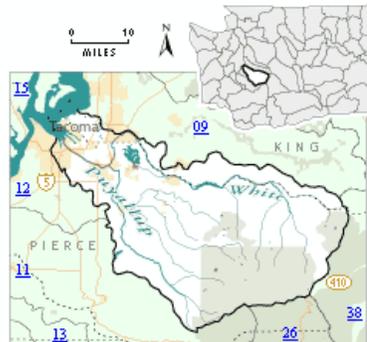


Water Quality Improvement Projects (TMDLs)

[Water Quality Improvement](#) > [Water Quality Improvement Projects by WRIA](#) > WRIA 10: Puyallup-White

WRIA 10: Puyallup-White

The following table lists overview information for water quality improvement projects (also known as total maximum daily loads, or TMDLs) for this water resource inventory area ([WRIA](#)). Please use links (where available) for more information on a project.



Counties

- [King County](#)
- [Pierce County](#)

FEEDBACK	Waterbody Name	Pollutant	Status**	TMDL Leads
	Clarks Creek Meeker Creek	Dissolved Oxygen Sediment	TMDL project under development Public comment period: May 22 - July 21, 2014	Brett Raunig 360-690-4660
		Fecal Coliform	Approved by EPA Has an implementation plan	
	Commencement Bay	Dioxin	Approved by EPA	Donovan Gray 360-407-6407
	Puyallup River Watershed	Fecal Coliform	Approved by EPA	Donovan Gray 360-407-6407
		Multi-parameter Ammonia-N BOD (5-day)	Approved by EPA	
		White River Watershed	Upper White: <ul style="list-style-type: none"> • Sediment • Temperature Lower White <ul style="list-style-type: none"> • pH 	Approved by EPA Under Development
	South Prairie Creek Tributary: Wilkeson/Gale Creek	Fecal Coliform Temperature	Approved by EPA Has an implementation plan	Donovan Gray 360-407-6407

** Status will be listed as one of the following: Approved by EPA, Under Development or Implementation

For more information about WRIA 10:

- [Waterbodies in WRIA 10](#) - using the Water Quality Assessment Query Tool
- [Watershed Information for WRIA 10](#)

* The Department of Ecology and other state resource agencies frequently use a system of 62 "Water Resource Inventory Areas" or "WRIAs" to refer to the state's major watershed basins.

[Back to top of page](#)

Last updated June 2014

Wetland name or number E

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland E Date of site visit: _____
 Rated by Christina Neff Trained by Ecology? Yes No Date of training _____
 HGM Class used for rating Depressional Wetland has multiple HGM classes? Y N

NOTE: Form is not complete without the figures requested (figures can be combined).
 Source of base aerial photo/map NRCS 2013

OVERALL WETLAND CATEGORY IV (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
 _____ **Category III** – Total score = 16 - 19
 X _____ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
<i>Circle the appropriate ratings</i>										
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	
Score Based on Ratings	6			6			3			TOTAL 15

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	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Wetland name or number E

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	1
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	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	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	4

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 (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	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 (<i>can be added to another figure</i>)	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 (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	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 Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the 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.

Wetland name or number E

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.*

Wetland name or number E

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. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	2 points = 3 points = 2 points = 1 points = 1
D 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).</u> Yes = 4 No = 0	0
D 1.3. <u>Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</u> Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > 1/2 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants < 1/10 of area	3 points = 5 points = 3 points = 1 points = 0
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > 1/2 total area of wetland Area seasonally ponded is > 1/4 total area of wetland Area seasonally ponded is < 1/4 total area of wetland	0 points = 4 points = 2 points = 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 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 2
Total for D 3	Add the points in the boxes above 3

Rating of Value If score is: 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number E

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.		1
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	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 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland 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.		0
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	
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	0

Rating of Value If score is: 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number E

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.*

0

- 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

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*).

1

- 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 type 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**

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

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

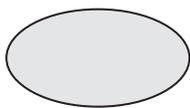
1

- If you counted: > 19 species points = 2
- 5 - 19 species points = 1
- < 5 species points = 0

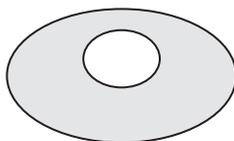
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersions 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.*

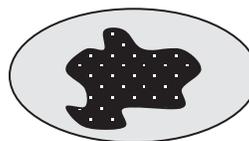
0



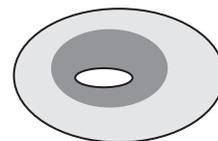
None = 0 points



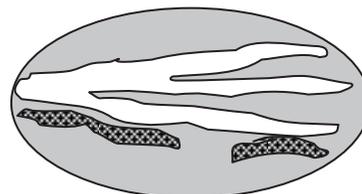
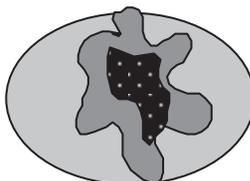
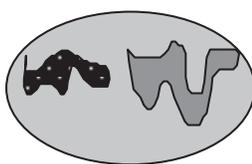
Low = 1 point



Moderate = 2 points



All three diagrams in this row are **HIGH** = 3points



Wetland name or number E

<p>H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> 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) <input type="checkbox"/> 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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	1
<p>Total for H 1 Add the points in the boxes above</p>	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 functions of the site?	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u>1.5</u> % 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</p>	0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u> % 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</p>	0
<p>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 1 km Polygon is high intensity points = 0</p>	-2
<p>Total for H 2 Add the points in the boxes above</p>	-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?	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i> Site meets ANY of the following criteria: points = 2 <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> 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) within 100 m points = 1 Site does not meet any of the criteria above points = 0</p>	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.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands</p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <p style="text-align: right;">Yes –Go to SC 1.1 No= Not an estuarine wetland</p>	
<p>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?</p> <p style="text-align: right;">Yes = Category I No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <ul style="list-style-type: none"> — 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 <i>Spartina</i>, 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 unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</p> <p style="text-align: right;">Yes – Go to SC 2.2 No – Go to SC 2.3</p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p> <p>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</p> <p style="text-align: right;">Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV</p> <p>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?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>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?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No – Go to SC 3.2</p> <p>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?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No = Is not a bog</p> <p>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?</p> <p style="text-align: right;">Yes = Is a Category I bog No – Go to SC 3.4</p> <p>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.</p> <p>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?</p> <p style="text-align: right;">Yes = Is a Category I bog No = Is not a bog</p>	Cat. I

