



**Critical Areas Report**  
for  
**Green Mountain PRD Phase 2**  
**City of Camas, Washington**

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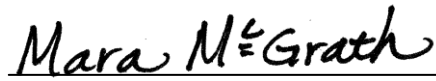
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## INTRODUCTION

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This critical areas report has been prepared by Ecological Land Services, Inc. (ELS) on behalf of CLB Washington Options Solutions, LLC for Phase 2 of the Green Mountain Planned Residential Development into single-family residential lots with park, trails, and open space (PRD, City File No. SUB14-02). This approximately 85-acre site is located at 2817 NE Ingle Road in the City of Camas, Clark County, Washington. Parcels involved with this report include portions of Clark County Parcel Numbers 173178000, 986037307, 172555000, and 172557000. The study area falls within portions of Sections 17, 20, and 21, Township 2 North, Range 3 East of the Willamette Meridian (Figure 1). This report summarizes the findings of critical areas onsite in accordance with the *City of Camas Municipal Code (CMC) Wetlands Chapter 16.53, Fish and Wildlife Habitat Conservation Areas Chapter 16.61, and Sensitive Areas and Open Space Chapter 18.31*.

## METHODOLOGY

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ELS methodology follows the U.S. Army Corps of Engineers Routine Determination Method described in the Wetland Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (U.S. Army Corps of Engineers 2010). For regulatory purposes under the Clean Water Act (Section 404), the Environmental Protection Agency (EPA) defines wetlands as “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” (EPA 2014). Wetlands are regulated as “Waters of the United States” by the U.S. Army Corps of Engineers (Corps), as “Waters of the State” by the Washington Department of Ecology (Ecology), and locally by the City of Camas.

ELS biologists conducted site visits on February 29, 2016 and March 1, 2016 to collect vegetation, soils, and hydrology data, and to make determinations about the presence or absence of critical areas onsite. We identified and delineated seven wetlands onsite, identified in this report as Wetlands B, D, G, J, L, M, and O (Figure 2). The letters A, C, E, F, H, I, K, and N were omitted from the numbering scheme. ELS biologists flagged wetland boundaries with consecutively numbered pin flagging or tape flagging labeled “WETLAND BOUNDARY”. Vegetation, hydrology, and soil data were collected from thirteen test plots to determine presence or absence of positive wetland indicators (Appendix A). Topographical changes were also utilized to assist wetland boundary delineation. Wetland boundary lines and test plot locations were recorded by ELS using a hand-held Trimble GPS unit capable of sub-meter accuracy.

## **SITE DESCRIPTION**

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The majority of the study area is located north of NE Goodwin Road, south of NE 48<sup>th</sup> Circle (on the southwest slope of Green Mountain), and east of NE Ingles Road (Figures 1 and 2). The former Green Mountain Golf Course, which closed in February 2016, encompasses a large portion of the PRD. The northwestern corner of the PRD is an undeveloped mixed deciduous-coniferous forest. Topography slopes generally to the south and southwest, with the lowest topographical location being in the southernmost corner of the site. Maintained drainage ditches and 4 man-made ponds are located throughout the former golf course (3 ponds have been filled during Phase 1 of construction). Surrounding land use includes residential and forest coverage to the north and east, and mixed residential and agricultural uses to the south and west. Approximately 65 Oregon white oak trees were inventoried within the PRD Phase 2 boundaries, outside of the Phase 1 development. Most of the Oregon white oak trees within Phase 2 are located within the riparian corridor.

## **SOILS**

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The National Resources Conservation Service map depicts six soil units onsite (Table 1): Cove silty clay loam, 0 to 3 percent slopes (CvA), Dollar loam, 0 to 5 percent slopes (DoB), Lauren gravelly loam, 0 to 8 percent slopes (LgB), McBee silt loam, coarse variant, 0 to 3 percent slopes (MIA), and Olympic stony clay loams, 3 to 30 and 30 to 60 percent slopes (OmE and OmF, respectively) (NRCA 2014; Figure 3).

Cove silty clay loam (CvA) is characterized as a very poorly drained soil with a very low capacity for the most limiting layer to transmit water, and an average depth to water table ranging from 0 to 12 inches below ground surface (BGS). This soil is generally formed on flood plains and a typical profile includes silty clay loam from 0 to 4 inches, clay from 4 to 36 inches, and gravelly silty clay loam from 36 to 60 inches BGS. Cove silty clay loam is in Hydrologic Group D<sup>1</sup>. Soils in Group D have high run-off potential when thoroughly wet and subsurface water movement ranges from restricted to very restricted. Cove silty clay loam is included on the National Hydric Soils List (NRCS 2015).

Dollar loam (DoB) is characterized as a moderately well drained soil with a very low to moderately low capacity of the most limiting layer to transmit water, and an average depth to water table of 18 to 30 inches BGS. This soil is generally found on terraces and is formed from alluvium. A typical profile includes loam from 0 to 60 inches BGS. Dollar

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<sup>1</sup> Hydrologic Group D: soils with high runoff potential when thoroughly wet and water movement through the soil is restricted or very restricted. Group D soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures. In some areas they also have shrink-swell potential. All soils with a depth to a water-permeable layer that is less than 20 inches and all soils with a water table within 24 inches from the surface are in this group, although some have dual classifications if they can be adequately drained.

loam is in Hydrologic Group C<sup>2</sup>. Soils in Group C have a moderately high runoff potential when thoroughly wet; subsurface transmission is somewhat restricted. Dollar loam is not on the National Hydric Soils List (NRCS 2015).

Lauren gravelly loam (LgB) is characterized as a somewhat excessively drained soil with a moderately high to high capacity of the most limiting layer to transmit water, and an average depth to water table of more than 80 inches BGS. This soil is generally found on terraces and is formed from alluvium with volcanic ash. A typical profile consists of gravelly medial loam from 0 to 6 inches, very gravelly medial loam from 6 to 33 inches, very gravelly coarse sandy loam from 33 to 44 inches, and very gravelly loamy coarse sand from 44 to 60 inches BGS. Lauren gravelly loam is in Hydrologic Group B<sup>3</sup>. Soils in Group B have a moderately low runoff potential when thoroughly wet, subsurface transmission is unimpeded. Lauren gravelly loam is not on the National Hydric Soils List (NRCS 2015).

McBee silt loam, coarse variant (MIA), is characterized as a somewhat poorly drained soil with a moderately high to high capacity of the most limiting layer to transmit water, and an average depth to water table of about 0 inches BGS. This soil is generally found in depressions and drainageways, and is formed from alluvium. A typical profile consists of silt loam from 0 to 4 inches, loam from 11 to 19 inches, gravelly fine sandy loam from 19 to 44 inches, and very gravelly loamy sand from 44 to 62 inches BGS. McBee silt loam, coarse variant, is in both Hydrologic Group B and C. McBee silt loam is listed as hydric on the National Hydric Soils List (NRCS 2015).

Olympic stony clay loams (OmE and OmF) are characterized as well drained soils with a moderately high capacity for the most limiting layer to transmit water, and an average depth to water table of more than 80 inches BGS. These soils are generally found on mountain slopes, and are formed from residuum and colluvium from igneous rock. Typical profiles include stony clay loam from 0 to 13 inches, clay loam from 13 to 44 inches, and gravelly clay loam from 44 to 60 inches BGS. Olympic stony clay loams are in Hydrologic Group C, and are not included on the National Hydric Soils List (NRCS 2015).

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<sup>2</sup> Hydrologic Group C: soils with moderately high runoff potential when thoroughly wet and water transmission through the soil is somewhat restricted. Group C soils typically have between 20 percent and 40 percent clay, and less than 50 percent sand. Some soils having clay, silty clay, or sandy clay textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments.

<sup>3</sup> Hydrologic Group B: soils with moderately low runoff potential when thoroughly wet and water transmission through the soil is unimpeded. Group B soils typically have between 10 percent and 20 percent clay and 50 percent to 90 percent sand, and have loamy sand or sandy loam textures. Some soils having loam, silt loam, silt, or sandy clay loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments.

### **Soil Type Distribution Onsite**

NRCS maps depict hydric soils CvA and MIA in the southern and central portions of the site where topography forms natural concavities and, consequently, a number of the wetland areas were observed (Figure 3). Non-hydric soils DoB, and OmF are the dominant soil types and are depicted within the northern and central portions of the site. Some wetlands were delineated within non-hydric soils, and likely exist in these areas due to human activities and topography, leading to surface ponding.

Evaluated wetland soils consisted of silty clay loams, clay loams, and silty sand with very dark grayish brown (10YR 3/2), very dark gray (10YR 3/1), and depleted gray (10YR 4/1 and 5/1) hues (Appendix A). Redoximorphic concentrations observed in wetland areas consisted of yellowish browns (10YR 4/6, 5/6, and 5/8), grayish brown (10YR 5/2), yellowish red (5YR 4/6, 5/6 and 5/8), reddish gray (10YR 5/2), and strong browns (7.5YR 4/4, 4/6, and 5/6). The soil profiles meet the criteria for hydric soil indicators A11 (depleted below dark surface), F3 (depleted matrix), and F6 (redox dark surface).

Evaluated upland soils included silty clay loams, gravelly clay loams, and silt loams with brown (10YR 3/3), lighter grayish brown (10YR 5/2, 4/3 and 4/2), and dark yellowish brown (10YR 4/4 and 4/6) hues (Appendix A). Redoximorphic concentrations were observed in select upland test plots; however, they were too faint, deep, or not thick enough in the soil profile to meet hydric soil indicators.

**Table 1. Summary of NRCS Soil Survey Data**

<b>Soil Series</b>	<b>Unit Symbol</b>	<b>Percent Slope</b>	<b>Hydrologic Soil Group</b>	<b>Drainage Class</b>	<b>Hydric Soil</b>
Cove silty clay loam	CvA	0 to 3	D	Very poorly drained	Yes
Dollar loam	DoB	0 to 5	C	Moderately well drained	No
Lauren gravelly loam	LgB	0 to 8	B	Somewhat excessively drained	No
McBee silt loam	MIA	0 to 3	B/D	Somewhat poorly drained	Yes
Olympic stony clay loam	OmE	3 to 30	C	Well drained	No
Olympic stony clay loam	OmF	30 to 60	C	Well drained	No

ELS biologists' soil observations generally matched NRCS mapped soil series; however, the majority of the wetlands onsite were delineated in areas where non-hydric soils were mapped, and conversely uplands were located in areas where hydric soils were mapped.

