Countyline Levee Setback Project
White River

Stream and Wetland Delineation Report
&
Habitat Assessment

October 2012

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King County

Department of Natural Resources and Parks

Water and Land Resources Division

River and Floodplain Management Section

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Submitted to:

U.S. Army Corps of Engineers

Washington Department of Ecology

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1 Summary

The King County River and Floodplain Management Section (RFMS) is planning a levee setback and floodplain reconnection project to reduce flood risk, improve habitat conditions and foster natural river processes in the Lower White River. The project area is located between River Mile (RM) 4.9 and 6.1, on the left bank of the White River within the Cities of Pacific (King County) and Sumner (Pierce County), as well as unincorporated Pierce County (Figure 1).

King County project ecologists investigated jurisdictional streams and wetlands in support of permitting and mitigation design for the Countyline Levee Setback Project. Field investigations were performed within the project area located west of A Street and north of Stewart Road SE. Two streams and four jurisdictional wetlands were delineated. The streams and wetlands identified and delineated within the Project Area, as well as the ratings and the buffer requirements, are summarized in Table 1: Project Area Streams and Wetlands.

Table 1: Project Area Streams and Wetlands

Feature	Identification	Category
Stream	Stream A	Type Np
Stream	White River	Type S
Wetland	Wetland A	Category III
Wetland	Wetland B	Category II
Wetland	Wetland C	Category III
Wetland	Wetland D	Category IV

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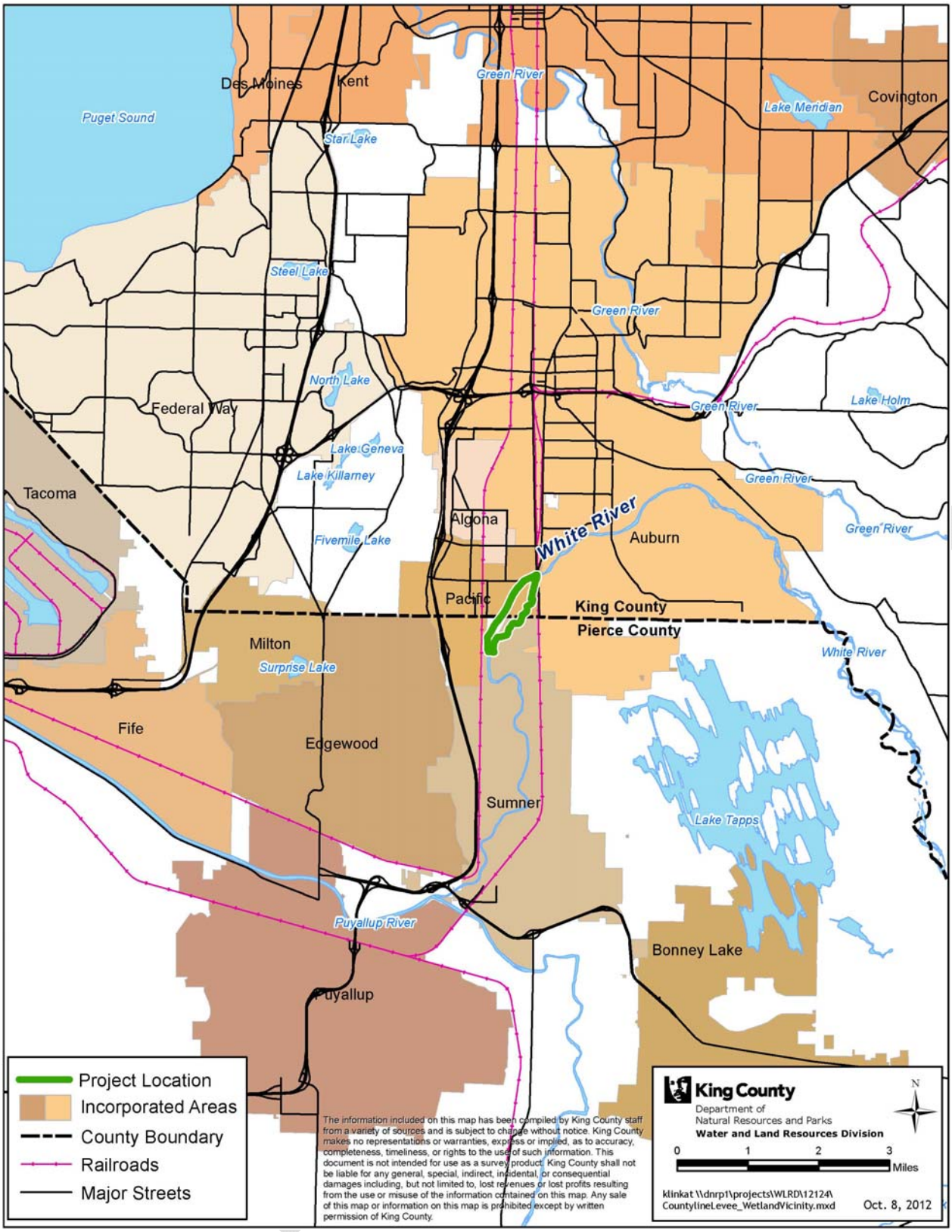

Figure 1. Project Area Vicinity Map.

2 Introduction

The wetland delineation described in this report was performed in support of King County's proposed Countyline Levee Setback project on the Lower White River. The purpose of this work is to inform the project alignment by identifying the location and extent of existing onsite sensitive features and to identify regulatory considerations that will need to be addressed during project design and permitting. This report will be submitted to federal and local regulatory agencies for the purpose of obtaining wetland boundary verifications.

King County ecologists located and delineated streams, wetlands, and the Ordinary High Water Mark (OHWM) of the White River within the approximately 120-acre project area. This report describes the conditions of wetlands in the project area, wetland ratings and required buffer widths, and applicable local, state, and federal laws and regulations.

2.1 Project Location

The approximately 120-acre project area is located in the City of Pacific, City of Sumner, and unincorporated Pierce County (Figure 1). It comprises a 1.3-mile levee, wetland, and agricultural/residential/light industrial upland area along the left bank of the White River, and is flanked by bridges (A Street SE/BNSF Railway on the upstream end and 8th Street E on the downstream end). The project area is located in Section 36, Township 21 North, Range 4 East of the Willamette Meridian; and Section 1, Township 20 North, Range 4 East of the Willamette Meridian (WDFW 2010).

2.2 Landscape Setting

The White River originates from the Emmons Glacier on Mount Rainier and flows through a relatively higher gradient channel with steeper valley walls before reaching the location of the historic confluence of the White and Green Rivers near Auburn, WA. A debris jam formed during a major flood event in 1906 and diverted the main flow of the White River into the Stuck River channel which was a substantially smaller distributary channel that flowed to the Puyallup River. A permanent diversion, named the Auburn Wall, was built in 1915 to divert the White River into the Stuck River channel, and ultimately to the Puyallup River.

The White River carries a high sediment load due to its origins on a young, erodible and nearby mountain, a step channel gradient through most of its length and its erosion through relatively new glacial and volcanic deposits (Herrera 2010). Because the channel gradient lessens in the location of the Auburn Wall and the Countyline Reach, the river deposits sediment and the channel is actively aggrading. Cessation of gravel removal in the late 1980s has in part contributed to an increase in the rate of channel aggradation through this reach.

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Past and current river management practices have altered the White River from its historical condition, thereby limiting biological processes and functions. Forestry, agriculture and urbanization have and continue to reduce the supply of wood and nutrients to the river, limiting both physical habitat formation and food supply. Gravel removal, which occurred from the early 1900s until the 1980s, significantly altered both established habitat and habitat-forming processes. Water diversion to Lake Tapps reduced flows and limited access to rearing and spawning habitat for fish. Flood reduction and manipulation of the natural flow regime by Mud Mountain Dam continues to arrest wood supply and dampen flood peaks, further limiting physical habitat formation.

The project area is located within the Puget Lowlands region and the Puyallup-White River Watershed (WRIA 10) subregion, within the White River alluvial fan. The landscape in this region is dominated by residential, commercial, and industrial development with occasional patches of forested floodplain wetlands and vegetated gravel bars. Some currently undeveloped agricultural lands in the area are zoned for commercial, industrial, and urban village development in the near future. The river banks are mostly armored through this reach, but the river is connected in places to the wetlands and gravel bars.

The proposed levee setback project seeks to resolve existing flood risks in this segment by creating a greater capacity to accommodate flood flows and sediment loads. This approach will provide increased flood conveyance and storage as well as open areas to accommodate sediment deposition. This project is identified as a priority in the King County Flood Hazard Management Plan (King County 2006). Reestablishment of a more naturally functioning floodplain along the lower reaches of the White River will also improve aquatic and wildlife habitat. These objectives are consistent with recommended salmon habitat recovery actions presented in the *WRIA 10/12 Salmon Habitat Protection and Restoration Strategy* (Pierce County 2008).

2.3 Applicable Laws and Regulations

This section describes applicable federal, state, and local regulations governing wetlands and streams in the study area.

Federal Regulations

The U.S. Army Corps of Engineers (Corps) regulates placement of dredged or fill material waterward of the OHWM in waters of the United States, including streams and wetlands, under Section 404 of the Clean Water Act. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." A Section 404 permit may be required if a proposed project involves filling wetlands.

The Corps has established two types of permit programs under Section 404: Nationwide and Individual. Nationwide permits are issued when a proposed activity would have minimal

adverse impacts to streams or wetlands. All other projects are permitted under the Individual permit process. The Corps determines which permitting process is used for a proposed project. In the case of the NHR Project, the Corps will require that wetland impacts be avoided or minimized to the extent practicable, and mitigation will likely be required for unavoidable wetland impacts. The Corps may verify delineated wetland boundaries during the project permitting stage. Project biologists will accompany the Corps in the field during verification.

Some types of wetlands are regulated by state and local governments but not by the federal government. However, the Rapanos Decision of 2006 addressed the jurisdictional scope of the "Waters of the U.S." portion of the Clean Water Act Section 404. It defined Clean Water Act jurisdictional wetlands as (1) traditional navigable waters (TNWs), (2) wetlands adjacent to TNWs, (3) non-navigable tributaries to TNWs that are relatively permanent (RPWs), or (4) wetlands that directly abut RPWs. Further evaluation of the hydrology and ecology of waters can find that the following waters are jurisdictional: (1) non-navigable tributaries that are not relatively permanent (non-tnw-non-rpw), and (2) wetlands adjacent to non-tnw-non-rpws.

State Regulations

Washington State regulates wetlands through the authority of the State Water Pollution Control Act (Chapter 90.48 RCW) and the Shoreline Management Act (Chapter 90.58 RCW). Washington Executive Order 89-10, Protection of Wetlands, commits state agencies to a "no net loss" wetland policy and encourages sensitive site design and planning on a watershed basis to avoid or minimize damage to wetlands. Executive Order 89-10 designates the Washington Department of Ecology (Ecology) to provide guidance on wetland issues. State agencies are instructed to develop an action plan to lessen the loss of wetlands and to preserve or enhance the values of wetlands. Wetlands are defined in the Shoreline Management Act (Chapter 90.58.030(2)(f) RCW) as follows:

> *'Wetlands' means areas that are inundated or saturated by surface water 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. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas to mitigate the conversion of wetlands*.

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Wetland protection is further promoted by Section 401 of the federal Clean Water Act, which directs each state to certify that proposed in-water activities will not adversely affect water quality or violate state aquatic protection laws. Ecology administers the Washington State certification program, which is usually triggered through a Corps Section 404 permit application. Ecology responds with either approval, approval with conditions, denial, or a request for delay due to lack of information. Any conditions attached to the 401 Certification become part of the Corps Section 404 permit.

Streams are classified as "waters" under the Washington State Water Typing System as established by the Washington Administrative Code (WAC 222-16-031). Modifications to these waters of the state are regulated by the Hydraulic Code rules under WAC 220-110-010.

Local Regulations

Wetlands and aquatic habitats (streams, open water bodies) and their associated buffers are regulated by the local jurisdictions of the City of Sumner, City of Pacific, and Pierce County. Project biologists rated the wetlands identified in the study area based on the pertinent city or county code, which then determined wetland buffer widths. Wetland buffers are vegetated upland areas immediately adjacent to wetlands that protect the many functions and values of wetlands.

Wetland Definition

Wetlands are defined similarly in all three municipal codes, and generally contain the following language:

> *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 stated definition of a wetland or wetland area can be found in Sumner Municipal Code (SMC) 16.12.920, Pacific Municipal Code (PMC) 23.20.010, and Pierce County Code (PCC) 18E.30.020. This definition is consistent with the Washington State Wetland Identification and Delineation Manual (Washington Department of Ecology 1997).

Wetland Rating

All three codes (SMC 16.46.070, PMC 23.20.020, PCC 18E.30.020(D)) specify that wetlands shall be rated using the Washington State Wetland Rating System for Western Washington

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(WWRS) (Hruby 2004). Wetlands are classified into one of four categories (Category I, II, III, IV). The WWRS categorizes wetlands based on specific attributes such as rarity, sensitivity, and function. The rating system uses a point system designed to differentiate between wetlands based on their sensitivity to disturbance, their rarity, ability to replace them, and the functions that they provide. The WWRS cannot be used to accurately rate wetlands that have been modified by grading, clearing, or drainage activities. The definitions of the categories are shown in Table 2.

