Critical Areas Report and Restoration Plan

for

East Port Regional Forcemain
Kalama, Washington

Prepared for:

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ELS Project Number 1703.07

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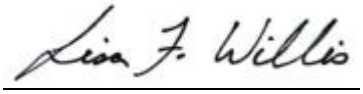
SIGNATURE

This report was prepared by the undersigned in accordance with the requirements of KMC 15.02.100. Lisa Willis holds a Bachelor of Arts degree in Biology and has 8 years' experience in wetland and critical area assessments and mitigation planning.



Lisa F. Willis

INTRODUCTION

Ecological Land Services, Inc. (ELS) was contracted by the Port of Kalama to complete a critical areas report and mitigation plan for the proposed alignment of the East Port Regional Forcemain. The project consists of completing an approximately 10,000-foot sanitary sewer forcemain system to provide sanitary sewer service to the Port of Kalama's (Port) proposed Haydu Park and future projects, and existing residential properties along Kalama River Road. A pump station located at the east end of Kalama River Road will pump wastewater through the forcemain to the City of Kalama's (City) Meeker Drive pump station. The Port has already installed significant portions of the forcemain along Kalama River Road and toward the Meeker Drive pump station. The Meeker Drive pump station is located approximately 6,000 feet south of Kalama River Road. The project is located in city owned rights of way and property owned by the Port of Kalama. The project is located in the City of Kalama in Cowlitz County, Washington, within Sections 31 and 32, Township 7 North, and Section 6, Township 6 North, Range 1 West of the Willamette Meridian (Sheet 1). The findings of this Critical Areas Report and Mitigation Plan are according to *City of Kalama Municipal Code* (KMC) *Title 15, Environment*.

SITE DESCRIPTION

The East Port Regional Forcemain alignment (study area) is located south of the intersection of Kalama River Road and Norris Pit Road, extending west on the north side of Kalama River Road until crossing Old Pacific Highway South, and crossing Kalama River Road to extend south down the west side of Meeker Drive to the existing City of Kalama pump station. Much of the pipe is in place; the proposed project will connect the existing pipe segments across public roads (Kalama River Road, Old Pacific Highway, and Meeker Drive) and in fill slopes adjacent to public rights of way. Land use in the immediate vicinity of the project consists of a mix of forestlands, fields in agricultural use, and large lot single family residential development east of Meeker Drive. West of Meeker Drive is Interstate 5 and commercial development. Vegetation in the project alignment includes grasses and forbs typical of waste areas. The Kalama River crosses the project alignment on Meeker Drive between Kalama River Road and the pump station.

METHODOLOGY

WETLAND DETERMINATION

Determination and delineation of onsite wetlands and streams were completed by ELS biologists in April and June 2014. The wetland delineation followed *KMC 15.02.120 (I)*, which adopts the Routine Determination Method according to the U.S. Army Corps of Engineers, *Wetland Delineation Manual* (Environmental Laboratory 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (U.S. Army Engineer Research and Development Center 2010).

To determine the presence or absence of wetlands onsite, ELS biologists collected data on vegetation, hydrology, and soils. Wetlands were delineated using consecutively numbered fluorescent flagging labeled "WETLAND BOUNDARY." Wetland boundaries were determined through breaks in topography, changes in vegetation, and evidence of surface or subsurface hydrology. Vegetation, hydrology, and soil data were collected from seven test plots to verify the presence and extent of wetlands. Offsite wetlands were observed from within the project site property lines and their boundaries were estimated on aerial photography.

By definition, wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The Routine Determination Method, according to the USACE, examines three parameters; vegetation, soils, and hydrology, in order to determine if wetlands are present in a given area. Hydrology is critical in determining wetland presence, but is often difficult to assess because hydrologic conditions are often dynamic and can change hourly, daily, and/or seasonally. Consequently, it is necessary to determine if hydrophytic vegetation and hydric soils are present, which would indicate that water is present for long enough duration to support a wetland plant community. Wetlands are regulated as "Waters of the United States" by the U.S. Army Corps of Engineers (USACE) and as "Waters of the State" by the WSDOE, and locally by the *KMC 15.02.120.*

ORDINARY HIGH WATER MARK DETERMINATION

The ordinary high water mark (OHWM) of the Kalama River was determined by the biological indicators and physical marks upon the soil according to *Determining the Ordinary High Water Mark on Streams in Washington State* (WSDOE 2010). Field work was completed by ELS using consecutively numbered fluorescent flagging in June 2014. The OHWM was surveyed by Minister and Glaeser surveying in June 2014.

WETLANDS

One depressional wetland, identified as Wetland A, is located on the Haydu Community Park site in the vicinity of the forcemain (Sheet 2). Wetland A is a depressional wetland within a historic river oxbow located in the northwest panhandle of the site. The delineated area of Wetland A totals approximately 2.04 acres with the remaining portion of the wetland continuing offsite to the south. Wetland A is classified as a scrub-shrub/emergent wetland (Cowardin et al. 1979) that receives hydrology from precipitation and seasonally high ground water levels. Wetland A has seasonally flooded and occasionally flooded hydroperiods. According to the *Washington State Wetlands Rating System for Western Washington* (WSDOE 2004), Wetland A is rated as a Category II wetland (Appendix B). Test plots were taken in Wetland A (Appendix B).

Wetland B is a depressional wetland located south of Kalama River Road. It is part of a historic oxbow of the Kalama River and was at one time connected to Wetland A. The wetland has been partially excavated to create a pond on private property. The boundaries of the wetland were not

officially delineated because the project is located north of Kalama River Road and is therefore functionally isolated from the wetland. Wetland B is classified as an aquatic bed, scrub-shrub and emergent wetland (Cowardin et al. 1979) that receives hydrology from precipitation and seasonally high ground water levels. Wetland B has permanently flooded, seasonally flooded, and occasionally flooded hydroperiods. According to the *Washington State Wetlands Rating System for Western Washington* (WSDOE 2004), Wetland B is rated as a Category II wetland (Appendix B).

Wetland C is a depressional wetland located east of Meeker Drive north of the Meeker Drive pump station. The boundaries of the wetland were not officially delineated because the project is located west of Kalama River Road and is therefore functionally isolated from the wetland. Wetland C is classified as a scrub-shrub/emergent wetland (Cowardin et al. 1979) that receives hydrology from precipitation and seasonally high ground water levels. Wetland C has seasonally flooded and occasionally flooded hydroperiods. According to the *Washington State Wetlands Rating System for Western Washington* (WSDOE 2004), Wetland C is rated as a Category III wetland (Appendix B).

VEGETATION

Within the portion of the Wetlands adjacent to the study area, observed dominant vegetation is primarily comprised of Pacific willow (*Salix lucida*, FACW), hardhack (*Spiraea douglasii*, FACW), reed canarygrass (*Phalaris arundinacea*, FACW), with nearby upland vegetation comprised of Oregon white oak (*Quercus garryana*, FACU), reed canarygrass, orchardgrass (*Dactylis glomerata*, FACU) and velvetgrass (*Holcus lanatus*, FAC) (Appendix A). Vegetation in the upland fill slopes includes reed canarygrass and various upland weeds.

The dominant vegetation found onsite is recorded on the attached wetland determination data sheets (Appendix A). The indicator status, following the common and scientific names, indicates how likely a species is to be found in wetlands. Listed from most likely to least likely to be found in wetlands, the indicator status categories are:

- **OBL** (obligate wetland) – Almost always occur in wetlands.
- **FACW** (facultative wetland) – Usually occur in wetlands, but may occur in non-wetlands.
- **FAC** (facultative) – Occur in wetlands and non-wetlands.
- **FACU** (facultative upland) – Usually occur in non-wetlands, but may occur in wetlands.
- **UPL** (obligate upland) – Almost never occur in wetlands.
- **NI** (no indicator) – Status not yet determined.

SOILS

As referenced on the Natural Resource Conservation Service (NRCS) website (NRCS 2011), the soils in the study area are mapped as (17) Caples silty clay loam, 0 to 3 percent slopes, (32) Clato silt loam, 0 to 3 percent slopes, (65) Godfrey silt loam, 0 to 3 percent slopes, (69) Greenwater fine sandy loam, 0 to 8 percent slopes, (109) Lithic Haplumbrepts, 50 to 100 percent slopes, (124) Mart silt loam, 8 to 20 percent slopes, (125) Mart silt loam, 20 to 30 percent slopes, (141)

Newberg fine sandy loam, 0 to 3 percent slopes, (160) Pilchuck loamy fine sand, 0 to 8 percent slopes, (161) Pits, and (263) Water (Table 1; Sheet 3).

Table 1. Summary of mapped soils.

Mapped Soil Unit		Soil Parent Material	Landform Occurrence	Drainage Classification	Hydric Classification Status
(17)	Caples silty clay loam, 0 to 3 percent slopes	Alluvium	Floodplains	Somewhat Poorly Drained	Hydric
(32)	Clato silt loam, 0 to 3 percent slopes	Alluvium derived from sedimentary rock	Floodplains	Well Drained	Not Hydric
(65)	Godfrey silt loam, 0 to 3 percent slopes,	Alluvium	Floodplains	Poorly Drained	Hydric
(69)	Greenwater fine sandy loam, 0 to 8 percent slopes	Alluvium & Volcanic material	Escarpments & Terraces	Somewhat Excessively Drained	Not Hydric
(109)	Lithic Haplumbrepts, 50 to 100 percent slopes	Colluvium and residuum derived from basalt	Mountain slopes, canyons, bluffs	Well drained	Not Hydric
(124)	Mart silt loam, 8 to 20 percent slopes	Residuum weathered from andesite and volcanic breccias	Mountain slopes, hillslopes	Well drained	Not Hydric
(125)	Mart silt loam, 20 to 30 percent slopes	Residuum weathered from andesite and volcanic breccias	Mountain slopes, hillslopes	Well drained	Not Hydric
(141)	Newberg fine sandy loam, 0 to 3 percent slopes,	Alluvium	Flood plains	Well drained	Not Hydric
(160)	Pilchuck loamy fine sand, 0 to 8 percent slopes	Alluvium	Floodplains	Somewhat Excessively Drained	Not Hydric
(161)	Pits	N/A	N/A	N/A	N/A

(263) Water	N/A	Alluvial cones	N/A	N/A

Mapped hydric soils do not necessarily mean that the area is a wetland - hydrology, wetland vegetation, and hydric soils must all be present to classify an area as a wetland. Conversely, wetlands maybe found in areas where the soils are not mapped as hydric. Field observations generally confirm the mapped soil types (Sheet 3).

HYDROLOGY

All three wetlands in the study area receive hydrology from precipitation and seasonally high ground water levels that result in seasonally flooded and occasionally flooded wetland hydroperiods. Wetland B also includes a permanently flooded pond. The Kalama River is a permanently flowing river.

NATIONAL WETLAND INVENTORY

The NWI maps the Kalama River in the study area as riverine, tidal, unconsolidated bottom, permanent tidal (R1UBV) (Sheet 4). Wetland A is mapped as a palustrine, emergent, temporarily flooded (PEMA) wetland. A palustrine, emergent, seasonally flooded (PEMC) wetland is mapped adjacent to the south side of Kalama River Road west of Wetland A (Wetland B). A Palustrine, emergent, scrub/shrub, seasonally flooded (PEM/SSC) wetland is mapped east of Meeker Drive and north of the existing pump station (Wetland C). ELS field investigations were generally consistent with NWI mapping. NWI maps should be used with discretion because they are used to gather general wetland information about a regional area and therefore are limited in accuracy for smaller areas because of their large scale.

WETLAND BUFFERS

According to the *KMC 15.02.120 Critical Areas Wetlands,* wetland buffer widths are based on the wetland categorization according to the *Washington State Wetlands Rating System for Western Washington* (2004), and the proposed land use intensity adjacent to the wetlands. Development intensities of adjacent land uses (rural residential) for the purpose of determining wetland buffers are defined as high or low according to *KMC 15.02.050*. The proposed forcemain will be constructed in low impact and high impact development areas.

According to *KMC Table 15.01.120-1,* the Category II wetlands in the study area require 100-foot buffers (Table 2; Sheet 2). Kalama River Road and Meeker Drive separate Wetlands A, B, and C and their intact buffers from the proposed forcemain improvements. Wetland buffers terminate at the edge of existing impervious surfaces due to functional isolation. Although functional isolation is not explicitly stated in KMC, maintenance, operation, reconstruction of existing improvements is exempt from regulation under the critical areas code (*KMC 15.02.070 (E)*). This exemption implies that the buffer functions are not present where roads, buildings, etc. exist and therefore do not exist on the opposite side of such improvements. The concept of a functionally isolated buffer is widely accepted in the ecological community and by the Washington State Department of Ecology (Ecology). Ecology has accepted functionally isolated buffer exemption language in many recent Shoreline Management Plan updates throughout the state.

Table 2. Summary of Wetlands and Wetland Buffers

Wetland	Cowardin Classification[1]	State/Local Classification[2]	Adjacent Land Use Intensity[3]	Buffer Width[4]
Wetland A	Scrub-shrub/Emergent	Category II	Low	100 feet
Wetland B	Scrub-shrub/Emergent	Category II	Low	100 feet
Wetland C	Scrub-shrub/Emergent	Category II	Low	100 feet

[1] Cowardin et al. 1979
[2] According to KMC 15.02.120, and WSDOE Washington State Wetlands Rating System for Western Washington (2004).
[3] According to *KMC 15.02.050*.
[4] According to *KMC Table 15.02.120-1*.

PRIORITY SPECIES & HABITATS

TERRESTRIAL HABITATS - RIPARIAN

The Washington Department of Fish and Wildlife's Priority Area Description of Riparian Habitat is as follows; "The area adjacent to flowing or standing freshwater aquatic systems…riparian habitat encompasses the area beginning at the ordinary high water mark and extends to that portion of the terrestrial landscape that is influenced by, or that directly influences, the aquatic ecosystem. In riparian systems, the vegetation, water tables, soils, microclimate, and wildlife inhabitants of terrestrial ecosystems are often influenced by perennial or intermittent water. Simultaneously, adjacent vegetation, nutrient and sediment loading, terrestrial wildlife, as well as organic and inorganic debris influence the biological and physical properties of the aquatic ecosystem. Riparian habitat includes the entire extent of the floodplain and riparian areas of wetlands that are directly connected to stream courses or other freshwater."

The Kalama River, located along the southern and eastern boundaries of the park site, is a Type S (shoreline) water. According to the *KMC Table 15.02.130-2 Riparian Habitat Areas,* Type S waters are identified as Type 1 waters that require 250-foot buffers.

PRIORITY HABITATS

Two Oregon white oak trees are located on the Haydu Community Park site, south of the study area.

PRIORITY SPECIES

Federal & State Listed Species in the Project Vicinity

The potential presence of listed species that have a primary association with the habitat on or adjacent to the RHA was evaluated by a site visit and consulting aerial photographs, the WDFW SalmonScape website (2011), the U.S. Fish and Wildlife Service (USFWS 2011) website, National Marine Fisheries Service (NMFS 2005), and the Washington Department of Natural Resources Natural Heritage websites (WDNR 2014) (Table 3). No official botanical surveys were conducted during the identification window for listed plant species to confirm their presence or absence onsite.

Table 3. Listed Species with Primary Association with Habitat on or Adjacent to Project Area

Species	**Federal Status**	**State Status**	**Potential Habitat In/Adjacent To Project Site**	**Critical Habitat Adjacent or Downstream from Project Site**
Fish				
Bull Trout (*Salvelinus confluentus*) Lower Columbia River DPS[1]	Threatened[3]	Candidate	Yes; Kalama River	Yes; Columbia River
Chinook Salmon (*Oncorhynchus tshawytscha*) Lower Columbia River ESU[2]	Threatened[3]	Candidate	Yes; Kalama River	Yes
Chum Salmon (*Oncorhynchus keta*) Lower Columbia River ESU[2]	Threatened[3]	None	Yes; Kalama River	Yes
Steelhead (*Oncorhynchus mykiss*) Lower Columbia River DPS[1]	Threatened[3]	Candidate	Yes; Kalama River	Yes
Eulachon (*Thaleichthys pacificus*) Southern DPS	Threatened[3]	None	Yes; Kalama River	Yes; Columbia River
Birds				
Streaked horned lark (Eremophila alpestris strigata)	Threatened	Threatened	No	Yes- sand disposal sites
Yellow Billed Cuckoo (*Coccyzus americanus)*	Proposed Threatened			
Marbled Murrelet (*Brachyramphus marmoratus*)	Threatened[3]	Threatened[3]	No	No
Mammals				
Columbian White-Tailed deer (*Odocoileus virginianus leucurus*) Columbia River DPS	Endangered	Endangered	No	No

North American wolverine (*Gulo gulo luscus*)	Proposed Threatened	None	No	No
Plants				
Tall agoseris (*Agoseris elata*)	Sensitive	None	No	No Federally Designated Critical Habitat
Tall bugbane (*Cimicifuga elata*)	Sensitive	Species of Concern	No	
Clackamas corydalis (*Corydalis aquae-gelidae*)	Sensitive	Species of Concern[6]	No	
Pink fawn-lily (*Erythronium revolutum*)	Sensitive	None	No	
Western wahoo (*Euonymus occidentalis*)	Sensitive	None	Yes; Kalama River RHA	
Nutall's quillwort (*Isoetes nutyallii*)	Sensitive	None	Yes; Wetland A	
Loose-flowered bluegrass (*Poa laxiflora*)	Sensitive	None	Yes; Kalama River RHA	
Wheeler's bluegrass (*Poa nervosa*)	Sensitive	None	No	
Soft-leaved willow (*Salix sessifolia*)	Sensitive	None	Yes; Kalama River RHA	
Nelson's checker-mallow (*Sidalcea nelsoniana*)	Endangered	Listed Threatened	Yes; ditches and depressions throughout site	

[1]DPS = Distinct Population Segment

[2]ESU = Evolutionarily Significant Unit - a distinct population of Pacific salmon or steelhead

[3]Threatened = Likely to become endangered within the foreseeable future throughout all or a significant portion of its range and has been formally listed as such in the Federal Register under the Federal Endangered Species Act.