Wetland name or number E

This page left blank intentionally

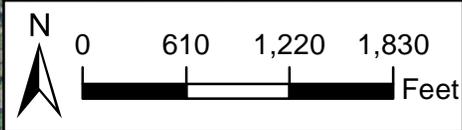
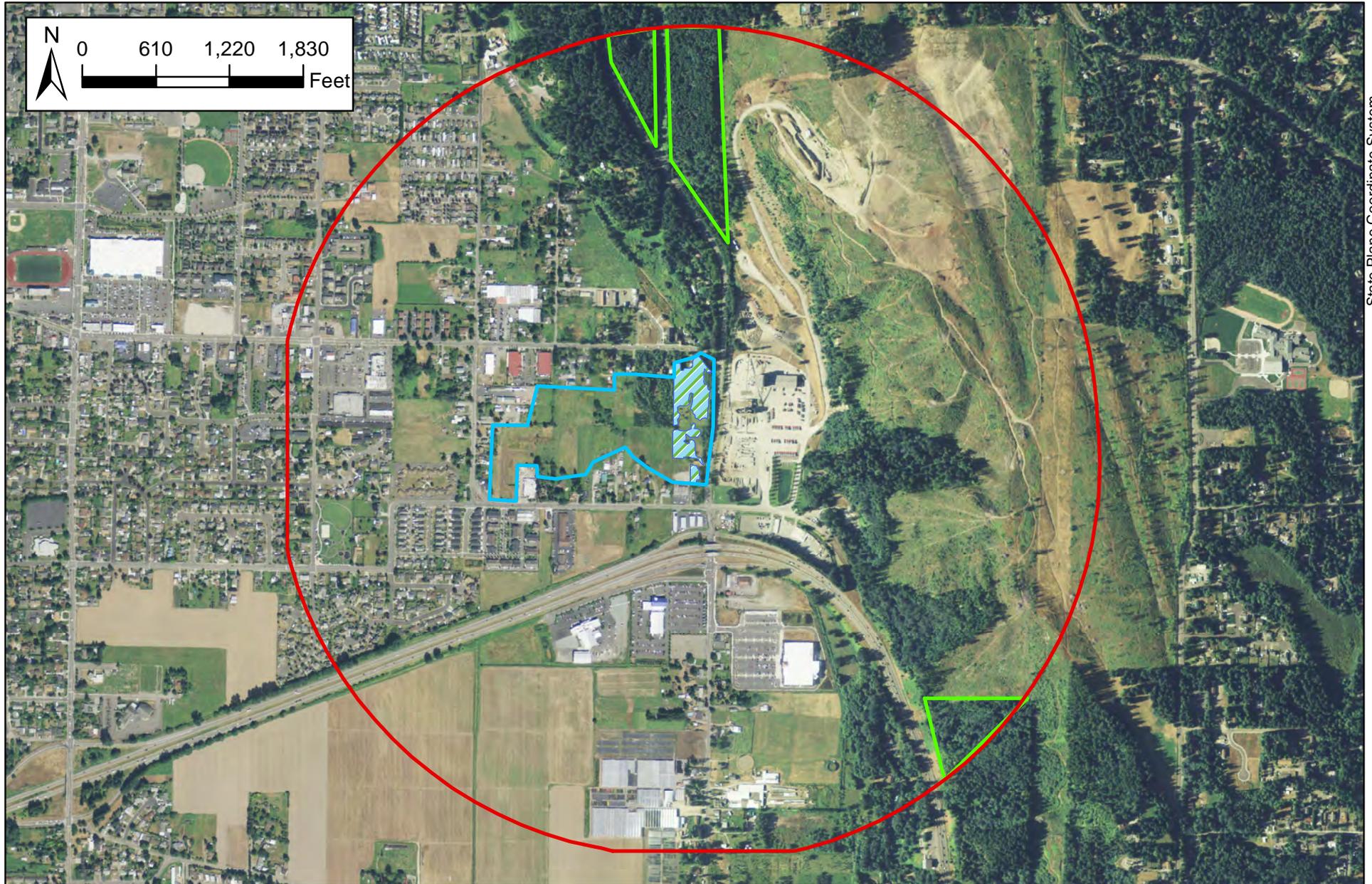


State Plane Coordinate System
 NAD 83 HARN Washington North FIPS 4601

-  Seasonal Inundation
-  150 ft Buffer
-  Delineated Wetlands

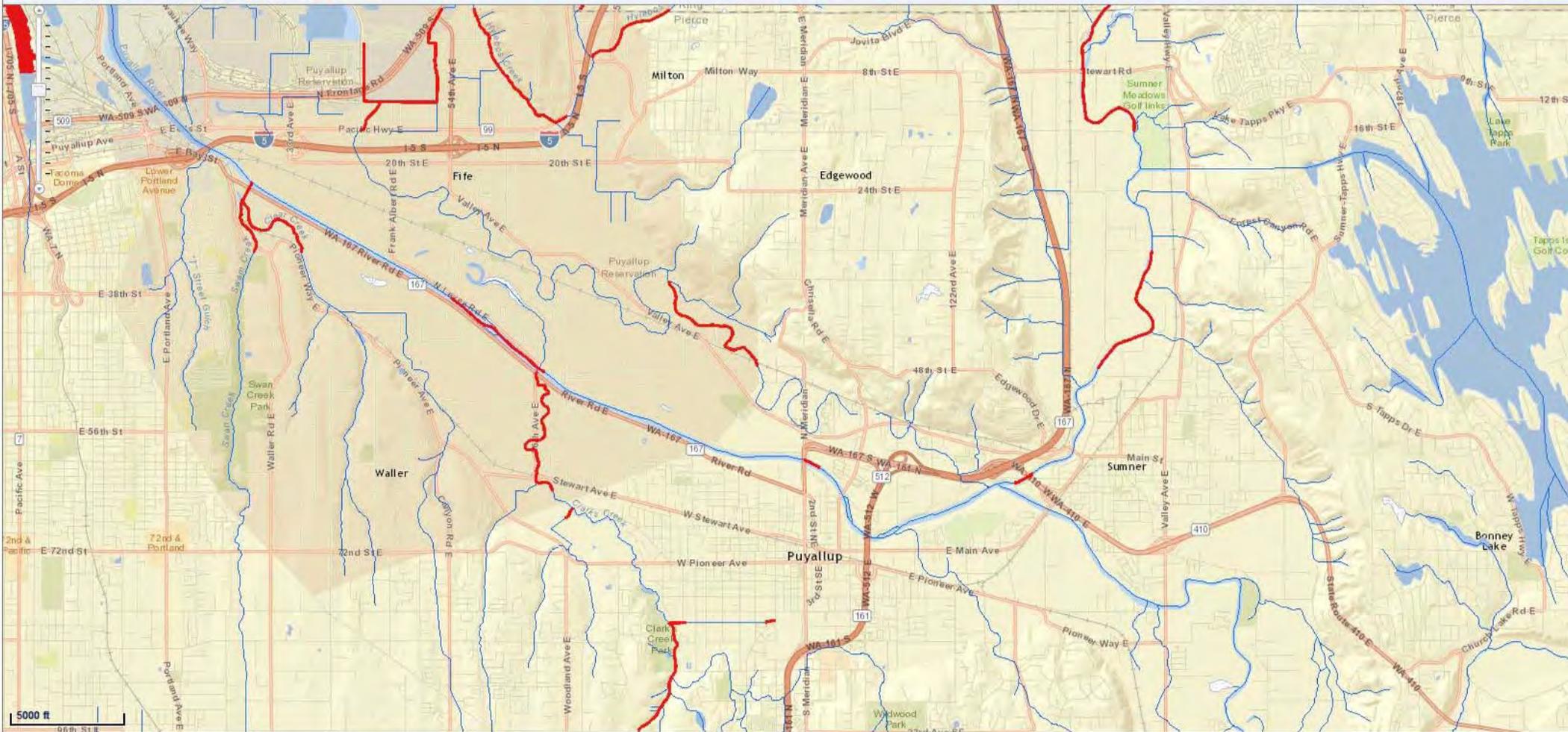
Figure 1: Wetland E Buffer and Hydrology