Table 2. Washington Wetland Rating System.

Category	Definition
I	Wetlands that represent a unique or rare wetland type, or are more sensitive to disturbance than most wetlands, or are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime, or provide a high level of functions, with a score of at least 70 points (out of 100) on the wetland rating form. Category I wetlands include estuaries, bogs, mature and old-growth forests, coastal lagoons, and wetlands that perform many functions very well. Category I wetlands may be part of the "priority habitat" as defined by the Washington Department of Fish and Wildlife (WDFW), or be identified as a Natural Heritage wetland by the Washington Natural Heritage Program of the Department of Natural Resources (DNR).
II	Wetlands that are difficult though not impossible to replace and provide high levels of some functions. These wetlands occur more commonly than Category I wetlands but still need a relatively high level of protection. Category II wetlands include, but are not limited to, wetlands that perform functions well and score 51 to 69 points for habitat.
III	Wetlands with a moderate level of functions, scores between 30 to 50 points for habitat, and generally have been disturbed in some ways, and are often less diverse or more isolated.
IV	Wetlands that have the lowest levels of functions (scores less than 30 points for habitat) and are often heavily disturbed. These are wetlands that we should be able to replace or improve. These wetlands may provide some important function and also need to be protected.

Buffers

Wetland buffers are measured horizontally from the wetland edge and are sized based on the wetland category. Habitat score differentiates two buffer widths for Category II wetlands in the City of Sumner. Jurisdictional buffer widths for wetlands in the City of Sumner, City of Pacific, and Pierce County are shown in Table 3.

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Table 3. Local Jurisdiction Wetland Buffer Widths.

Wetland Category	Standard Buffer Width (feet)		
	Sumner	**Pacific**	**Pierce County**
I	150	100	150
II	100-125*	50	100
III	75	25	50
IV	35	25	25

*The wider buffer is assigned to wetlands with a habitat score of 20 or greater.

Fish and Wildlife Species and Habitat Areas

The City of Sumner, City of Pacific, and Pierce County specify use of the Washington Department of Natural Resources (DNR) water typing system for classifying streams (Table 4), and the Washington Department of Fish and Wildlife Priority Habitats and Species (PHS) Program and U.S. Endangered Species Act for identifying sensitive species and habitat areas.

Table 4. Washington DNR water typing system for classifying streams.

Water Type	Description
Type "S" = Shoreline (formerly type 1)	Streams and waterbodies that are designated “shorelines of the state” as defined in chapter 90.58.030 RCW.
Type "F" = Fish (formerly type 2 or 3)	Streams and waterbodies that are known to be used by fish, or meet the physical criteria to be potentially used by fish. Fish streams may or may not have flowing water all year; they may be perennial or seasonal.
Type "Np" = Non-Fish Perennial (formerly type 4)	Streams that have flow year round, but do not meet the physical criteria of a Type F stream. This also includes streams that have been proven not to contain fish using methods described in Forest Practices Board Manual Section 13.
Type "Ns" = Non-Fish Seasonal (formerly type 5)	Streams that do not have surface flow during at least some portion of the year, and do not meet the physical criteria of a Type F stream.

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3 METHODS

This section describes the methodology used for preparing this Wetland Delineation Report and Habitat Assessment, including the review of existing information and field investigation procedures.

3.1 Review of Available Information

The following data sources were reviewed prior to performing fieldwork, in order to identify natural drainage system features and determine the presence of topography, drainage, and vegetation that would indicate the likely presence of wetlands within the project vicinity:

- National Wetland Inventory (NWI) maps
- Previous wetland delineations performed by private landowners
- U.S. Geologic Survey (USGS) stream gage information
- Natural Resources Conservation Service (NRCS) soils surveys
- Aerial photographs

3.2 Wetland Identification and Delineation

This wetland delineation was performed in accordance with the Washington State Wetlands Identification and Delineation Manual (Washington Department of Ecology 1997) and the Interim Supplement to the U.S. Army Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region (Environmental Laboratory 2008), both of which are consistent with the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). Field data were recorded on dataforms found in the Western Mountains, Valleys, and Coast Region manual. All three parameters (vegetation, soils, and hydrology) were assessed to determine if wetland conditions exist (wetland identification). For an area to be classified as wetland, hydrophytic vegetation, soils, and wetland hydrology must be exhibited. Following wetland identification, wetland boundaries were delineated. Wetland delineation methods were determined to be consistent with local municipal codes (City of Sumner, City of Pacific, and Pierce County).

Wetland identifiers (letters) were assigned to each wetland. Wetland boundaries were delineated using a Trimble GeoXT geographic positioning system (GPS) with sub-meter horizontal accuracy. GPS rover files were differentially corrected and exported into geographic information system (GIS) shape files and AutoCAD files. Wetland areas were overlaid with project engineering plans to calculate wetland impacts.

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Vegetation

Hydrophytic vegetation consists of those plant species that readily grow in water, soil or other substrate that at least periodically lacks oxygen in the root zone due to saturation or inundation. The hydrophytic vegetation criterion is met when more than 50 percent of the dominant species are hydrophytic, based on the wetland plant species indicator status from the Region 9 section of the National List of Plant Species Occurring in Wetlands (Reed 1988). The plant list separates vascular plants into five basic groups by their wetland indicator status, which is based on that species frequency of occurrence in a wetland.

Soils

A hydric soil is one that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Prolonged anaerobic conditions result in a chemically reducing environment wherein some soil components such as iron and manganese become reduced. Reduction of these minerals results in field indicators in the soil such as mottling and gleying (GretagMacbeth 2000). Mottles are spots or blotches of contrasting occurring within the soil matrix. Gleyed soils are predominantly neutral gray in color.

Hydrology

Indicators for wetland hydrology include field data such as visual observation of inundation or saturation, watermarks, drift lines, sediment deposits, and drainage patterns.

3.3 Wetland Classification, Rating, and Functional Assessment

Wetland Classification

Wetlands were classified according to the U.S. Fish and Wildlife Service (USFWS) classification system (Cowardin et al. 1979). The USFWS classification system, often referred to as the Cowardin classification system, was developed as part of a national inventory of wetlands using aerial photographs. This classification system provides information on observable wetland characteristics, including water flow, substrate types, vegetation types, and dominant plant species. Wetlands were classified based on the dominant vegetation stratum present.

Wetland Rating

Wetlands were rated using the WWRS, Revised developed by the Washington State Department of Ecology (Hruby 2004). The local jurisdictions (City of Sumner, City of Pacific and Pierce County) have adopted the WWRS for setting wetland buffers and associated regulations.

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The WWRS is based on the hydrogeomorphic (HGM) classification system (Brinson 1993). HGM stratifies wetlands into different hydrogeomorphic classes in order to describe differences in wetland functions. The HGM classification system complements the Cowardin system by categorizing wetlands based on three factors. These include the position of the wetland in the landscape (geomorphic setting), the source of water for the wetland, and the flow and fluctuation of the water in the wetland (hydrodynamics). The HGM classification method was chosen by the statewide wetland technical committee that guided the development of the Washington State wetland function assessment methods (Hruby 1999) and the WWRS (Hruby 2004).

The WWRS differentiates between wetlands based on specific attributes such as rarity, sensitivity to disturbance, significance, replace ability, and functions. The WWRS is based on HGM classification which evaluates wetland functions based on the presence or absence of certain structural characteristics that are indicators of wetland functions.

The total score for all functions determines the wetland rating. The rating system contains four categories (Categories I through IV), which indicate the level of functions that are provided by the wetlands. Category I wetlands are functionally the most significant, and therefore, greater importance is placed on their protection. Category IV wetlands are the least critical of the wetland categories. Wetland rating methods were determined to be consistent with local municipal codes (City of Sumner, City of Pacific, and Pierce County). These municipal codes require the use of the rating system for determining buffer widths.

Wetland Functional Assessment

Wetland functions were assessed at this project site using the WWRS. The WWRS measures three functions including improving water quality, reducing floods, and providing habitat. Using the scores on the wetland rating forms, a qualitative functional rating (high, moderate, or low) was derived for each of the functions (water quality, hydrology, and habitat) provided by each wetland (Washington Department of Ecology 2008).

3.4 Stream and Habitat Assessment

The OHWM of the White River within the study area was delineated using the methods outlined in the draft publication Determining the Ordinary High Water Mark on Streams in Washington State (Olson and Stockdale 2010). The definition of OHWM is:

> *Ordinary high water mark on all lakes, streams, and tidal water is that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department: PROVIDED, that in any area where the ordinary high water mark cannot be found, the ordinary high water mark adjoining (…) fresh water shall be the line of mean <u>high</u> water. (Olson and Stockdale 2010)*

Streams within and adjacent to the project site were classified using the Washington DNR water typing system as described in the Washington Administrative Code (WAC 222-16-031). The Endangered Species Act and the Washington Department of Fish and Wildlife PHS List were consulted for information about the presence of sensitive, threatened, and endangered species and sensitive habitats within the project area.

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4 RESULTS

This section discusses the results of the wetland survey and habitat assessment, including a review of information obtained from various references and an analysis of wetland and habitat conditions observed during field investigations.

4.1 Analysis of Available Information

Previously mapped wetlands

The NWI identifies several wetland types within the project area (Figure 2), including:

PFOA: Palustrine forested temporarily flooded

PSSC: Palustrine scrub-shrub seasonally flooded

PSSF: Palustrine scrub-shrub semipermanently flooded

PEMC: Palustrine emergent seasonally flooded

PEMF: Palustrine emergent semipermanently flooded

PUBHx: Palustrine unconsolidated bottom permanently flooded excavated

PABH: Palustrine aquatic bed permanently flooded

R2UBH: Riverine lower perennial unconsolidated bottom permanently flooded

R2USC: Riverine lower perennial unconsolidated shore seasonally flooded

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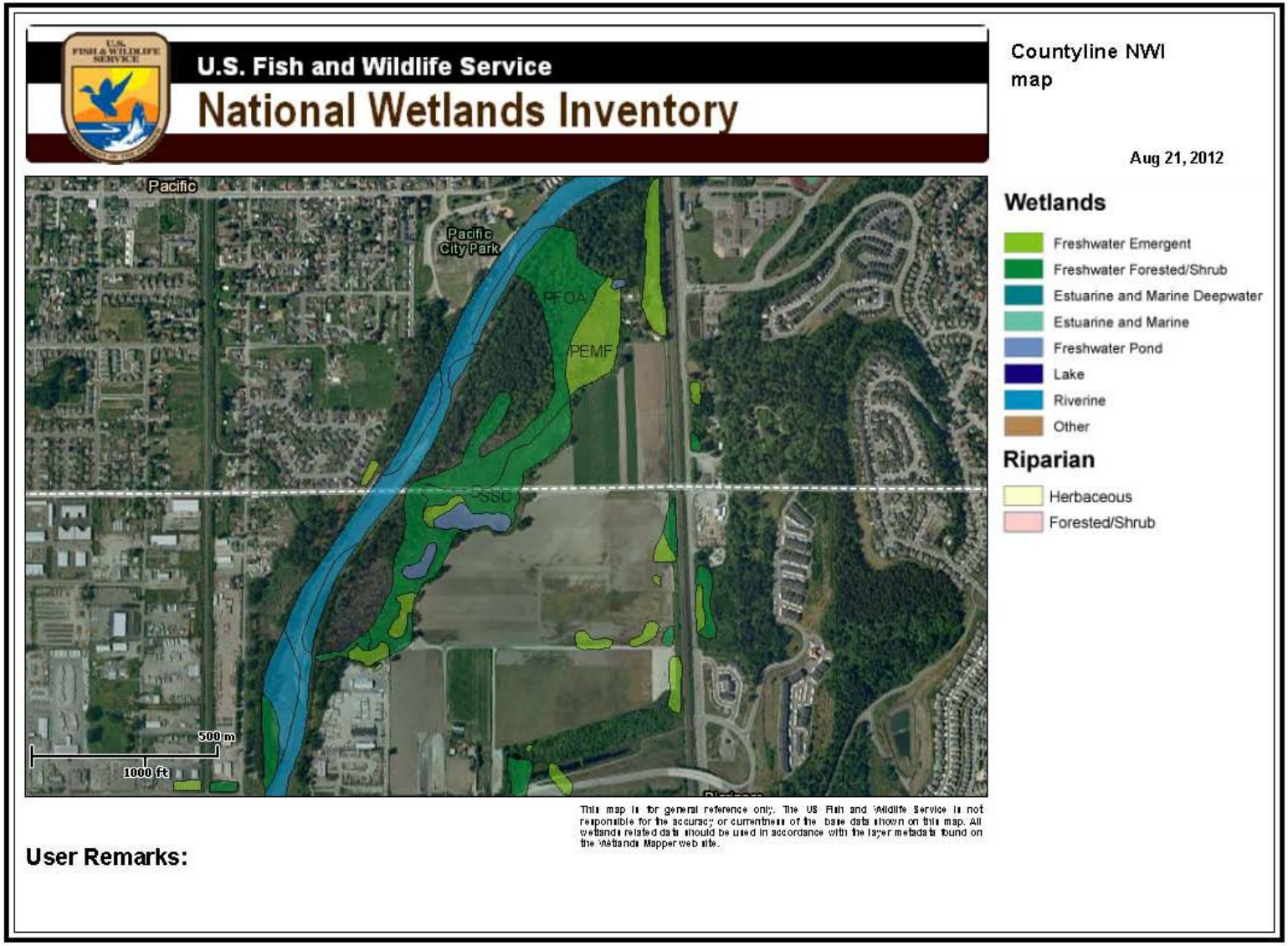

Figure 2. Wetland types within the project area.