[4]Sensitive =Vulnerable or declining and could become endangered or threatened in the state.

[5]Endangered = In danger of becoming extinct or extirpated and has been formally listed as such in the Federal Register under the Federal Endangered Species Act.

[6]Species of Concern = Species that are declining or appear to be in need of conservation.

OTHER CRITICAL AREAS

SHORELINES OF THE STATE

The Kalama River is a Type S (shoreline) water. Shorelines of the state (Type S) are identified as Type 1 waters by *KMC* and are assigned a 250-foot RHA *(KMC Table 15.02.130-2 Riparian Habitat Areas*).

Shorelines of the State are regulated under *Chapter 90.58 RCW, Shoreline Management Act of 1971* and the *Shorelines Management Master Program for Cowlitz County, Washington* (1977)

as adopted by *KMC 15.08.010*. Shorelands onsite are designated as lands within 200 feet of the floodway of the Kalama River. The proposed project complies with the current Cowlitz County Shorelines Management Master Program. The project will provide recreational opportunities and shoreline access to the community, meeting the stated Shorelines Management Master Program Goals. The following regulations are applicable to the proposed project:

The project complies with the Utilities Regulations for the Urban District of the Shorelines Management Master Program for Cowlitz County (1977) in the following ways:

1) i.) A permit for Shoreline Substantial Development will be acquired.
   ii.) a. All of the utility will be underground except when crossing an existing bridge over the Kalama River.
   b. Clearing will be kept to a minimum. The new line will be installed in existing fill slopes in public rights of way and in applicant-owned lawn or agricultural land. No trees will be removed for construction of the forcemain.
   c. Disturbance areas will be restored to original elevation and replanted with native or erosion control seed.
2) Hookup linkages to Haydu Community Park will be underground.

FREQUENTLY FLOODED AREAS

The study area north of the Kalama River is currently mapped by the FEMA Flood Insurance Rate Mapping as being located within Zones B, C, and A7 of the Kalama River. Zone A7 designation is classified as within the 100-year floodplain, Zone B is in the 100 year flood plain, and Zone C is an area of minimal flooding (Sheet 5). Under *KMC15.02.140* all lands identified in FEMA Flood Insurance Rate Maps as within the 100-year floodplain are designated as frequently flooded areas and are subject to *KMC Chapter 14.16.* The project does not propose fill or removal in flood plains, as all excavation will be restored to pre-construction grade.

CRITICAL AQUIFER RECHARGE AREAS

The study area is mapped within a critical aquifer recharge area and therefore may be subject to *KMC Chapter 15.02.160 Critical Aquifer Recharge Areas*.

ASSESSMENT OF PROBABLE CUMULATIVE IMPACTS TO CRITICAL AREAS

The proposed project is completion of a partially installed forcemain. Impacts from soil disturbance will be temporary. Vegetation to be removed is herbaceous and will be restored at project completion. Native grass seed will be placed following restoration of the soil surface. The proposed crossing of the Kalama River will be located on an existing bridge. Suspending the forcemain from existing infrastructure will not increase the footprint of the bridge, or significantly increase the shading of the river below the bridge.

WETLAND BUFFER MITIGATION PLAN

POTENTIAL EFFECTS TO LISTED SPECIES & CRITICAL HABITAT

Existing Functions of Impacted Critical Areas

No direct impacts are proposed within the Kalama River, where habitat for listed species has been identified. No indirect effects to the river will be caused by the trench excavation or suspending the forcemain from Meeker Bridge. Excavation will be within existing fill slopes of Kalama River Road, Old Pacific Highway, and Meeker Drive. No trees or shrubs will be removed for construction of the forcemain or appurtenant structures. Functionally isolated buffers adjacent to Wetland B and Wetland C will ensure no temporary or permanent impacts to the wetlands.

DIRECT EFFECTS

Wetland Buffers

No wetland buffers will be affected by the proposed project. Existing impervious surfaces, such as roads, create functional isolation for habitat and water quality functions of wetlands and streams. This is reflected in this code section which exempts maintenance and reconstruction of existing roads, utility lines, etc. (*KMC 15.020.070 (E)*). While a portion of the project occurs within the codified buffer width of wetlands, the project avoids impacts to functioning buffers by locating the forcemain on the opposite side of existing roads. Unimproved land separated from a wetland or stream by impervious surface does not function as water quality filter or habitat buffer for the critical area. Where the forcemain is located near a wetland with a functioning buffer, the buffer area has been avoided.

Riparian Habitat Area

Suspending a forcemain from an existing, serviceable bridge will not cause negative impacts to the Kalama River. Within 250 feet of the Kalama River, herbaceous vegetation will be removed for installation of the forcemain below ground.

Potential direct impacts to the riparian habitat or the river from project construction consist of sediment-laden runoff entering the river during soil disturbing activities and vegetation clearing. Best Management Practices (BMPs) will be in place during construction to prevent untreated stormwater runoff discharging into the river or wetlands; therefore, there are no anticipated direct impacts from the construction phase of the project. Clearing will be limited to the minimum necessary for construction.

INDIRECT EFFECTS

No indirect effects to critical areas are anticipated from the proposed project.

Avoidance & Minimization Measures

The forcemain design has been optimized to utilize uplands that have been historically impacted by road construction and to utilize previously installed pipe lines. Impact avoidance and minimization measures include clearing only what vegetation is needed for construction of the forcemain, aligning the forcemain outside wetland buffers, and in historically disturbed land. To

replace vegetation and stabilize soils within the construction area, disturbed soils in wetland and stream buffers will be seeded with native grass species.

MITIGATION PLAN

MITIGATION SEQUENCING

Construction details that avoid and minimize impacts are described above in the *Avoidance and Minimization Measures* section. This project will not increase shoreline erosion or impervious surfaces, and no net loss of functions and values in riparian habitat or buffer will result.

MITIGATION DESIGN

Proposed mitigation for project impacts will include planting native grass in the area disturbed by construction, which will maintain or improve habitat and water quality functions in the buffer of the Kalama River (Table 4). Native grass will provide greater habitat value than the existing reed canarygrass and invasive weeds. The approximate disturbed area will be 0.12 acres, a 10-foot wide disturbance area through the 250-foot wide RHA on north and south sides of the river.

Table 4. Mitigation summary

Critical Area	Impact Area	Ratio	Mitigation Area	Strategy (onsite)
RHA	~0.12	1 : 1	0.12	Restoration, replanting with native grass seed (Table 5)

Table 5. Representative Grass Seed Mix Specifications (Sunmark Seeds).

TEMPORARY BUFFER IMPACT AREAS – Stream Bank Plus	
Species	**Composition***
Native red fescue (*Festuca rubra*, FAC)	50%
California brome (*Bromus carinatus*, NI)	20%
Blue wildrye (*Elymus riparius*)	20%
Large leaf lupine (*Lupinus polyphyllus*, FAC)	10%
Total:	100%

SITE-PREPARATION SPECIFICATIONS

The following steps will be taken to prepare the site for planting:

1. Invasive species will be removed using an excavator during construction.
2. A minimum of 6 inches of topsoil will be placed to bring the site to pre-construction grade.

TIMING

Planting will occur in the late fall to early spring, during or within one calendar year following completion of impacts when the site is moist and the plants are dormant.

MITIGATION GOALS & PERFORMANCE STANDARDS

The mitigation goal is to replace functions impacted within functioning portions of the RHA to maintain the same area and function of critical areas buffers onsite.

GENERAL PERFORMANCE STANDARDS

This project will meet the general performance standards listed in *KMC 15.02.170*, because the project will mitigate onsite for native vegetation removal and impervious surface construction in critical areas buffers.

SPECIFIC PERFORMANCE STANDARDS

Objective 1. Restore pre-construction conditions throughout the riparian buffer of the Kalama River. This includes grass side slopes adjacent to Meeker Drive and sand adjacent to the OHWM below Meeker Bridge.

Performance Standard 1a: After one year the restored riparian buffer will have a cumulative aerial cover of emergent vegetation of 80% in areas that were vegetated prior to construction.

MONITORING PLAN

The restoration area will be monitored for a one-year period following the date of seeding. The monitoring goal is to determine if the performance standards are being met. Monitoring will occur during the growing season in the Construction Year and Year 1. Year 1 vegetation monitoring will begin the first growing season at least one calendar year after seeding. The goal of monitoring is to show no net loss of function 1 year after project completion.

VEGETATION

Vegetative monitoring will be conducted during the growing season. The following information will be gathered:

- Percent aerial cover of non-native, invasive species.
- General health of plants, noting specific problems and potential causes.
- Photographic documentation of vegetative changes over time from photo points that will be established during plant installation or Year 1 monitoring.

PHOTOGRAPHS

Photographs showing representative characteristics of the mitigation site will be taken from photo points that will be established at the time of plant installation or during Year 1 monitoring.

Photograph locations will be shown on the as-built map and will be included in each monitoring report.

MONITORING REPORT CONTENTS

Monitoring reports will be submitted no later than December 31st to the City. Reports will discuss how performance standards are being met. The following items will be included in the report:

- Location map (including photo-point locations) and as-built drawing.
- Historic description of project, including dates of plant installation, current year of monitoring, and restatement of mitigation goals, objectives, and performance standards.
- Description of monitoring methods.
- Documentation of plant cover and overall development of plant communities.
- Assessment of non-native, invasive plant species and recommendations for management.
- Photographs from photo points established at time of planting or during Year 1 monitoring.
- Summary of maintenance and contingency measures completed for the past year and proposed for the next year, if needed.

General monitoring will be conducted by the applicant or a qualified professional, and observations will be reported. Site maintenance tasks will include the following activities:

- Identify plants that require replacement to meet performance standards.
- Control invasive species.
- Protect native species by weeding or mowing around the plants, if necessary.
- Irrigate planted areas during the dry season for the first three years, or as weather necessitates.

MAINTENANCE & CONTINGENCY PLANS

Maintenance Plan

Maintenance at this site will be conducted for one year and will involve removing invasive plant species, watering as needed, fertilizing if necessary, and re-seeding to meet performance standards:

1. Remove invasive species as needed during the growing season.
2. Water as necessary.
3. Fertilize if necessary.

Contingency Plan

If mitigation areas are failing or the performance criteria are not met, steps will be taken to correct the situation in a timely manner. The following steps will be implemented when an area is identified as failing or potentially failing:

1. Identify the cause(s) of the failure or potential failure.
2. Identify the extent of the failure or potential failure.
3. Implement corrective actions such as irrigating, fertilizing, replanting, or more aggressive bank stabilization techniques.
4. Document the activities and include this data in the monitoring reports.

5. In the event that a routine corrective action will not correct the problem, immediately consult with the appropriate agencies.
6. Evaluate recommendations from resource agency staff and implement recommendations in a timely manner.

Funding for onsite corrective actions will be the responsibility of the applicant.

MANAGEMENT RECOMMENDATIONS

Activities may be allowed within a critical area if state and federal management recommendations are used to protect state or federally endangered, threatened, or sensitive species that have a primary association with the affected habitat. No direct impacts or construction will occur within undisturbed habitat of listed species.

CONCLUSION

This project involves the construction of a sewer line structures within and adjacent to existing roads and uplands. All applicable best management practices will be employed during construction; the proposed project with proposed restoration will not impact the function and values of the riparian habitat and no listed species within the Kalama River or the associated riparian habitat will be directly or indirectly impacted. Best management practices will be in place prior to, and for the duration of construction including installing silt fencing. The project will be constructed mainly in existing disturbed area and will be mostly vegetated following construction, and mitigation will replace impacted functions onsite. Therefore, this project will have minimal or no effects to listed and priority species or critical and priority habitats, and will have no adverse indirect or cumulative effects to the environment.

LIMITATIONS

The conclusions listed above are based on standard scientific methodology and best professional judgment. In our opinion, the conclusions should agree with local, state, and federal regulatory agencies; however, this should be considered a preliminary jurisdictional determination and should be used at your own risk until it has been reviewed and approved in writing by the appropriate regulatory agencies.

REFERENCES

City of Kalama. 2004. *City of Kalama Critical Areas Protection Ordinance, Chapter 15.02*.

Cowardin, L.M., C. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* FWS/OBS-78/31. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington D.C.

Cowlitz-Wahkiakum Regional Planning Commission. 1977. *Shorelines Management Master Program for Cowlitz County*. August 17, 1977.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual, Technical Report* Y-87-1. U.S. Army Corps of Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Hruby, T. August 2004. *Washington State Wetland Rating System for Western Washington, Revised*. Washington State Department of Ecology Publication #04-06-025. Olympia, Washington.

Olson, P. and E. Stockdale. 2008. *Determining the Ordinary High Water Mark on Streams in Washington State*. Washington State Department of Ecology. Publication number 08-06-001. April 2008. U.S. Fish and Wildlife Service (USFWS).

U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-13. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service (USFWS). *Listed and Proposed Endangered and Threatened Species and Critical Habitat; Candidate Species; and species of Concern in Cowlitz County.* USFWS Western Washington Fish and Wildlife Office. http://www.fws.gov/wafwo/speciesmap/CowlitzCounty121510.pdf. Accessed July 2014.

U.S.D.A. Natural Resource Conservation Service (NRCS). 2014. *WA015 Cowlitz County Area.* Online document <http://www.or.nrcs.usda.gov/pnw_soil/wa_reports.html>. Website accessed June 2014.

U. S. Fish & Wildlife Service. 2014. National Wetlands Inventory. Online document <http:www.wetlandsfws.er.usgs.gov/NWI/index.html>. Website accessed June 2014.

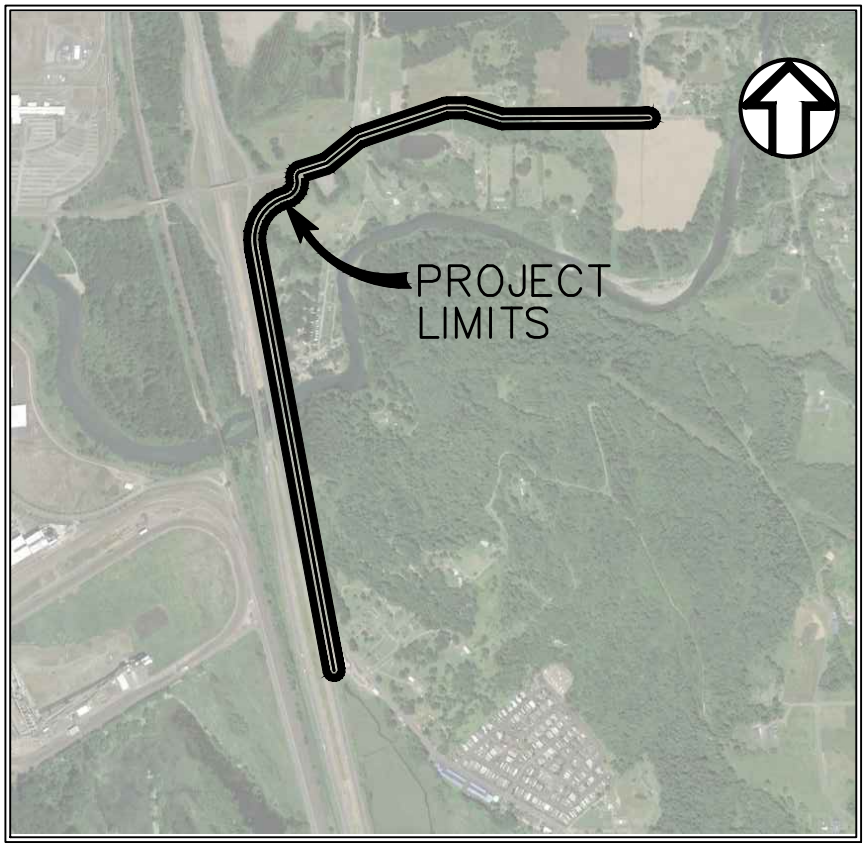
Washington Department of Fish and Wildlife (WDFW). 2014. *SalmonScape.* http://fortress.wa.gov/dfw/gispublic/apps/salmonscape/default.htm. Accessed September 2013.

Washington Department of Fish and Wildlife (WDFW). Priority Habitat and Species Website. Online document <http://wdfw.wa.gov/hab/phspage.htm.> Website accessed June 2014.

Washington State Department of Natural Resources (DNR). Available GIS Data; Natural Heritage. Online data < http://fortress.wa.gov/dnr/app1/dataweb/dmmatrix.html>. Website accessed June 2014.