Sumner YMCA
 City of Sumner



- 1 km
- Accessible Habitat
- Relatively Undisturbed
- Delineated Wetlands

Figure 2: Land Use Polygons
*East Sumner Neighborhood
 Regional Stormwater Facility
 City of Sumner*

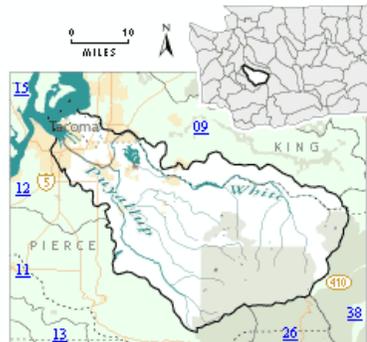


Water Quality Improvement Projects (TMDLs)

[Water Quality Improvement](#) > [Water Quality Improvement Projects by WRIA](#) > WRIA 10: Puyallup-White

WRIA 10: Puyallup-White

The following table lists overview information for water quality improvement projects (also known as total maximum daily loads, or TMDLs) for this water resource inventory area ([WRIA](#)). Please use links (where available) for more information on a project.



Counties

- [King County](#)
- [Pierce County](#)

Waterbody Name	Pollutant	Status**	TMDL Leads
<div style="background-color: #f0f0f0; padding: 2px; font-weight: bold; writing-mode: vertical-rl; transform: rotate(180deg);">FEEDBACK</div> Clarks Creek Meeker Creek	Dissolved Oxygen	TMDL project under development	Brett Raunig 360-690-4660
	Sediment	Public comment period: May 22 - July 21, 2014	
	Fecal Coliform	Approved by EPA Has an implementation plan	
Commencement Bay	Dioxin	Approved by EPA	Donovan Gray 360-407-6407
Puyallup River Watershed	Fecal Coliform	Approved by EPA	Donovan Gray 360-407-6407
	Multi-parameter Ammonia-N BOD (5-day)	Approved by EPA	
	White River Watershed	Upper White: <ul style="list-style-type: none"> • Sediment • Temperature Lower White <ul style="list-style-type: none"> • pH 	Approved by EPA Under Development
South Prairie Creek Tributary: Wilkeson/Gale Creek	Fecal Coliform Temperature	Approved by EPA Has an implementation plan	Donovan Gray 360-407-6407

** Status will be listed as one of the following: Approved by EPA, Under Development or Implementation

For more information about WRIA 10:

- [Waterbodies in WRIA 10](#) - using the Water Quality Assessment Query Tool
- [Watershed Information for WRIA 10](#)

* The Department of Ecology and other state resource agencies frequently use a system of 62 "Water Resource Inventory Areas" or "WRIAs" to refer to the state's major watershed basins.

[Back to top of page](#)

Last updated June 2014

Wetland name or number F

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland F Date of site visit: _____
 Rated by Christina Neff Trained by Ecology? Yes No Date of training _____
 HGM Class used for rating Depressional Wetland has multiple HGM classes? Y N

NOTE: Form is not complete without the figures requested (figures can be combined).
 Source of base aerial photo/map NRCS 2013

OVERALL WETLAND CATEGORY IV (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
 _____ **Category III** – Total score = 16 - 19
 X _____ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H M L	H M L	H M L	
Landscape Potential	H M L	H M L	H M L	
Value	H M L	H M L	H M L	TOTAL
Score Based on Ratings	6	6	3	15

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	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Wetland name or number **F** _____

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	1
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	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	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	4

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 (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	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 (<i>can be added to another figure</i>)	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 (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	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 Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the 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.

Wetland name or number **F**

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.*

Wetland name or number F

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. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	2 points = 3 points = 2 points = 1 points = 1
D 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).</u> Yes = 4 No = 0	0
D 1.3. <u>Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</u> Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > 1/2 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants < 1/10 of area	3 points = 5 points = 3 points = 1 points = 0
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > 1/2 total area of wetland Area seasonally ponded is > 1/4 total area of wetland Area seasonally ponded is < 1/4 total area of wetland	0 points = 4 points = 2 points = 0
Total for D 1	5 Add the points in the boxes above

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	2 Add the points in the boxes above

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 2
Total for D 3	3 Add the points in the boxes above

Rating of Value If score is: 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number F_____

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.		1
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	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 functions of the site?		
D 5.1. Does the wetland 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.		0
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	
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	0

Rating of Value If score is: 2-4 = H 1 = M 0 = L *Record the rating on the first page*

Wetland name or number F_____

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.*

1

- 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

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*).

1

- 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 type 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**

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

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

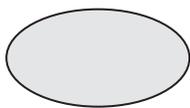
1

- If you counted:
- > 19 species points = 2
 - 5 - 19 species points = 1
 - < 5 species points = 0

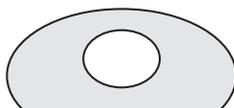
H 1.4. Interspersion of habitats

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.*

1



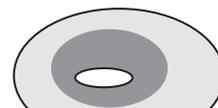
None = 0 points



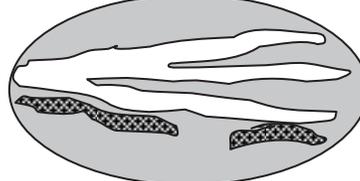
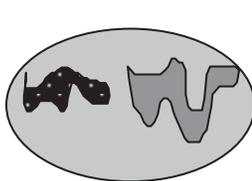
Low = 1 point



Moderate = 2 points



All three diagrams in this row are **HIGH** = 3points



Wetland name or number F

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> 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)</p> <p><input type="checkbox"/> 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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	1
<p>Total for H 1</p>	<p style="text-align: right;">Add the points in the boxes above</p> <p style="text-align: center;">5</p>

Rating of Site Potential If score is: 15-18 = H 7-14 = M 0-6 = L *Record the rating on the first page*

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u>1.5</u> %</p> <p>If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p>	0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u> %</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p>	0
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p>	-2
<p>Total for H 2</p>	<p style="text-align: right;">Add the points in the boxes above</p> <p style="text-align: center;">-2</p>

Rating of Landscape Potential If score is: 4-6 = H 1-3 = M < 1 = L *Record the rating on the first page*