Stream Gage Data

White River flows, as measured at the USGS stream gage at R Street (12100490), ranged from 977 to 3,970 cubic feet per second during November 2010 (Figure 3). There were two moderately high flow events during November 2010, which is typical during the flood season.

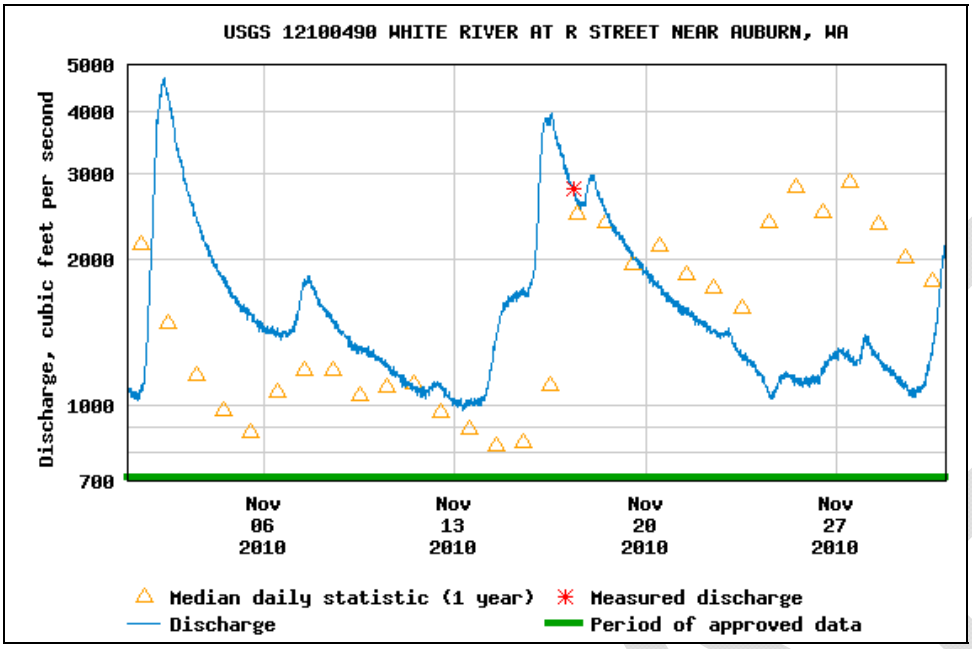

Figure 3. White River discharge (cubic feet per second) at the USGS R Street gage in Auburn during November 2010. Graph generated on the USGS website (http://nwis.waterdata.usgs.gov).

Mapped soils

There are five soil types mapped by the NRCS in the project area (Figure 4).

1. Aquic Xerofluvents
2. Mixed alluvial land
3. Pilchuck fine sand
4. Puyallup fine sandy loam
5. Shalcar muck

Aquic Xerofluvents (2A) are made up of somewhat excessively drained to poorly drained soils that formed in unconsolidated alluvium along major and minor streams. Aquic Xerofluvents are not listed as a hydric soil by NRCS; however, Riverwash soils are hydric and may be included in the Aquic Xerofluvent mapping unit.

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Mixed alluvial lands (Ma) are complexes of alluvium distributed by the regular flooding of the river. Soils range from gravels to loam with distribution based on river flow patterns and source material. According to the NRCS (2010), mixed alluvial lands may be hydric soils, depending on ground and water table elevations.

Pilchuck fine sand (29A) is made up of excessively drained soils that formed in mixed alluvium under hardwoods and conifers in river valleys. Permeability is rapid. Pilchuck fine sand is not considered a hydric soil.

Puyallup fine sandy loam (Py, 31A) is a well-drained soil formed in alluvium on natural levees adjacent to streams. A typical profile is composed of a very dark grayish-brown to dark grayish-brown fine sandy loam or loamy sand topsoil, approximately 34 inches deep, lying over very dark grayish-brown to dark grayish-brown subsoils composed of loamy sand and sand. Puyallup silt loam is not considered a hydric soil.

Shalcar muck (Sm, 38A) is a very poorly drained soil formed in decaying sedges, cattails, and reeds, and in alluvium in backwater depressions of river valleys. Permeability is moderately slow. Shalcar soils are listed as a hydric soil by the NRCS.

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Figure 4. Soil Map.

4.2 Analysis of Wetland Conditions

Field investigation of the site was performed on 11/03/2010, 11/05/2010, 11/12/2010 and 11/17/2010 to determine the presence and extent of wetlands and other waters of the United States. Weather conditions ranged from sunny to rainy and cool, with a heavy rain occurring on 11/01/2010. Climatic and hydrologic conditions were considered typical for the time of year.

Project ecologists identified and delineated four wetlands and one stream in the project area (Figure 5, insert map of delineated wetland and OHWM). The OHWM of the White River was delineated on 03/24/2011 (Figure 5). The ecologists completed wetland delineation forms (Appendix A) and an Ecology wetland rating form (Appendix B) for each of the wetlands delineated in the project area.

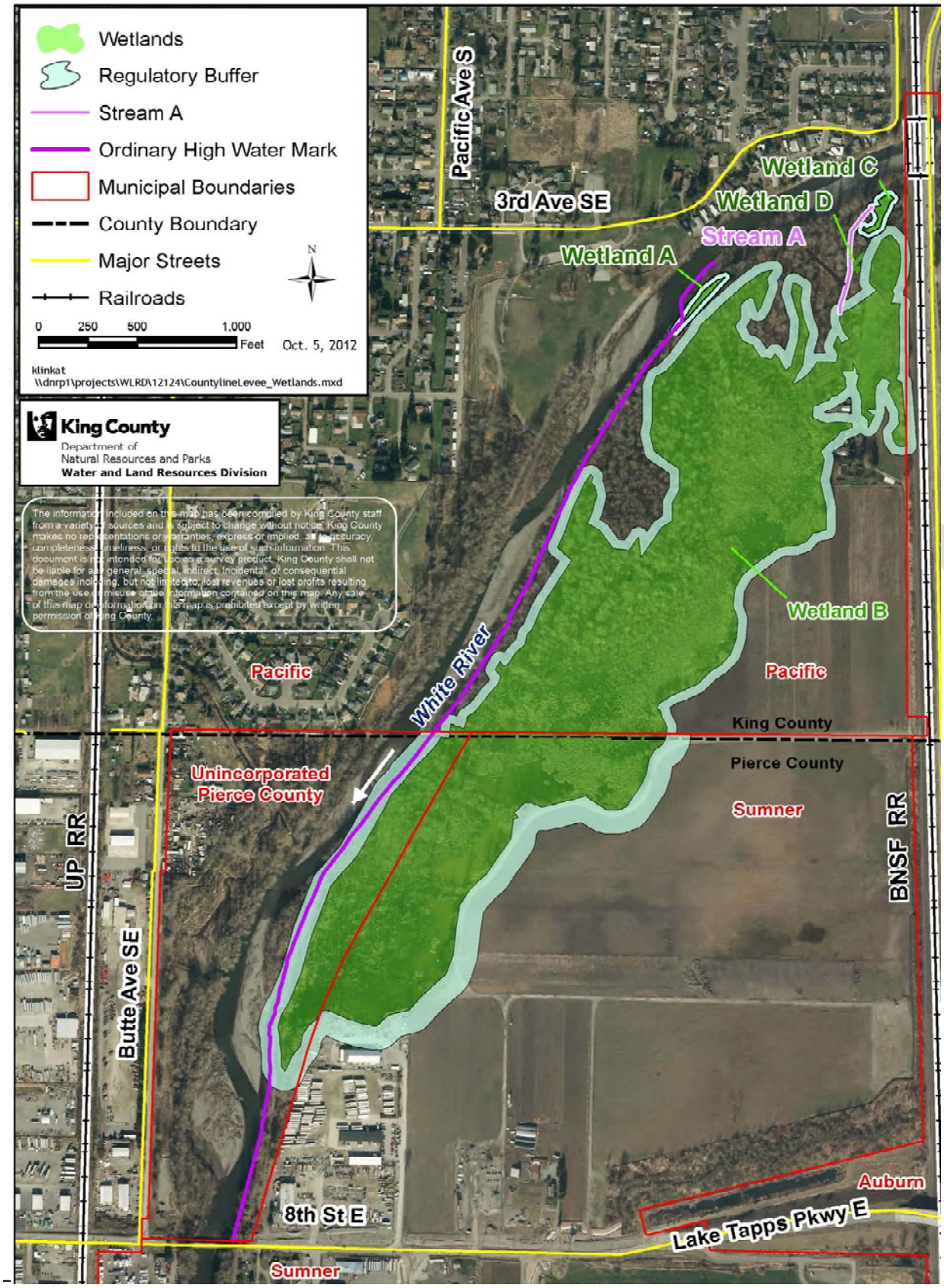

Figure 5. Delineated wetlands and OHWM.

Table 5. Wetland size, classification, category, and regulatory buffer.

Wetland Name	Wetland Size (SF)	Wetland Size (AC)	USFWS Classification	Hydrogeomorphic Classification	Department of Ecology Rating Category	Regulatory Buffer (Feet)
A	6,884	0.16	PFO, PSS, PEM	Riverine	III	25
B	3,354,120	77	PFO, PSS, PEM, PAB, PUB	Depressional	II	125 (Sumner) 50 (Pacific) 100 (Pierce Co.)
C	9,671	0.22	PFO, PSS, PEM	Depressional	III	25
D	740	0.02	PFO, PSS, PEM	Depressional	IV	exempt*

*Category IV wetlands are exempt from buffer restrictions under Pacific Municipal Code if smaller than 1,000 SF (PMC 23.10.070; 23.20.040.B).

Each wetland was assigned to one of the following Cowardin classes: palustrine emergent (PEM), palustrine scrub-shrub (PSS), palustrine forested (PFO), and palustrine open water (POW). Riverine and depressional wetland hydrogeomorphic classes were found within the project area. These are described as follows:

Riverine Wetlands

The distinguishing characteristic of riverine wetlands in Washington is that they are frequently flooded by overbank flow from a stream or river. Riverine wetlands are found in a valley or adjacent to a stream channel. They lie in the active floodplain of a river or stream and have important links to the water dynamics of the river or stream. The flooding waters are a major environmental factor that structures the environment in these wetlands and controls wetland functions (Hruby et al. 1999).

Depressional Wetlands

Depressional wetlands occur in topographic depressions that have closed contours on three sides. Elevations within the wetland are lower than in the surrounding landscape. The shapes of depressional wetlands vary, but in all cases the movement of surface water and shallow subsurface water is toward the lowest point in the depression. The depression may have an outlet, but the lowest point in the wetland is somewhere within the boundary, not at the outlet (Hruby et al. 1999).

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Wetland A is located immediately adjacent to the White River on the riverward side of the levee (Figure 6). It was determined to receive frequent flooding from overbank flow and it has no discernable topographic depressions or areas of ponding. Wetland A was classified as riverine and rated using the WWRS as Category III.

Figure 6. Wetland A.

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Wetland B is a large forested, scrub-shrub, emergent, and open water wetland (Figure 7). It exhibits riverine characteristics including frequent overbank flooding. However, parts (particularly the north half) of this large wetland would be considered depressional because the river does not flood this area and there is permanent ponding with outlets that are higher then the lowest points. These ponded areas have been created by beaver dams, natural topographic variation, and abandoned weirs. As stated by Hruby (2004):

> *Wetlands that are created in a river system by some type of obstruction, such as a beaver dam, weir, or debris dam that impound water are considered to be depressional rather than riverine. The major hydrologic factor that maintains and provides the structures in these systems is the ongoing flow that is impounded. The overbank flooding is not as important a factor." (Hruby 2004)*

Therefore, because both depressional and riverine conditions exist in this wetland, Wetland B was classified as depressional and rated using the WWRS as Category II.

Figure 7. Wetland B.

Wetland C is a small (0.22 acre) wetland located at the far north end of the project site and is thought to be fed by interstitial flow through the levee and by a culvert running under the railroad (Figure 8). The wetland has a stream (Stream A) draining it, but the outlet is higher than the lowest point of the wetland. Wetland C was classified as depressional and rated using the WWRS as Category III.

Figure 8. Wetland C.

Wetland D is also located at the north end of the project site and is very small (0.02 acres; Figure 9). It is adjacent but not connected to Stream A and occurs in a topographical depression. It does not appear to be ponded permanently. Wetland D was classified as depressional and rated using the WWRS as Category IV.

Figure 9. Wetland D.

4.3 Evaluation of Wetland Functions

Wetland functions for each wetland within the project area were evaluated according to data in the Ecology wetland rating forms (Hruby 2004), and supplemental qualitative ratings were based on Ecology's methods (2008). A summary of these function scores, the total wetland score, and the associated rating (category for each wetland is provided in Table 6. Qualitative and quantitative scores for both potential and opportunity for each wetland to provide water quality, hydrologic, and habitat functions is discussed below.