NRCS soil series data and mapping practices are based on general, regional soil characteristics and may not accurately display variations in the local soil conditions. The presence or absence of hydric soil does not conclude an area as wetland or upland. Along with hydric soils, hydrology and wetland vegetation must also be present to

determine an area as jurisdictional wetland. Due to localized, micro-variations in topography and hydrology, wetlands may be found in areas where hydric soils have not been mapped by the soil survey.

## **VEGETATION**

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Plant species are recorded on the attached wetland delineation data sheets (Appendix A). The indicator categories following the common and scientific names indicate the likelihood of a species to be found in wetlands. Listed from most-likely to least-likely to be found in wetlands, the indicator categories are:

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

The wetlands onsite have diverse strata from emergent, to scrub-shrub, to forested. Dominant wetland vegetation included Oregon white oak (*Quercus garryana*, FACU), Oregon ash (*Fraxinus latifolia*, FACW), Sitka willow (*Salix sitchensis*, FACW), nootka rose (*Rosa nutkana*, FAC), peafruit rose (*Rosa pisocarpa*, FAC), salmonberry (*Rubus spectabilis*, FAC), spiraea (*Spiraea douglasii*, FACW), and pacific ninebark (*Physocarpus capitatus*, FACW) in the tree and shrub layers. Broadleaf cattail (*Typha latifolia*, OBL), water parsley (*Oenanthe sarmentosa*, OBL), reed canarygrass (*Phalaris arundinacea*, FACW), soft rush (*Juncus effusus*, FACW), slough sedge (*Carex obnupta*, OBL), and sawbeak sedge (*Carex stipata*, OBL) were common in the herbaceous stratum.

The uplands are dominated by a former golf course in the central and southern portion of the study area and mixed coniferous-deciduous forest in the northern, non-developed portions of the study area. The former golf course is planted with non-native grasses and has widely spaced deciduous trees, namely bigleaf maple (*Acer macrophyllum*, FACU), Oregon ash, and Oregon white oak. The mixed coniferous-deciduous forest is dominated by upland trees and shrubs including Douglas-fir (*Pseudotsuga menziesii*, FACU), Oregon white oak, western red-cedar (*Thuja plicata*, FAC), and bigleaf maple.

Riparian corridors are dominated by upland trees and shrubs including black cottonwood (*Populus trichocarpa*, FAC), beaked hazelnut (*Corylus cornuta*, FACU), red huckleberry (*Vaccinium parvifolium*, FACU), vine maple (*Acer circinatum*, FAC), snowberry (*Symphoricarpos albus*, FACU), and salal (*Gaultheria shallon*, FACU).

Dominant upland herbaceous plants along the edges of the former golf course and riparian corridors included sword fern (*Polystichum munitum*, FACU), reed canarygrass, bluegrass spp. (*Poa* spp., FAC), red fescue (*Festuca rubra*, FAC), tall fescue (*Schedonorus arundinaceus* FAC), bull thistle (*Cirsium vulgare*, FACU), fringed cup (*Tellima grandiflora*, FACU), trailing blackberry (*Rubus ursinus*, FACU), and Himalayan blackberry (*Rubus armeniacus*, FAC).

## **HYDROLOGY**

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Site topography is elevated to the north centrally, near the summit of Green Mountain, directing drainage patterns to the northwest, west, and south. Wetlands B, D, G, J, K, L, and M receive hydrology from seasonally high groundwater tables, precipitation, and surface runoff from surrounding uplands. Hydrology within Wetland B mainly infiltrates, as no surface outlet was observed during the time of the site visit. Wetland D receives additional hydrology from a man-made ditch, located east of the wetland, and has a ditch outlet in which water drains during times of high precipitation. During times of regular rainfall, water infiltrates within Wetland D. Wetland G has a series of existing ditches throughout, conveying hydrology out of the wetland to the west. Hydrology within Wetland J mainly infiltrates, however no surface ponding was observed during the time of the site visit. Hydrology within Wetland L is conveyed to the north to the Type Np stream, Stream A. Wetland M hydrology is conveyed offsite within a manmade ditch. Wetland O receives the majority of its hydrology from water seeping from an onsite man-made pond, and outlets to a mapped Type Ns stream directly to the southwest.

Wetland hydrology indicators included shallow water table (within 12 inches of the soil surface), soil saturation (within 12 inches of the soil surface), surface inundation, geomorphic position, passing the FAC-neutral test, and oxidized rhizospheres among living roots. Indicators of wetland hydrology present during the site visit are recorded on the attached wetland determination data forms (Appendix A).

## **NATIONAL & LOCAL WETLANDS INVENTORY**

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National Wetland Inventory (NWI) does not map the presence of any wetlands onsite. One palustrine, emergent, temporary flooded (PEMA) wetland is mapped approximately 1,000 feet to the south of the southern edge of the study area (USFWS 2013; Figure 4). Clark County's local wetland inventory (LWI) maps wetlands in approximately the same location as the ELS-delineated Wetland B (eastern portion) and Wetland D. LWI also maps wetlands which correspond with two of the onsite man-made ponds (Figure 5). ELS findings are somewhat similar to the general landscape position of local inventory wetlands mapped onsite, although we identified additional wetlands within the study area.

Wetland maps such as NWI and LWI maps should be used with discretion as they are typically used to gather wetland information about a region and, because of the large scale necessary for regional mapping, are limited in accuracy for localized analyses.

## **CRITICAL AREAS DISCUSSION**

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### **Wetland Categorization**

The wetland ratings are according to the *Washington State Wetlands Rating System for Western Washington, Revised* (Rating System) (Hruby 2014; Figure 2; Appendix B). Wetlands B, D, G, and O ratings are according to the *Washington State Wetlands Rating System for Western Washington, Revised* (Hruby 2004; Appendix C). A discussion pertaining to the reasoning behind utilizing the 2004 Rating System for Wetlands B, D, G, and O is contained within the section titled “*Vested Wetlands*.” See Table 2 for a summary of wetlands onsite.

### **Wetland B**

Wetland B is a 4.48-acre onsite, Category III, forested and scrub-shrub, slope wetland, which lies in the central western portion of the study area, and extends outside of the study area to the west. Wetland B scored moderate for habitat functions (21 points), low for hydrologic functions (5 points), and low improving water quality (14 points).

### **Wetland D**

Wetland D is a 0.99-acre Category III, forested, scrub-shrub, and emergent, depressional wetland, which lies in the central portion of the study area. Wetland D scored low for habitat functions (18 points), hydrologic functions (8 points), and improving water quality (14 points).

### **Wetland G**

Wetland G is a 1.94-acre, Category III, scrub-shrub and emergent, slope wetland, which lies in the central portion of the study area. Wetland G contains areas of upland hummocks, with existing ditches located in the northwestern and northeastern portions of the wetland. Wetland G scored low for habitat functions (16 points), hydrologic functions (5 points), and for improving water quality (14 points). A historic retaining/farm pond is located directly south of Wetland G, which was constructed between 1990 and 2002 (Figure D-1; Appendix D). No wetland signature was visible in historical imagery prior to pond construction.

### **Wetland J**

Wetland J is a 0.61-acre, Category III, scrub-shrub and emergent, slope wetland, which lies in the south-central portion of the study area. Water leaves the wetland without being impounded, and no surface ponding was present or evidence of previous ponding. Wetland J scored moderate for habitat functions (6 points), moderate for hydrologic functions (5 points), and moderate for improving water quality (6 points).

### Wetland L

Wetland L is a 0.07-acre, Category III, scrub-shrub and emergent, slope wetland, which lies in the easternmost portion of the study area and outlets to Type Np stream (Stream A) via an underground culvert. Wetland L scored moderate for habitat functions (5 points), moderate for hydrologic functions (5 points), and moderate for improving water quality (6 points).

### Wetland M

Wetland M is a 0.07-acre, Category III, forested and scrub-shrub, slope wetland, which lies in the central western portion of the study area. Wetland M scored moderate for habitat functions (6 points), moderate for hydrologic functions (5 points), and moderate for improving water quality (5 points).

### Wetland O

Wetland O is a 0.02-acre, Category IV, scrub-shrub and emergent, slope wetland, which lies in the south-central portion of the study area. The wetland outlets to a Type Ns stream (Stream B). Wetland O scored low for habitat functions (13 points), hydrologic functions (1 points), and for improving water quality (12 points).

### **Exempt Wetlands**

*CMC 16.53.010(C)(2)(b)* states that wetlands created from nonwetland sites, including but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, stormwater facilities, farm ponds, and landscape amenities, are considered artificial wetlands. Wetlands considered artificial according to *CMC* shall be exempt from the provisions of *CMC Chapter 16.53 Wetlands*, provided that they are otherwise consistent with the provisions of other local, state, and federal laws and requirements.

Located south of Wetland G is a small, historic farm pond which was created from an upland site sometime between 1990 and 2002 (Figure D-1; Appendix D). As the historic farm pond south of Wetland G was man-made from uplands, it shall be considered exempt from City of Camas regulation and, therefore, no buffers are required.

### **Wetland Buffer Requirements**

*CMC 16.53.040* uses the following three parameters in determining wetland buffer widths for wetlands:

- 1) Wetland categorization per the Rating System
- 2) Habitat score from the Rating System
- 3) Proposed land use intensity

Category III wetlands with proposed high land use intensity and habitat scores greater than 5 according to the Rating System, are required to have buffers as designated in *CMC Table 16.53.040-3*. Category III wetlands with habitat scores equal to or less than



four according to the Rating System, are required to have buffers as designated in *CMC Table 16.53.040-1*. Wetland buffers are summarized in Table 2.