FIGURES

LOCATION MAP
NOT TO SCALE



PROJECT SITE MAP
NOT TO SCALE

Port of Kalama

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Vancouver, WA 98660
360.695.7041

ECOLOGICAL LAND SERVICES, INC.
1157 3rd Avenue, Suite 220
Longview, WA 98632

PURPOSE: New sewer line

DATUM: NAD83
ADJACENT PROPERTY OWNERS: See JARPA

VICINITY MAP
APPLICANT: Port of Kalama
PROJECT NAME: Sewer Line Permitting
REFERENCE #: Not Yet Assigned
SITE LOCATION ADDRESS:
Sewer line extending from Haydu Community Park and existing City of Kalama pump station

PROPOSED: temporary impacts

IN wetlands, Kalama River
NEAR: Kalama
COUNTY: Cowlitz **STATE:** WA
SHEET 1 **OF** 10
DATE: 10/17/14

N
W E
S

0 500 1000
SCALE IN FEET

ECOLOGICAL LAND SERVICES, INC.
1157 3rd Avenue, Suite 220
Longview, WA 98632

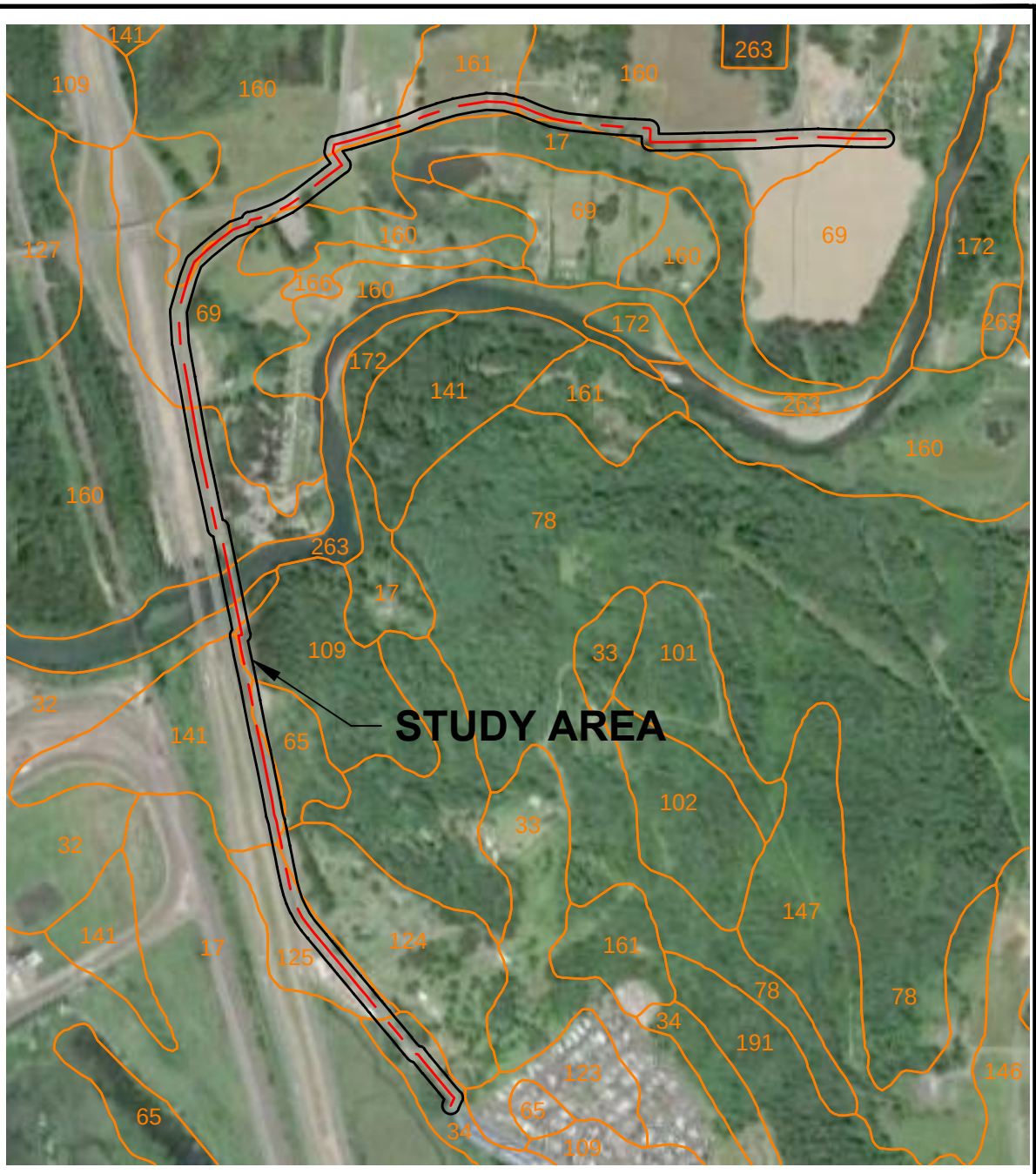
PURPOSE: New sewer line

DATUM: NAD83
ADJACENT PROPERTY OWNERS: See JARPA

EXISTING CONDITIONS SITE MAP
APPLICANT: Port of Kalama
PROJECT NAME: Sewer Line Permitting
REFERENCE #: Not Yet Assigned
SITE LOCATION ADDRESS: Sewer line extending from Haydu Community Park and existing City of Kalama pump station

PROPOSED: temporary impacts

IN wetlands, Kalama River
NEAR: Kalama
COUNTY: Cowlitz STATE: WA
SHEET 2 OF 10
DATE: 8/26/14



LEGEND:

17	Caples silty clay loam, 0 to 3 percent slopes. **Hydric.**
32	Clato silt loam, 0 to 3 percent slopes. Not hydric.
34	Coweeman silty clay loam, 3 to 30 percent slopes. Not hydric.
65	Godfrey silt loam, 0 to 3 percent slopes. **Hydric.**
69	Greenwater fine sandy loam, 0 to 8 percent slopes. Not hydric.
124	Mart silt loam, 8 to 20 percent slopes. Not hydric.
125	Mart silt loam, 20 to 30 percent slopes. Not hydric.
141	Newberg fine sandy loam, 0 to 3 percent slopes. Not hydric.
160	Pilchuck loamy fine sand, 0 to 8 percent slopes. Not hydric.
161	Pits
263	Water

NOTE(S):

1. Map provided on-line by NRCS at web address: *http://websoilsurvey.nrcs.usda.gov/app/*

N W E S

0 2000 4000 SCALE IN FEET

ECOLOGICAL LAND SERVICES, INC.
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Soil Survey Map

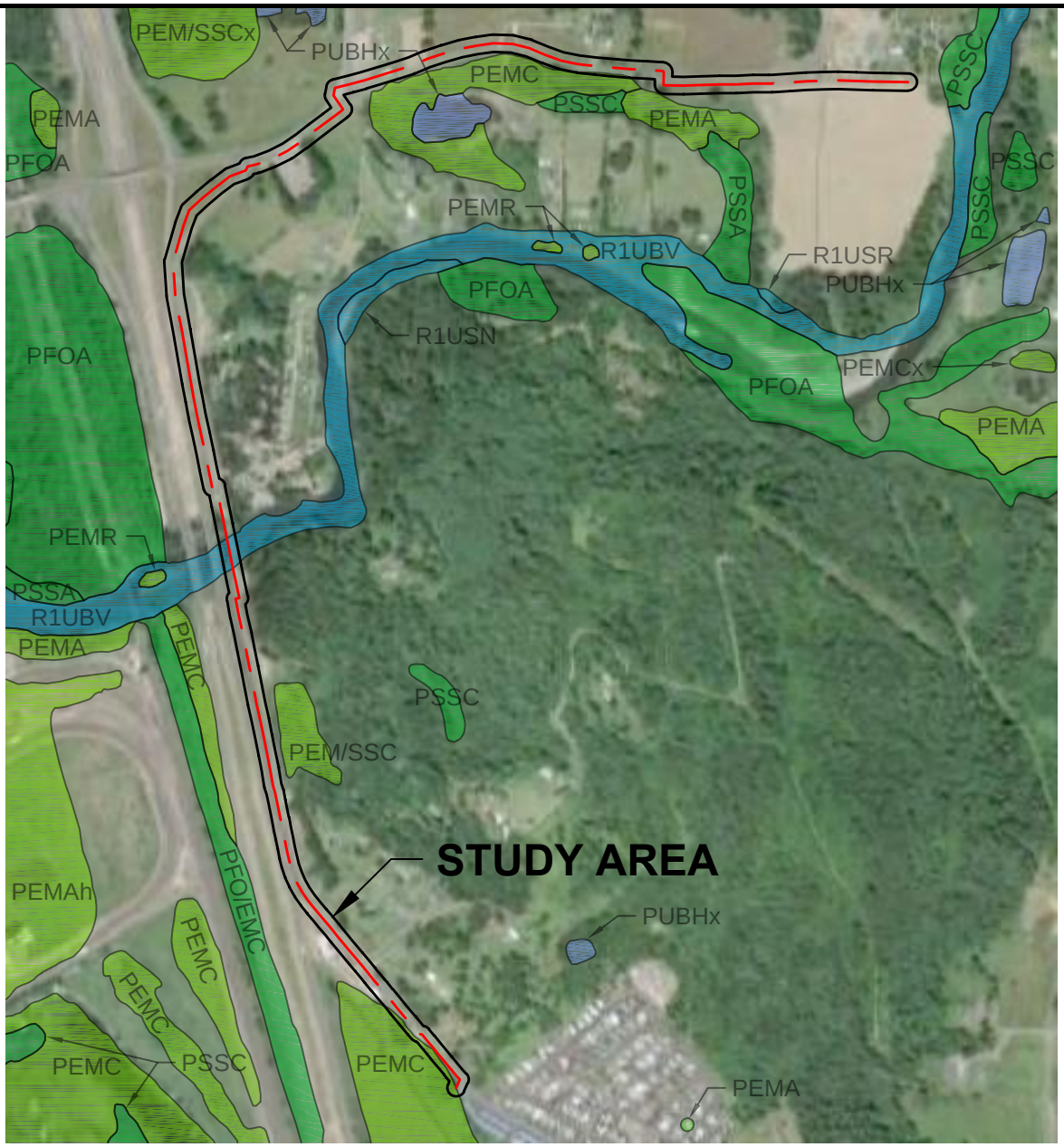
APPLICANT: Port of Kalama
PROJECT NAME: Sewer Line Permitting
REFERENCE #: Not Yet Assigned
SITE LOCATION ADDRESS: Sewer line extending from Haydu Community Park and existing City of Kalama pump station

PURPOSE: New sewer line

DATUM: NAD83
ADJACENT PROPERTY OWNERS: See JARPA

PROPOSED: temporary impacts
IN wetlands, Kalama River
NEAR: Kalama
COUNTY: Cowlitz **STATE:** WA
SHEET 3 **OF** 10
DATE: 8/26/14

8/26/2014 1:52 PM S:\Ecological Land Services, Inc\Washington\Cowlitz\Kalama\1703-Port of Kalama\1703.07-Sewer Line Permitting\1703.07-Figures\1703.07_DL.dwg Jennifer



LEGEND:

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

PEMA	Palustrine, emergent, temporarily flooded.
PEMC	Palustrine, forested, seasonally flooded.
R1UBV	Riverine, tidal, unconsolidated bottom, permanent/tidal.

NOTE(S):

1. Map provided on-line by US Fish & Wildlife Service at web address: *http://www.fws.gov/wetlands/data/index.html*

N W E S

0 1000 2000
SCALE IN FEET

ECOLOGICAL LAND SERVICES, INC.
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PURPOSE: New sewer line

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA

NATIONAL WETLANDS INVENTORY MAP

APPLICANT: Port of Kalama

PROJECT NAME: Sewer Line Permitting

REFERENCE #: Not Yet Assigned

SITE LOCATION ADDRESS: Sewer line extending from Haydu Community Park and existing City of Kalama pump station

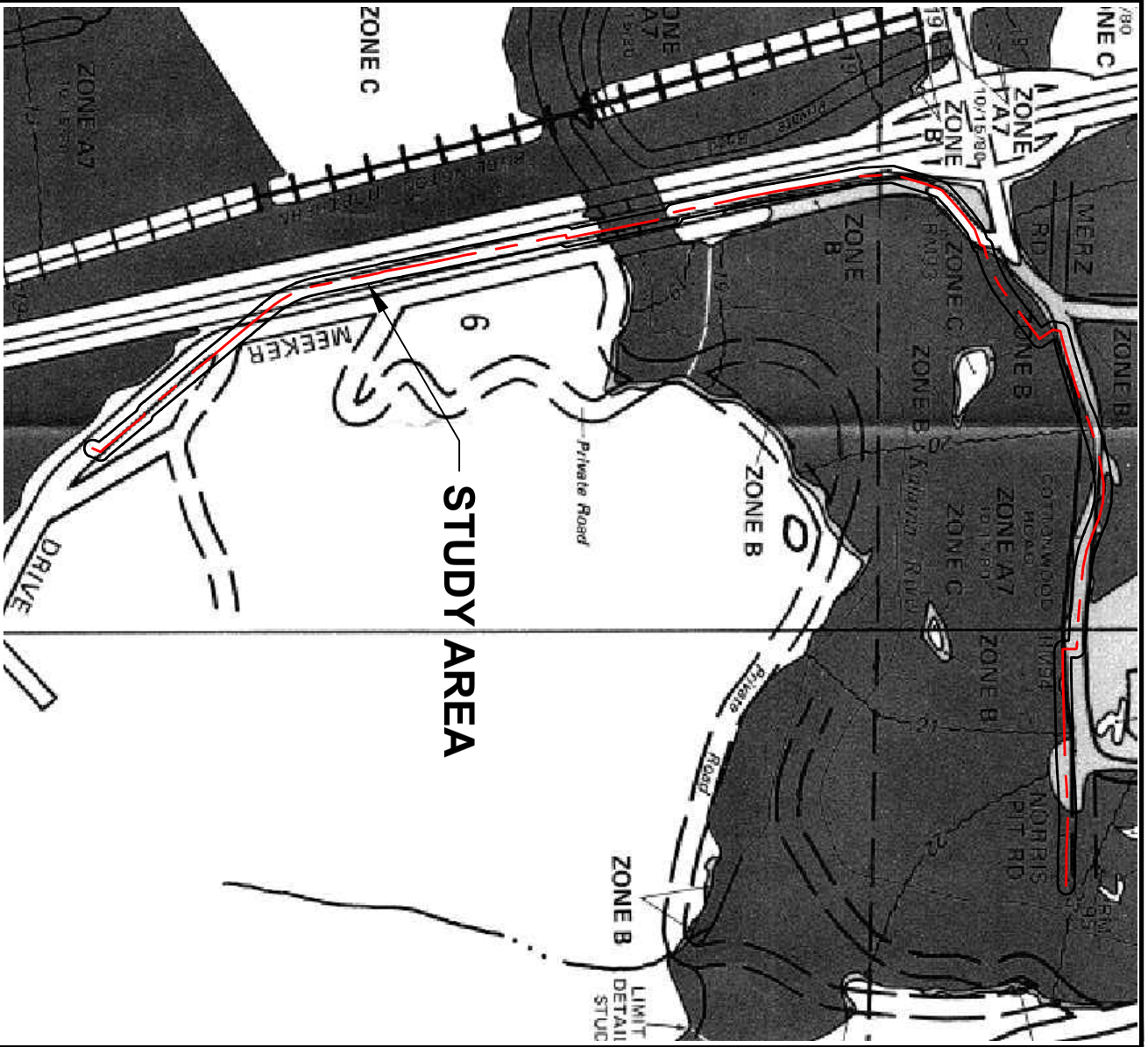
PROPOSED: temporary impacts

IN wetlands, Kalama River

NEAR: Kalama **COUNTY:** Cowlitz **STATE:** WA

SHEET 4 **OF** 10

DATE: 8/26/14



NOTE: Map provided on-line by the Federal Emergency Management Agency (FEMA) at web address: *https://msc.fema.gov*

0 1000 2000
SCALE IN FEET

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PURPOSE: New sewer line

DATUM: NGVD 29

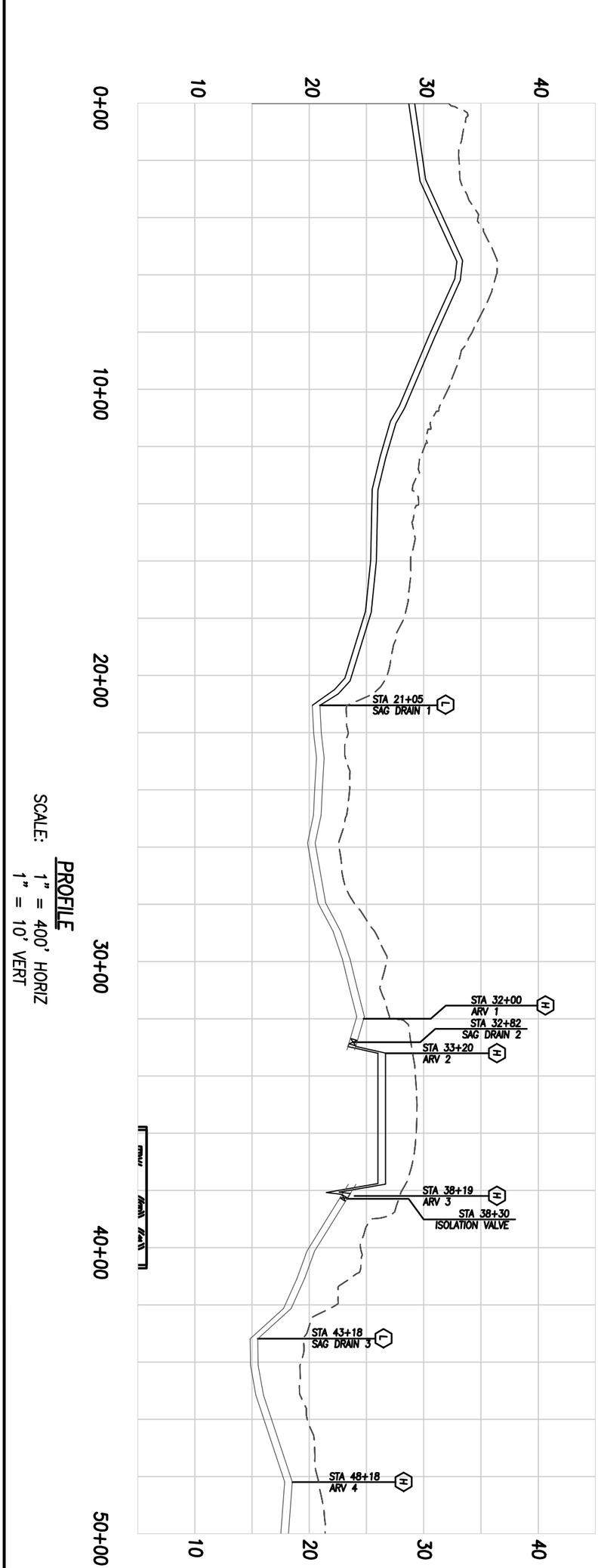
ADJACENT PROPERTY OWNERS: See JARPA

FEMA FLOOD HAZARDS MAP

APPLICANT: Port of Kalama
PROJECT NAME: Sewer Line Permitting
REFERENCE #: Not Yet Assigned
SITE LOCATION ADDRESS: Sewer line extending from Haydu Community Park and existing City of Kalama pump station