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: points = 2</p> <p>— It has 3 or more priority habitats within 100 m (see next page)</p> <p>— It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p>— It is mapped as a location for an individual WDFW priority species</p> <p>— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p>— 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</p> <p>Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1</p> <p>Site does not meet any of the criteria above points = 0</p>	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.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands</p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <p align="right">Yes –Go to SC 1.1 No= Not an estuarine wetland</p>	
<p>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?</p> <p align="right">Yes = Category I No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <ul style="list-style-type: none"> — 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 <i>Spartina</i>, 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 unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <p align="right">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</p> <p align="right">Yes – Go to SC 2.2 No – Go to SC 2.3</p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</p> <p align="right">Yes = Category I No = Not a WHCV</p> <p>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</p> <p align="right">Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV</p> <p>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?</p> <p align="right">Yes = Category I No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>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?</p> <p align="right">Yes – Go to SC 3.3 No – Go to SC 3.2</p> <p>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?</p> <p align="right">Yes – Go to SC 3.3 No = Is not a bog</p> <p>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?</p> <p align="right">Yes = Is a Category I bog No – Go to SC 3.4</p> <p>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.</p> <p>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?</p> <p align="right">Yes = Is a Category I bog No = Is not a bog</p>	Cat. I

Wetland name or number F

This page left blank intentionally

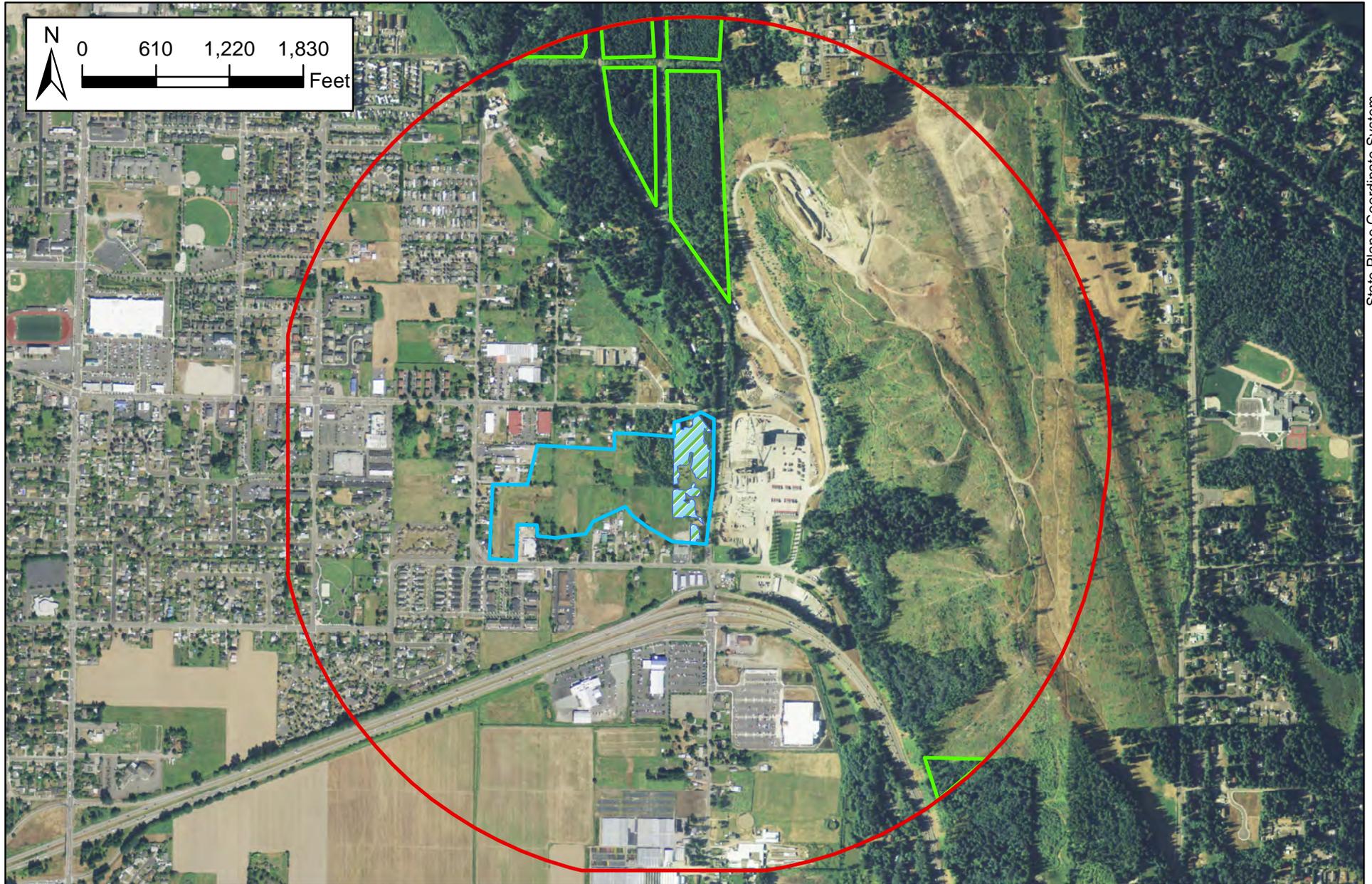


State Plane Coordinate System
 NAD 83 HARN Washington North FIPS 4601

Figure 1: Wetland F Buffer and Plant Classes

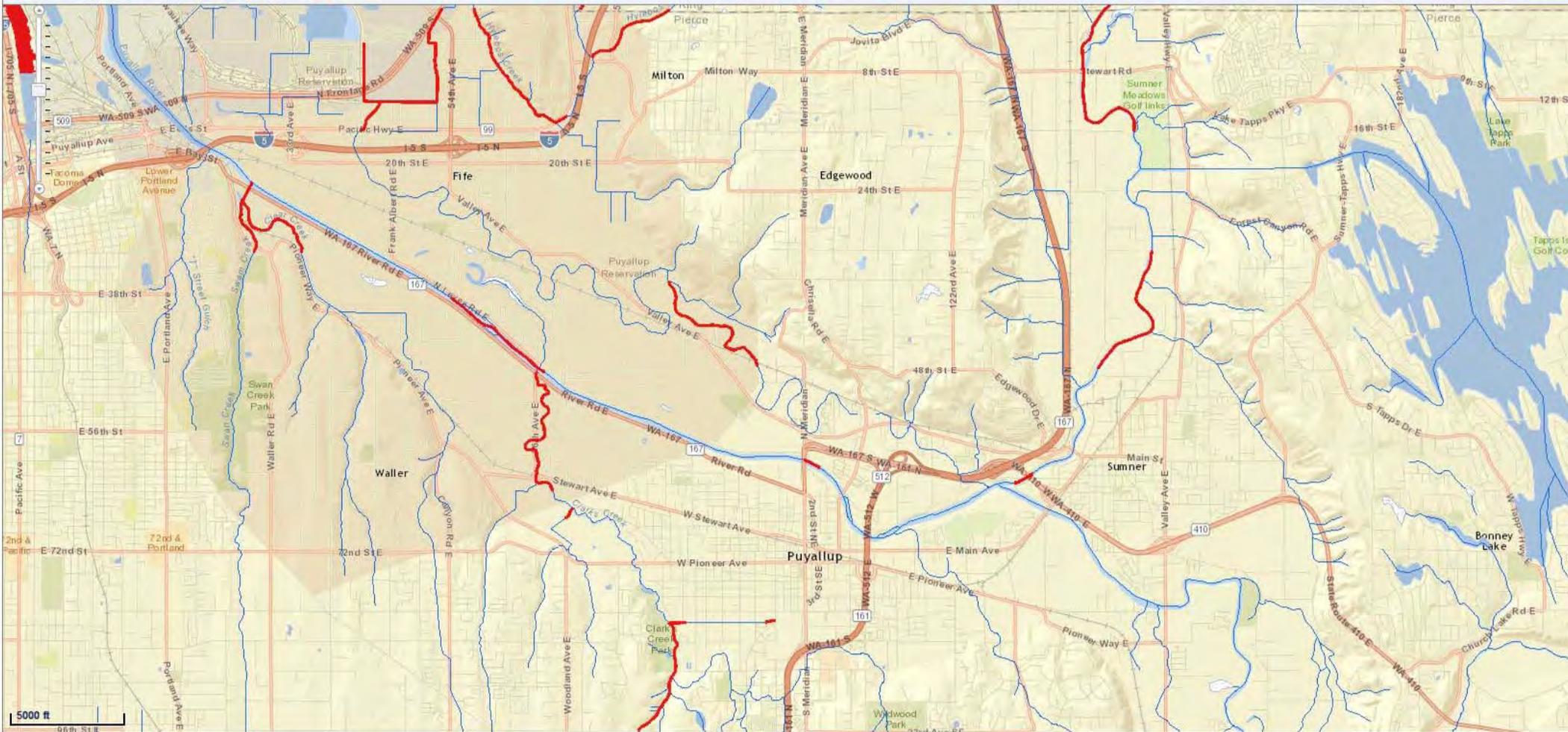
Sumner YMCA
 City of Sumner

-  Forested
-  150 ft Buffer
-  Delineated Wetlands



- 1 km
- Accessible Habitat
- Relatively Undisturbed
- Delineated Wetlands

Figure 2: Land Use Polygons
East Sumner Neighborhood
Regional Stormwater Facility
City of Sumner

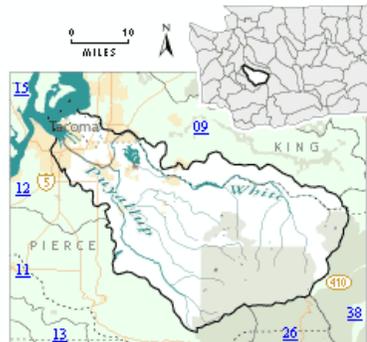


Water Quality Improvement Projects (TMDLs)

[Water Quality Improvement](#) > [Water Quality Improvement Projects by WRIA](#) > WRIA 10: Puyallup-White

WRIA 10: Puyallup-White

The following table lists overview information for water quality improvement projects (also known as total maximum daily loads, or TMDLs) for this water resource inventory area ([WRIA](#)). Please use links (where available) for more information on a project.



Counties

- [King County](#)
- [Pierce County](#)

Waterbody Name	Pollutant	Status**	TMDL Leads
<div style="background-color: #f0f0f0; padding: 2px; font-weight: bold; writing-mode: vertical-rl; transform: rotate(180deg);">FEEDBACK</div> Clarks Creek Meeker Creek	Dissolved Oxygen	TMDL project under development	Brett Raunig 360-690-4660
	Sediment	Public comment period: May 22 - July 21, 2014	
	Fecal Coliform	Approved by EPA Has an implementation plan	
Commencement Bay	Dioxin	Approved by EPA	Donovan Gray 360-407-6407