Table 6. Individual wetland function scores for wetlands in the Countyline Levee Setback project area**.**

Wetland Name	Water Quality Functions - Qualitative Rating[a]		Hydrologic Functions - Qualitative Rating[a]		Habitat Functions - Qualitative Rating[a]		Total Score	Wetland Category[b]
	Potential	Opportunity	Potential	Opportunity	Potential	Opportunity		
A	Moderate (10)	Yes	Moderate (6)	Yes	Low (5)	Moderate (13)	50	III
B	Moderate (7)	Yes	Moderate (9)	Yes	High (15)	Moderate (14)	61	II
C	Moderate (8)	Yes	Low (0)	No	Moderate (7)	Moderate (14)	37	III
D	Moderate (8)	No	Low (0)	No	Low (6)	Moderate (13)	27	IV

[a] Qualitative ratings are based on the Department of Ecology "Using the Wetland Rating System in Compensatory Mitigation" focus sheet (Ecology 2008)
[b] Wetland category is based on the Department of Ecology rating system (Hruby 2004)

Wetland A

Wetland A, a riverine wetland, has moderate potential to improve water quality (10 out of 16 possible points) because the majority of the wetland is covered with trees and shrubs. It has the opportunity to improve water quality due to its location in an area that has some input of pollutants (e.g., from human activities). The wetland has moderate potential to improve hydrologic functions (6 out of 16 possible points) because the wetland is narrow compared to the width of the White River and a moderate area is covered with vegetation. The wetland has the opportunity to reduce flooding and erosion because there are both human structures and activities and natural resources that can be damaged by flooding.

Wetland A has low potential to provide habitat for many species (5 out of 18 possible points) because it does not have many vegetation classes, hydroperiods, or habitat types. The wetland has moderate opportunity to provide habitat (13 out of 18 possible points) due to a relatively undisturbed buffer and corridor and the proximity to priority habitats.

Wetland B

Wetland B, a depressional wetland, has moderate potential to improve water quality (7 out of 16 possible points) due to an intermittently flowing outlet, persistent vegetation, and areas of seasonal ponding. It has the opportunity to improve water quality due to nearby tilled fields and development. The wetland has moderate potential to improve hydrologic conditions (9 out of 16 possible points) because water is constricted in the wetland by the outlet and its high capacity for ponding as shown by high water marks. It has the opportunity to reduce flooding and erosion because it drains to the White River, which has flooding problems.

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Wetland B has high potential to provide habitat for many species (15 out of 18 possible points) because it has many vegetation classes, hydroperiods, and habitat types as well as high interspersion of habitats. The wetland has moderate opportunity to provide habitat (14 out of 18 possible points) due to a relatively undisturbed buffer and proximity to priority habitats.

Wetland C

Wetland C, a depressional wetland, has moderate potential to improve water quality (8 out of 16 possible points) because the outlet is permanently flowing but well vegetated. It has the opportunity to improve water quality due to nearby development. The wetland has low potential to improve hydrologic conditions (0 out of 16 possible points) due to an unconstricted outlet, little evidence of ponding, and its small size in relation to the contributing basin. It does not have the opportunity to reduce flooding and erosion because it does not drain to the White River and it doesn't impound very much surface water.

Wetland C has moderate potential to provide habitat for many species (7 out of 18 possible points) due to relatively few vegetation classes, hydroperiods, and habitat types. The wetland has moderate opportunity to provide habitat (14 out of 18 possible points) due to relatively undisturbed buffers and corridors, proximity to priority habitats, and other wetlands nearby.

Wetland D

Wetland D, a depressional wetland, has moderate potential to improve water quality (8 out of 16 possible points) because the outlet is permanently flowing but well vegetated. It does not have the opportunity to improve water quality because there are no other land uses within 150 feet on any side. The wetland has low potential to improve hydrologic conditions (0 out of 16 possible points) due to an unconstricted outlet, little evidence of ponding, and its small size in relation to the contributing basin. It does not have the opportunity to reduce flooding and erosion because it does not drain to the White River and it doesn't impound very much surface water.

Wetland D has low potential to provide habitat for many species (6 out of 18 possible points) due to relatively few vegetation classes, hydroperiods, and habitat types. The wetland has moderate opportunity to provide habitat (13 out of 18 possible points) due to relatively undisturbed buffers and corridors, proximity to priority habitats, and other wetlands nearby.

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4.4 Evaluation of Stream and Habitat Conditions

Threatened, Endangered, and Sensitive Species

The White River supports all five species of Pacific salmon (Chinook, coho, chum, pink, and sockeye), as well as steelhead, cutthroat, and bull trout. Three of these species (Chinook, steelhead, and bull trout) are listed as threatened under the U.S. Endangered Species Act, and the White River has the only remaining population of spring Chinook in South Puget Sound. There are no other known threatened or endangered plant or animal species within the project area.

The Washington Department of Fish and Wildlife Priority Habitat and Species list contains the following within the project area:

Fish species

- Coho salmon
- Pink salmon
- Chinook salmon
- Coast resident cutthroat trout
- Sockeye salmon
- Steelhead trout
- Bull trout
- Chum salmon

Wildlife

- Waterfowl concentrations

Aquatic Habitat

- Wetlands
- Riverine lower perennial
- Palustrine

There is no known salmonid use in any of the depressional wetlands (B, C, or D). King County biologists set minnow traps and fyke nets in June 2011. Species captured included black crappie, bullfrog tadpole, largemouth bass, oriental weatherfish, northwestern salamander, and 3-spined stickleback.

Stream Conditions

Stream A was determined to be Type Np. This stream flows from Wetland C southeast toward the terrace, and drained into Wetland B. This stream flows continuously all year.

The White River is a Type S stream, and it is listed as a Shoreline of the State. The White River has flow year-round and contains listed fish species (see previous section Threatened, Endangered, and Sensitive Species).

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5 REGULATORY IMPLICATIONS

Wetland regulations imposed by the federal and state government and the local jurisdictions (City of Sumner, City of Pacific, and Pierce County) will apply to this project. The filling of wetlands is regulated under the federal Clean Water Act and the local municipal codes. The codes also establish required buffer widths for wetlands. Federal, state, and county regulations require mitigation for impacts on wetlands, and the local jurisdictions also regulate impacts on the wetland buffers. The proposed levee setback project may also be subject to federal, state and local regulations regarding activities within the buffer and floodplain of the White River.

5.1 Clean Water Act Section 404

Section 404 of the federal Clean Water Act regulates activities in waters of the United States, including wetlands (33 USC 1344). The Corps administers the permitting program under this law. Such permits include nationwide (general) permits for small areas of fill, and individual permits for projects that require larger areas of fill. The Corps does not regulate wetland buffers. Section 401 of the Clean Water Act requires that proposed dredge and fill activities permitted under Section 404 be reviewed and certified by Ecology to ensure that the project meets state water quality standards. These regulations will be applicable to this project because a portion of the levee setback is proposed to encroach into the south end of Wetland B. In addition, the engineered log jams are proposed for construction in Wetland B.

5.2 Local Jurisdictions

Local codes (City of Sumner, City of Pacific, Pierce County) require that wetlands be classified according to the Ecology rating system (Hruby 2004). Buffers are required around each wetland in order to protect the wetland functions and values. Category II, III, and IV wetlands were found within the project area. As shown in Table 5, the buffer widths range from 25 to 125 feet.

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6 REFERENCES

Brinson, M. M. 1993. A hydrogeomorphic classification for wetlands. Wetlands Research Program Technical Report WRP-DE-4. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Publication FWS/OBS-79/31.

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

Environmental Laboratory. 2008. Interim Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region. Technical Report TR-08-13. U.S. Army Corps of Engineers, Engineer Research and Development Center, Wetlands Regulatory Assistance Program, Vicksburg, MS.

GretagMacbeth. 2000. Munsell Color Charts. New Windsor, New York.

Herrera. 2010. Summary of sediment trends: Lower White River: RM 4.44 to RM 10.60. Prepared for King County Department of Natural Resources and Parks, Water and Land Resources Division, River and Floodplain Management Section, Seattle, Washington.

Hruby, T. 1999. Assessments of wetland functions: What they are and what they are not. Environmental Management 23(1):75-85.

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

King County. 2006. Flood Hazard Management Plan: King County, Washington. King County Department of Natural Resources and Parks, Water and Land Resources Division, Seattle, Washington.

Olson, P., and E. Stockdale. 2010. Determining the Ordinary High Water Mark on Streams in Washington State. Second Review Draft. Washington State Department of Ecology, Shorelands & Environmental Assistance Program. Lacey, WA. Ecology Publication #08-06-001.

Pierce County. 2008. Salmon Habitat Protection and Restoration Strategy - Puyallup (WRIA 10) and Chambers/Clover Creek (WRIA 12) Watersheds. Pierce County, Lead Entity.

Washington Department of Ecology. 1997. Washington State Wetlands Identification and Delineation Manual. Publication No. 96-94, Olympia, Washington.

Washington Department of Ecology. 2008. Using the Wetland Rating System in Compensatory Mitigation. Focus Sheet: Shorelands and Environmental Assistance. Ecology Publication 08-06-009. Washington State Department of Ecology. March 2008.

7 APPENDIX A: WETLAND DELINEATION FORMS

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

Project Site: Countyline (White River left bank) City/County: Pacific/King Sampling Date: 11/03/10
Applicant/Owner: King County State: WA Sampling Point: A: DP-1
Investigator(s): Sarah McCarthy, Mason Bowles Section, Township, Range: S36, T21N, R4
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): ____ Slope (%): ____
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Mixed alluvial land, water NWI classification: R2UBH
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sunny and cool. Heavy rain 2 days ago. Area is riverward of the Countyline Levee.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	60	yes	FAC
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = 30, 20% = 12	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. *Salix sitchensis*	10	yes	FACW
2. *Symphoricarpos albus*	1	no	FACU
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = 5.5, 20% = 2.2	11	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Equisetum arvense*	1	yes	FAC
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = .5, 20% = .2	1	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. *Rubus discolor*	2	yes	FACU
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	

% Bare Ground in Herb Stratum 85

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Project Site: Countyline

SOIL

Sampling Point: A: DP-1

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes ☐ No ☒

Remarks: Very sandy soil. No apparent hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of recent high water event (inundation from White River).

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

Project Site: Countyline (White River left bank) City/County: Pacific/King Sampling Date: 11/03/10
Applicant/Owner: King County State: WA Sampling Point: A: DP-2
Investigator(s): Sarah McCarthy, Mason Bowles Section, Township, Range: S36, T21N, R4
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): ____ Slope (%): ____
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Mixed alluvial land, water NWI classification: R2UBH
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sunny and cool. Heavy rain 2 days ago. Area is riverward of the Countyline Levee.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	35	yes	FAC
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = 17.5, 20% = 7	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. *Salix sitchensis*	10	yes	FACW
2. *Populus trichocarpa*	trace	no	FAC
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Equisetum arvense*	trace	no	FAC
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = .5, 20% = .2	trace	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. *Rubus discolor*	5	yes	FACU
2. ____	____	____	____
50% = 2.5, 20% = 1	5	= Total Cover	

% Bare Ground in Herb Stratum 95

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66.7	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Project Site: Countyline

SOIL

Sampling Point: A: DP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16"	10YR 2/2	98	7.5YR 4/6	2	C	PL/M	sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes ☒ No ☐

Remarks: Very close to side channel/standing water.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches):	_____	
Water Table Present?	Yes ☒	No ☐	Depth (inches):	14	
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches):	14	

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of very recent high water event (inundation from White River).

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

Project Site: Countyline (White River left bank) City/County: Pacific/King Sampling Date: 11/3/10
Applicant/Owner: King County State: WA Sampling Point: B: DP-1
Investigator(s): Sarah McCarthy, Mason Bowles Section, Township, Range: S36, T21N, R4
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): ____ Slope (%): ____
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Mixed alluvial land NWI classification: PFOA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Heavy rain all day.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	30	yes	FAC
2. *Alnus rubra*	15	yes	FAC
3. *Tsuga heterophylla*	5	no	FACU
4. ____	____	____	____
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. *Rubus spectabilis*	30	yes	FAC
2. *Cornus sericea*	10	yes	FACW
3. *Ribes lacustre*	trace	no	FAC
4. *Lonicera involucrata*	trace	no	FAC
5. ____	____	____	____
50% = 20, 20% = 8	40	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Polystichum munitum*	5	yes	FACU
2. *Athyrium filix-femina*	trace	no	FAC
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	

% Bare Ground in Herb Stratum 95

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: Countyline

SOIL

Sampling Point: B: DP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4.5"	10YR 2/1	100					clay loam	organic material, very saturated
4.5+							gravel	difficult to dig through gravel layer

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Coarse gravels below upper organic layer.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	0
Water Table Present?	Yes	☒	No	☐	Depth (inches):	4
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	0

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

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

Remarks:

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

Project Site: Countyline (White River left bank) City/County: Pacific/King Sampling Date: 11/03/10
Applicant/Owner: King County State: WA Sampling Point: B: DP-2
Investigator(s): Sarah McCarthy, Mason Bowles Section, Township, Range: S36, T21N, R4
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): ____ Slope (%): ____
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Mixed alluvial land NWI classification: PFOA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sunny and cool. Heavy rain 2 days ago. Area is landward of the Countyline Levee.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	50	yes	FAC
2. *Populus trichocarpa*	30	yes	FAC
3. ____	____	____	____
4. ____	____	____	____
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. *Cornus sericea*	30	yes	FACW
2. *Symphoricarpos albus*	30	yes	FACU
3. *Rubus spectabilis*	20	yes	FAC
4. *Malus fusca*	10	no	FACW
5. *Ribes sanguineum*	trace	no	NL (UPL)
50% = 45, 20% = 18	90	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Polystichum munitum*	5	yes	FACU
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Project Site: Countyline

SOIL

Sampling Point: B: DP-2

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Coarse gravel/rock; impenetrable. 100% levee material.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☐	Depth (inches): ____
Water Table Present?	Yes	☐	No	☐	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☐	Depth (inches): ____

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

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

Remarks:

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

Project Site: Countyline (White River left bank) City/County: Pacific/King Sampling Date: 11/05/10
Applicant/Owner: King County State: WA Sampling Point: B: DP-3
Investigator(s): Sarah McCarthy, Mason Bowles Section, Township, Range: S36, T21N, R4
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): ____ Slope (%): ____
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Mixed alluvial land NWI classification: PFOA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Area is landward of the Countyline Levee.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	40	yes	FAC
2. *Populus trichocarpa*	40	yes	FAC
3. ____	____	____	____
4. ____	____	____	____
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. *Rubus spectabilis*	50	yes	FAC
2. *Symphoricarpos albus*	trace	no	FACU
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = 25, 20% = 10	50	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Polystichum munitum*	trace	no	FACU
2. *moss*	trace	no	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	

% Bare Ground in Herb Stratum 90

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Project Site: Countyline

SOIL

Sampling Point: B: DP-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7"	10YR 2/1	100					sandy clay loam	
7-20"	10YR 2/1	90	7.5YR4/6	10	C	PL	sandy clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Redox features present below 7".