**Table 2. Summary of Wetlands Onsite**

Wetland Name (size)	Cowardin Classification <sup>1</sup> /HGM	State/Local Classification <sup>2</sup>	Habitat Score <sup>2</sup>	Proposed Land Use Intensity <sup>3</sup>	Standard Buffer Width <sup>4</sup> (feet)
Wetland B (4.48 acres onsite)	FO, SS, EM/slope	Category III <sup>7</sup>	21	High	80 <sup>5</sup>
Wetland D (0.99 acres)	SS & EM/depressional	Category III <sup>7</sup>	18	High	80 <sup>5</sup>
Wetland G (1.94 acres)	SS & EM/slope	Category III <sup>7</sup>	16	High	80 <sup>5</sup>
Wetland J (0.61 acres)	SS & EM/slope	Category III	6	High	135
Wetland L (0.07 acres)	SS & EM/slope	Category III	5	High	120
Wetland M (0.07 acres)	FO & SS/slope	Category III	6	High	135
Wetland O (0.02 acres)	SS & EM/slope	Category IV <sup>7</sup>	13	High	50 <sup>5</sup>

<sup>1</sup>Cowardin *et al.* 1979

<sup>2</sup>According to Hruby 2014 and Hruby 2004

<sup>3</sup>According to *CMC Table 16.53.040-4*

<sup>4</sup>According to *CMC Table 16.53.040-1* and *Table 16.53.040-3*

<sup>5</sup>See section "Vested Wetlands" for buffer designations

### ***Vested Wetlands***

The buffers for wetlands B, D, G and O were previously established by the City of Camas according to a *Critical Areas Report* produced in December 2014, under past approvals for the Green Mountain PRD. Under City File No. SUB14-02, the city granted PRD approval for a 1,300 lot multi-phased, multi-use development, and subdivision approval for 201 lots. Those approvals impacted critical areas relating to Wetlands B, D, G and O; thus triggering the City's regulations. Because of this, the Applicant was required to perform critical area analyses compliant with the City's protocols. This analysis resulted in the City establishing the classification and buffer standards for these wetlands under the municipal code active at the time. Table 3 depicts the wetland type and buffers for Wetlands B, D, G, and O previously established by the City.

**Table 3. Wetlands Vested from December 2014 Critical Areas Report**

Wetland Name (size)	Cowardin Classification <sup>1</sup> /HGM	State/Local Classification <sup>2</sup>	Habitat Score <sup>2</sup>	Proposed Land Use Intensity <sup>3</sup>	Standard Buffer Width <sup>4</sup> (feet)
Wetland B (4.48 acres onsite)	FO & SS/slope	Category III	21	High	80
Wetland D (0.99 acres)	SS & EM/depressional	Category III	18	High	80
Wetland G (1.94 acres)	SS & EM/slope	Category III	16	High	80
Wetland O (0.02 acres)	FO/slope	Category IV	13	High	50

<sup>1</sup>Cowardin *et al.* 1979<sup>2</sup>According to Hruby 2004<sup>3</sup>According to CMC Table 16.53.040-4<sup>4</sup>According to CMC Table 16.53.040-1**Functionally Isolated Buffers**

According to CMC 16.53.040(B)(4)(b)(i), functionally isolated buffers are areas in which the buffer is functionally isolated from the wetland and does not protect the wetland from adverse impacts. These areas include preexisting roads, structures, or vertical separation. Wetland buffers have been designated as functionally isolated where paved and gravel roads, gravel trails, and buildings are located within PRD Phase 2 (Figure 2). These functionally isolating features intersecting the wetland buffers disrupt the natural infiltration system the buffer provides for the wetland, removing the potential for the buffer to provide adequate protection of the wetland from surrounding uses.

**Fish and Wildlife Habitat Conservation Areas**

CMC Chapter 16.61 regulates Fish and Wildlife Habitat Conservation Areas, which include areas with which state or federally designated endangered, threatened, and sensitive species have a primary association, state priority habitats and areas associated with state priority species, habitats of local importance (Oregon white oak and Camas lily), naturally occurring ponds under 20 acres, waters of the state, bodies of water planted with game fish by a governmental or tribal entity, and state natural area preserves and natural resource conservation areas (CMC 16.61.010(A)).

**Streams**

Washington Department of Natural Resources (DNR) Forest Practice Maps indicate the presence of one undefined stream, originating offsite to the east within the central portion of the study area (Figure 7). This stream is mapped as flowing through the former golf course, into the forested area, and offsite under NE Ingles Road. ELS biologists did not locate a natural defined channel or the presence of surface water in the areas mapped by the DNR as having a stream. Instead, several wetlands are present in roughly the trajectory of the mapped stream (Figure 2). ELS biologists did identify two streams onsite:

### Stream A

Stream A originates offsite to the east, flows southwesterly through the southern portion of the study area, and drains offsite to the south into a roadside ditch along NW Goodwin Road (Figure 2; Table 4). This stream has flow year round, and therefore, is considered perennial, is not known to be used by fish, and does not meet the physical criteria to be used by fish. Stream A is approximately 3- to 5-feet in diameter at bank-full-width, and consists mainly of riffles with no apparent pools. Stream substrate consists of mainly small cobble and sand/sediment. Stream A is not mapped on the DNR Forest Practice Map (Figure 7).

### Stream B

Stream B is a Type Ns (non-fish, seasonal) stream (Figure 2; Table 4). This stream originates onsite, near the location of one of the former golf course ponds and Wetland O, and flows southwesterly and offsite into a roadside ditch along NE Ingle Road. This stream had an approximate bank-full-width of 1- to 2-feet during the time of the site visit, and stream substrate consisted of mainly small cobble and sand. Stream B is not mapped on the DNR Forest Practice Map (Figure 7).

**Table 4. Summary of Streams Onsite**

Stream Name	DNR Stream Type	Stream Buffer Width <sup>1</sup> (feet)
Stream A	Type Np (non-fish, perennial)	50
Stream B	Type Ns (non-fish, seasonal)	25

<sup>1</sup>According to *CMC 16.61.040(D)*, stream buffer widths shall be measured outward, on the horizontal plane, from the ordinary high water mark. This determination is preliminary until reviewed, modified and/or approved by the City of Camas.

### ***Oregon White Oak***

The study area has previously been assessed for Oregon white oak, which is included in the *Oregon White Oak Advance Mitigation Plan for Green Mountain Mixed Use PRD* prepared by *Ecological Land Services, Inc.* on February 24, 2016 (City File No. SUB14-02).

### ***Ponds***

Per *CMC 16.53.010(C)(2)(b)*, artificial wetlands are exempt from the provisions of *Chapter 16.53*. Artificial wetlands are considered by the City of Camas to be wetlands created from non-wetland sites including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, stormwater facilities, farm ponds, and landscape amenities. The 4 remaining onsite ponds were created as part of the former golf course and have plastic-lined bottoms, and therefore, require no buffers or further regulation from *CMC*.

## **LIMITATIONS**

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ELS personnel base the conclusions contained within this report on standard scientific methodology and best professional judgment. In our opinion, local, state, and federal regulatory agencies should agree with the findings presented in this report.

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. There are no other warranties, express or implied. The services performed were consistent with our agreement with our client. This report is prepared solely for the use of our client and may not be used or relied upon by a third party for any purpose. Any such use or reliance will be at such party's risk.

The opinions and recommendations contained in this report apply to conditions existing when services were performed. ELS is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report. ELS does not warrant the accuracy of supplemental information incorporated in this report that was supplied by others.

## REFERENCES

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- City of Camas Municipal Code. 2008. *Critical Areas Ordinance Chapter 16.53 – Wetlands*. March 2016.
- City of Camas Municipal Code. 2008. *Critical Areas Ordinance Chapter 16.61 – Fish and Wildlife Habitat Conservation Areas*. March 2016.
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- Environmental Protection Agency (EPA). 2014.
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- U.S. Army Corps of Engineers (Corps). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. C. Noble. ERDC/EL TR-08-13. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.

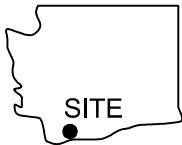
U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Wetlands Mapper. September 2013. Online document:  
<http://www.fws.gov/wetlands/Data/Mapper.html>. Accessed March 2016.

## Figures

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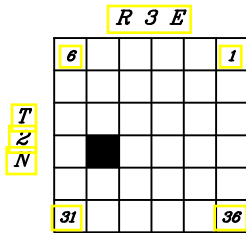
Figure 1	Vicinity Map
Figure 2	Critical Areas Map
Figure 2	Critical Areas Map (oversized)
Figure 3	Soil Survey Map
Figure 4	National Wetlands Inventory
Figure 5	Clark County Critical Areas Map
Figure 6	WDFW Priority Habitat and Species
Figure 7	DNR Stream Type Map
Photoplates	1-5

WASHINGTON



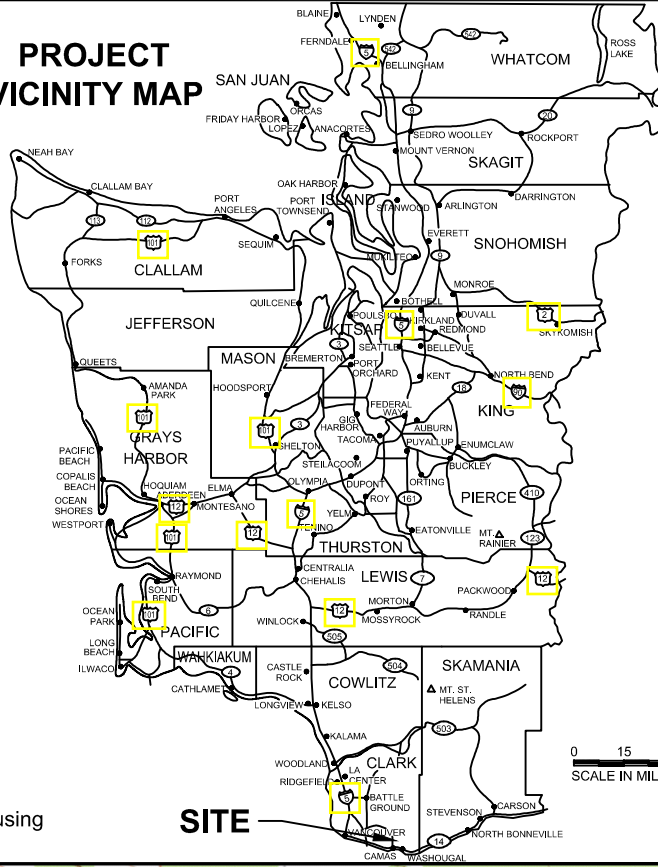
45.6471° Latitude  
-122.4560° Longitude