Puyallup River Watershed	Fecal Coliform	Approved by EPA	Donovan Gray 360-407-6407
	Multi-parameter Ammonia-N BOD (5-day)	Approved by EPA	
	White River Watershed	Upper White: <ul style="list-style-type: none"> • Sediment • Temperature Lower White <ul style="list-style-type: none"> • pH 	Approved by EPA Under Development
South Prairie Creek Tributary: Wilkeson/Gale Creek	Fecal Coliform Temperature	Approved by EPA Has an implementation plan	Donovan Gray 360-407-6407

** Status will be listed as one of the following: Approved by EPA, Under Development or Implementation

For more information about WRIA 10:

- [Waterbodies in WRIA 10](#) - using the Water Quality Assessment Query Tool
- [Watershed Information for WRIA 10](#)

* The Department of Ecology and other state resource agencies frequently use a system of 62 "Water Resource Inventory Areas" or "WRIAs" to refer to the state's major watershed basins.

[Back to top of page](#)

Last updated June 2014

Appendix B: Mitigation Wetland Rating Form

This page intentionally left blank for printing purposes.

Wetland name or number F

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland F Date of site visit: 6/30/14
 Rated by Christina Neff Trained by Ecology? Yes ___ No X Date of training _____

HGM Class Used for Rating Depressional Unit has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested. (figures can be combined)
 Source of base aerial photo/map NRCS 2013

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

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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	<i>Circle the</i>			<i>appropriate</i>			<i>ratings</i>			
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	
Score Based on Ratings	6			5			6			17

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland with high conservation value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Wetland name or number F

Maps and figures required to answer questions correctly (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	1
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D1.4	1
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	D 2.2, D 5.2	1
Polygon of area 1km from wetland edge - Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	2
Screen capture of map of 303d listed waters in basin (from Ecology web site)	D 3.1, D 3.2	3
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	D 3.3	4

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 150 ft buffer (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Polygon of area 1km from wetland edge -Including polygons for accessible habitat and undisturbed habitat	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	R 3.1	
Screen capture of list of TMDL's 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 150 ft buffer (<i>can be added to another figure</i>)	L 2.2	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	L 3.1	
Screen capture of list of TMDL's 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 (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
Polygon of area 1km from wetland edge (Including polygons for accessible habitat and undisturbed habitat)	H 2.1, H2.2	
Screen capture of map of 303d listed waters in basin (from Ecology web site)	S 3.1, S 3.2	
Screen capture of list of TMDL's for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7 the criteria described must apply to the entire unit being rated.
If the 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)?

YES - Freshwater Tidal Fringe **NO - Saltwater Tidal Fringe (Estuarine)**

*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 acres (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 two years.