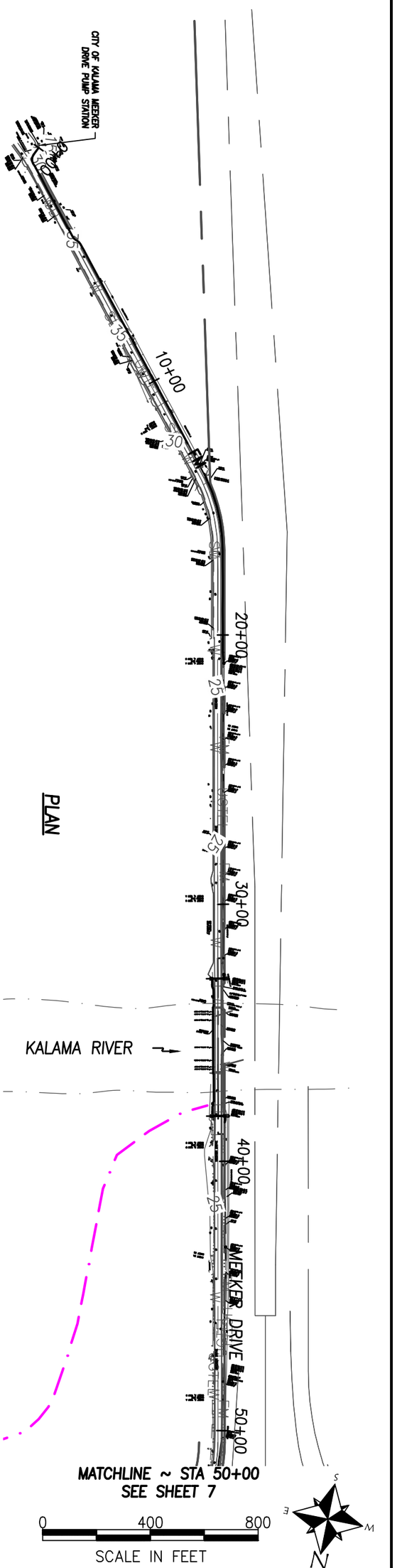
PROPOSED: temporary impacts

IN wetlands, Kalama River
NEAR: Kalama
COUNTY: Cowlitz **STATE:** WA
SHEET 5 **OF** 10
DATE: 8/26/14



PROFILE

SCALE: 1" = 400' HORIZ
1" = 10' VERT



PLAN

Port of Kalama

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ECOLOGICAL LAND SERVICES, INC.
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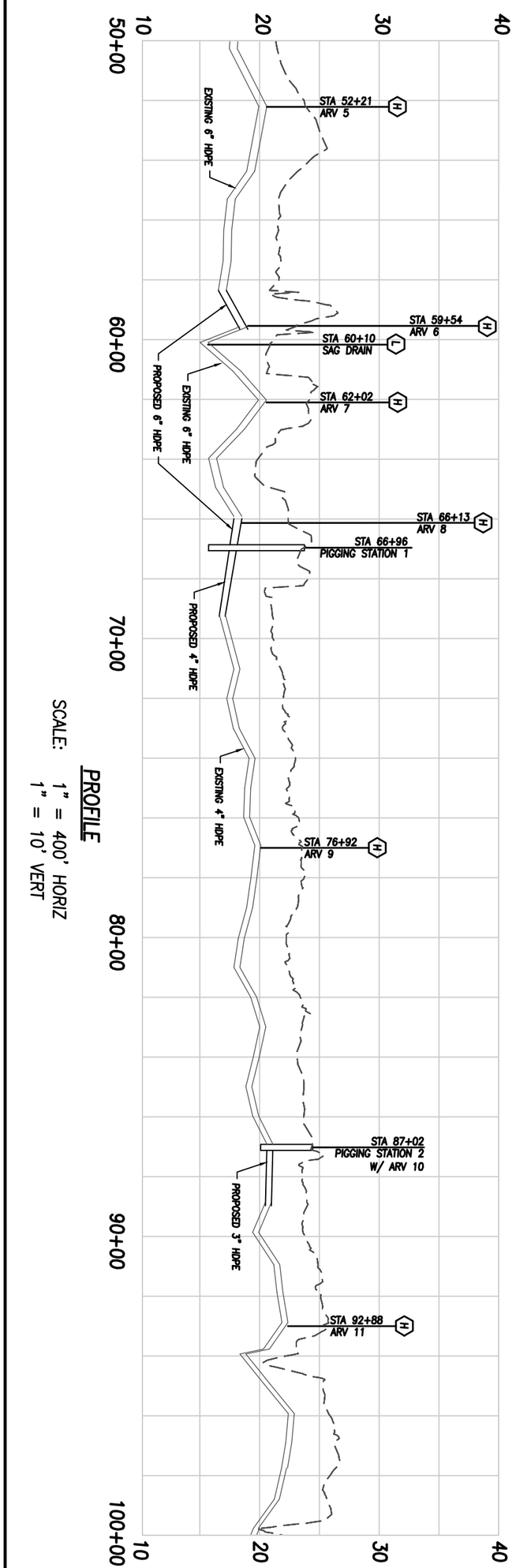
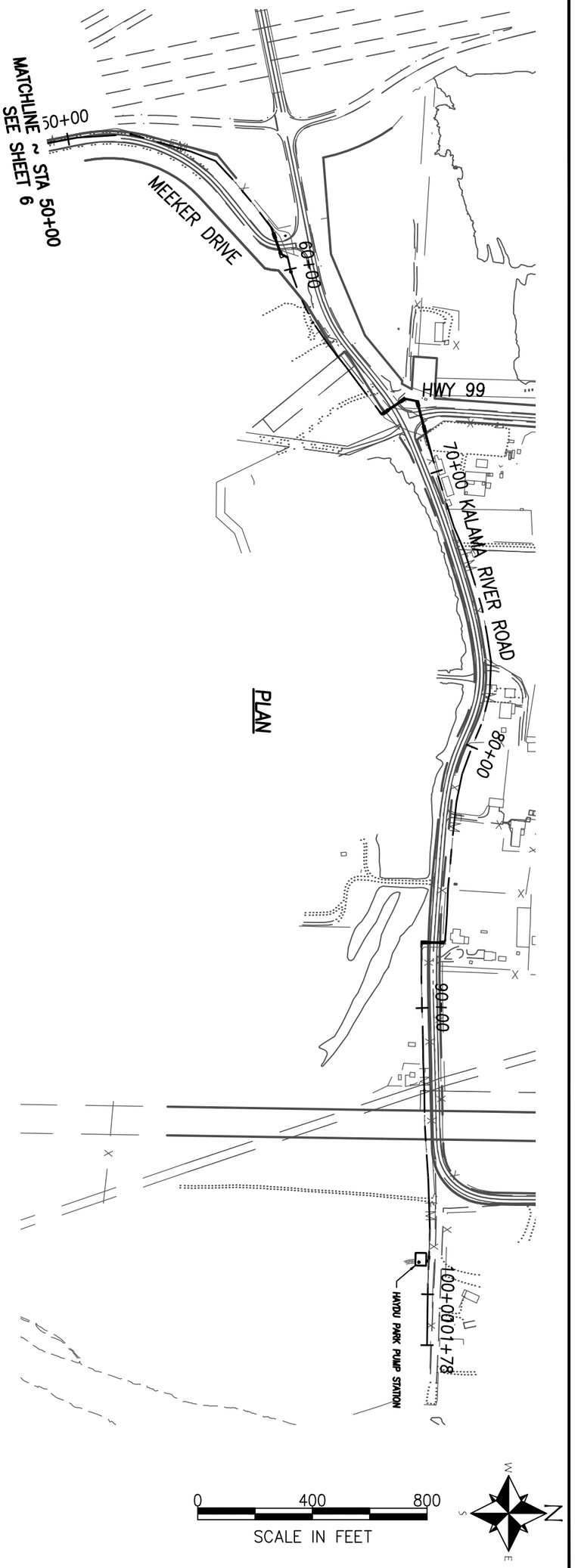
Longview, WA 98632

PURPOSE: New sewer line	PROPOSED SITE MAP **APPLICANT: Port of Kalama** **PROJECT NAME: Sewer Line Permitting** **REFERENCE #: Not Yet Assigned**	**PROPOSED:temporary impacts**
DATUM: NAD83	**SITE LOCATION ADDRESS:**	**IN wetlands, Kalama River**
ADJACENT PROPERTY OWNERS: See JARPA	**Sewer line extending from Haydu Community Park and existing City of Kalama pump station**	**NEAR: Kalama** **COUNTY: Cowlitz STATE: WA** **SHEET 6 OF 10** **DATE: 8/26/14**





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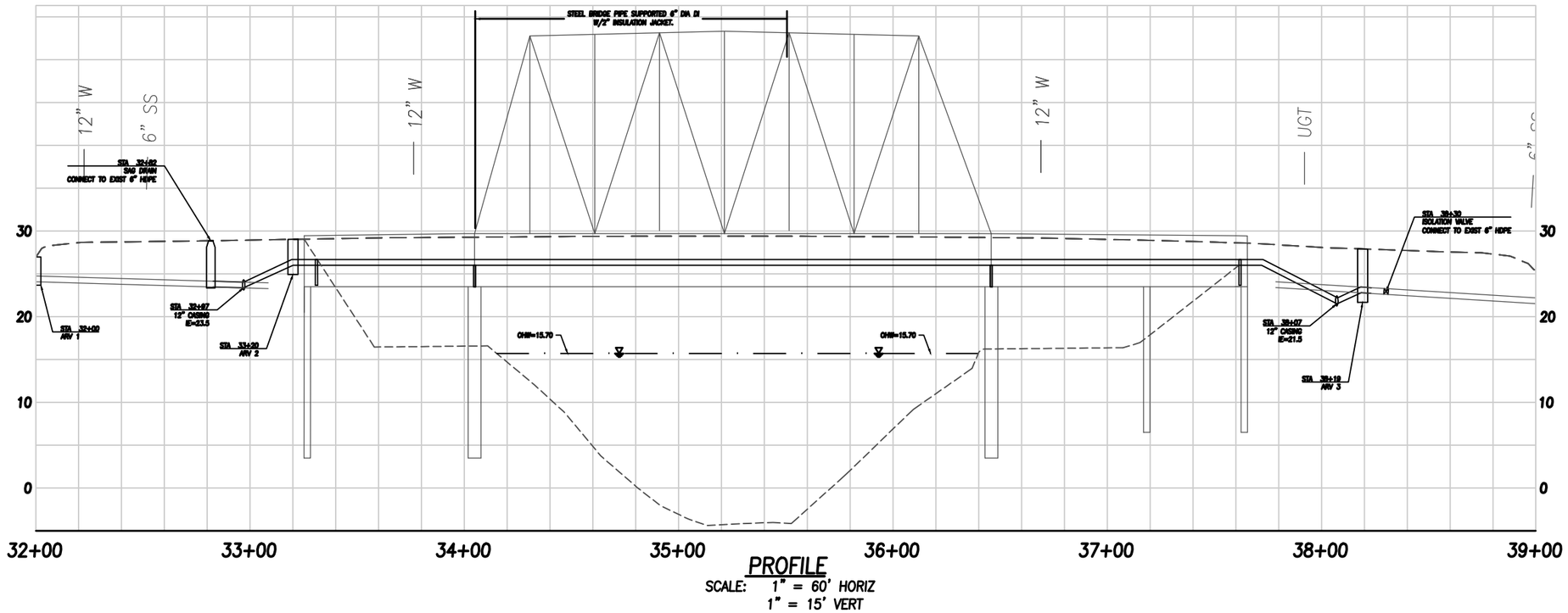
PURPOSE: New sewer line **DATUM:** NAD83 **ADJACENT PROPERTY OWNERS:** See JARPA	PROPOSED SITE MAP **APPLICANT:** Port of Kalama **PROJECT NAME:** Sewer Line Permitting **REFERENCE #:** Not Yet Assigned **SITE LOCATION ADDRESS:** Sewer line extending from Haydu Community Park and existing City of Kalama pump station	**PROPOSED:** temporary impacts **IN** wetlands, Kalama River **NEAR:** Kalama **COUNTY:** Cowlitz **STATE:** WA **SHEET** 7 **OF** 10 **DATE:** 8/26/14

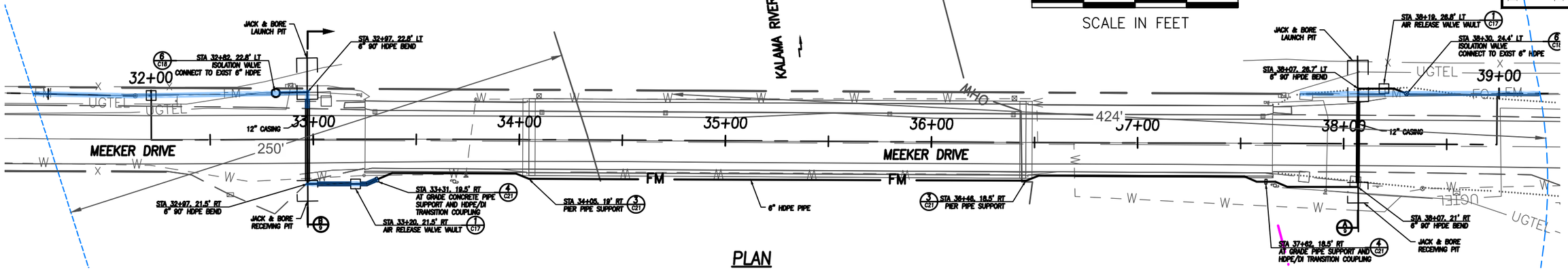


PROFILE

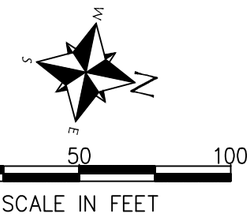
SCALE: 1" = 60' HORIZ
1" = 15' VERT

LEGEND:

- OWHM
- 250' Riparian Buffer
- Potential Impact (324 sq. ft.)



PLAN



See Sheet 9 for Bridge Sections A and B.