# LOCATION MAP



**NOTE:**  
USGS topographic quadrangle map reproduced using  
MAPTECH Inc., Terrain Navigator Pro software.

## PROJECT VICINITY MAP



**SITE**

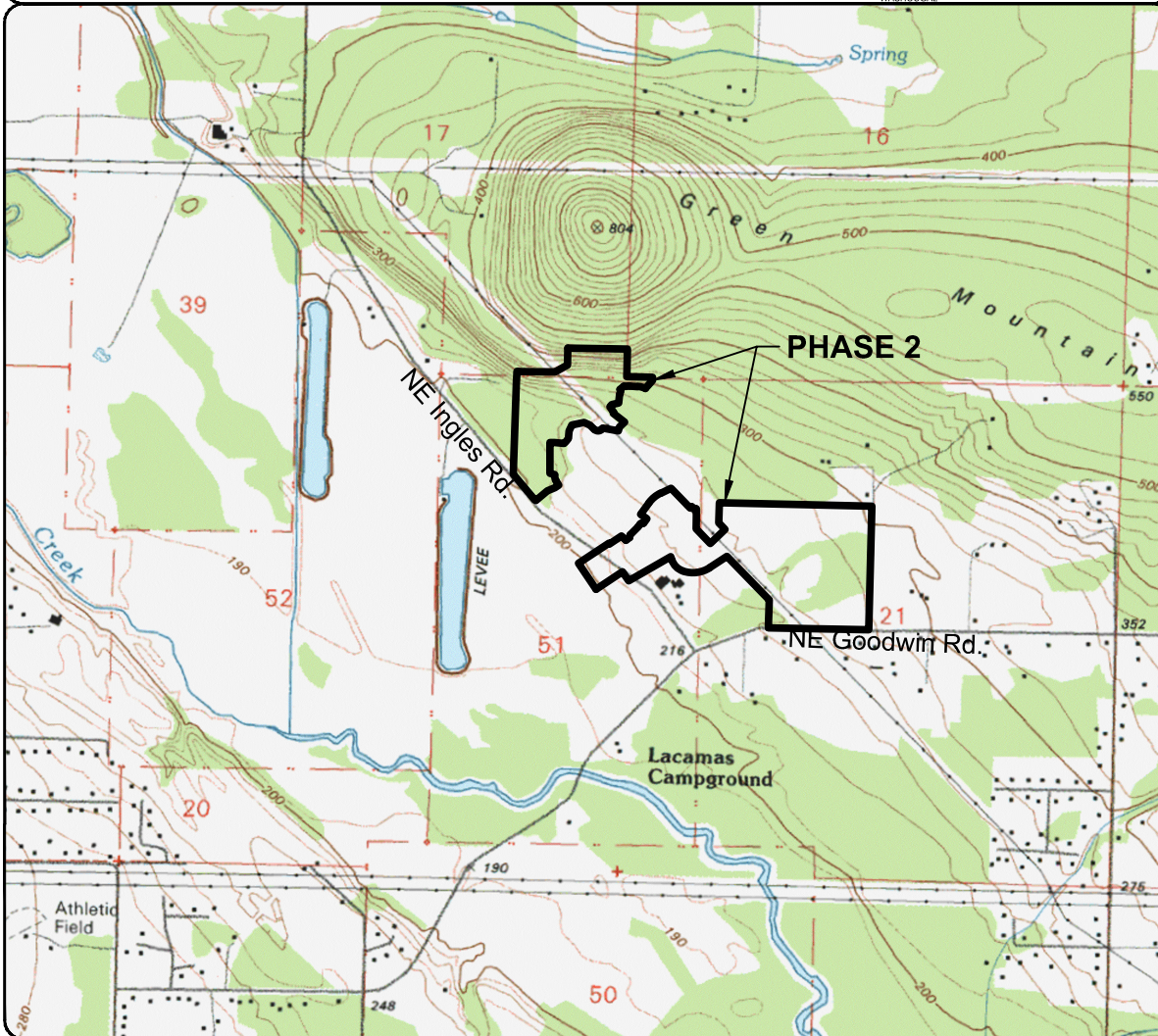
0 15 30  
SCALE IN MILES

Figure 1  
VICINITY MAP

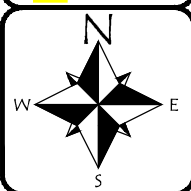
Green Mountain Mixed Use PRD Phase 2  
CLB Washington Options Solutions LLC  
City of Camas, Clark County, Washington  
Section 20, Township 2N, Range 3E, W.M.

DATE: 7/28/16  
DWN: JKJ  
REQ. BY: MM  
PRJ. MGR: MM  
CHK:  
PROJECT NO: 2415.01

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**PHASE 2**





7/28/2016 1:52 PM s:\ELSWA\Clark\Camas\2415-clb washington options solutions llc\2415.01-green mountain phase 2\2415.01-figures\2415.01\_SM-PHS2.dwg Jennifer

- NOTE(S):**
1. Aerial photo provided by Google Earth™.
  2. Wetlands delineated on February 29 and March 1, 2016. Wetland flags surveyed by Olson Engineering.
  3. Streams and man-made water features mapped using a hand-held GPS unit with ±0.5m accuracy.
  4. Man-made water features considered exempt from jurisdictional regulation.
  5. Wetlands B, D, G, and O vested per City File No. SUB14-02.

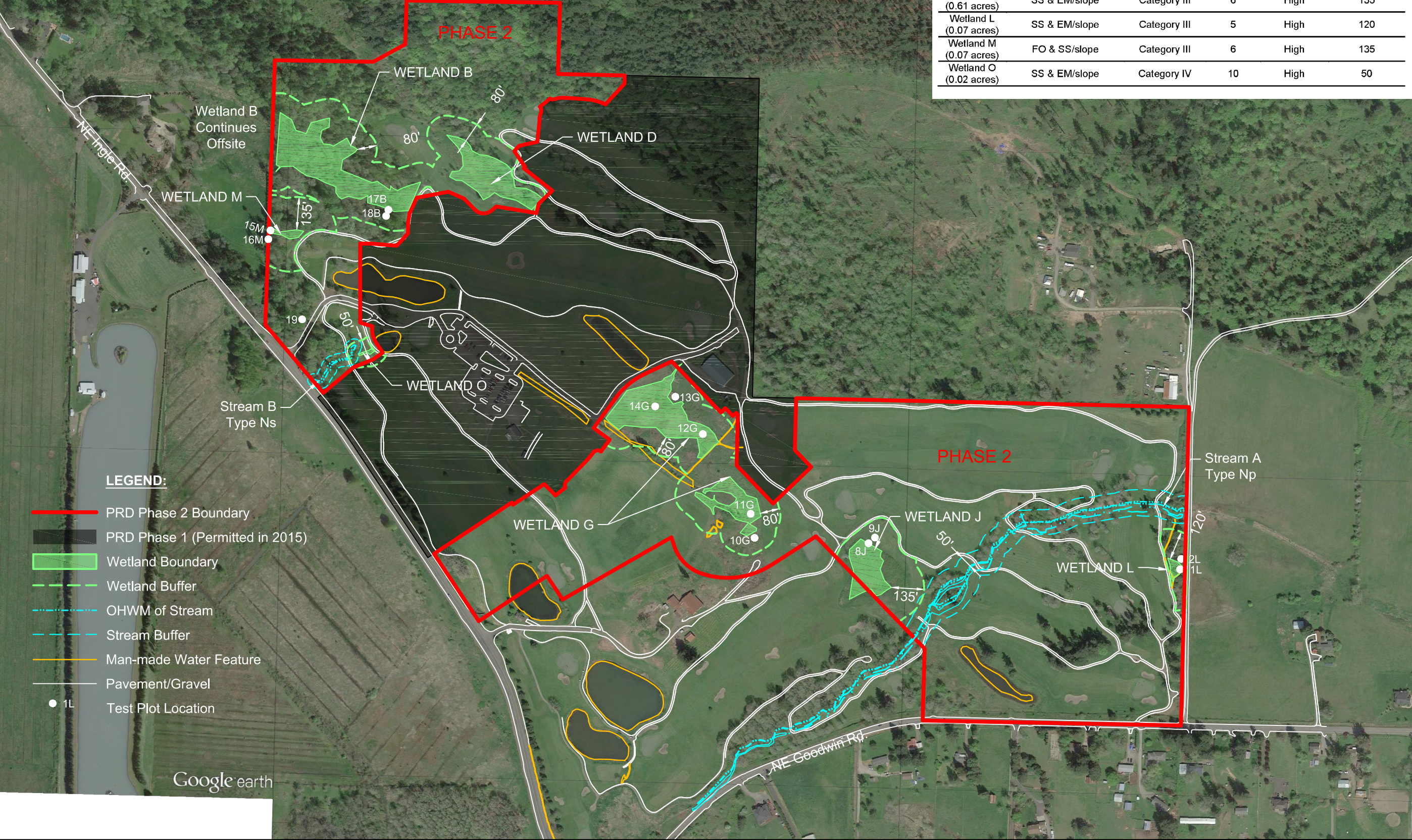
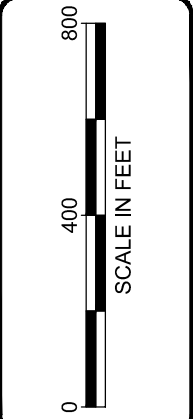


Figure 2  
CRITICAL AREAS MAP  
Green Mountain Mixed Use PRD Phase 2  
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City of Camas, Clark County, Washington  
Section 20, Township 2N, Range 3E, W.M.