Wetland name or number **F**

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.*

Wetland name or number F

DEPRESSIONAL AND FLATS WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water quality.	
D 1.0 Does the wetland unit have the potential to improve water quality?	
D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression or "flat depression" (QUESTION 7 on key) with no surface water leaving it (no outlet) points =3 Unit has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Unit is a "flat" depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	1
D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>) YES: points = 4 NO: points = 0	0
D 1.3 Characteristics of persistent plants (emergent, shrub, and/or forest Cowardin class) Unit has persistent, ungrazed, plants ≥ 95% of area points = 5 Unit has persistent, ungrazed, plants ≥ 1/2 of area points = 3 Unit has persistent, ungrazed plants ≥ 1/10 of area points = 1 Unit has persistent, ungrazed plants <1/10 of area points = 0	1
D 1.4 Characteristics of seasonal ponding or inundation <i>This is the area of the wetland unit that is ponded for at least 2 months. See description in manual.</i> 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 2

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 at the site?	
D 2.1 Does the Wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2 Is > 10% of the buffer within 150 ft of wetland unit in land uses that generate pollutants Yes = 1 No = 0	1
D 2.3 Are there septic systems within 250 ft of the wetland unit? 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 <u>grazing in wetland</u> Yes = 1 No = 0	1
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 unit discharge directly (i.e.. within 1 mile) to a stream, river, or lake that is on the 303d list? Yes = 1 No = 0	0
D 3.2 Is the unit 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 unit is found) Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above 3

Rating of Value If score is: **2-4 = H** **1 = M** **0 = L** Record the rating on the first page

Wetland name or number F_____

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation.

D 4.0 Does the wetland unit have the potential to reduce flooding and erosion?		
D 4.1 Characteristics of surface water flows out of the wetland:		0
Unit is a depression or "flat depression" with no surface water leaving it (no outlet)	points = 4	
Unit has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Unit is a "flat" depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
Unit has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2 Depth of storage during wet periods <i>Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or if dry, the deepest part.</i>		1
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	
Unit is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 inches)	points = 0	
D 4.3 Contribution of unit to storage in the watershed <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i>		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 unit is in the FLATS class	points = 5	
Total for D 4	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 5.0 Does the landscape have the potential to support hydrologic functions at the site?		
D 5.1 Does the unit receive any stormwater discharges?	Yes = 1 No = 0	0
D5.2 Is >10% of the land use within 150 ft of the wetland in a land use that generates runoff?	Yes = 1 No = 0	1
D 5.3 Is more than 25% of the contributing basin of the wetland unit covered with intensive human land uses (residential at >1 residence/acre, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: **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 The unit is in a landscape that has flooding problems. <i>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.</i>		1
• The wetland captures surface water that would otherwise flow downgradient into areas where flooding has damaged human or natural resources (e.g., salmon redds),		
o Damage occurs in sub-basin that is immediately down-gradient of unit.	points = 2	
o Damage occurs in a sub-basin further 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. <i>Explain why</i> _____	points = 0	
• There are no problems with flooding downstream of the unit.	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	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 F

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat.

H 1. Does the wetland unit have the potential to provide habitat for many species?

H 1.1 Structure of plant community – indicators are Cowardin classes and layers in forest. Check the Cowardin plant classes in unit – Polygons for each class must total ¼ acre, or more than 10% of the unit if it is smaller than 2.5 acres. Add the number of structures checked

- | | | |
|---|----------------------|------------|
| <input type="checkbox"/> Aquatic bed | 4 structures or more | points = 4 |
| <input checked="" type="checkbox"/> Emergent plants | 3 structures | points = 2 |
| <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures | points = 1 |
| <input checked="" type="checkbox"/> 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

1

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 acre to count (see text for descriptions of hydroperiods).

- | | | |
|---|-------------------------|------------|
| <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present | points = 3 |
| <input type="checkbox"/> Seasonally flooded or inundated | 3 types present | points = 2 |
| <input checked="" type="checkbox"/> Occasionally flooded or inundated | 2 types present | points = 1 |
| <input checked="" type="checkbox"/> Saturated only | 1 type present | points = 0 |
| <input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Lake-fringe wetland = 2 points | | |
| <input type="checkbox"/> Freshwater tidal wetland = 2 points | | |

2

H 1.3. Richness of Plant Species

Count the number of plant species in the wetland unit that cover at least 10 ft².

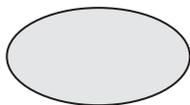
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. **Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle**

- If you counted:
- | | |
|----------------|------------|
| > 19 species | points = 2 |
| 5 - 19 species | points = 1 |
| < 5 species | points = 0 |

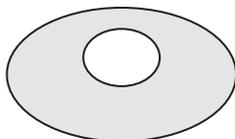
1

H 1.4. Interspersion of habitats

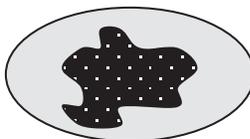
Decide from the diagrams below whether interspersion between Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



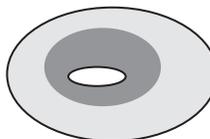
None = 0 points



Low = 1 point

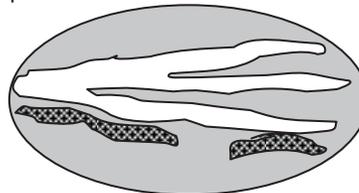
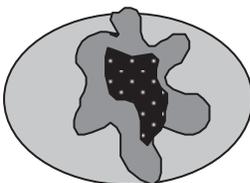
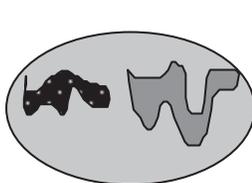


Moderate = 2 points



NOTE: If you have four or more classes or three plants classes and open water the rating is always "high."

All three diagrams in this row are **HIGH = 3points**



1

Wetland name or number F

<p>H 1.5. Special Habitat Features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the unit (>4 inches diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) within the unit</p> <p><input checked="" type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging plants extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)</p> <p><input checked="" type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ acre of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated. (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	4
H 1. TOTAL Score - potential for providing habitat	9