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): ____		
Water Table Present?	Yes ☒	No ☐	Depth (inches): 10		
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** ☒ **No** ☐

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

Remarks: saturated to surface

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

Project Site: Countyline (White River left bank) City/County: Pacific/King Sampling Date: 11/05/10
Applicant/Owner: King County State: WA Sampling Point: B: DP-4
Investigator(s): Sarah McCarthy, Mason Bowles Section, Township, Range: S36, T21N, R4
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): ____ Slope (%): ____
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Mixed alluvial land NWI classification: PFOA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Area is landward of the Countyline Levee.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	40	yes	FAC
2. *Alnus rubra*	10	yes	FAC
3. *Rhamnus purshiana*	trace	no	FAC
4. ____	____	____	____
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. *Rubus spectabilis*	40	yes	FAC
2. *Cornus sericea*	2	no	FACW
3. *Rubus ursinus*	trace	no	FACU
4. *Sambucus racemosa*	trace	no	FACU
5. *Oemleria cerasiformis*	trace	no	FACU
50% = 21, 20% = 8.4	42	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Sphagnum sp.*	trace	no	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
% Bare Ground in Herb Stratum 90			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Project Site: Countyline

SOIL

Sampling Point: B: DP-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 2/2	100					sandy clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	16
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: Countyline (White River left bank) City/County: Sumner/Pierce Sampling Date: 11/12/10
Applicant/Owner: King County State: WA Sampling Point: B: DP-5
Investigator(s): Sarah McCarthy, Philip Benenati Section, Township, Range: S01, T20N, R4
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): ____ Slope (%): ____
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Aquic Xerofluvents, level NWI classification: PSSF
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☒, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sampled area is considered the Countyline levee/revetment. The area was recently mowed by Pierce County. The mowed area was previously a young stand of red alder (<3" diameter stems).

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	5	yes	FAC
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = 2.5, 20% = 1	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. *Alnus rubra*	5	yes	FAC
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = 2.5, 20% = 1	5	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *grass sp.*	50	n/a*	____
2. *Juncus effusus*	40	yes	FACW
3. *Equisetum arvense*	trace	no	FAC
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
% Bare Ground in Herb Stratum 40			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: *excluded from calculations per chapter 2 guidance
Area recently mowed, but was previously predominantly A. rubra.

Project Site: Countyline

SOIL

Sampling Point: B: DP-5

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
0-7"	10YR 3/2	83	5YR 5/6	17	C/D	PL	loamy sand	5% depletions: 5YR 2/2
7-14"	10YR 2/2	90	5YR 4/6	10	C	PL	loamy sand	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): ____
Water Table Present?	Yes	☐	No	☒	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 13

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: Countyline (White River left bank) City/County: Sumner/Pierce Sampling Date: 11/12/10
Applicant/Owner: King County State: WA Sampling Point: B: DP-6
Investigator(s): Sarah McCarthy, Philip Benenati Section, Township, Range: S01, T20N, R4
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): ____ Slope (%): ____
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Aquic Xerofluvents, level NWI classification: PSSF
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☒, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sampled area is considered the Countyline levee/revetment. The area was recently mowed by Pierce County.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	20	yes	FAC
2. *Salix lucida*	5	yes	FACW
3. ____	____	____	____
4. ____	____	____	____
50% = 12.5, 20% = 5	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. *Alnus rubra*	80	yes	FAC
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = 40, 20% = 16	80	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *grass sp.*	40	n/a*	____
2. *Lotus corniculatus*	10	yes	FAC
3. *Equisetum arvense*	trace	no	FAC
4. *Rubus ursinus*	trace	no	FACU
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 25, 20% = 10	50	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
% Bare Ground in Herb Stratum 40			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: *excluded from calculations per chapter 2 guidance
Area recently mowed, but was previously predominantly A. rubra.

Project Site: Countyline

SOIL

Sampling Point: B: DP-6

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
0-3"	10YR 4/2	100	____	____	____	____	loamy sand	____
3-16"	10YR 4/1	90	5YR 5/8	10	C	PL	loamy sand	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): ____
Water Table Present?	Yes	☐	No	☒	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): ____

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

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

Remarks:

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

Project Site: Countyline (White River left bank) City/County: Pacific/King Sampling Date: 11/17/10
Applicant/Owner: King County State: WA Sampling Point: C: DP-1
Investigator(s): Sarah McCarthy, Mason Bowles Section, Township, Range: S36, T21N, R4
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): ____ Slope (%): ____
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Mixed alluvial land NWI classification: PEMC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Heavy rain all day.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	30	yes	FAC
2. *Populus trichocarpa*	10	yes	FAC
3. ____	____	____	____
4. ____	____	____	____
50% = 20, 20% = 8	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. *Cornus sericea*	40	yes	FACW
2. *Rubus spectabilis*	20	yes	FAC
3. *Crataegus douglasii*	trace	no	FAC
4. *Sambucus racemosa*	trace	no	FAC
5. ____	____	____	____
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Polystichum munitum*	5	yes	FACU
2. *Athyrium filix-femina*	trace	no	FAC
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
% Bare Ground in Herb Stratum 95			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: Countyline

SOIL

Sampling Point: C: DP-1

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Standing water and vegetation present. No soil pit was dug due to inundation. Strong hydrogen sulfide odor present throughout wetland.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	0
Water Table Present?	Yes	☒	No	☐	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	0

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

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

Remarks:

8 APPENDIX B: Wetland Rating Forms

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2

Project Name:	Countyline	Project Number:	1112049

Name of Wetland: A
attach map of wetland to rating form

Date of site visit: 11/3/2010

Rated by: Mason Bowles, Sarah McCarthy

Parcel Number: _____

Trained by Ecology? *Yes:* X *No:* _____ *Date of training:* 2/9/2005

Location: *SEC:* 34 *TWNSHP:* 21 *RNGE:* 5E *Size (acre):* 0.16

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I _____ II _____ III X 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	12
Score for Habitat Functions	18
TOTAL SCORE	50

Category based on SPECIAL CHARACTERISTICS of the wetland

I _____ II _____ Does Not Apply _____

FINAL CATEGORY (choose the "highest" category from above) **CATEGORY III**

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	X
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal		Check if unit has multiple HGM	
None of the above	X		

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.

Checklist for Wetlands that Need Special Protection, and that are not Included in the Rating

SP1. Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal species (T/E species)? For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.

No

SP2. *Has the wetland been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.

No

SP3. Does the wetland contain individuals of Priority species listed by the WDFW for the state?

Yes

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.

No

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 Vegetated Wetlands for Western Washington

Wetland Name: Countyline Wetland A Date: Dec-10

1. Are the water levels in the wetland usually controlled by tides (i.e. except during floods)?

[ ] YES – Freshwater Tidal Fringe [x] NO – go to 2

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. Is the topography within the wetland flat and precipitation is only source (>90%) of water to it.

[ ] YES – The wetland class is Flats [X] NO – go to 3

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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

At least 30% of the open water area is deeper than 6.6 ft (2 m)?

[ ] YES – The wetland class is Lake-fringe (Lacustrine Fringe)

[X] NO – go to 4

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).*

[ ] YES – The wetland class is Slope [X] NO - go to 5

5. Is the wetland in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river? The flooding should occur at least once every two years, on the average, to answer "yes." The wetland can contain depressions that are filled with water when the river is not flooding.

[X] YES – - The wetland class is Riverine [ ] NO - go to 6

6. Is the wetland in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present, is higher than the interior of the wetland.

[X] NO – go to 7

[ ] YES – The wetland class is Depressional

7. Is the wetland located in a very flat area with no obvious depression and no stream or river

[X] NO – go to 8

[ ] YES – The wetland class is Depressional

8. Your wetland seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. 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 being rated. If the area of the second class is less than 10% classify the wetland using the first class*

HGM Classes Within a Delineated Wetland Boundary	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.

R Riverine and Freshwater Tidal Fringe Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality

R 1. Does the wetland have the potential to improve water quality? (see p. 50)

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	0
	Depressions cover > 1/2 area of wetland	points = 4	0
X	Depressions present but cover < 1/2 area of wetland	points = 2	2
	No depressions present	points = 0	0

R 1.2 Characteristics of the vegetation in the wetland:

X	Forest or shrub > 2/3 the area of the wetland	points = 8	8
	Forest or shrub > 1/3 area of the wetland	points = 6	0
	Ungrazed, emergent plants > 2/3 area of wetland	points = 6	0
	Ungrazed emergent plants > 1/3 area of wetland	points = 3	0
	Forest, shrub, and ungrazed emergent < 1/3 area of wetland	points = 0	0

Add the points in the boxes above **10**

R 2. Does the wetland have the opportunity to improve water quality? *(see p. 53)*
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.

	Grazing in the wetland or within 150ft
	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
X	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
	Other

X YES multiplier is 2 [ ] NO multiplier is 1 **2**

TOTAL - Water Quality Functions Multiply the score from R 1 by R 2 **20**

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 erosi

R 3. Does the wetland have the potential to reduce flooding and erosion? (see p. 54)

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: (width of wetland)/(width of stream).

	If the ratio is more than 20	points = 9	0
	If the ratio is between 10 – 20	points = 6	0
	If the ratio is 5- <10	points = 4	0
X	If the ratio is 1- <5	points = 2	2
	If the ratio is < 1	points = 1	0

R 3.2 Characteristics of 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 Emergent plants > 2/3 area	points = 7	0
X	Forest or shrub for > 1/10 area OR Emergent plants > 1/3 area	points = 4	4
	Vegetation does not meet above criteria	points = 0	0

Add the points in the boxes above **6**

R 4. Does the wetland have the opportunity to reduce flooding and erosion? (see p. 57)

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.

X	There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding.
X	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)

[X] YES multiplier is 2 [ ] NO multiplier is 1 **2**

TOTAL - Hydrologic Functions Multiply the score from R 1 by R 2 **12**

Add score to table on p. 1

These questions apply to wetlands of all HGM classes.

H HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat

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

H 1.1 Vegetation structure (see p. 72)

Check the types of vegetation classes present (as defined by Cowardin) if the class covers more than 10% of the area of the wetland or ¼ acre.

	Aquatic bed
	Emergent plants
	Scrub/shrub(areas where shrubs have >30% cover)
X	Forested (areas where trees have >30% cover)
	If the unit has a forested class check if:
	The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover) that each cover 20% within the forested polygon

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	0

H 1.2. Hydroperiods (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 descriptions of hydroperiods)

	Permanently flooded or inundated	>4 types present points = 3	
	Seasonally flooded or inundated	3 types present points = 2	
X	Occasionally flooded or inundated	2 types present point = 1	1
	Saturated only		
X	Permanently flowing stream or river in, or adjacent to, the wetland		
	Seasonally flowing stream in, or adjacent to, the wetland		
	Lake-fringe wetland	points = 2	0
	Freshwater tidal wetland	points = 2	0

Map of hydroperiods

H 1.3. Richness of Plant Species (see p. 75)

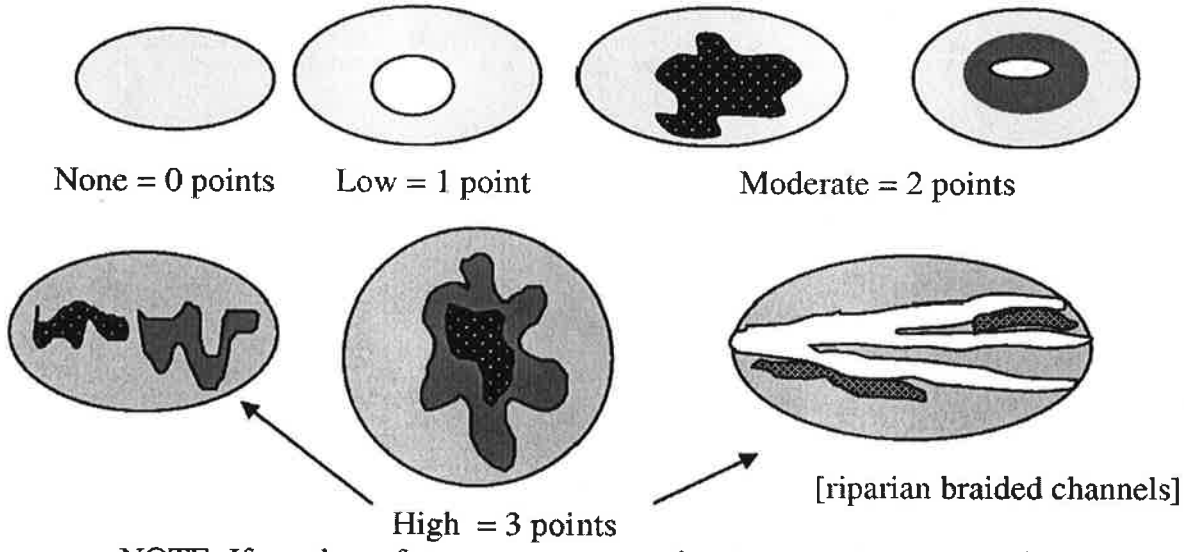
Count the number of plant species in the wetland that cover at least 10 square feet (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, or Canadian Thistle.