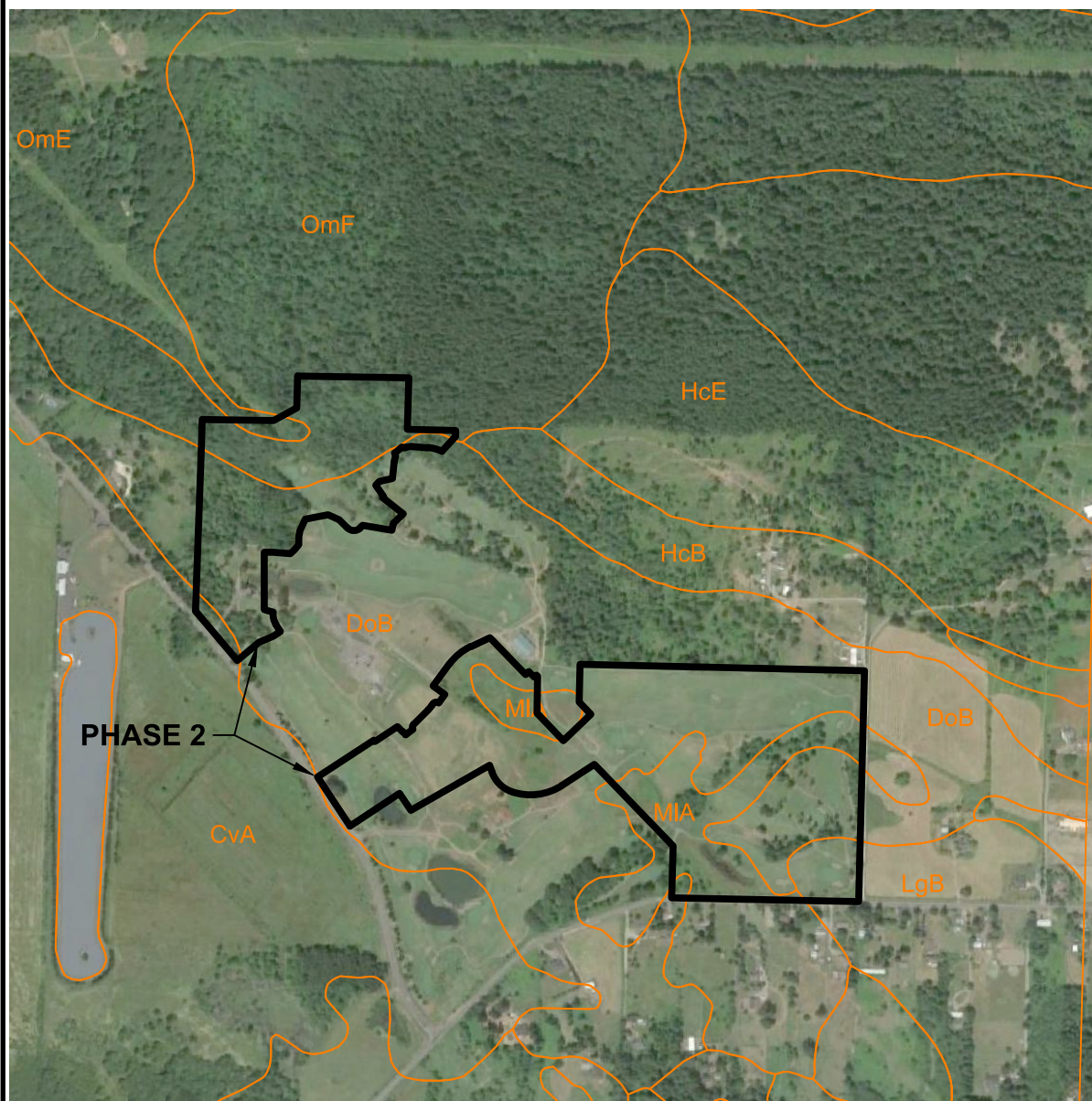
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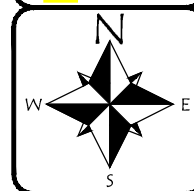


# **LEGEND:**

- CvA** Cove silty clay loam, 0 to 3 percent slopes. Hydric.
- DoB** Dollar loam, 0 to 5 percent slopes. Not hydric.
- MIA** McBee silt loam, coarse variant, 0 to 3 percent slopes. Not hydric.
- OmE** Olympic stony clay loam, 3-30 percent slopes. Not hydric.
- OmF** Olympic stony clay loam, 30 to 60 percent slopes. Not hydric.

## **NOTE(S):**

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



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Figure 3  
 SOIL SURVEY MAP  
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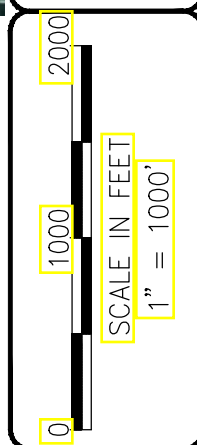
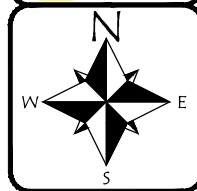
No mapped wetlands indicated onsite by US Fish & Wildlife Service.

**LEGEND:**

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland

**NOTE(S):**

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

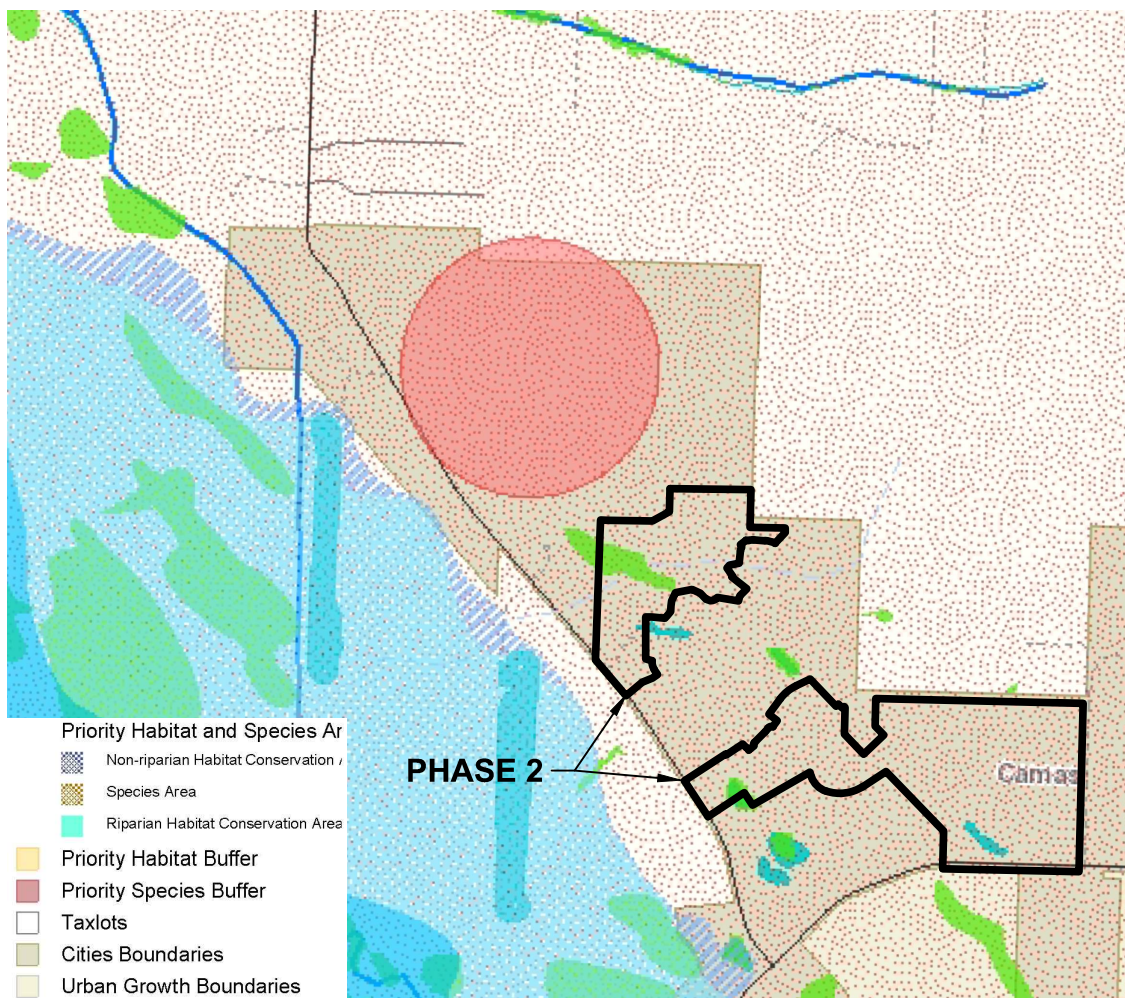
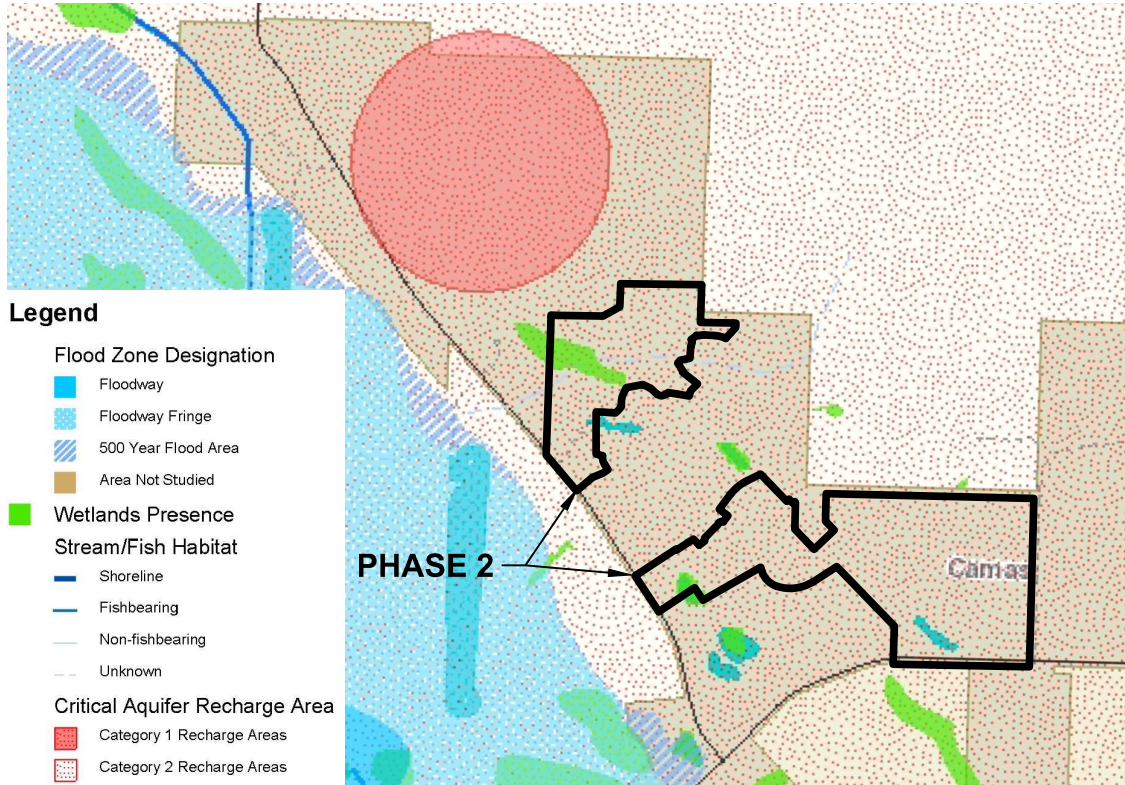


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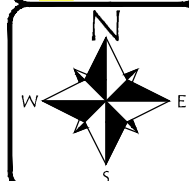
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CHK:  
PROJECT NO:  
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Figure 4  
**NATIONAL WETLANDS INVENTORY**  
Green Mountain Mixed Use PRD Phase 2  
CLB Washington Options Solutions LLC  
City of Camas, Clark County, Washington  
Section 20, Township 2N, Range 3E, W.M.