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 habitat at the site?									
<p>H 2.1 Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p>Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = <u>2</u></p> <p>If total accessible habitat is:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">> 1/3 (33.3%) of 1 km circle (~100 hectares or 250 acres)</td> <td style="text-align: right;">points = 3</td> </tr> <tr> <td>20 - 33% of 1 km circle</td> <td style="text-align: right;">points = 2</td> </tr> <tr> <td>10 - 19% of 1 km circle</td> <td style="text-align: right;">points = 1</td> </tr> <tr> <td><10% of 1 km circle</td> <td style="text-align: right;">points = 0</td> </tr> </table>	> 1/3 (33.3%) of 1 km circle (~100 hectares or 250 acres)	points = 3	20 - 33% of 1 km circle	points = 2	10 - 19% of 1 km circle	points = 1	<10% of 1 km circle	points = 0	0
> 1/3 (33.3%) of 1 km circle (~100 hectares or 250 acres)	points = 3								
20 - 33% of 1 km circle	points = 2								
10 - 19% of 1 km circle	points = 1								
<10% of 1 km circle	points = 0								
<p>H 2.2 Undisturbed habitat in 1 km circle around unit.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Undisturbed habitat > 50% of circle</td> <td style="text-align: right;">points = 3</td> </tr> <tr> <td>Undisturbed habitat 10 - 50% and in 1-3 patches</td> <td style="text-align: right;">points = 2</td> </tr> <tr> <td>Undisturbed habitat 10 - 50% and > 3 patches</td> <td style="text-align: right;">points = 1</td> </tr> <tr> <td>Undisturbed habitat < 10% of circle</td> <td style="text-align: right;">points = 0</td> </tr> </table>	Undisturbed habitat > 50% of circle	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 circle	points = 0	1
Undisturbed habitat > 50% of circle	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 circle	points = 0								
<p>H 2.3 Land use intensity in 1 km circle. If:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">> 50% of circle is high intensity land use</td> <td style="width: 20%; text-align: center;">points = (- 2)</td> <td style="width: 40%;"><=50% of circle is high intensity</td> <td style="text-align: right;">points = 0</td> </tr> </table>	> 50% of circle is high intensity land use	points = (- 2)	<=50% of circle is high intensity	points = 0	-2				
> 50% of circle is high intensity land use	points = (- 2)	<=50% of circle is high intensity	points = 0						
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?	
<p>H3.1 Does the site provides habitat for species valued in laws, regulations or policies? (<i>choose only the highest score</i>)</p> <p>Site meets ANY of the following criteria: points = 2</p> <ul style="list-style-type: none"> • It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) • It is a "priority area" for an individual WDFW species • It is a Wetland With a High Conservation Value as determined by the Department of Natural Resources • It has 3 or more priority habitats within 100m (see next page) • 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 <p>Site has 1 or 2 priority habitats within 100m (see next page) points = 1</p> <p>Site does not meet any of the criteria above points = 0</p>	2

Rating of Value If score is **2 = H** **1 = M** **0 = L** Record the rating on the first page

Wetland name or number F

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>)

Count how many of the following priority habitats are within 330 ft (100m) 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 0.4 ha (1 acre).

___ **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 p. 152).

___ **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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; 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:** Woodlands 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 7.6 m (25 ft) high and occurring below 5000 ft.

___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), 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 > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) 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 F

Wetland name or number F

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	
<p>SC 1.0 Estuarine wetlands Does the wetland unit 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</p>	
<p>SC 1.1 Is the wetland unit 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</p>	Cat. I
<p>SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — 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 <i>Spartina</i>, 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 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p>	Cat. I Cat. II
<p>SC 2.0 Wetlands with High Conservation Value (WHCV) SC 2.1 Has the Department of Natural Resources updated their web site to include the list of Wetlands with High Conservation Value? YES - Go to SC 2.2 NO - Go to SC 2.3 SC 2.2 Is the wetland unit you are rating listed on the DNR database as having a High Conservation Value? YES = Category I NO = not a WHCV SC 2.3 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf YES – contact WNHP/DNR and go to SC 2.4 NO = not a WHCV SC 2.4 Has DNR identified the wetland within the S/T/R as a wetland with High Conservation value and is listed on their web site? YES = Category I NO = not an WHCV</p>	Cat. I
<p>SC 3.0 Bogs Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? YES - go to Question SC 3.3 NO - go to Question 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 inches 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 Question 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 Question 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” deep. If the pH is less than 5.0 and the “bog” plant species are present in Table 4, 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, Englemann’s 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</p>	Cat. I