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

List species below if you want to:

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

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



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

	High	points = 3	0
X	Moderate	points = 2	2
	Low	points = 1	0
	None	points = 0	0

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)	0
	Standing snags (diameter at the bottom > 4 inches) in the wetland	0
X	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)	1
	Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown*)	0
	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)	0
X	Invasive plants cover less than 25% of the wetland area in each stratum of plants	1

H 1. TOTAL Score - potential for providing habitat **5**

Add the scores in the column above

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 the buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use).	Points = 5	0
X	100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference.	Points = 4	4
	50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference.	Points = 4	0
	100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference,	Points = 3	0
	50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference.	Points = 3	0

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	0
	No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK.	Points = 2	0
	Heavy Grazing in buffer.	Points = 1	0
	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	0
	Buffer does not meet any of the Criteria above.	Points = 1	0

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 **0**

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?

[X] YES = 2 points (go to H 2.3) [ ] NO = H 2.2.3 **2**

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 **0**

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 (100m) of the wetland? *NOTE: the connections do not have to be relatively undisturbed.*

(see text for a more detailed description of these priority habitats)

	Aspen Stands: Pure or mixed stands of aspen greater than 0.8 ha (2 acres).
X	**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
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158).
X	**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).
X	**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
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

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 **4**

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

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	0
	The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake fringe wetlands within ½ mile	points = 5	0
X	There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed	points = 3	3
	The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake fringe wetland within ½ mile	points = 3	0
	There is at least 1 wetland within ½ mile.	points = 2	0
	There are no wetlands within ½ mile.	points = 0	0

H 2. TOTAL Score - opportunity for providing habitat
Add the scores in the column above: **13**

Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1: **18**

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. Circle the appropriate Category when the appropriate criteria are met.

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 [X] 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 [X] NO go to SC 1.2 [ ]

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 [X] NO = Category II

Cat. II

- [ ] The wetland is relatively undisturbed (has no diking, ditching, filling,cultivation, grazing, and has less than 10% cover of non-native plantspecies. If the non-native Spartina spp. are the only species that covermore than 10% of the wetland, then the wetland should be given a dualrating (I/II). The area of Spartina would be rated a Category II while therelatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina indetermining the
- [ ] 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.

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.

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 3.0 [X] 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 [X] NO [ ]

SC 3.0 Bogs (see p. 87)

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

1. Does the wetland 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 [X] No - go to Q. 2

2. Does the wetland 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 [X] No - Is not a bog for purpose of rating

3. Does the wetland 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 [X] 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 wetland 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 [X] No - Is not a bog for purpose of rating [ ]

SC 4.0 Forested Wetlands (see p. 90). Does the wetland have at least 1 acre of forest that meet 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

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.

[ ] YES = Category I [X] NO [ ]

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 [X] NO [ ]

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 [X] NO - not a wetland in a coastal lagoon

SC 5.1 Does the wetland meets 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.C19
[ ] The wetland is larger than 1/10 acre (4,350 square feet)

[ ] YES = Category I [X] NO = Category 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	X	NO - not an interdunal wetland

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 SR 103
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 once acre or larger?

	YES = Category II	X	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?

X	YES = Category III	**Cat. III**

Category of wetland based on Special Characteristics **CATEGORY III**

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

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2

Project Name:	Countyline	Project Number:	1112049

Name of Wetland: B
attach map of wetland to rating form

Date of site visit: 11/3/10, 11/5/10, 11/12/10

Parcel Number: _____

Rated by: Mason Bowles, Sarah McCarthy

Trained by Ecology? *Yes:* X *No:* _____ *Date of training:* 2/9/2005

Location: *SEC:* 34 *TWNSHP:* 21 *RNGE:* 5E *Size (acre):* 77

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I _____ II X III _____ IV _____

Category I = Score >70	Score for Water Quality Functions	14
Category II = Score 51 -69	Score for Hydrologic Functions	18
Category III = Score 30- 50	Score for Habitat Functions	29
Category IV = Score <30	**TOTAL SCORE**	61

Category based on SPECIAL CHARACTERISTICS of the wetland

I _____ II X **Does Not Apply** _____

FINAL CATEGORY (choose the "highest" category from above) **CATEGORY II**

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	X
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal		Check if unit has	X
None of the above	X	multiple HGM	

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.

Checklist for Wetlands that Need Special Protection, and that are not Included in the Rating

SP1. Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal 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 been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.

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.

Yes

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 Vegetated Wetlands for Western Washington

Wetland Name: Countyline Wetland B Date: Dec-10

1. Are the water levels in the wetland usually controlled by tides (i.e. except during floods)?

[ ] YES – Freshwater Tidal Fringe [x] NO – go to 2

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. Is the topography within the wetland flat and precipitation is only source (>90%) of water to it.

[ ] YES – The wetland class is Flats [X] NO – go to 3

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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded):

At least 30% of the open water area is deeper than 6.6 ft (2 m)?

[ ] YES – The wetland class is Lake-fringe (Lacustrine Fringe)

[X] NO – go to 4

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).*

[ ] YES – The wetland class is Slope [X] NO - go to 5

5. Is the wetland in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river? The flooding should occur at least once every two years, on the average, to answer "yes." The wetland can contain depressions that are filled with water when the river is not flooding.

[X] YES – - The wetland class is Riverine [ ] NO - go to 6

6. Is the wetland in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present, is higher than the interior of the wetland.

	NO – go to 7	X	YES – The wetland class is Depressional

7. Is the wetland located in a very flat area with no obvious depression and no stream or river

X	NO – go to 8		YES – The wetland class is Depressional

8. Your wetland seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. 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 being rated. If the area of the second class is less than 10% classify the wetland using the first class*

HGM Classes Within a Delineated Wetland Boundary	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 FUNCTIONS - Indicators that wetland functions to improve water quality

D 1. Does the wetland have the potential to improve water quality?

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	0
X	Unit has an intermittently flowing, OR highly constricted permanently outlet	points = 2	2
	Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*)	points = 1	0
	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 and has no obvious outlet and/or outlet is a ditch (*If ditch is not permanenlty flowing treat unit as "intermittently flowing"*)	points = 1	0

Provide photo or drawing

D 1.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs).

	YES	points = 4	0
X	NO	points = 0	0

D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest class):

	Wetland has persistent, ungrazed, vegetation > = 95% of area	points = 5	0
X	Wetland has persistent, ungrazed, vegetation > = 1/2 of area	points = 3	3
	Wetland has persistent, ungrazed vegetation > = 1/10 of area	points = 1	0
	Wetland has persistent, ungrazed vegetation <1/10 of area	points = 0	0

Map of Cowardin vegetation classes

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	0
X	Area seasonally ponded is > ¼ total area of wetland	points = 2	2
	Area seasonally ponded is < ¼ total area of wetland	points = 0	0

NOTE: *See text for indicators of seasonal and permanent inundation..*

Map of hydroperiods

Total for D 1 *Add the points in the boxes above* **7**

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
X	Tilled fields or orchards within 150 ft of wetland
X	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging
X	Residential, urban areas, golf courses are within 150 ft of wetland
	Wetland is fed by groundwater high in phosphorus or nitrogen
	Other _____

X YES multiplier is 2 ☐ NO multiplier is 1 **2**

TOTAL - Water Quality Functions Multiply the score from D1 by D2 **14**

Add score to table on p. 1

Wetland name or number: B

D Depressional and Flats Wetlands

HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation

D 3. Does the wetland have the potential to reduce flooding and erosion?

D 3.1 Characteristics of surface water flows out of the wetland

	Unit is a depression with no surface water leaving it (no outlet)	points = 4	0
X	Unit has an intermittently flowing, OR highly constricted permanently outlet	points = 2	2
	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 and has no	points = 1	0
	Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*)	points = 0	0

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).

X	Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	7
	The wetland is a "headwater" wetland"	points = 5	0
	Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	0
	Marks are at least 0.5 ft to < 2 ft from surface	points = 3	0
	Wetland is flat but has small depressions on the surface that trap water	points = 1	0
	Marks of ponding less than 0.5 ft	points = 0	0

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 itself.

	The area of the basin is less than 10 times the area of unit	points = 5	0
	The area of the basin is 10 to 100 times the area of the unit	points = 3	0
X	The area of the basin is more than 100 times the area of the unit	points = 0	0
	Entire unit is in the FLATS class (basin = the wetland, by definition)	points = 5	0

Total for D 3 *Add the points in the boxes above* **9**

D 4. Does the wetland have the opportunity to reduce flooding and erosion? (see p. 49)

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. 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.

Note which of the following indicators of opportunity apply.

	Wetland is in a headwater of a river or stream that has flooding problems
X	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 _____

[X] YES multiplier is 2 [ ] NO multiplier is 1 **2**

TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 **18**

Add score to table on p. 1

These questions apply to wetlands of all HGM classes.

H HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat

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

H 1.1 Vegetation structure (see p. 72)

Check the types of vegetation classes present (as defined by Cowardin) if the class covers more than 10% of the area of the wetland or ¼ acre.

	Aquatic bed
X	Emergent plants
X	Scrub/shrub(areas where shrubs have >30% cover)
X	Forested (areas where trees have >30% cover)
	If the unit has a forested class check if:
X	The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover) that each cover 20% within the forested polygon

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	4

H 1.2. Hydroperiods (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 descriptions of hydroperiods)

X	Permanently flooded or inundated	>4 types present points = 3	
X	Seasonally flooded or inundated	3 types present points = 2	
X	Occasionally flooded or inundated	2 types present point = 1	3
X	Saturated only		
X	Permanently flowing stream or river in, or adjacent to, the wetland		
X	Seasonally flowing stream in, or adjacent to, the wetland		
	Lake-fringe wetland	points = 2	0
	Freshwater tidal wetland	points = 2	0
		Map of hydroperiods	

H 1.3. Richness of Plant Species (see p. 75)

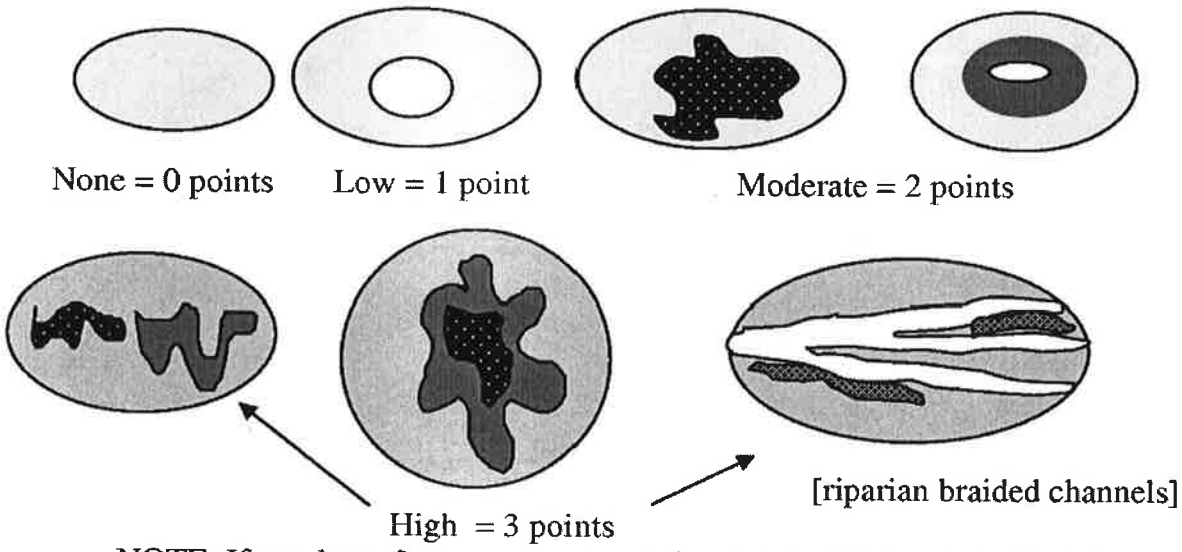
Count the number of plant species in the wetland that cover at least 10 square feet (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, or Canadian Thistle.