**NOTE:** Map provided on-line by Clark County, Washington at web address: <http://gis.clark.wa.gov/imf/imf.jsp?site=zoning>

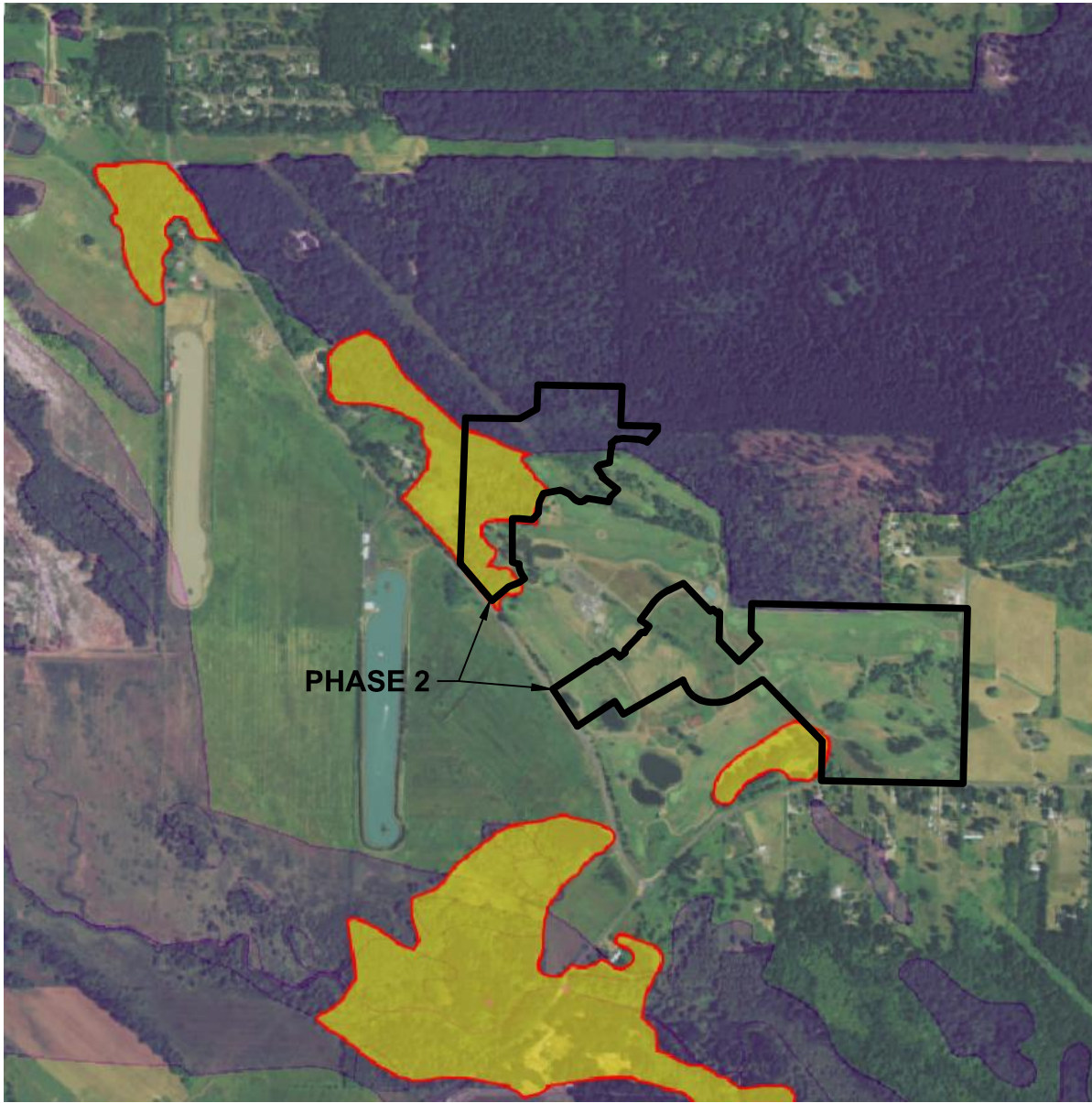


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

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**Figure 5**  
**CLARK COUNTY CRITICAL AREAS MAP**  
Green Mountain Mixed Use PRD Phase 2  
CLB Washington Options Solutions LLC  
City of Camas, Clark County, Washington  
Section 20, Township 2N, Range 3E, W.M.





**LEGEND:**

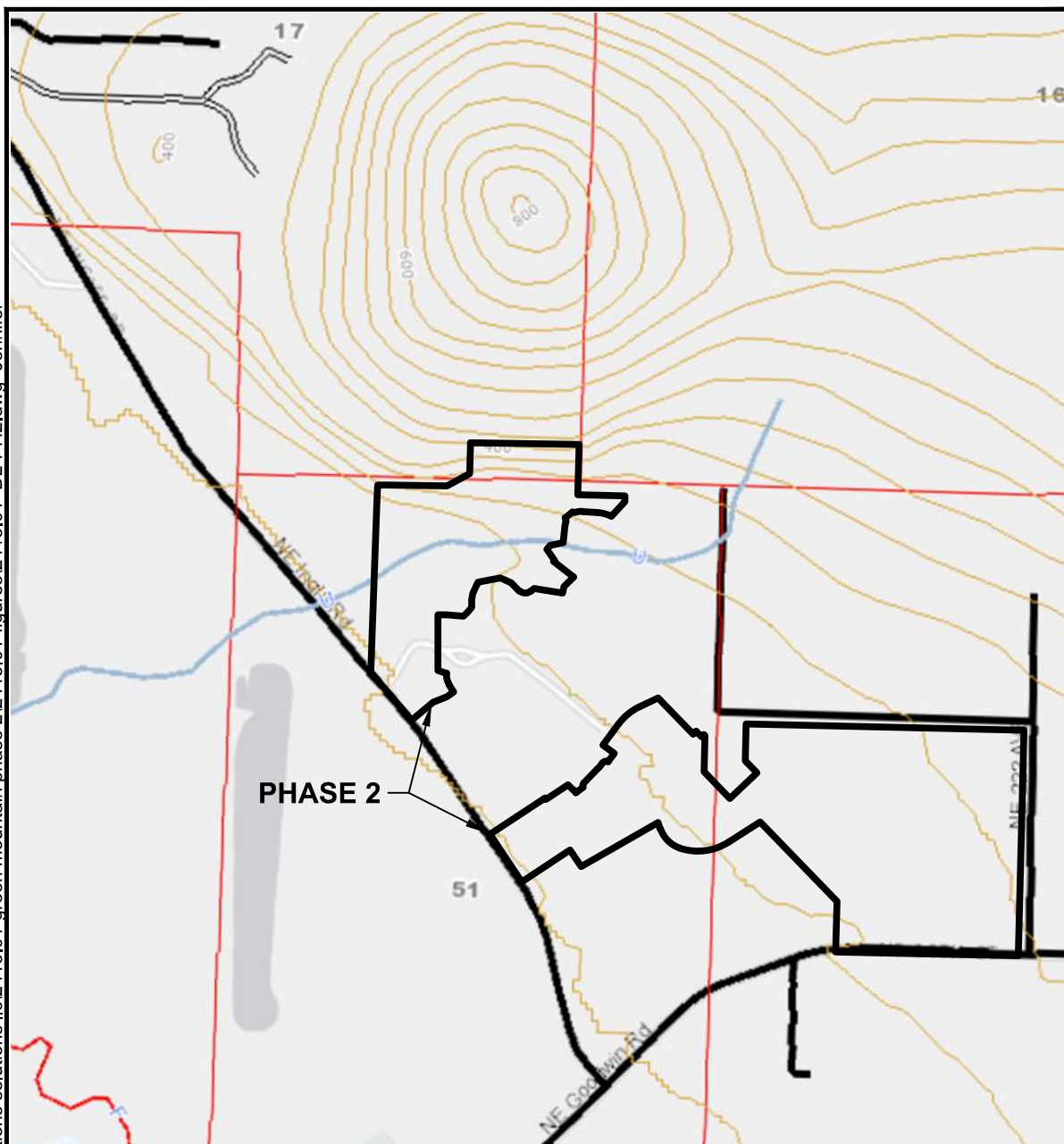
-  Oak Woodland
-  Biodiversity Areas and Corridor



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PRJ. MGR: MM  
CHK:  
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**Figure 6**  
**WDFW PRIORITY HABITAT AND SPECIES**  
Green Mountain Mixed Use PRD Phase 2  
CLB Washington Options Solutions LLC  
City of Camas, Clark County, Washington  
Section 20, Township 2N, Range 3E, W.M.



**Streams**  
Streams

- Type S
- Type F
- Type N, Np, Ns
- U, unknown
- X, non-typed per WAC 222-16

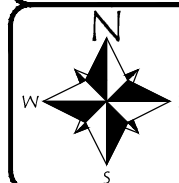
**Water Type Break**  
Water Type Break

**Water Bodies**  
Water Bodies

- Flats/Gravel Bars
- Ice
- Man Made Features
- Open Water
- Wet Area

Contours - 40ft. Interval  
Contours - 40ft. Interval

**NOTE:** Map provided on-line by Washington State  
Department of Natural Resources at web address:  
<https://fortress.wa.gov/dnr/protectiongis/fpamt/index.html>



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PRJ. MGR: MM  
CHK:  
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2415.01

**Figure 7**  
**DNR STREAM TYPE MAP**  
Green Mountain Mixed Use PRD Phase 2  
CLB Washington Options Solutions LLC  
City of Camas, Clark County, Washington  
Section 20, Township 2N, Range 3E, W.M.





*Above:* North view of the northwestern portion of Wetland B. Photo taken March 1, 2016.

*Below:* Northeast view of the northwestern portion of Wetland B. Photo taken March 1, 2016.



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PRJ. MGR: MM  
PROJ.#: 2048.01

Photoplate 1  
SITE PHOTOS  
Green Mountain PRD  
Green Mountain Land, LLC  
City of Camas, Washington





Above: West view of the scrub-shrub and emergent vegetation of Wetland G. Photo taken February 29, 2016.



Above: Northwestern view of the scrub-shrub and emergent vegetation of Wetland G with the BPA easement in the background. Photo taken February 29, 2016.



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PRJ. MGR: MM  
PROJ.#: 2048.01

Photoplate 2  
SITE PHOTOS  
Green Mountain PRD  
Green Mountain Land, LLC  
City of Camas, Washington





*Above:* Northeastern view of Stream N, forked on the southeast portion of the project site. Photo taken February 29, 2016.

*Below:* Northwestern view of Wetland J with the BPA easement bisecting the wetland. Photo taken February 29, 2016.



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PRJ. MGR: MM  
PROJ.#: 2048.01

Photoplate 3  
SITE PHOTOS  
Green Mountain PRD  
Green Mountain Land, LLC  
City of Camas, Washington



Above: Northwestern view of Wetland B, which extends offsite to the northwest.  
Photo taken March 1, 2016.