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MEEKER BRIDGE CROSSING

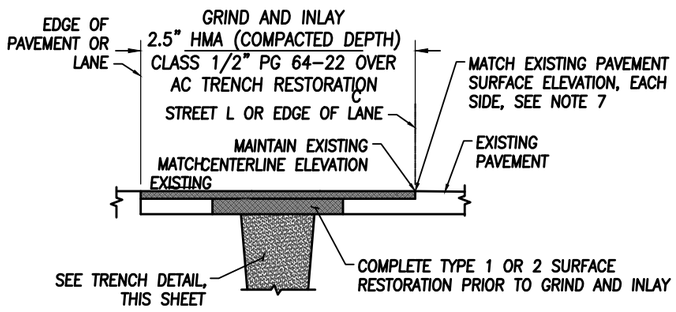
APPLICANT: Port of Kalama
PROJECT NAME: Sewer Line Permitting
REFERENCE #: Not Yet Assigned
SITE LOCATION ADDRESS:
Sewer line extending from Haydu Community Park and existing City of Kalama pump station

PROPOSED:temporary impacts

IN wetlands, Kalama River
NEAR: Kalama
COUNTY: Cowlitz STATE: WA
SHEET 8 OF 10
DATE: 8/26/14

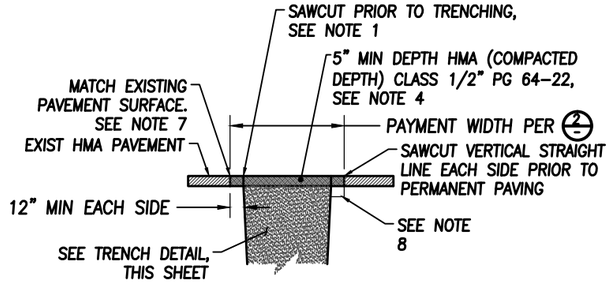
PURPOSE: New sewer line

DATUM: NAD83
ADJACENT PROPERTY OWNERS:
See JARPA



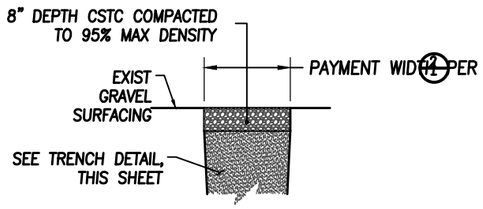
TYPE 1 SURFACE RESTORATION

NTS



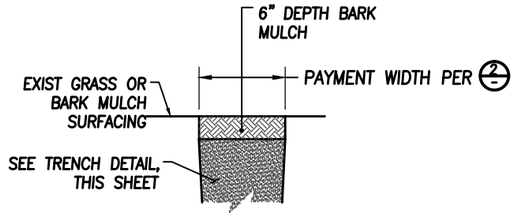
TYPE 2 SURFACE RESTORATION

NTS



TYPE 3 SURFACE RESTORATION

NTS



TYPE 4 SURFACE RESTORATION

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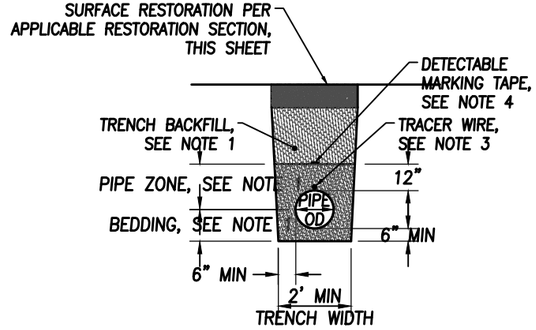


TRENCH NOTES:

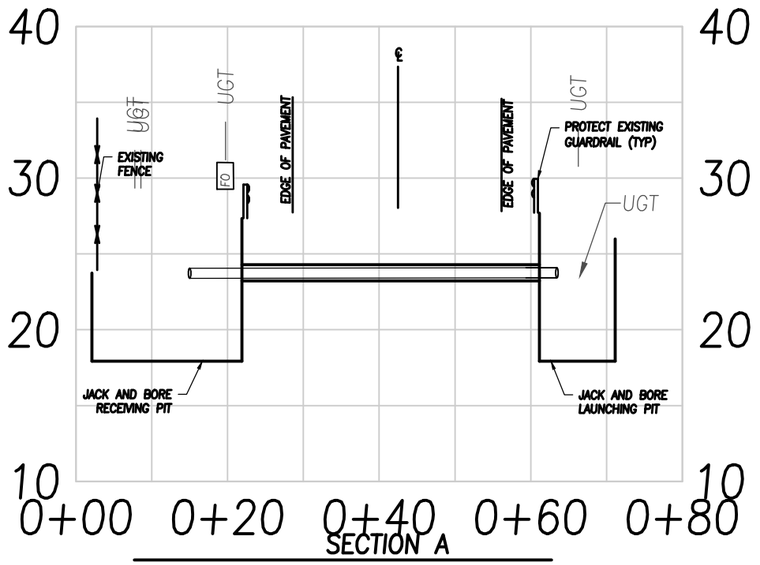
1. BEDDING, PIPE ZONE AND BACKFILL MATERIAL SHALL BE CSTC PER WSDOT STD SPEC 9-03.9(3), COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698.
2. BEDDING MATERIAL SHALL BE TAMPED AROUND PIPE HAUNCHES.
3. INSTALL TRACER WIRE OVER ALL UNDERGROUND PIPE. SECURE TRACER WIRE TO TOP OF PIPE WITH TAPE AT MAXIMUM INTERVALS OF 10 FEET. THE TRACER WIRE SHALL BE CERTIFIED BY A LICENSED ELECTRICAL CONTRACTOR FOR CONTINUITY. FINAL ACCEPTANCE WILL NOT BE GRANTED UNTIL CERTIFICATION IS RECEIVED.
4. DETECTABLE MARKING TAPE SHALL BE INSTALLED AT THE PIPE CENTERLINE 18" BELOW FINISH GRADE, PRINTED SIDE FACING UP.

4 TRENCH RESTORATION DETAILS

NTS

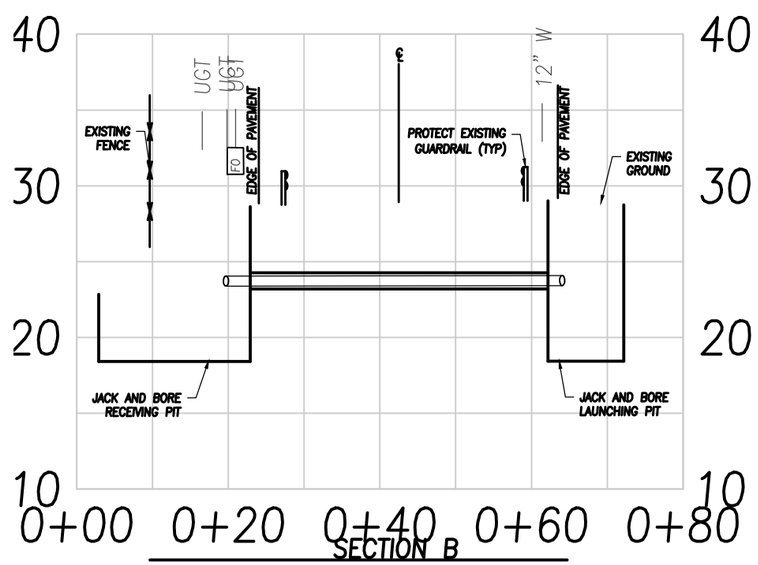
1 TRENCH DETAIL

NTS



SECTION A

SCALE: 1" = 20' HORIZ
1" = 10' VERT



SECTION B

SCALE: 1" = 20' HORIZ
1" = 10' VERT

PROPOSED: temporary impacts

IN wetlands, Kalama River
NEAR: Kalama
COUNTY: Cowlitz **STATE:** WA
SHEET 9 **OF** 10
DATE: 8/26/14

CROSS SECTIONS

APPLICANT: Port of Kalama
PROJECT NAME: Sewer Line Permitting
REFERENCE #: Not Yet Assigned
SITE LOCATION ADDRESS: Sewer line extending from Haydu Community Park and existing City of Kalama pump station

PURPOSE: New sewer line

DATUM: N/A
ADJACENT PROPERTY OWNERS: See JARPA

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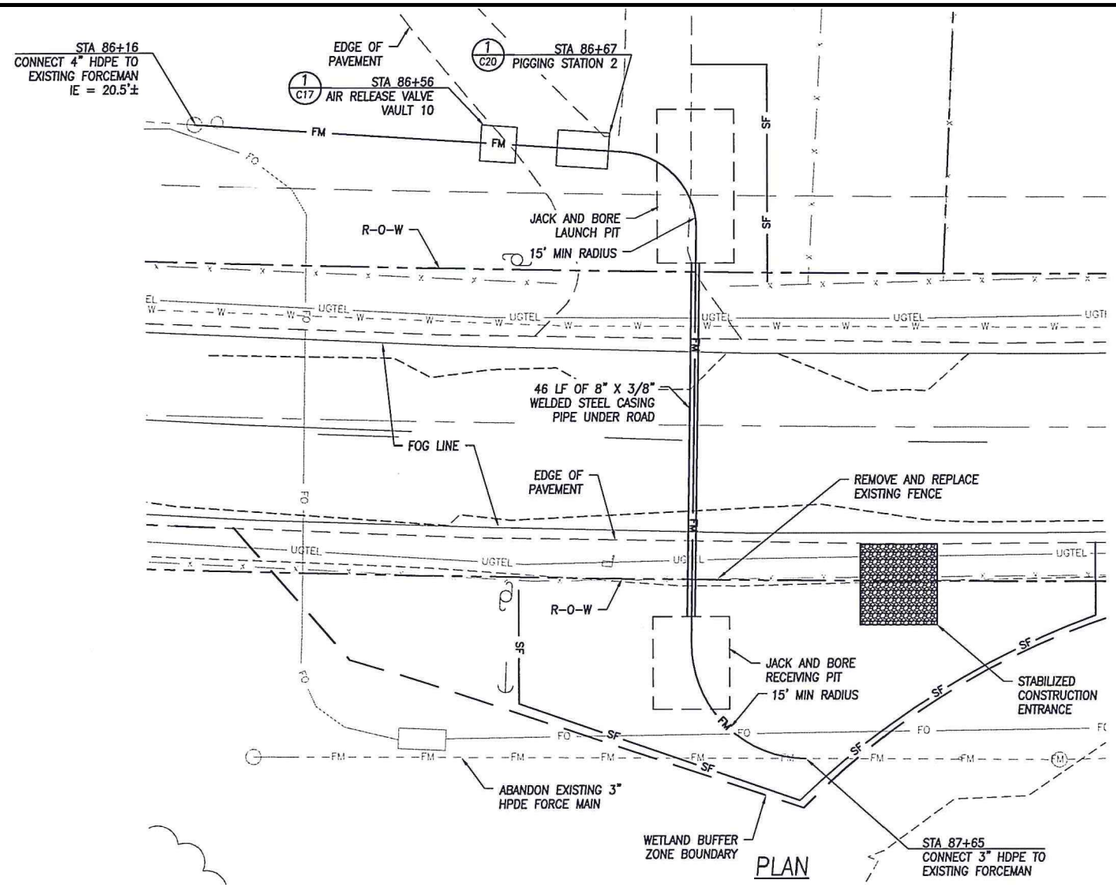
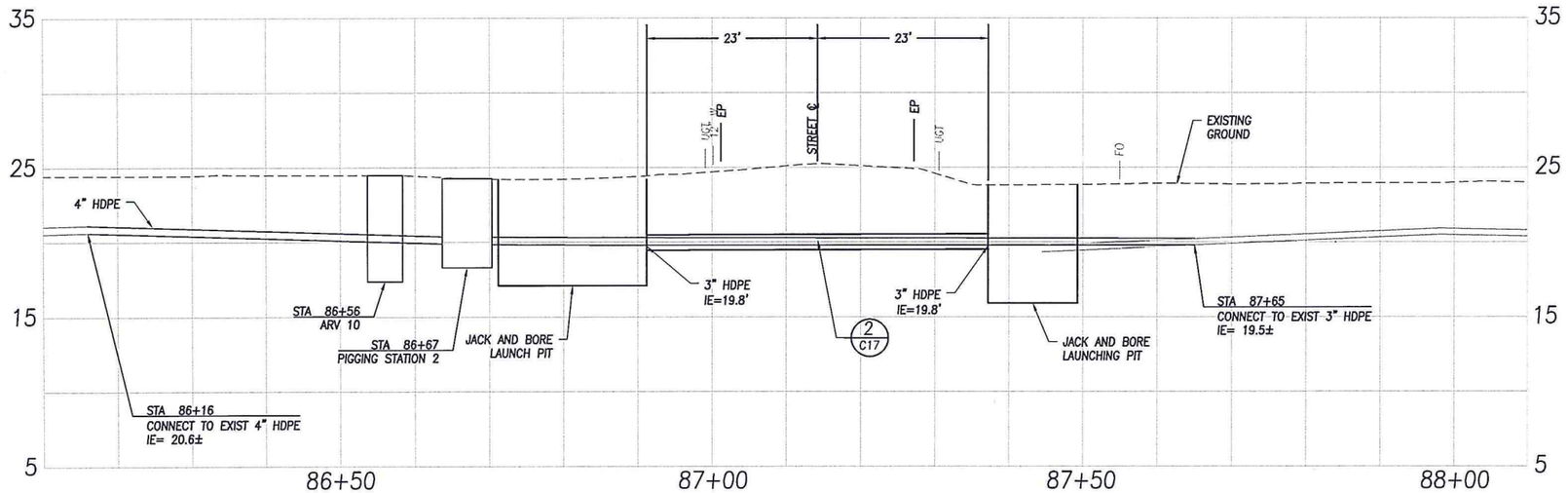
Port of Kalama

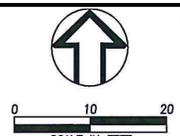


PLAN



PROFILE

SCALE: 1" = 10' HORIZ
1" = 5' VERT



JACK AND BORE ROAD CROSSING

APPLICANT: Port of Kalama
PROJECT NAME: Sewer Line Permitting
REFERENCE #: Not Yet Assigned
SITE LOCATION ADDRESS:
Sewer line extending from Haydu Community Park and existing City of Kalama pump station

PROPOSED:temporary impacts

IN wetlands, Kalama River
NEAR: Kalama
COUNTY: Cowlitz STATE: WA
SHEET 10 OF 10
DATE: 8/26/14

PURPOSE: New sewer line

DATUM: NAD83/NGVD88
ADJACENT PROPERTY OWNERS:
See JARPA

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Port of Kalama

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Longview, WA 98632

Appendix A

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

Project/Site: Haydu Community Park City/County: Kalama/Cowlitz Sampling Date: 3.07.13
Applicant/Owner: Port of Kalama State: WA Sampling Point: TP-A1
Investigator(s): S.Keeney Section, Township, Range: Sections 5,31&32, T6&7N, R1W, W.M.
Landform (hillslope, terrace, etc.): terrace Local relief: concave Slope (%): 0-3%
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: (17) Caples silty clay loam, 0-3 percent slopes NWI classification: PEMA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Area "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soils Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?**	**Yes☒ No☐**

Remarks: Test plot inundated, no soil sample taken; soil assumed hydric due to level of inundation.

VEGETATION (*Use scientific names*)

Tree Stratum (Plot size: ____ ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
Total Cover:	%		
Sapling/Shrub Stratum (Plot size: ____ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
Total Cover:	%		
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundiacea*	100%	yes	FACW
2.	%		
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
Total Cover:	100%		
Woody Vine Stratum (Plot size: ft radius)			
1.	%		
2.	%		
Total Cover:	%		

% Bare Ground in Herb Stratum ____%

Dominance Test Worksheet

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

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

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

Prevalence Index worksheet

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

Prevalence Index = B/A= ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes☒ No☐**

Remarks:

SOIL

Sampling Point: TP-A1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
		%		%				See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

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

Indicators for Problematic Hydric Soils

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

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: ____

Depth (inches):

Hydric Soil Present? **Yes☒ No☐**

Remarks: Test plot soil pit inundated, thus soil color(s) not evident; soil assumed hydric due to level of inundation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present?	Yes ☒	No ☐	Depth (Inches): 3"
Water Table Present?	Yes ☒	No ☐	Depth (Inches): See above.
Saturation Present? (Includes Capillary fringe)	Yes ☒	No ☐	Depth (Inches): See above.

Wetland Hydrology Present? **Yes ☒ No ☐**

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

Remarks:

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

Project/Site: Haydu Community Park City/County: Kalama/Cowlitz Sampling Date: 3.07.13
Applicant/Owner: Port of Kalama State: WA Sampling Point: TP-A2
Investigator(s): S.Keeney Section, Township, Range: Sections 5,31&32, T6&7N, R1W, W.M.
Landform (hillslope, terrace, etc.): terrace Local relief: convex Slope (%): 0-8%
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: (160) Pilchuck loamy fine sand, 0-8 percent slopes NWI classification: No NWI classification.
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Area "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soils Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** **Yes☐ No☒**

Remarks:

VEGETATION (*Use scientific names*)

Tree Stratum (Plot size: ____ ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
Total Cover:	%		
Sapling/Shrub Stratum (Plot size: ____ ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
Total Cover:	%		
Herb Stratum (Plot size: 5 ft radius)			
1. *Dactylis glomerata*	60%	yes	FACU
2. *Holocus lanatus*	40%	yes	FAC
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
Total Cover:	100%		
Woody Vine Stratum (Plot size: 15 ft radius)			
1. *Rubus armeniacus*	25%	yes	FACU
2.	%		
Total Cover:	25%		

% Bare Ground in Herb Stratum ____%

Dominance Test Worksheet

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet

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

Prevalence Index = B/A= ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present?

Yes☐ No☒

Remarks:

SOIL

Sampling Point: TP-A2

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

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

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

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

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

Indicators for Problematic Hydric Soils

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

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: ____

Depth (inches):

Hydric Soil Present? **Yes☐ No☒**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches):

Water Table Present? Yes ☐ No ☒ Depth (Inches):

Saturation Present? (Includes Capillary fringe) Yes ☐ No ☒ Depth (Inches):

Wetland Hydrology Present? **Yes ☐ No ☒**

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

Remarks:

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

Project/Site: Haydu Community Park City/County: Kalama/Cowlitz Sampling Date: 3.07.13
Applicant/Owner: Port of Kalama State: WA Sampling Point: TP-A3
Investigator(s): S. Keeney, C. Siipola Section, Township, Range: Sections 5,31&32, T6&7N, R1W, W.M.
Landform (hillslope, terrace, etc.): terrace Local relief: none Slope (%): 0-3%
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: (17) Caples silty clay loam, 0 to 3 percent slopes NWI classification: PEMA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Area "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soils Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes☒ No☐**
Remarks:	

VEGETATION (*Use scientific names*)

Tree Stratum (Plot size: ____ ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
Total Cover:	%		
Sapling/Shrub Stratum (Plot size: ____ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
Total Cover:	%		
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	100%	yes	FACW
2.	%		
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
Total Cover:	100%		
Woody Vine Stratum (Plot size: ____ ft radius)			
1.	%		
2.	%		
Total Cover:	%		

% Bare Ground in Herb Stratum ____%

Dominance Test Worksheet

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

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

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

Prevalence Index worksheet

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

Prevalence Index = B/A= ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes☒ No☐**

Remarks:

SOIL

Sampling Point: TP-A3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100%		%			silty clay	
5-9	10YR 3/2	98%	5YR 4/6	2%	C	M	silty clay	
9-12	10YR 3/2	93%	2.5YR 4/1	5%	D	M	silty clay	
		%	5YR 4/6	2%	C	M	silty clay	
12-16	10YR 3/2	85%	2.5YR 4/1	10%	D	M	silty clay	
		%	5YR 4/6	5%	C	M	silty clay	
		%		%				
		%		%				

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

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

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

Indicators for Problematic Hydric Soils

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

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: ____

Depth (inches):

Hydric Soil Present? **Yes☒ No☐**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): ____

Water Table Present? Yes ☒ No ☐ Depth (Inches): 6"

Saturation Present? Yes ☒ No ☐ Depth (Inches): To soil surface.