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

List species below if you want to:

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

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



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

X	High	points = 3	3
	Moderate	points = 2	0
	Low	points = 1	0
	None	points = 0	0

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.

X	Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long)	1
X	Standing snags (diameter at the bottom > 4 inches) in the wetland	1
X	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)	1
X	Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown*)	1
X	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)	1
X	Invasive plants cover less than 25% of the wetland area in each stratum of plants	1

H 1. TOTAL Score - potential for providing habitat **15**

Add the scores in the column above

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 the buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use).	Points = 5	0
X	100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference.	Points = 4	4
	50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference.	Points = 4	0
	100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference,	Points = 3	0
	50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference.	Points = 3	0

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	0
	No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK.	Points = 2	0
	Heavy Grazing in buffer.	Points = 1	0
	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	0
	Buffer does not meet any of the Criteria above.	Points = 1	0

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 **0**

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 **0**

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?

[X] YES = 1 point [ ] NO = 0 points **1**

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 (100m) of the wetland? *NOTE: the connections do not have to be relatively undisturbed.*

(see text for a more detailed description of these priority habitats)

	Aspen Stands: Pure or mixed stands of aspen greater than 0.8 ha (2 acres).
X	**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
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158).
X	**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).
X	**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
X	**Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

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 **4**

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

H 2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 84)

X	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	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	0
	There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed	points = 3	0
	The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake fringe wetland within ½ mile	points = 3	0
	There is at least 1 wetland within ½ mile.	points = 2	0
	There are no wetlands within ½ mile.	points = 0	0

H 2. TOTAL Score - opportunity for providing habitat
Add the scores in the column above **14**

Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1 **29**

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. Circle the appropriate Category when the appropriate criteria are met.

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 [X] 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 [X] NO go to SC 1.2 [ ]

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 [X] NO = Category II [ ]

Cat. II

- [ ] The wetland is relatively undisturbed (has no diking, ditching, filling,cultivation, grazing, and has less than 10% cover of non-native plantspecies. If the non-native Spartina spp. are the only species that covermore than 10% of the wetland, then the wetland should be given a dualrating (I/II). The area of Spartina would be rated a Category II while therelatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina indetermining the
- [ ] 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.

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.

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 3.0	X	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	X	NO	

SC 3.0 Bogs (see p. 87)

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

1. Does the wetland 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	X	No - go to Q. 2

2. Does the wetland 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	X	No - Is not a bog for purpose of rating

3. Does the wetland 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	X	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 wetland 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	X	No - Is not a bog for purpose of rating	

SC 4.0 Forested Wetlands (see p. 90). Does the wetland have at least 1 acre of forest that meet 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

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.

[ ] YES = Category I [X] NO [ ]

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 [X] NO [ ]

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 [X] NO - not a wetland in a coastal lagoon

SC 5.1 Does the wetland meets 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.C19
[ ] The wetland is larger than 1/10 acre (4,350 square feet)

[ ] YES = Category I [X] NO = Category II [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 [X] NO - not an interdunal wetland

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 SR 103

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 once acre or larger?

[X] YES = Category II [ ] NO – - go to SC 6.2 **Cat. II**

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 [ ]

Category of wetland based on Special Characteristics **CATEGORY II**

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

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2

Project Name:	Countyline	Project Number:	1112049

Name of Wetland: C
attach map of wetland to rating form

Date of site visit: 11/17/2010

Parcel Number:

Rated by: Mason Bowles, Sarah McCarthy

Trained by Ecology? *Yes:* X *No:* _____ *Date of training:* *2/9/2005*

Location: *SEC:* **34** *TWNSHP:* **21** *RNGE:* **5E** *Size (acre):* **0.22**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I _____ **II** _____ **III** X **IV** _____

Category I = Score >70	Score for Water Quality Functions	16
Category II = Score 51 -69	Score for Hydrologic Functions	0
Category III = Score 30- 50	Score for Habitat Functions	21
Category IV = Score <30	**TOTAL SCORE**	37

Category based on SPECIAL CHARACTERISTICS of the wetland

I _____ **II** X **Does Not Apply** _____

FINAL CATEGORY (choose the "highest" category from above) **CATEGORY III**

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal		Check if unit has	
None of the above	X	multiple HGM	

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.

Checklist for Wetlands that Need Special Protection, and that are not Included in the Rating

SP1. Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal 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 been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.

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 Vegetated Wetlands for Western Washington

Wetland Name: Countyline Wetland C Date: Dec-10

1. Are the water levels in the wetland usually controlled by tides (i.e. except during floods)?

[ ] YES – Freshwater Tidal Fringe [x] NO – go to 2

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. Is the topography within the wetland flat and precipitation is only source (>90%) of water to it.

[ ] YES – The wetland class is Flats [X] NO – go to 3

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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

At least 30% of the open water area is deeper than 6.6 ft (2 m)?

[ ] YES – The wetland class is Lake-fringe (Lacustrine Fringe)

[X] NO – go to 4

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).*

[ ] YES – The wetland class is Slope [X] NO - go to 5

5. Is the wetland in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river? The flooding should occur at least once every two years, on the average, to answer "yes." The wetland can contain depressions that are filled with water when the river is not flooding.

[ ] YES – - The wetland class is Riverine [X] NO - go to 6

6. Is the wetland in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present, is higher than the interior of the wetland.

	NO – go to 7	X	YES – The wetland class is Depressional

7. Is the wetland located in a very flat area with no obvious depression and no stream or river

X	NO – go to 8		YES – The wetland class is Depressional

8. Your wetland seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. 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 being rated. If the area of the second class is less than 10% classify the wetland using the first class*

HGM Classes Within a Delineated Wetland Boundary	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 FUNCTIONS - Indicators that wetland functions to improve water quality

D 1. Does the wetland have the potential to improve water quality?

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	0
	Unit has an intermittently flowing, OR highly constricted permanently outlet	points = 2	0
X	Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*)	points = 1	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 and has no obvious outlet and/or outlet is a ditch (*If ditch is not permanenlty flowing treat unit as "intermittently flowing"*)	points = 1	0

Provide photo or drawing

D 1.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs).

	YES	points = 4	0
X	NO	points = 0	0

D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest class):

X	Wetland has persistent, ungrazed, vegetation > = 95% of area	points = 5	5
	Wetland has persistent, ungrazed, vegetation > = 1/2 of area	points = 3	0
	Wetland has persistent, ungrazed vegetation > = 1/10 of area	points = 1	0
	Wetland has persistent, ungrazed vegetation <1/10 of area	points = 0	0

Map of Cowardin vegetation classes

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	0
X	Area seasonally ponded is > ¼ total area of wetland	points = 2	2
	Area seasonally ponded is < ¼ total area of wetland	points = 0	0

NOTE: *See text for indicators of seasonal and permanent inundation..*

Map of hydroperiods

Total for D 1 *Add the points in the boxes above* **8**

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
X	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging
X	Residential, urban areas, golf courses are within 150 ft of wetland
	Wetland is fed by groundwater high in phosphorus or nitrogen
	Other _____

X YES multiplier is 2 ☐ NO multiplier is 1 **2**

TOTAL - Water Quality Functions Multiply the score from D1 by D2 **16**

Add score to table on p. 1

Wetland name or number: C

D Depressional and Flats Wetlands

HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation

D 3. Does the wetland have the potential to reduce flooding and erosion?

D 3.1 Characteristics of surface water flows out of the wetland

	Unit is a depression with no surface water leaving it (no outlet)	points = 4	0
	Unit has an intermittently flowing, OR highly constricted permanently outlet	points = 2	0
	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 and has no	points = 1	0
X	Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*)	points = 0	0

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	0
	The wetland is a "headwater" wetland"	points = 5	0
	Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	0
	Marks are at least 0.5 ft to < 2 ft from surface	points = 3	0
	Wetland is flat but has small depressions on the surface that trap water	points = 1	0
X	Marks of ponding less than 0.5 ft	points = 0	0

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 itself.

	The area of the basin is less than 10 times the area of unit	points = 5	0
	The area of the basin is 10 to 100 times the area of the unit	points = 3	0
X	The area of the basin is more than 100 times the area of the unit	points = 0	0
	Entire unit is in the FLATS class (basin = the wetland, by definition)	points = 5	0

Total for D 3 *Add the points in the boxes above* **0**

D 4. Does the wetland have the opportunity to reduce flooding and erosion? (see p. 49)

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. 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.

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 [X] NO multiplier is 1 **1**

TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 **0**

Add score to table on p. 1

These questions apply to wetlands of all HGM classes.

H HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat

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

H 1.1 Vegetation structure (see p. 72)

Check the types of vegetation classes present (as defined by Cowardin) if the class covers more than 10% of the area of the wetland or ¼ acre.

	Aquatic bed
X	Emergent plants
X	Scrub/shrub(areas where shrubs have >30% cover)
X	Forested (areas where trees have >30% cover)
	If the unit has a forested class check if:
	The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover) that each cover 20% within the forested polygon

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	2

H 1.2. Hydroperiods (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 descriptions of hydroperiods)

	Permanently flooded or inundated	>4 types present points = 3	
X	Seasonally flooded or inundated	3 types present points = 2	
	Occasionally flooded or inundated	2 types present point = 1	1
	Saturated only		
X	Permanently flowing stream or river in, or adjacent to, the wetland		
	Seasonally flowing stream in, or adjacent to, the wetland		
	Lake-fringe wetland	points = 2	0
	Freshwater tidal wetland	points = 2	0

Map of hydroperiods

H 1.3. Richness of Plant Species (see p. 75)

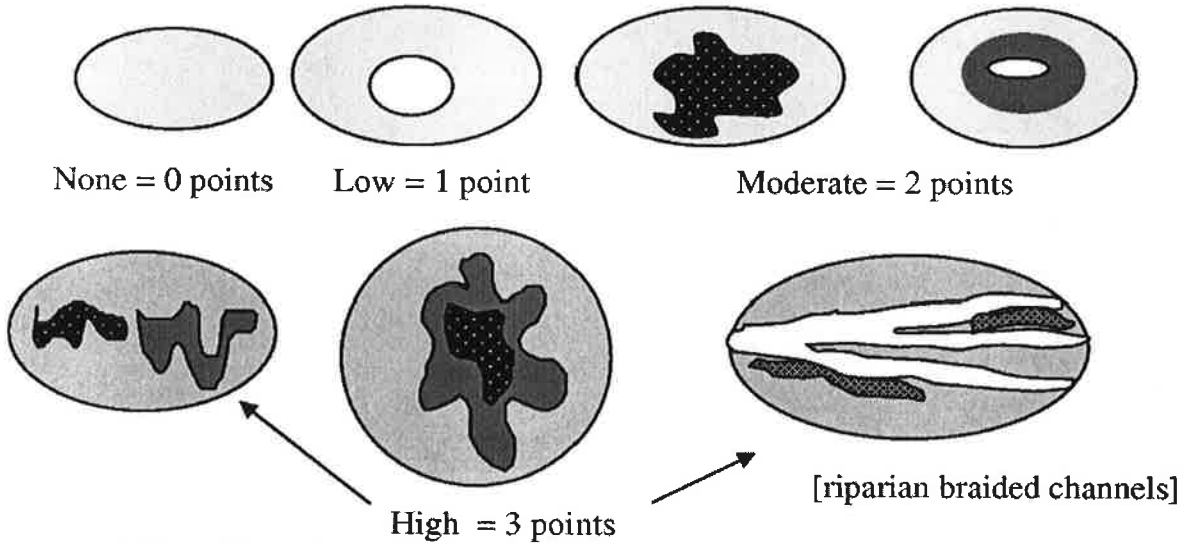
Count the number of plant species in the wetland that cover at least 10 square feet (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, or Canadian Thistle.

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

List species below if you want to:

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

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



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

	High	points = 3	0
X	Moderate	points = 2	2
	Low	points = 1	0
	None	points = 0	0

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)	0
	Standing snags (diameter at the bottom > 4 inches) in the wetland	0
	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)	0
	Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown)*	0
	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)	0
X	Invasive plants cover less than 25% of the wetland area in each stratum of plants	1

H 1. TOTAL Score - potential for providing habitat
Add the scores in the column above: **7**

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 the buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use).	Points = 5	0
X	100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference.	Points = 4	4
	50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference.	Points = 4	0
	100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference,	Points = 3	0
	50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference.	Points = 3	0

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	0
	No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK.	Points = 2	0
	Heavy Grazing in buffer.	Points = 1	0
	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	0
	Buffer does not meet any of the Criteria above.	Points = 1	0

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 **0**

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?

[X] YES = 2 points (go to H 2.3) [ ] NO = H 2.2.3 **2**

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 **0**

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 (100m) of the wetland? *NOTE: the connections do not have to be relatively undisturbed.*

(see text for a more detailed description of these priority habitats)

	Aspen Stands: Pure or mixed stands of aspen greater than 0.8 ha (2 acres).
X	**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
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158).
X	**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
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

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 **3**

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

H 2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 84)

X	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	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	0
	There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed	points = 3	0
	The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake fringe wetland within ½ mile	points = 3	0
	There is at least 1 wetland within ½ mile.	points = 2	0
	There are no wetlands within ½ mile.	points = 0	0

H 2. TOTAL Score - opportunity for providing habitat
Add the scores in the column above **14**

Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1 **21**

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. Circle the appropriate Category when the appropriate criteria are met.