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PRJ. MGR: MM  
PROJ.#: 2048.01

Photoplate 4  
SITE PHOTOS  
Green Mountain PRD  
Green Mountain Land, LLC  
City of Camas, Washington





*Above:* Southeastern view of Wetland J. Photo taken February 29, 2016.



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PRJ. MGR: MM  
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Photoplate 5  
SITE PHOTOS  
Green Mountain PRD  
Green Mountain Land, LLC  
City of Camas, Washington

## **Appendix A**

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Wetland Determination Data Forms

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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 2/29/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 1L  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Concave Slope (%): 0-3%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: MIA, McBee silt loam NWI classification: none  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: Test plot located within Wetland L. All three wetland parameters are met, therefore the test plot was sampled within a wetland.	

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC:	5 (A)
2. _____	%				
3. _____	%			Total Number of Dominant Species Across All Strata:	5 (B)
4. _____	%				
Total Cover:	%			Percent of Dominant Species That Are OBL, FACW, or FAC	100 (A/B)
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				Prevalence Index worksheet	
1. <i>Rosa nutkana</i>	20%	yes	FAC	Total % Cover of:	Multiply by:
2. <i>Physocarpus capitatus</i>	20%	yes	FACW	OBL species	x 1=
3. <i>Spiraea douglasii</i>	10%	yes	FACW	FACW species	x 2=
4. _____	%			FAC species	x 3=
5. _____	%			FACU species	x 4=
Total Cover:	50%			UPL species	x 5=
Herb Stratum (Plot size: 5 ft radius)				Column Totals:	(A) (B)
1. <i>Phalaris arundinacea</i>	80%	yes	FACW	Prevalence Index = B/A=	
2. <i>Carex stipata</i>	20%	yes	OBL	Hydrophytic Vegetation Indicators:	
3. _____	%			<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
4. _____	%			<input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. _____	%			<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.	
6. _____	%			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
7. _____	%				
8. _____	%				
Total Cover:	100%				
Woody Vine Stratum (Plot size: 15 ft radius)					
1. _____	%				
2. _____	%				
Total Cover:	%				
% Bare Ground in Herb Stratum 0%					

Remarks: Trace amount of *Rubus ursinus* (FACU). The dominance test was met due to over 50% of dominant species being OBL, FACW, or FAC.

SOIL

Sampling Point: 1L

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 4/2	100%		%			silty clay loam	
8-16	10YR 4/1	60%	7.5YR 5/8	40%	C	M	silty clay loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

☐ Histosal (A1)

☐ Sandy Redox (S5)

☐ 2 cm Muck (A10)

☐ Histic Epipedon (A2)

☐ Stripped Matrix (S6)

☐ Red Parent Material (TF2)

☐ Black Histic (A3)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Very Shallow Dark Surface (TF12)

☐ Hydrogen Sulfide (A4)

☐ Loamy Gleyed Matrix (F2)

☐ Other (Explain in Remarks)

☐ Depleted Below Dark Surface (A11)

☒ Depleted Matrix (F3)

☐ Thick Dark Surface (A12)

☐ Redox Dark Surface (F6)

☐ Sandy Mucky Minerals (S1)

☐ Depleted Dark Surface (F7)

☐ Sandy Gleyed Matrix (S4)

☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

<sup>3</sup>Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present?

Yes☒ No☐

Remarks: Hydric soil indicator F3 was met due to a layer having a depleted matrix with 60% or more chroma of 2 or less and is at least 6 inches thick, beginning within 10 inches of the soil surface. Redox concentrations are present, which is required in soils with matrix colors of 4/2.

HYDROLOGY

Wetland Hydrology Indicators:

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

☐ Surface Water (A1)

☒ High Water Table (A2)

☒ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

Secondary Indicators  
(2 or more required)

☐ Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☒ FAC-Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present?

Yes☐ No☒

Water Table Present?

Yes☒ No☐

Saturation Present?

Yes☒ No☐

(Includes Capillary fringe)

Depth (Inches): \_\_\_\_\_

Depth (Inches): 7

Depth (Inches): 7

Wetland Hydrology Present?

Yes☒ No☐

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

Remarks:Wetland hydrology was observed as water table and soil saturation at 7 inches below ground surface. Required depth of water table and saturation to be considered wetland hydrology is 12 inches, therefore primary indicators A2 and A3 are met.

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

Project/Site: Green Mountain PRD		City/County: Camas/Clark		Sampling Date: 2/29/2016	
Applicant/Owner: Green Mountain Land, LLC		State: WA		Sampling Point: 2L	
Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann		Section, Township, Range: 20, 2N, 3E			
Landform (hillslope, terrace, etc.): footslope		Local relief: Convex		Slope (%): 0-3%	
Subregion (LRR): A2		Lat: 45.6471	Long: -122.4560	Datum: NAD83	
Soil Map Unit Name: MIA, McBee silt loam		NWI classification: none			
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain Remarks.)					
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed? Area "Normal Circumstances" present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>					
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> 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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Test plot located northeast of Wetland L. No wetland indicators were present, therefore the test plot was sampled within an upland area.	

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	____%	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	____%	_____	_____	
3. _____	____%	_____	_____	
4. _____	____%	_____	_____	
Total Cover:	____%			
<b>Sapling/Shrub Stratum (Plot size: 15 ft. radius)</b>				
1. <i>Corylus cornuta</i>	70%	yes	FACU	<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A= _____
2. <i>Rubus ursinus</i>	30%	yes	FACU	
3. <i>Vaccinium parvifolium</i>	20%	no	FACU	
4. <i>Rosa nutkana</i>	10%	no	FAC	
5. _____	____%	_____	_____	
Total Cover:	110%			
<b>Herb Stratum (Plot size: 5 ft radius)</b>				
1. <i>Polystichum munitum</i>	30%	yes	FACU	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data In Remarks or on a separate sheet)  <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <i>Tellima grandiflora</i>	15%	yes	FACU	
3. <i>Juncus effusus</i>	5%	no	FACW	
4. _____	____%	_____	_____	
5. _____	____%	_____	_____	
6. _____	____%	_____	_____	
7. _____	____%	_____	_____	
8. _____	____%	_____	_____	
Total Cover:	50%			
<b>Woody Vine Stratum (Plot size: 15 ft radius)</b>				
1. _____	____%	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.
2. _____	____%	_____	_____	
Total Cover:	____%			
% Bare Ground in Herb Stratum 50%				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: 50% of bare ground in the herbaceous stratum was covered in leaf matter. Hydrophytic vegetation is not present because the number of OBL, FACW, and FAC plant observed within the vicinity of the test plot was less than 50% of the dominant vegetation present.				

SOIL

Sampling Point: 2L

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/4	80%	5YR 4/6	20%			sandy clay loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

☐ Histosal (A1)

☐ Sandy Redox (S5)

☐ 2 cm Muck (A10)

☐ Histic Epipedon (A2)

☐ Stripped Matrix (S6)

☐ Red Parent Material (TF2)

☐ Black Histic (A3)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Very Shallow Dark Surface (TF12)

☐ Hydrogen Sulfide (A4)

☐ Loamy Gleyed Matrix (F2)

☐ Other (Explain in Remarks)

☐ Depleted Below Dark Surface (A11)

☐ Depleted Matrix (F3)

☐ Thick Dark Surface (A12)

☐ Redox Dark Surface (F6)

☐ Sandy Mucky Minerals (S1)

☐ Depleted Dark Surface (F7)

☐ Sandy Gleyed Matrix (S4)

☐ Redox Depressions (F8)

<sup>3</sup>Indicators of hydrophytic vegetation and  
Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☐ No ☒

Remarks: No hydric soil indicators were met because the chroma of the soil sample was too high.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators  
(2 or more required)

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

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC-Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present? Yes ☐ No ☒

Water Table Present? Yes ☐ No ☒

Saturation Present? Yes ☒ No ☐

Depth (Inches): \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Depth (Inches): 15

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:Although soil saturation is present, wetland hydrology indicator A3 is not met because soil saturation is required to be at 12 inches below soil surface to be considered wetland hydrology.



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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 2/29/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 8J  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Concave Slope (%): 0-3%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: MIA, McBee silt loam NWI classification: none  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: Test plot located within the northern portion of Wetland J. All three wetland parameters are met, therefore the test plot was sampled within a wetland.	

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2. _____	%				
3. _____	%			Total Number of Dominant Species Across All Strata:	1 (B)
4. _____	%				
Total Cover:	%			Percent of Dominant Species That Are OBL, FACW, or FAC	100 (A/B)
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				Prevalence Index worksheet	
1. _____	%			Total % Cover of:	Multiply by:
2. _____	%			OBL species	x 1=
3. _____	%			FACW species	x 2=
4. _____	%			FAC species	x 3=
5. _____	%			FACU species	x 4=
Total Cover:	%			UPL species	x 5=
Herb Stratum (Plot size: 5 ft radius)				Column Totals:	(A) (B)
1. <i>Phalaris arundinacea</i>	80%	yes	FACW	Prevalence Index = B/A=	
2. <i>Lotus corniculatus</i>	15%	no	FAC		
3. <i>Schedonorus arundinaceus</i>	5%	no	FAC		
4. _____	%			Hydrophytic Vegetation Indicators:	
5. _____	%			<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
6. _____	%			<input checked="" type="checkbox"/> 2 – Dominance Test is >50%	
7. _____	%			<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
8. _____	%			4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
Total Cover:	100%			<input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup>	
Woody Vine Stratum (Plot size: 15 ft radius)				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
1. _____	%			<sup>1</sup> Indicators of hydric soil and wetland hydrology	
2. _____	%			Must be present, unless disturbed or problematic.	
Total Cover:	%			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
% Bare Ground in Herb Stratum 0%					

Remarks: The dominance test was met due to over 50% of dominant species being OBL, FACW, or FAC.

SOIL

Sampling Point: 8J

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	60%	7.5YR 4/6	40%	C	M	silty clay loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosal (A1)

☐ Sandy Redox (S5)

☐ 2 cm Muck (A10)

☐ Histic Epipedon (A2)

☐ Stripped Matrix (S6)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

☐ Black Histic (A3)

☐ 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)

☐ Hydrogen Sulfide (A4)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Mucky Minerals (S1)

☐ Sandy Gleyed Matrix (S4)

<sup>3</sup>Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present?