(Includes Capillary fringe)

Wetland Hydrology Present? **Yes ☒ No ☐**

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

Remarks:

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

Project/Site: Haydu Community Park City/County: Kalama/Cowlitz Sampling Date: 3.07.13
Applicant/Owner: Port of Kalama State: WA Sampling Point: TP-A4
Investigator(s): S.Keeney Section, Township, Range: Sections 5,31&32, T6&7N, R1W, W.M.
Landform (hillslope, terrace, etc.): terrace Local relief: convex Slope (%): 0-8%
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: (160) Pilchuck loamy fine sand, 0-8 percent slopes NWI classification: No NWI classification.
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Area "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soils Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** **Yes☐ No☒**
Remarks:	

VEGETATION (*Use scientific names*)

Tree Stratum (Plot size:_____ ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
Total Cover:	%		
Sapling/Shrub Stratum (Plot size: _____ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
Total Cover:	%		
Herb Stratum (Plot size: _____ ft radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
Total Cover:	%		
Woody Vine Stratum (Plot size: 15 ft radius)			
1. *Rubus armeniacus*	100%	yes	FACU
2.	%		
Total Cover:	100%		

% Bare Ground in Herb Stratum 100%

Dominance Test Worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC 0 (A/B)

Prevalence Index worksheet

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

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes☐ No☒**

Remarks:

SOIL

Sampling Point: TP-A4

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

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

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

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

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

Indicators for Problematic Hydric Soils

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

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: ____

Depth (inches):

Hydric Soil Present? **Yes☐ No☒**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches):

Water Table Present? Yes ☐ No ☒ Depth (Inches):

Saturation Present? (Includes Capillary fringe) Yes ☐ No ☒ Depth (Inches):

Wetland Hydrology Present? **Yes ☐ No ☒**

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

Remarks:

Appendix B

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with new WDFW definitions for priority habitats

Name of wetland (if known): Wetland A Date of site visit: January 2013

Rated by: S.K. Trained by Ecology? Yes ☒ No ☐ Date of Training: 2009

SECTION: 5,32 TWNSHIP: 7N RNGE: 1W Is S/T/R in Appendix D? Yes☐ No☒

Map of wetland unit: Figure 2 Estimated size ~1.30 acres onsite

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ **II** ☒ **III** ☐ **IV** ☐

Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30

Score for Water Quality Functions	**20**
Score for Hydrologic Functions	**22**
Score for Habitat Functions	**15**
TOTAL Score for functions	**57**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

Final Category (choose the "highest" category from above): II

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine	☐	**Depressional**	☒
Natural Heritage Wetland	☐	**Riverine**	☐
Bog	☐	**Lake-fringe**	☐
Mature Forest	☐	**Slope**	☐
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		
None of the above	☒	Check if unit has multiple HGM classes present	☐

Does the wetland being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☒
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).	☐	☒
SP3. *Does the wetland contain individuals of Priority species listed by the WDFW for the state?*	☐	☒
SP4. *Does the wetland have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☒

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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 (i.e. except during floods)?

☒NO – go to 2 ☐**YES** – the wetland class is **Tidal Fringe**

If yes, 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 rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

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 wetland **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) 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 wetland **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**?
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 <3ft diameter and less than 1 foot deep).*

☒NO - go to 5 ☐**YES –** The wetland class is **Slope**

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.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the wetland 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 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTION –** Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland have the potential to improve water quality?**	***(see p.38)***
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(if ditch is not permanently flowing treat unit as "intermittently flowing")* Provide photo or drawing	**Figure____** **3**
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 NO points = 0	**0**
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	**Figure____** **5**
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* 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 Map of Hydroperiods	**Figure____** **2**
D	**Total for D 1** *Add the points in the boxes above*	**10**
D	**D 2. Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☒ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☐ Residential, urban areas, golf courses are within 150 ft of wetland ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other ____ ☒ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	***(see p.44)*** multiplier **2**
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**20**

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	**Points**
	D 3. Does the wetland have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	Figure__ **4**
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland"points = 5 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 Unit is flat (yes to Q 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	Figure__ **7**
D	D 3.3 Contribution of wetland to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of 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	Figure__ **0**
D	**Total for D 3** *Add the points in the boxes above*	**11**
D	**D 4. Does the wetland have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity it provides, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ☐ Wetland is in a headwater of a river or stream that has flooding problems ☐ Wetland drains to a river or stream that has flooding problems ☒ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ☐ Other _____ ☒**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p.49)* multiplier **2**
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**22**

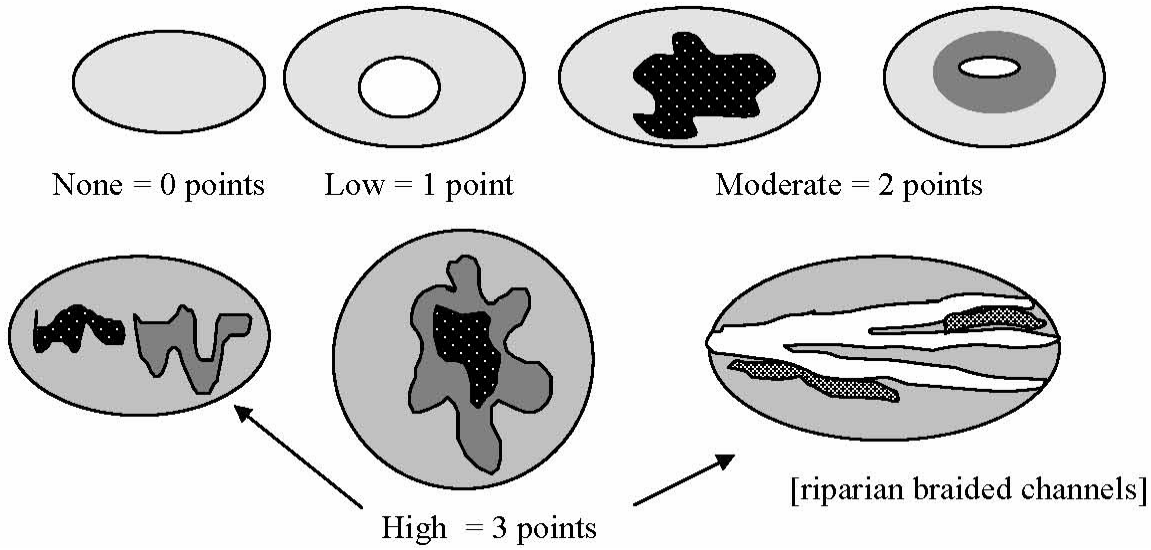
These questions apply to wetlands of all HGM classes HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☒ Emergent plants ☒ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 types or more — points = 4 3 types — points = 2 2 types — points = 1 1 type — points = 0 Map of Cowardin vegetation classes	Figure__ **1**
H 1.2 <u>Hydroperiods</u> ***(see p. 73)*** *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 description of hydroperiods.)* ☒ Permanently flooded or inundated ☒ Seasonally flooded or inundated ☐ Occasionally flooded or inundated ☐ Saturated only ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream or river in, or adjacent to, the wetland ☐ ***Lake-fringe wetland* = 2 points** ☐ ***Freshwater tidal wetland* = 2 points** 4 or more types present — points = 3 3 types present — points = 2 2 types present — points = 1	Figure__ **1**
H 1.3 <u>Richness of Plant Species</u> ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. *(Different patches of the same species can be combined to meet the size threshold.)* *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 *List species below if you want to:* <5 species — points = 0	**2**

Total for page: **4**

H 1.4 Interspersion of habitats ***(see p. 76)***

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

Figure 1



NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5 Special Habitat Features: ***(see p. 77)***

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at bottom >4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
- ☒ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error

2

H 1. TOTAL Score – potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

7

Comments:

H 2. Does the wetland have the opportunity to provide habitat for many species?*)*	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no grazing, no landscaping, no daily human use) **Points = 5** ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **Points = 4** ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. **Points = 3** ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the three criteria above** ☐ No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☒ No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing or lawns are OK **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure__ **2**
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* ☐YES = **4 points** (*go to H 2.3*) ☒NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ☒YES = **2 points** (*go to H 2.3*) ☐NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? ☐YES = **1 point** ☐NO = **0 points**	**2**

Total for page: **4**

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)***

Which of the following priority habitats are within 330ft (l00m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

- ☐ **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 that 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 *(fill descriptions in WLDFW PHS report p. 158).*
- ☐ **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).*
- ☐ **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.' pp. 167-169 and glossary in Appendix A).*
- ☐ **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 if) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** ☐ There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 ☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ☒ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 ☐ The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 3 ☐ There is at least 1 wetland within ½ mile. points = 2 ☐ There are no wetlands within ½ mile. points = 0	**3**
H 2. TOTAL Score -opportunity for providing habitat *Add the scores in the column above*	**8**
TOTAL for H 1 from page 14	**7**
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	**15**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Select the appropriate Category (from dropdown menu in Category column) when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐YES = Go to SC 1.1 ☒NO	
SC 1.1 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐YES = Category I ☒NO go to SC 1.2	Cat. I
SC 1.2 Is the wetland 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 the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ 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.	Cat. I Cat. II Dual rating I/II

SC 2.0 Natural Heritage Wetlands ***(see p. 87)***

Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

Cat. I

SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*

S/T/R information from Appendix D ☒ or accessed from WNHP/DNR web site ☐

YES ☒ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☐

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?

☐YES = Category I ☒NO__not in a Heritage Wetland

SC 3.0 Bogs ***(see p. 87)***

Does the wetland unit (**or part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.***

1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)
   Yes ☐ - go to Q. 3 No ☒ go to Q. 2
2. Does the 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 a lake or pond?
   Yes ☐ - go to Q. 3 No ☒ - Is not a bog for purpose of rating
3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?
   Yes ☐– Is a bog for purpose of rating No ☐-go to Q. 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 in Table 3 are present, the wetland is a bog.
4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?*
   YES ☐ = Category I NO ☒ Is not a bog for purpose of rating

Cat. I

SC 4.0 Forested Wetlands *(see p. 90)* Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐YES = Category I ☒ NO not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ☐ YES = Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ 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 acre (4350 square feet) YES ☐= Category I NO ☐= Category II	**Cat. I** **Cat. II**

SC 6.0 Interdunal Wetlands ***(see p. 93)*** Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES = Go to SC 6.1 ☒NO -- not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula – lands west of SR103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? ☐ YES = Category II ☐ NO go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre,? ☐ YES = Category III	**Cat.II** **Cat.III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1.	**N/A**

Comments

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with new WDFW definitions for priority habitats

Name of wetland (if known): B_____ Date of site visit:_____April 2014__

Rated by L. Willis Trained by Ecology? Yes ☒ No ☐ Date of Training: _____March '07

SECTION: 32 TWNSHIP: 2N RNGE: 1W Is S/T/R in Appendix D? Yes☐No☒

Map of wetland unit: Figure 2 Estimated size 6.2 ac.

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ **II** ☒ **III** ☐ **IV** ☐

Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30

Score for Water Quality Functions	**18**
Score for Hydrologic Functions	**20**
Score for Habitat Functions	**17**
TOTAL Score for functions	**55**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

Final Category (choose the "highest" category from above) II

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine	☐	**Depressional**	☒
Natural Heritage Wetland	☐	**Riverine**	☐
Bog	☐	**Lake-fringe**	☐
Mature Forest	☐	**Slope**	☐
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		
None of the above	☐	Check if unit has multiple HGM classes present	☐

Does the wetland being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☒
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).	☐	☒
SP3. *Does the wetland contain individuals of Priority species listed by the WDFW for the state?*	☐	☒
SP4. *Does the wetland have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☒

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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 (i.e. except during floods)?

☒NO – go to 2 ☐**YES** – the wetland class is **Tidal Fringe**

If yes, 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 rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

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 wetland **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) 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 wetland **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**?
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 <3ft diameter and less than 1 foot deep).*

☒NO - go to 5 ☐**YES –** The wetland class is **Slope**

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.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the wetland 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 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTION –** Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland have the <u>potential</u> to improve water quality?**	***(see p.38)***
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(if ditch is not permanently flowing treat unit as "intermittently flowing")* Provide photo or drawing	**Figure____** **2**
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 NO points = 0	**0**
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	**Figure____** **3**
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* 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 Map of Hydroperiods	**Figure____** **4**
D	**Total for D 1** *Add the points in the boxes above*	**9**
D	**D 2. Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☒ Residential, urban areas, golf courses are within 150 ft of wetland ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other ____ ☒ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	***(see p.44)*** multiplier **<u>2</u>**
D	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**18**

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	**Points**
	D 3. Does the wetland have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	Figure__ **2**
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland"points = 5 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 Unit is flat (yes to Q 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	Figure__ **3**
D	D 3.3 Contribution of wetland to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of 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	Figure__ **5**
D	**Total for D 3** *Add the points in the boxes above*	**10**
D	**D 4. Does the wetland have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity it provides, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ☐ Wetland is in a headwater of a river or stream that has flooding problems ☒ Wetland drains to a river or stream that has flooding problems ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ☐ Other _____ ☒**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p.49)* multiplier **2**
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**20**

R	**Riverine and Freshwater Tidal Fringe Wetlands** WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	**Points**
R	**R 1. Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.52)*
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover > 3/4 area of wetland points = 8 Depressions cover > 1/2 area of wetland points = 4 If depressions >1/2 of area of unit draw polygons on aerial photo or map Depressions present but cover < 1/2 area of wetland points = 2 No depressions present points = 0	**Figure__**
R	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): Trees or shrub > 2/3 the area of the unit points = 8 Trees or shrub > 1/3 area of the unit points = 6 Ungrazed, herbaceous plants > 2/3 area of unit points = 6 Ungrazed, herbaceous plants > 1/3/ area of unit points = 3 Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit points = 0 Aerial photo or map showing polygons of different vegetation types	**figure__**
R	*Add the points in the boxes above*	
R	**R 2. Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 feet of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☐ Residential, urban areas, golf courses are within 150 ft of wetland ☐ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality ☐ Other _____ ☐ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	*(see p. 53)* multiplier _____
R	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from R1 by R2 ***Add score to table on p. 1***	

R	**Riverine and Freshwater Tidal Fringe Wetlands** HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	**Points** (only 1 score per box))
R	**R 3. Does the wetland have the potential to reduce flooding and erosion?**	*(see p. 54)*
R	R 3.1 Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(width of stream between banks).* If the ratio is more than 20 points = 9 If the ratio is between 10-20 points = 6 If the ratio is 5- <10 points = 4 If the ratio is 1- <5 points = 2 If the ration is <1 points = 1 Aerial photo or map showing polygons of different vegetation types	**Figure__**
R	R 3.2 Characteristics vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.* Forest or shrub for >1/3 area OR herbaceous plants >2/3 area points = 7 Forest or shrub > 1/10 area OR herbaceous plants >1/3 area points = 4 Vegetation does not meet above criteria points = 0 Aerial photo or map showing polygons of different vegetation types	**Figure__**
R	*Add the points in the boxes above*	
R	**R 4. Does the wetland have the opportunity to reduce flooding and erosion?** Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply*. ☐ There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. ☐ There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding ☐ Other _____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike.)* ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p. 57)* multiplier _____
R	**TOTAL – Hydrologic Functions** Multiply the score from R3 by R4 ***Add score to table on p. 1***	

Comments

	Lake-Fringe Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	**Points** (only 1 score per box)
L	**L 1. Does the wetland have the <u>potential</u> to improve water quality?**	*(see p. 59)*
L	L 1.1 Average width of vegetation along the lakeshore: Vegetation is more than 33ft (10m) wide — points = 6 Vegetation is more than 16 (5m) wide and <33ft — points = 3 Vegetation is more than 6ft (2m) wide and <16 ft — points = 1 Vegetation is less than 6 ft wide — points = 0	**Figure___**
L	L 1.2 Characteristics of the vegetation in the wetland: *choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. In this case the herbaceous plants can be either the dominant form or forest community .These are not Cowardin classes. Area of Cover is total cover in the unit, but can be in patches. Note: Herbaceous does not include aquatic bed.* Cover of herbaceous plants cover >90% of the vegetated area — points = 6 Cover of herbaceous plants cover >2/3 of the vegetated area — points = 4 Cover of herbaceous plants cover >1/3 of the vegetated area — points = 3 Other vegetation that is not aquatic bed in > 2/3 vegetated area — points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area — points = 1 Aquatic bed vegetation and open water cover > 2/3 of the vegetated area — points = 0 Map with polygons of different vegetation types	**Figure___**
L	*Add the points in the boxes above*	
L	**L 2. Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity* ☐ Wetland is along the shores of a lake or reservoir that does not meet water quality standards ☐ Grazing in the wetland or within 150ft ☐ Polluted water discharges to wetland along upland edge ☐ Tilled fields or orchards within 150 feet of wetland ☐ Residential or urban areas are within 150 ft of wetland ☐ Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore) ☐ Power boats with gasoline or diesel engines use the lake ☐ Other _____ ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p. 61)* multiplier _____
L	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from L1 by L2 ***Add score to table on p. 1***	