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 [X] 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 [X] NO go to SC 1.2 [ ]

SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following three conditions?

Cat. II

[ ] YES = Category I [X] NO = Category II [ ]

- [ ] The wetland is relatively undisturbed (has no diking, ditching, filling,cultivation, grazing, and has less than 10% cover of non-native plantspecies. If the non-native Spartina spp. are the only species that covermore than 10% of the wetland, then the wetland should be given a dualrating (I/II). The area of Spartina would be rated a Category II while therelatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina indetermining the
- [ ] 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.

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.

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)Ṡ/T/R information from Appendix D or accessed from WNHP/DNR web site.

	YES-contact WNHP/DNR (see p. 79) and go to SC 3.0	X	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	X	NO	

SC 3.0 Bogs (see p. 87)

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

1. Does the wetland 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	X	No - go to Q. 2

2. Does the wetland 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	X	No - Is not a bog for purpose of rating

3. Does the wetland 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	X	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 wetland 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	X	No - Is not a bog for purpose of rating	

SC 4.0 Forested Wetlands (see p. 90). Does the wetland have at least 1 acre of forest that meet 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

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.

[ ] YES = Category I [X] NO [ ]

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 [X] NO [ ]

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 [X] NO - not a wetland in a coastal lagoon

SC 5.1 Does the wetland meets 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.C19
[ ] The wetland is larger than 1/10 acre (4,350 square feet)

[ ] YES = Category I [X] NO = Category II [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	X	NO - not an interdunal wetland

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 SR 103
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 once acre or larger?

	YES = Category II	X	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?

X	YES = Category III	Cat. III

Category of wetland based on Special Characteristics **CATEGORY II**

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

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2

Project Name:	Countyline	Project Number:	1112049

Name of Wetland: D
attach map of wetland to rating form

Date of site visit: 11/17/2010

Parcel Number:

Rated by: Mason Bowles, Sarah McCarthy

Trained by Ecology? *Yes:* X *No:* _____ *Date of training:* *2/9/2005*

Location: *SEC:* **34** *TWNSHP:* **21** *RNGE:* **5E** *Size (acre):* **0.02**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I _____ **II** _____ **III** _____ **IV** **X**

Category I = Score >70	Score for Water Quality Functions	8
Category II = Score 51 -69	Score for Hydrologic Functions	0
Category III = Score 30- 50	Score for Habitat Functions	19
Category IV = Score <30	**TOTAL SCORE**	27

Category based on SPECIAL CHARACTERISTICS of the wetland

I _____ **II** **X** **Does Not Apply** _____

FINAL CATEGORY (choose the "highest" category from above) **CATEGORY IV**

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal		Check if unit has	
None of the above	X	multiple HGM	

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.

Checklist for Wetlands that Need Special Protection, and that are not Included in the Rating

SP1. Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal 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 been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.

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 Vegetated Wetlands for Western Washington

Wetland Name: Countyline Wetland D Date: Dec-10

1. Are the water levels in the wetland usually controlled by tides (i.e. except during floods)?

[ ] YES – Freshwater Tidal Fringe [x] NO – go to 2

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. Is the topography within the wetland flat and precipitation is only source (>90%) of water to it.

[ ] YES – The wetland class is Flats [X] NO – go to 3

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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

At least 30% of the open water area is deeper than 6.6 ft (2 m)?

[ ] YES – The wetland class is Lake-fringe (Lacustrine Fringe)

[X] NO – go to 4

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).*

[ ] YES – The wetland class is Slope [X] NO - go to 5

5. Is the wetland in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river? The flooding should occur at least once every two years, on the average, to answer "yes." The wetland can contain depressions that are filled with water when the river is not flooding.

[ ] YES – - The wetland class is Riverine [X] NO - go to 6

6. Is the wetland in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present, is higher than the interior of the wetland.

	NO – go to 7	X	YES – The wetland class is Depressional

7. Is the wetland located in a very flat area with no obvious depression and no stream or river

X	NO – go to 8		YES – The wetland class is Depressional

8. Your wetland seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. 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 being rated. If the area of the second class is less than 10% classify the wetland using the first class*

HGM Classes Within a Delineated Wetland Boundary	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 FUNCTIONS - Indicators that wetland functions to improve water quality

D 1. Does the wetland have the potential to improve water quality?

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	0
	Unit has an intermittently flowing, OR highly constricted permanently outlet	points = 2	0
X	Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*)	points = 1	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 and has no obvious outlet and/or outlet is a ditch (*If ditch is not permanenlty flowing treat unit as "intermittently flowing"*)	points = 1	0

Provide photo or drawing

D 1.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs).

	YES	points = 4	0
X	NO	points = 0	0

D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest class):

X	Wetland has persistent, ungrazed, vegetation > = 95% of area	points = 5	5
	Wetland has persistent, ungrazed, vegetation > = 1/2 of area	points = 3	0
	Wetland has persistent, ungrazed vegetation > = 1/10 of area	points = 1	0
	Wetland has persistent, ungrazed vegetation <1/10 of area	points = 0	0

Map of Cowardin vegetation classes

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	0
X	Area seasonally ponded is > ¼ total area of wetland	points = 2	2
	Area seasonally ponded is < ¼ total area of wetland	points = 0	0

NOTE: *See text for indicators of seasonal and permanent inundation..*

Map of hydroperiods

Total for D 1 *Add the points in the boxes above* **8**

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 [X] NO multiplier is 1 **1**

TOTAL - Water Quality Functions Multiply the score from D1 by D2 **8**

Add score to table on p. 1

Wetland name or number: D

D Depressional and Flats Wetlands

HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation

D 3. Does the wetland have the potential to reduce flooding and erosion?

D 3.1 Characteristics of surface water flows out of the wetland

	Unit is a depression with no surface water leaving it (no outlet)	points = 4	0
	Unit has an intermittently flowing, OR highly constricted permanently outlet	points = 2	0
	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 and has no	points = 1	0
X	Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*)	points = 0	0

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	0
	The wetland is a "headwater" wetland"	points = 5	0
	Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	0
	Marks are at least 0.5 ft to < 2 ft from surface	points = 3	0
	Wetland is flat but has small depressions on the surface that trap water	points = 1	0
X	Marks of ponding less than 0.5 ft	points = 0	0

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 itself.

	The area of the basin is less than 10 times the area of unit	points = 5	0
	The area of the basin is 10 to 100 times the area of the unit	points = 3	0
X	The area of the basin is more than 100 times the area of the unit	points = 0	0
	Entire unit is in the FLATS class (basin = the wetland, by definition)	points = 5	0

Total for D 3 *Add the points in the boxes above* **0**

D 4. Does the wetland have the opportunity to reduce flooding and erosion? (see p. 49)

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. 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.

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 [X] NO multiplier is 1 **1**

TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 **0**

Add score to table on p. 1

These questions apply to wetlands of all HGM classes.

H HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat

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

H 1.1 Vegetation structure (see p. 72)

Check the types of vegetation classes present (as defined by Cowardin) if the class covers more than 10% of the area of the wetland or ¼ acre.

	Aquatic bed
	Emergent plants
X	Scrub/shrub(areas where shrubs have >30% cover)
X	Forested (areas where trees have >30% cover)
	If the unit has a forested class check if:
	The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover) that each cover 20% within the forested polygon

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	1

H 1.2. Hydroperiods (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 descriptions of hydroperiods)

	Permanently flooded or inundated	>4 types present points = 3	
X	Seasonally flooded or inundated	3 types present points = 2	
	Occasionally flooded or inundated	2 types present point = 1	1
	Saturated only		
X	Permanently flowing stream or river in, or adjacent to, the wetland		
	Seasonally flowing stream in, or adjacent to, the wetland		
	Lake-fringe wetland	points = 2	0
	Freshwater tidal wetland	points = 2	0
		Map of hydroperiods	

H 1.3. Richness of Plant Species (see p. 75)

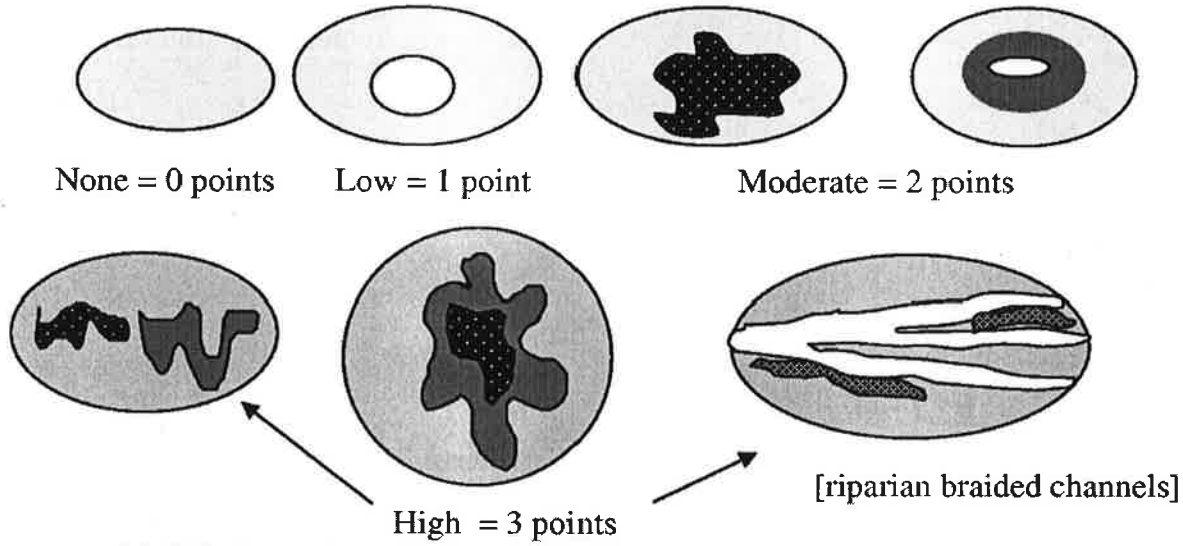
Count the number of plant species in the wetland that cover at least 10 square feet (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, or Canadian Thistle.

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

List species below if you want to:

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

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



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

	High	points = 3	0
X	Moderate	points = 2	2
	Low	points = 1	0
	None	points = 0	0

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)	0
	Standing snags (diameter at the bottom > 4 inches) in the wetland	0
	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)	0
	Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown*)	0
	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)	0
X	Invasive plants cover less than 25% of the wetland area in each stratum of plants	1

H 1. TOTAL Score - potential for providing habitat **6**

Add the scores in the column above

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."

X	100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of the buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use).	Points = 5	5
	100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference.	Points = 4	0
	50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference.	Points = 4	0
	100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference,	Points = 3	0
	50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference.	Points = 3	0

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	0
	No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK.	Points = 2	0
	Heavy Grazing in buffer.	Points = 1	0
	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	0
	Buffer does not meet any of the Criteria above.	Points = 1	0

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	0

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?

X	YES = 2 points (go to H 2.3)	NO = H 2.2.3	2

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	0

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 (100m) of the wetland? *NOTE: the connections do not have to be relatively undisturbed.*

(see text for a more detailed description of these priority habitats)

	Aspen Stands: Pure or mixed stands of aspen greater than 0.8 ha (2 acres).
X	**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
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158).
X	**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
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

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 **3**

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

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	0
	The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake fringe wetlands within ½ mile	points = 5	0
X	There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed	points = 3	3
	The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake fringe wetland within ½ mile	points = 3	0
	There is at least 1 wetland within ½ mile.	points = 2	0
	There are no wetlands within ½ mile.	points = 0	0

H 2. TOTAL Score - opportunity for providing habitat
Add the scores in the column above: **13**

Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1: **19**

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. Circle the appropriate Category when the appropriate criteria are met.

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 [X] 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 [X] NO go to SC 1.2

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 [X] NO = Category II

Cat. II

- [ ] The wetland is relatively undisturbed (has no diking, ditching, filling,cultivation, grazing, and has less than 10% cover of non-native plantspecies. If the non-native Spartina spp. are the only species that covermore than 10% of the wetland, then the wetland should be given a dualrating (I/II). The area of Spartina would be rated a Category II while therelatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina indetermining the
- [ ] 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.

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.

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 3.0	X	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	X	NO	

SC 3.0 Bogs (see p. 87)

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

1. Does the wetland 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	X	No - go to Q. 2

2. Does the wetland 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	X	No - Is not a bog for purpose of rating

3. Does the wetland 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	X	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 wetland 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	X	No - Is not a bog for purpose of rating	

SC 4.0 Forested Wetlands (see p. 90). Does the wetland have at least 1 acre of forest that meet 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

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.

[ ] YES = Category I [X] NO [ ]

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 [X] NO [ ]

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 [X] NO - not a wetland in a coastal lagoon

SC 5.1 Does the wetland meets 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.C19
[ ] The wetland is larger than 1/10 acre (4,350 square feet)

[ ] YES = Category I [X] NO = Category II

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	X	NO - not an interdunal wetland

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 SR 103
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 once acre or larger?

	YES = Category II	X	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?

X	YES = Category III	Cat. III

Category of wetland based on Special Characteristics **CATEGORY II**

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