State Plane Coordinate System
 NAD 83 HARN Washington North FIPS 4601

Figure 1: Wetland F Buffer and Hydrology
 Sumner YMCA
 City of Sumner

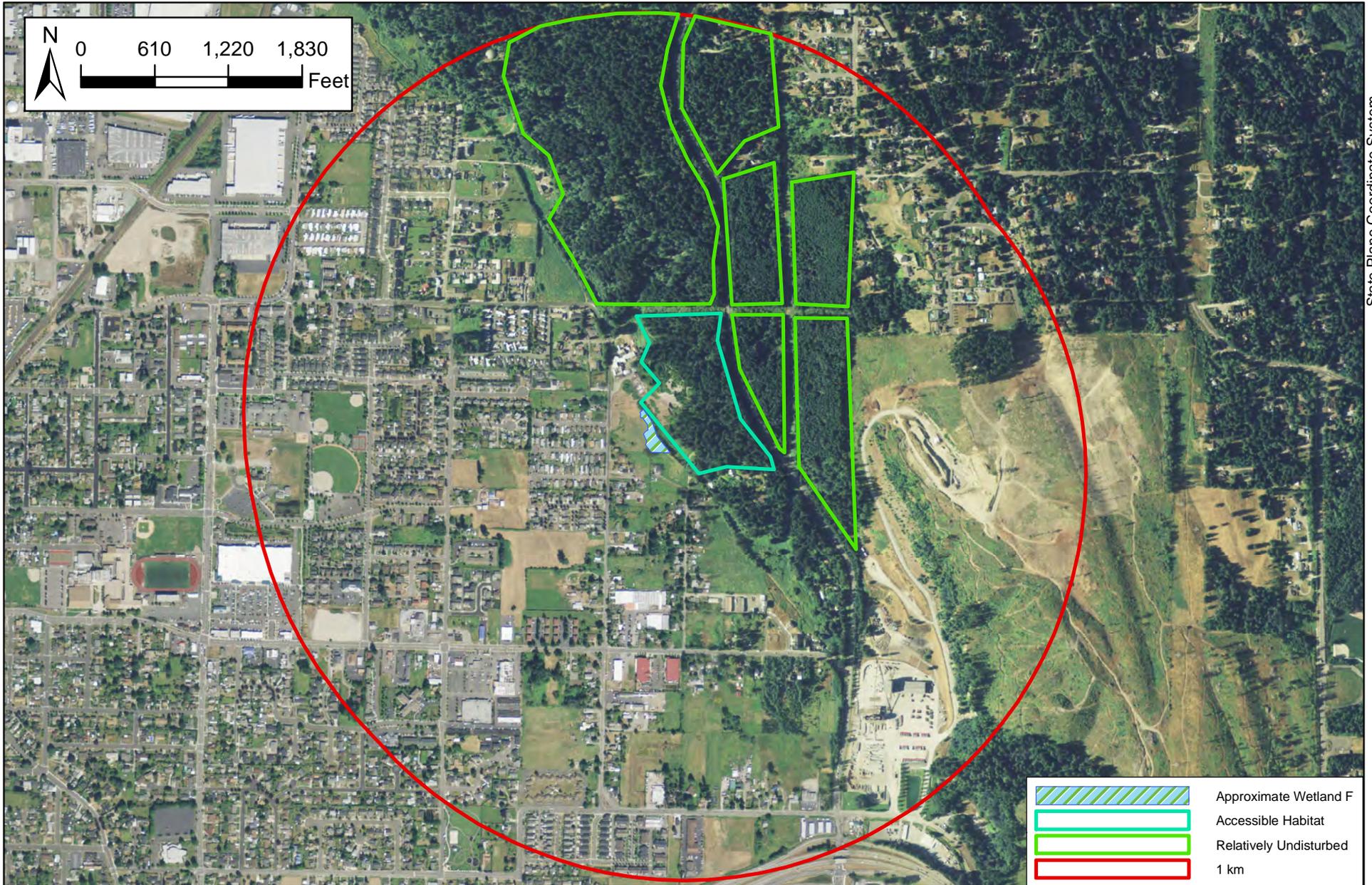
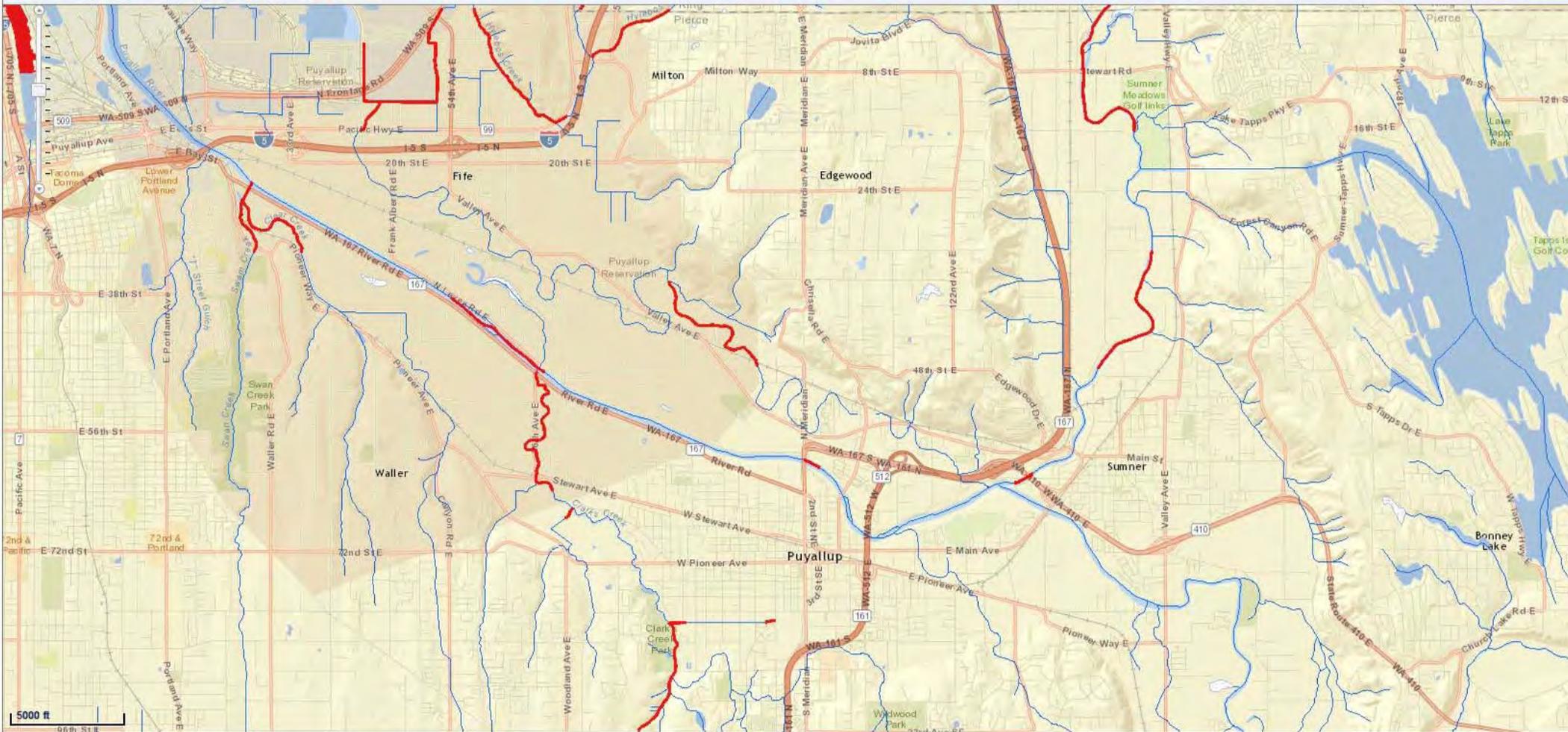


Figure 2: Land Use Polygons
 Sumner YMCA
 City of Sumner

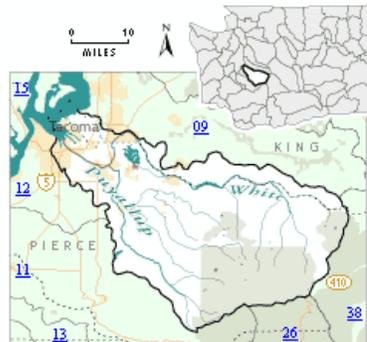


Water Quality Improvement Projects (TMDLs)

[Water Quality Improvement](#) > [Water Quality Improvement Projects by WRIA](#) > WRIA 10: Puyallup-White

WRIA 10: Puyallup-White

The following table lists overview information for water quality improvement projects (also known as total maximum daily loads, or TMDLs) for this water resource inventory area ([WRIA](#)). Please use links (where available) for more information on a project.



Counties

- [King County](#)
- [Pierce County](#)

Waterbody Name	Pollutant	Status**	TMDL Leads
<div style="background-color: #f0f0f0; padding: 2px; font-weight: bold; writing-mode: vertical-rl; transform: rotate(180deg);">FEEDBACK</div> Clarks Creek Meeker Creek	Dissolved Oxygen	TMDL project under development	Brett Raunig 360-690-4660
	Sediment	Public comment period: May 22 - July 21, 2014	
	Fecal Coliform	Approved by EPA Has an implementation plan	
Commencement Bay	Dioxin	Approved by EPA	Donovan Gray 360-407-6407
Puyallup River Watershed	Fecal Coliform	Approved by EPA	Donovan Gray 360-407-6407
	Multi-parameter Ammonia-N BOD (5-day)	Approved by EPA	
	White River Watershed	Upper White: <ul style="list-style-type: none"> • Sediment • Temperature Lower White <ul style="list-style-type: none"> • pH 	Approved by EPA Under Development
South Prairie Creek Tributary: Wilkeson/Gale Creek	Fecal Coliform Temperature	Approved by EPA Has an implementation plan	Donovan Gray 360-407-6407

** Status will be listed as one of the following: Approved by EPA, Under Development or Implementation

For more information about WRIA 10:

- [Waterbodies in WRIA 10](#) - using the Water Quality Assessment Query Tool
- [Watershed Information for WRIA 10](#)

* The Department of Ecology and other state resource agencies frequently use a system of 62 "Water Resource Inventory Areas" or "WRIAs" to refer to the state's major watershed basins.

[Back to top of page](#)

Last updated June 2014