Comments

L	**Lake-Fringe Wetlands**	**Points** (only 1 score per box)
	HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce shoreline erosion	
L	**L 3. Does the wetland have the <u>potential</u> to reduce shoreline erosion?**	*(see p. 62)*
L	L 3 Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include aquatic bed): (*choose the highest scoring description that matches conditions in the wetland*): >¾ of distance is shrubs or forest at least 33 ft (10m) wide points = 6 >¾ of distance is shrubs or forest at least 6 ft. (2m) wide points = 4 >¼ of distance is shrubs or forest at least 33 ft (10m) wide points = 4 Vegetation is at least 6 ft (2m) wide (any type except aquatic bed) points = 2 Vegetation is less than 6 ft (2m) wide (any type except aquatic bed) points = 0 Aerial photo or map with Cowardin vegetation classes	**Figure__**
L	*Record the points from the box above*	
L	**L 4. Does the wetland unit have the <u>opportunity</u> to reduce erosion?** Are there features along the shore which will be impacted if the shoreline erodes? *Note which of the following conditions apply*. ☐ There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. ☐ There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests other than wetland) that can be damaged by shoreline erosion ☐ Other _____ ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p. 63)* multiplier _____
L	**TOTAL – Hydrologic Functions** Multiply the score from L 3 by L 4 ***Add score to table on p. 1***	

Comments

S	**Slope Wetlands** **WATER QUALITY FUNCTIONS - Indicators that wetland unit functions to improve water quality**	**Points** (only 1 score per box)
S	**S 1. Does the wetland have the potential to improve water quality?**	*(see p. 64)*
S	S 1.1 Characteristics of average slope of wetland: Slope is 1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)*..... points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay organic*(use NRCS definitions)* YES = 3 points NO = 0 points	
S	S 1.3 Characteristics of the vegetation in the wetland that traps sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface. (<75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, ungrazed, herbaceous vegetation > 90% of wetland area points = 6 Dense, ungrazed, herbaceous vegetation > ½ of area points = 3 Dense, woody vegetation > ½ of area points = 2 Dense, ungrazed, herbaceous vegetation > ¼ of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	**Figure__**
S	**Total for S 1** *Add the points in the boxes above*	
S	**S 2. Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants A unit may have pollutants coming form several sources, but any single source would qualify as opportunity..* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 feet of wetland ☐ Residential, urban areas, or golf courses are within 150 ft upslope of wetland ☐ Other _____ ☐ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	*(see p. 67)* multiplier _____
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	

Comments

S	**Slope Wetlands** **HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream erosion**	**Points** (only 1 score per box)
S	**S 3. Does the wetland have the potential to reduce flooding and erosion?**	*(see p. 68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually> 1/8 in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers >90% of area of the wetland. points = 6 Dense, uncut, **rigid** vegetation >1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation >1/4 area of wetland points = 1 More than 3/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	
S	*Add the points in the boxes above*	
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☐ Other _____ *Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam.)* ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p. 70)* multiplier _____
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	

Comments

These questions apply to wetlands of all HGM classes HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure__**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ☒ Aquatic bed ☒ Emergent plants ☒ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 types or more — points = 4 3 types — points = 2 2 types — points = 1 1 type — points = 0 Map of Cowardin vegetation classes	**2**
H 1.2 <u>Hydroperiods</u> ***(see p. 73)***	**Figure__**
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 description of hydroperiods.) ☒ Permanently flooded or inundated — 4 or more types present — points = 3 ☒ Seasonally flooded or inundated — 3 types present — points = 2 ☒ Occasionally flooded or inundated — 2 types present — points = 1 ☐ Saturated only ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream or river in, or adjacent to, the wetland ☐ ***Lake-fringe wetland* = 2 points** ☐ ***Freshwater tidal wetland* = 2 points**	**2**
H 1.3 <u>Richness of Plant Species</u> ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. *(Different patches of the same species can be combined to meet the size threshold.)* *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 *List species below if you want to:* <5 species — points = 0	**2**

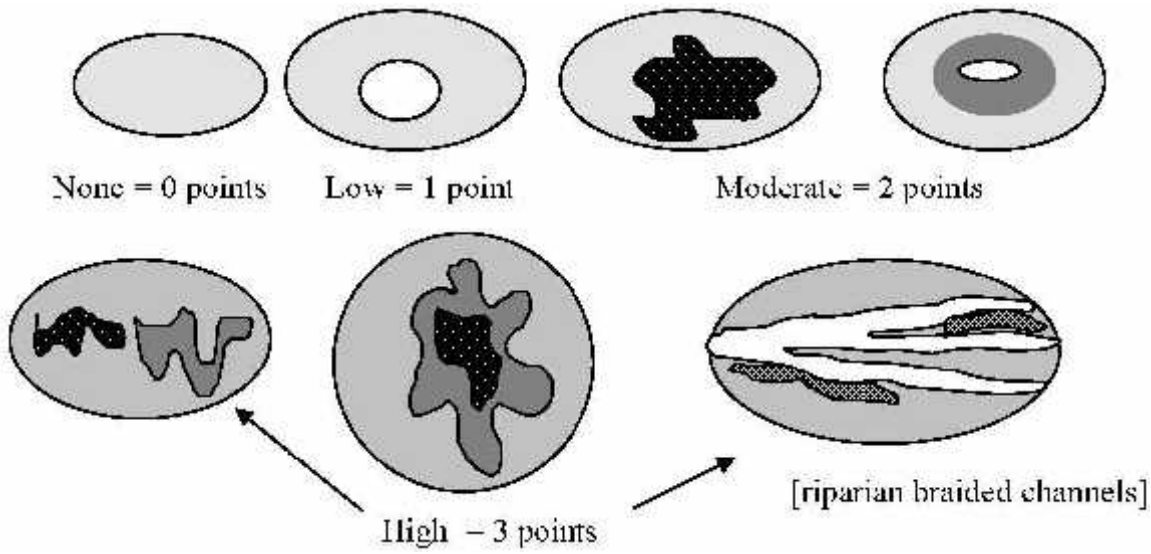
Total for page: **_6_**

H 1.4 Interspersion of habitats ***(see p. 76)***

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

Figure__

2



NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5 Special Habitat Features: ***(see p. 77)***

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at bottom >4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error

0

H 1. TOTAL Score – potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

8

Comments:

H 2. Does the wetland have the opportunity to provide habitat for many species?*)*	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no grazing, no landscaping, no daily human use) **Points = 5** ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **Points = 4** ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. **Points = 3** ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the three criteria above** ☐ No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing or lawns are OK **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) **Points = 0** ☒ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	**Figure__** **1**
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* ☐YES = **4 points** (*go to H 2.3*) ☒NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ☐YES = **2 points** (*go to H 2.3*) ☒NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? ☒YES = **1 point** ☐NO = **0 points**	**1**

Total for page: _**2**_

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)***

Which of the following priority habitats are within 330ft (l00m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

- ☐ **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 that 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 *(fill descriptions in WLDFW PHS report p. 158).*
- ☒ **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).*
- ☒ **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.' pp. 167-169 and glossary in Appendix A).*
- ☐ **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 if) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** ☐ There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 ☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ☒ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 ☐ The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 3 ☐ There is at least 1 wetland within ½ mile. points = 2 ☐ There are no wetlands within ½ mile. points = 0	**3**
H 2. TOTAL Score -opportunity for providing habitat *Add the scores in the column above*	**9**
TOTAL for H 1 from page 14	**8**
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	**17**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Select the appropriate Category (from dropdown menu in Category column) when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐YES = Go to SC 1.1 ☒NO	
SC 1.1 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐YES = Category I ☒NO go to SC 1.2	Cat. I
SC 1.2 Is the wetland 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 the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ 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.	Cat. I Cat. II Dual rating I/II

SC 2.0 Natural Heritage Wetlands ***(see p. 87)***

Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

Cat. I

SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*

S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☒

YES ☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?

☐YES = Category I ☒NO__not in a Heritage Wetland

SC 3.0 Bogs ***(see p. 87)***

Does the wetland unit (**or part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.***

1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)
   Yes ☐ - go to Q. 3 No ☒ go to Q. 2
2. Does the 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 a lake or pond?
   Yes ☐ - go to Q. 3 No ☒ - Is not a bog for purpose of rating
3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?
   Yes ☐– Is a bog for purpose of rating No ☐-go to Q. 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 in Table 3 are present, the wetland is a bog.
4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?*
   YES ☐ = Category I NO ☐ Is not a bog for purpose of rating

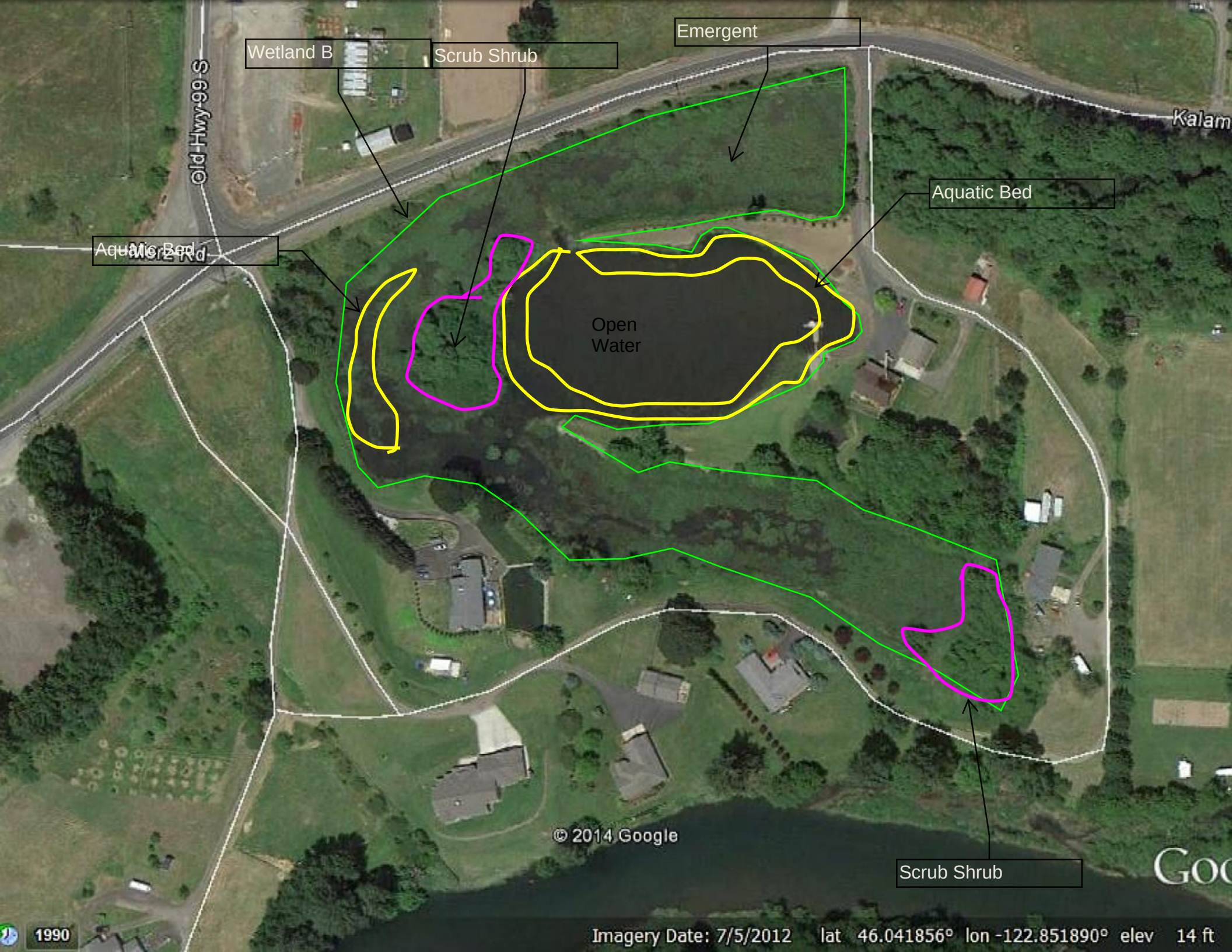
Cat. I

SC 4.0 Forested Wetlands *(see p. 90)* Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐YES = Category I ☒ NO not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ☐ YES = Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ 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 acre (4350 square feet) YES ☐= Category I NO ☐= Category II	**Cat. I** **Cat. II**

SC 6.0 Interdunal Wetlands ***(see p. 93)*** Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES = Go to SC 6.1 ☒NO -- not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula – lands west of SR103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? ☐ YES = Category II ☐ NO go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre,? ☐ YES = Category III	**Cat.II** **Cat.III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1.	**N/A**

Comments


Wetland B
Old Hwy-99 S
Merz Rd
Kalam
Seasonally Inundated
Permanently Inundated
Occasionally Inundated
© 2014 Google
1990
Imagery Date: 7/5/2012 lat 46.041856° lon -122.851890° elev 14 ft


Emergent
Wetland B
Scrub Shrub
Old Hwy-99 S
Kalam
Aquatic Bed
Aquatic Bed
Open
Water
© 2014 Google
Scrub Shrub
1990
Imagery Date: 7/5/2012 lat 46.041856° lon -122.851890° elev 14 ft

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with new WDFW definitions for priority habitats

Name of wetland (if known): C_____ Date of site visit:_____April 2014__

Rated by L. Willis Trained by Ecology? Yes ☒ No ☐ Date of Training: __March 2007

SECTION: 6 TWNSHIP: 2N RNGE: 1W Is S/T/R in Appendix D? Yes☐No☒

Map of wetland unit: Figure 2 Estimated size 3 ac.

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ **II** ☐ **III** ☒ **IV** ☐

Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30	Score for Water Quality Functions: **8** Score for Hydrologic Functions: **20** Score for Habitat Functions: **17** **TOTAL Score for functions: 45**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☐

Final Category (choose the "highest" category from above) III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine	☐	**Depressional**	☒
Natural Heritage Wetland	☐	**Riverine**	☐
Bog	☐	**Lake-fringe**	☐
Mature Forest	☐	**Slope**	☐
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		
None of the above	☐	Check if unit has multiple HGM classes present	☐

Does the wetland being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☒
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).	☐	☒
SP3. *Does the wetland contain individuals of Priority species listed by the WDFW for the state?*	☐	☒
SP4. *Does the wetland have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☒

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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 (i.e. except during floods)?

☒NO – go to 2 ☐**YES** – the wetland class is **Tidal Fringe**

If yes, 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 rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

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 wetland **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) 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 wetland **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**?
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 <3ft diameter and less than 1 foot deep).*

☒NO - go to 5 ☐**YES –** The wetland class is **Slope**

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.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the wetland 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 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTION –** Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland have the <u>potential</u> to improve water quality?**	***(see p.38)***
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(if ditch is not permanently flowing treat unit as "intermittently flowing")* Provide photo or drawing	**Figure____** **3**
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 NO points = 0	**0**
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	**Figure____** **5**
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* 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 Map of Hydroperiods	**Figure____** **0**
D	**Total for D 1** *Add the points in the boxes above*	**8**
D	**D 2. Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☐ Residential, urban areas, golf courses are within 150 ft of wetland ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other ____ ☐ **YES** multiplier is **2** ☒ **NO** multiplier is **1**	***(see p.44)*** multiplier **<u>1</u>**
D	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**8**

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	**Points**
	D 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?	***(see p.46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	**Figure__** **4**
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland"points = 5 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 Unit is flat (yes to Q 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	**Figure__** **3**
D	D 3.3 Contribution of wetland to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of 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	**Figure__** **3**
D	**Total for D 3** *Add the points in the boxes above*	**10**
D	**D 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity it provides, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ☐ Wetland is in a headwater of a river or stream that has flooding problems ☐ Wetland drains to a river or stream that has flooding problems ☒ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ☐ Other _____ ☒**YES** multiplier is **2** ☐**NO** multiplier is **1**	***(see p.49)*** multiplier **<u>2</u>**
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**20**

R	**Riverine and Freshwater Tidal Fringe Wetlands** WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	**Points**
R	**R 1. Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.52)*
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover > 3/4 area of wetland points = 8 Depressions cover > 1/2 area of wetland points = 4 If depressions >1/2 of area of unit draw polygons on aerial photo or map Depressions present but cover < 1/2 area of wetland points = 2 No depressions present points = 0	**Figure__**
R	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): Trees or shrub > 2/3 the area of the unit points = 8 Trees or shrub > 1/3 area of the unit points = 6 Ungrazed, herbaceous plants > 2/3 area of unit points = 6 Ungrazed, herbaceous plants > 1/3/ area of unit points = 3 Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit points = 0 Aerial photo or map showing polygons of different vegetation types	**figure__**
R	*Add the points in the boxes above*	
R	**R 2. Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 feet of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☐ Residential, urban areas, golf courses are within 150 ft of wetland ☐ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality ☐ Other _____ ☐ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	*(see p. 53)* multiplier _____
R	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from R1 by R2 ***Add score to table on p. 1***	

R	**Riverine and Freshwater Tidal Fringe Wetlands**	**Points** (only 1 score per box))
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
R	**R 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	***(see p. 54)***
R	R 3.1 Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(width of stream between banks).* If the ratio is more than 20 points = 9 If the ratio is between 10-20 points = 6 If the ratio is 5- <10 points = 4 If the ratio is 1- <5 points = 2 If the ration is <1 points = 1 Aerial photo or map showing polygons of different vegetation types	**Figure___**
R	R 3.2 Characteristics vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.* Forest or shrub for >1/3 area OR herbaceous plants >2/3 area points = 7 Forest or shrub > 1/10 area OR herbaceous plants >1/3 area points = 4 Vegetation does not meet above criteria points = 0 Aerial photo or map showing polygons of different vegetation types	**Figure___**
R	*Add the points in the boxes above*	
R	**R 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply*. ☐ There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. ☐ There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding ☐ Other _____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike.)* ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	***(see p. 57)*** multiplier _____
R	**TOTAL – Hydrologic Functions** Multiply the score from R3 by R4 ***Add score to table on p. 1***	

Comments

	Lake-Fringe Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	**Points** (only 1 score per box)
L	**L 1. Does the wetland have the <u>potential</u> to improve water quality?**	*(see p. 59)*
L	L 1.1 Average width of vegetation along the lakeshore: Vegetation is more than 33ft (10m) wide — points = 6 Vegetation is more than 16 (5m) wide and <33ft — points = 3 Vegetation is more than 6ft (2m) wide and <16 ft — points = 1 Vegetation is less than 6 ft wide — points = 0	**Figure___**
L	L 1.2 Characteristics of the vegetation in the wetland: *choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. In this case the herbaceous plants can be either the dominant form or forest community .These are not Cowardin classes. Area of Cover is total cover in the unit, but can be in patches. Note: Herbaceous does not include aquatic bed.* Cover of herbaceous plants cover >90% of the vegetated area — points = 6 Cover of herbaceous plants cover >2/3 of the vegetated area — points = 4 Cover of herbaceous plants cover >1/3 of the vegetated area — points = 3 Other vegetation that is not aquatic bed in > 2/3 vegetated area — points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area — points = 1 Aquatic bed vegetation and open water cover > 2/3 of the vegetated area — points = 0 Map with polygons of different vegetation types	**Figure___**
L	*Add the points in the boxes above*	
L	**L 2. Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity* ☐ Wetland is along the shores of a lake or reservoir that does not meet water quality standards ☐ Grazing in the wetland or within 150ft ☐ Polluted water discharges to wetland along upland edge ☐ Tilled fields or orchards within 150 feet of wetland ☐ Residential or urban areas are within 150 ft of wetland ☐ Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore) ☐ Power boats with gasoline or diesel engines use the lake ☐ Other _____ ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p. 61)* multiplier _____
L	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from L1 by L2 ***Add score to table on p. 1***	

Comments

L	**Lake-Fringe Wetlands**	**Points** (only 1 score per box)
	HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce shoreline erosion	
L	**L 3. Does the wetland have the <u>potential</u> to reduce shoreline erosion?**	*(see p. 62)*
L	L 3 Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include aquatic bed): (*choose the highest scoring description that matches conditions in the wetland*): >¾ of distance is shrubs or forest at least 33 ft (10m) wide points = 6 >¾ of distance is shrubs or forest at least 6 ft. (2m) wide points = 4 >¼ of distance is shrubs or forest at least 33 ft (10m) wide points = 4 Vegetation is at least 6 ft (2m) wide (any type except aquatic bed) points = 2 Vegetation is less than 6 ft (2m) wide (any type except aquatic bed) points = 0 Aerial photo or map with Cowardin vegetation classes	**Figure__**
L	*Record the points from the box above*	
L	**L 4. Does the wetland unit have the <u>opportunity</u> to reduce erosion?** Are there features along the shore which will be impacted if the shoreline erodes? *Note which of the following conditions apply*. ☐ There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. ☐ There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests other than wetland) that can be damaged by shoreline erosion ☐ Other _____ ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p. 63)* multiplier _____
L	**TOTAL – Hydrologic Functions** Multiply the score from L 3 by L 4 ***Add score to table on p. 1***	

Comments

S	**Slope Wetlands** **WATER QUALITY FUNCTIONS - Indicators that wetland unit functions to improve water quality**	**Points** (only 1 score per box)
S	**S 1. Does the wetland have the potential to improve water quality?**	*(see p. 64)*
S	S 1.1 Characteristics of average slope of wetland: Slope is 1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)*..... points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay organic*(use NRCS definitions)* YES = 3 points NO = 0 points	
S	S 1.3 Characteristics of the vegetation in the wetland that traps sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface. (<75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, ungrazed, herbaceous vegetation > 90% of wetland area points = 6 Dense, ungrazed, herbaceous vegetation > ½ of area points = 3 Dense, woody vegetation > ½ of area points = 2 Dense, ungrazed, herbaceous vegetation > ¼ of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	**Figure__**
S	**Total for S 1** *Add the points in the boxes above*	
S	**S 2. Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants A unit may have pollutants coming form several sources, but any single source would qualify as opportunity..* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 feet of wetland ☐ Residential, urban areas, or golf courses are within 150 ft upslope of wetland ☐ Other _____ ☐ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	*(see p. 67)* multiplier _____
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	

Comments

S	**Slope Wetlands** **HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream erosion**	**Points** (only 1 score per box)
S	**S 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p. 68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually> 1/8 in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers >90% of area of the wetland. points = 6 Dense, uncut, **rigid** vegetation >1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation >1/4 area of wetland points = 1 More than 3/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	
S	*Add the points in the boxes above*	
S	**S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☐ Other _____ *Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam.)* ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p. 70)* multiplier _____
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	

Comments

These questions apply to wetlands of all HGM classes HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☒ Emergent plants ☒ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 types or more points = 4 3 types points = 2 2 types points = 1 1 type points = 0 Map of Cowardin vegetation classes	Figure__ **1**
H 1.2 <u>Hydroperiods</u> ***(see p. 73)*** *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 description of hydroperiods.)* ☐ Permanently flooded or inundated ☒ Seasonally flooded or inundated ☐ Occasionally flooded or inundated ☒ Saturated only ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream or river in, or adjacent to, the wetland ☐ ***Lake-fringe wetland* = 2 points** ☐ ***Freshwater tidal wetland* = 2 points** 4 or more types present points = 3 3 types present points = 2 2 types present points = 1	Figure__ **1**
H 1.3 <u>Richness of Plant Species</u> ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. *(Different patches of the same species can be combined to meet the size threshold.)* *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 *List species below if you want to:* <5 species points = 0	**1**

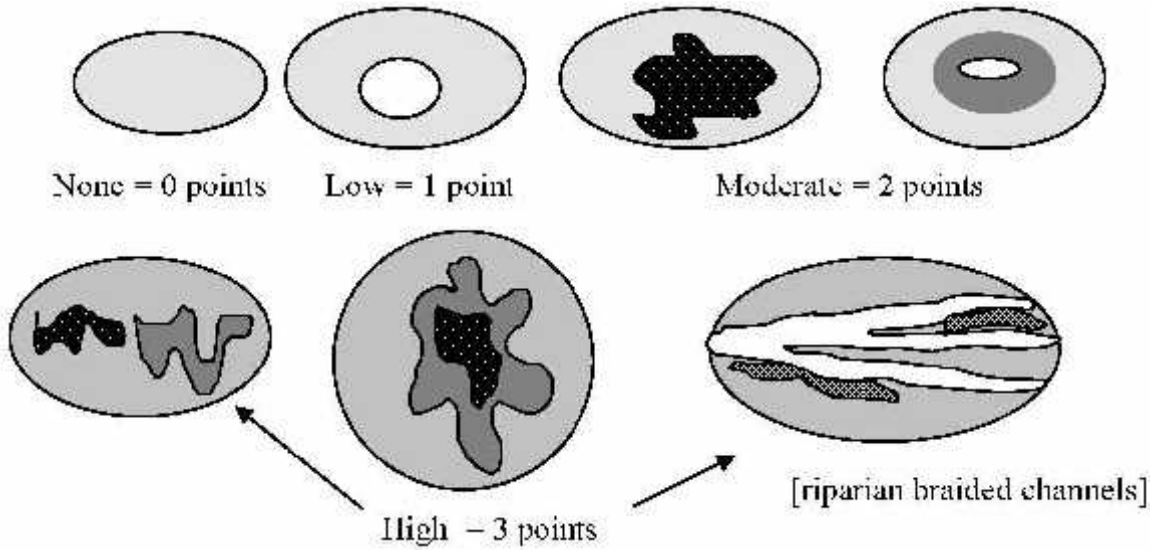
Total for page: **3**

H 1.4 Interspersion of habitats ***(see p. 76)***

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

Figure__

1



NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5 Special Habitat Features: ***(see p. 77)***

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at bottom >4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
- ☒ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error

1

H 1. TOTAL Score – potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	**5**

Comments:

H 2. Does the wetland have the opportunity to provide habitat for many species?*)*	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no grazing, no landscaping, no daily human use) **Points = 5** ☒ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **Points = 4** ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. **Points = 3** ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the three criteria above** ☐ No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing or lawns are OK **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure___ **4**
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* ☒YES = **4 points** (*go to H 2.3*) ☐NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ☐YES = **2 points** (*go to H 2.3*) ☐NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? ☐YES = **1 point** ☐NO = **0 points**	**4**

Total for page: **8**

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)***

Which of the following priority habitats are within 330ft (l00m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

- ☐ **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 that 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 *(fill descriptions in WLDFW PHS report p. 158).*
- ☐ **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).*
- ☐ **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.' pp. 167-169 and glossary in Appendix A).*
- ☐ **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 if) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** ☐ There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 ☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ☒ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 ☐ The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 3 ☐ There is at least 1 wetland within ½ mile. points = 2 ☐ There are no wetlands within ½ mile. points = 0	**3**
H 2. TOTAL Score -opportunity for providing habitat *Add the scores in the column above*	**12**
TOTAL for H 1 from page 14	**5**
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	**17**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Select the appropriate Category (from dropdown menu in Category column) when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐YES = Go to SC 1.1 ☒NO	
SC 1.1 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐YES = Category I ☒NO go to SC 1.2	Cat. I
SC 1.2 Is the wetland 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 the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ 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.	Cat. I Cat. II Dual rating I/II

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** — Cat. I

Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*

S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☒

YES ☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?

☐YES = Category I ☒NO__not in a Heritage Wetland

SC 3.0 Bogs ***(see p. 87)***

Does the wetland unit (**or part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.***

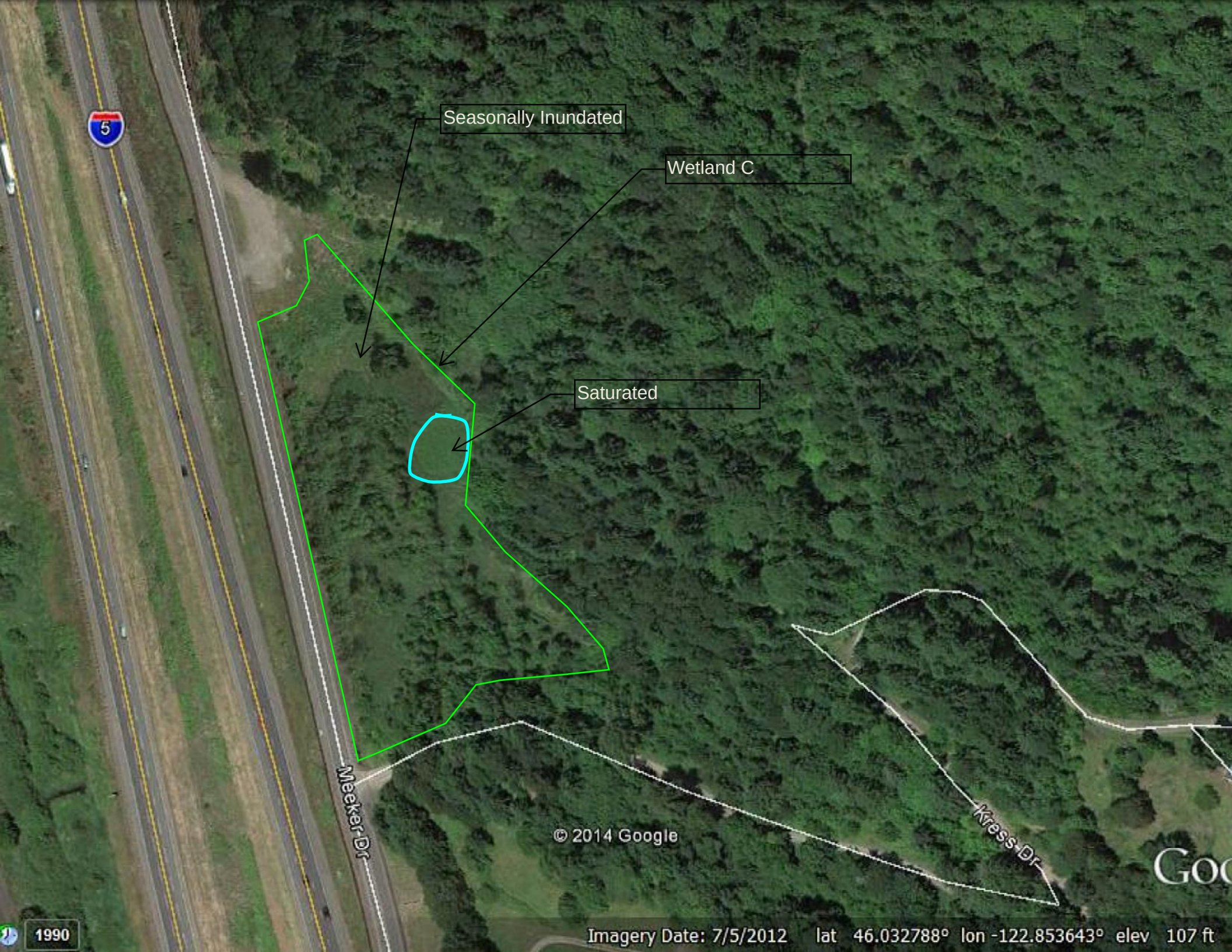
1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)
   Yes ☐ - go to Q. 3 No ☒ go to Q. 2
2. Does the unit have organic soils, 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 a lake or pond?
   Yes ☐ - go to Q. 3 No ☒ - Is not a bog for purpose of rating
3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?
   Yes ☐– Is a bog for purpose of rating No ☐-go to Q. 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 in Table 3 are present, the wetland is a bog.
4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?*
   YES ☐ = Category I NO ☐ Is not a bog for purpose of rating

Cat. I

SC 4.0 Forested Wetlands *(see p. 90)* Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐YES = Category I ☒ NO not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ☐ YES = Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ 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 acre (4350 square feet) YES ☐= Category I NO ☐= Category II	**Cat. I** **Cat. II**

SC 6.0 Interdunal Wetlands ***(see p. 93)*** Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES = Go to SC 6.1 ☒NO -- not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula – lands west of SR103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? ☐ YES = Category II ☐ NO go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre,? ☐ YES = Category III	**Cat.II** **Cat.III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1.	**N/A**

Comments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1990
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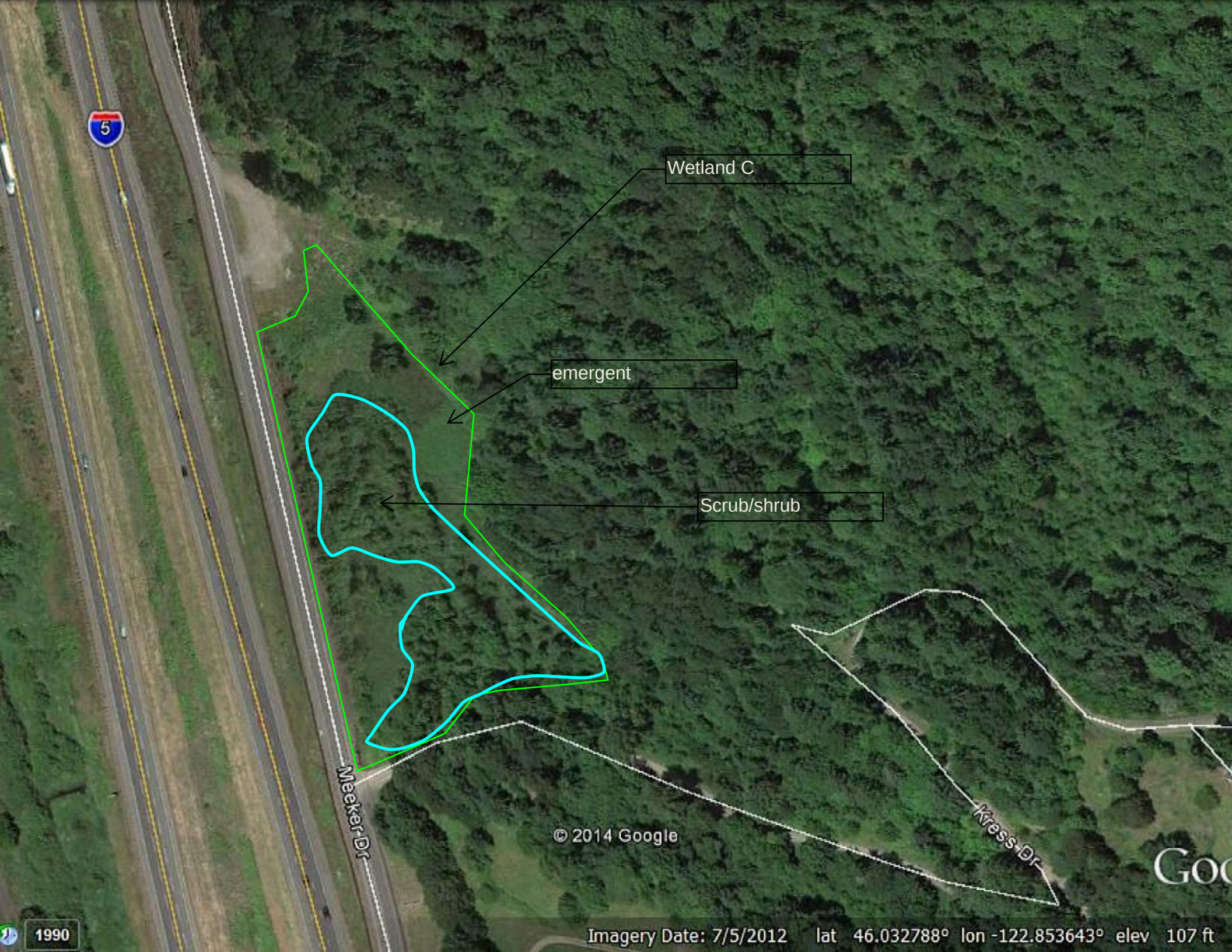
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Imagery Date: 7/5/2012 lat 46.032788° lon -122.853643° elev 107 ft