Yes☒ No☐

Remarks: Hydric soil indicator F6 was met because the layer was at least 4 inches thick within the upper 12 inches of the soil, and had a matrix value of 3 or less, and a chroma of 2 or less, with 5% or more distinct or prominent redox concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators  
(2 or more required)

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

☐ Surface Water (A1)

☐ High Water Table (A2)

☒ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☒ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC-Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D4)

Field Observations:

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

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

Saturation Present? Yes☒ No☐ Depth (Inches): 5

(Includes Capillary fringe)

Wetland Hydrology Present?

Yes☒ No☐

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

Remarks:Wetland hydrology primary indicator A3 was met because soil saturation was present 5 inches below the soil surface, and soil saturation 12 inches and shallower is considered wetland hydrology.

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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 2/29/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 9J  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Convex Slope (%): 0-3%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: MIA, McBee silt loam NWI classification: none  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☐ No ☒  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Test plot located northeast of Wetland J. Vegetation significantly disturbed due to golf course maintenance. Although hydrophytic vegetation is present, the test plot is determined to not be sampled within a wetland because no hydric soils or wetland hydrology is present.	

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
Total Cover:	%			
<b>Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)</b>				
1. _____	%	_____	_____	<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A= _____
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
Total Cover:	%			
<b>Herb Stratum (Plot size: <u>5</u> ft radius)</b>				
1. <u>Lolium perenne</u>	90%	yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data In Remarks or on a separate sheet)  <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Lotus corniculatus</u>	5%	no	FAC	
3. <u>Schedonorus arundinaceus</u>	5%	no	FAC	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
6. _____	%	_____	_____	
7. _____	%	_____	_____	
8. _____	%	_____	_____	
Total Cover:	100%			
<b>Woody Vine Stratum (Plot size: <u>15</u> ft radius)</b>				
1. _____	%	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.
2. _____	%	_____	_____	
Total Cover:	%			
% Bare Ground in Herb Stratum <u>0%</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The dominance test was met due to over 50% of dominant species being OBL, FACW, or FAC.

SOIL

Sampling Point: 9J

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 3/3	50%		%			silty clay loam	See Remarks Below
0-10	10YR 3/2	50%		%			silty clay loam	See Remarks Below
10-16	10YR 3/2	85%	5YR 4/6	15%	C	M	silty clay loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosol (A1)

☐ Sandy Redox (S5)

☐ 2 cm Muck (A10)

☐ Histic Epipedon (A2)

☐ Stripped Matrix (S6)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

☐ Black Histic (A3)

☐ 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)

☐ Hydrogen Sulfide (A4)

☐ 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)

☐ Depleted Below Dark Surface (A11)

☐ 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)

☐ Thick Dark Surface (A12)

☐ 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)

☐ Sandy Mucky Minerals (S1)

☐ 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)

☐ Sandy Gleyed Matrix (S4)

☐ 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)

☐ Sandy Mucky Minerals (S1)

☐ 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)

☐ Sandy Gleyed Matrix (S4)

☐ 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 of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present?

Yes☐ No☒

Remarks: Soil profile consisted of a mixed matrix from 0 to 10 inches below soil surface. Soil is not hydric because the chroma of the soil profile from 0-10 inches below the soil surface is too high (above 2).

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

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

☐ Surface Water (A1)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)

☐ Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ High Water Table (A2)

☐ Salt Crust (B11)

☐ Drainage Patterns (B10)

☐ Saturation (A3)

☐ Aquatic Invertebrates (B13)

☐ Dry-Season Water Table (C2)

☐ Water Marks (B1)

☐ Hydrogen Sulfide Odor (C1)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Sediment Deposits (B2)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Geomorphic Position (D2)

☐ Drift Deposits (B3)

☐ Presence of Reduced Iron (C4)

☐ Shallow Aquitard (D3)

☐ Algal Mat or crust (B4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ FAC-Neutral Test (D5)

☐ Iron Deposits (B5)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Surface Soil Cracks (B6)

☐ Other (Explain in Remarks)

☐ Frost-Heave Hummocks (D4)

☐ Inundation Visible on Aerial Imagery (B7)

Field Observations:

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

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

Saturation Present? Yes☐ No☒ Depth (Inches): \_\_\_\_\_

(Includes Capillary fringe)

Wetland Hydrology Present?

Yes☐ No☒

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

Remarks:No wetland hydrology indicators were met at this test plot.

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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 2/29/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 10G  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Convex Slope (%): 0-5%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: DoB, Dollar loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Test plot located southeast of the southern depression of Wetland G and northwest of Wetland U. Although hydrophytic vegetation is present, no hydric soil or wetland hydrology indicators were present, therefore the test plot is determined to not be located within a wetland.	

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <i>Quercus garryana</i>	20%	yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
Total Cover:	20%			
<b>Sapling/Shrub Stratum (Plot size: 15 ft. radius)</b>				
1. <i>Rubus ursinus</i>	20%	yes	FACU	<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A = _____
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
Total Cover:	20%			
<b>Herb Stratum (Plot size: 5 ft radius)</b>				
1. <i>Festuca rubra</i>	30%	yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data In Remarks or on a separate sheet)  <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <i>Schedonorus arundinaceus</i>	30%	yes	FAC	
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
Total Cover:	60%			
<b>Woody Vine Stratum (Plot size: 15 ft radius)</b>				
1. <i>Rubus armeniacus</i>	30%	yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.
2. _____	%			
Total Cover:	30%			
% Bare Ground in Herb Stratum <u>40%</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: Trace amount of *Juncus effusus* (FACW) and *Phalaris arundinacea* (FACW). 40% of bareground covered in unknown dead weed. The dominance test was met due to over 50% of dominant species being OBL, FACW, or FAC.

SOIL

Sampling Point: 10G

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/3	100%		%			silt loam	
12-16	10YR 3/3	50%		%			silt loam	See Remarks Below
12-16	10YR 4/6	50%		%			Silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

☐ Histosal (A1)

☐ Sandy Redox (S5)

☐ 2 cm Muck (A10)

☐ Histic Epipedon (A2)

☐ Stripped Matrix (S6)

☐ Red Parent Material (TF2)

☐ Black Histic (A3)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Very Shallow Dark Surface (TF12)

☐ Hydrogen Sulfide (A4)

☐ Loamy Gleyed Matrix (F2)

☐ Other (Explain in Remarks)

☐ Depleted Below Dark Surface (A11)

☐ Depleted Matrix (F3)

☐ Thick Dark Surface (A12)

☐ Redox Dark Surface (F6)

☐ Sandy Mucky Minerals (S1)

☐ Depleted Dark Surface (F7)

☐ Sandy Gleyed Matrix (S4)

☐ Redox Depressions (F8)

<sup>3</sup>Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil profile consisted of a mixed matrix from 12 to 16 inches below the soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

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

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC-Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present? Yes ☐ No ☒

Water Table Present? Yes ☐ No ☒

Saturation Present? Yes ☐ No ☒

(Includes Capillary fringe)

Depth (Inches): \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

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: Green Mountain PRD City/County: Camas/Clark Sampling Date: 2/29/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 11G  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Concave Slope (%): 0-3%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: MIA, McBee silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks: Test plot located within the southwestern depression of Wetland G. All three wetland parameters are met, therefore the test plot was sampled within a wetland.			

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC:	3 (A)
2. _____	%				
3. _____	%			Total Number of Dominant Species Across All Strata:	3 (B)
4. _____	%				
Total Cover:	%			Percent of Dominant Species That Are OBL, FACW, or FAC	100 (A/B)
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				Prevalence Index worksheet	
1. <i>Typha latifolia</i>	80%	yes	OBL	Total % Cover of:	Multiply by:
2. _____	%			OBL species	x 1= _____
3. _____	%			FACW species	x 2= _____
4. _____	%			FAC species	x 3= _____
5. _____	%			FACU species	x 4= _____
Total Cover:	80%			UPL species	x 5= _____
Herb Stratum (Plot size: 5 ft radius)				Column Totals:	(A) (B)
1. <i>Phalaris arundinacea</i>	50%	yes	FACW	Prevalence Index = B/A= _____	
2. <i>Juncus effusus</i>	50%	yes	FACW		
3. _____	%			Hydrophytic Vegetation Indicators:	
4. _____	%			<input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
5. _____	%			<input checked="" type="checkbox"/> 2 – Dominance Test is >50%	
6. _____	%			<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
7. _____	%			4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
8. _____	%			<input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup>	
Total Cover:	100%			<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
Woody Vine Stratum (Plot size: 15 ft radius)				<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.	
1. _____	%				
2. _____	%				
Total Cover:	%			Hydrophytic Vegetation Present?	
% Bare Ground in Herb Stratum 0%				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks: The dominance test was met due to over 50% of dominant species being OBL, FACW, or FAC.

SOIL

Sampling Point: 11G

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 5/1	100%		%			silty clay loam	
2-16	10YR 5/1	60%	10YR 4/6	40%	C	M	silty clay loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosal (A1)  
☐ Histic Epipedon (A2)  
  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Minerals (S1)  
☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
  
☐ Loamy Mucky Mineral (F1) (except MLRA 1)  
☐ Loamy Gleyed Matrix (F2)  
☒ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)

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

<sup>3</sup>Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_  
  
Depth (inches): \_\_\_\_\_

Hydric Soil Present?  
  
Yes☒ No☐

Remarks: Hydric soil indicator F3 was met due to a layer having a depleted matrix with 60% or more chroma of 2 or less and is at least 6 inches thick, beginning within 10 inches of the soil surface. A value of 4 or more and a chroma of 2 or less was observed within the soil profile, which is required in a depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators  
(2 or more required)

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

☐ Surface Water (A1)  
☒ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or crust (B4)  
☐ Iron Deposits (B5)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)  
☐ Salt Crust (B11)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☒ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Stunted or Stressed Plants (D1) (LRR A)  
☐ Other (Explain in Remarks)

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

Field Observations:

Surface Water Present? Yes☐ No☒ Depth (Inches): \_\_\_\_\_  
Water Table Present? Yes☒ No☐ Depth (Inches): 10  
Saturation Present? Yes☒ No☐ Depth (Inches): 0  
(Includes Capillary fringe)

Wetland Hydrology Present?  
  
Yes☒ No☐

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

Remarks:Water seeping in at approximately 7 inches. Primary wetland hydrology indicators A2 and A3 were met because both water table and soil saturation were present within 12 inches of the soil surface.



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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 2/29/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 12G  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Convex Slope (%): 0-3%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: MIA, McBee silt loam NWI classification: none  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks: Test plot located within Wetland G. Although hydrophytic vegetation is present, the test plot was determined to not be sampled within a wetland because no wetland hydrology was present within 12 inches of the soil surface, the chroma from 0-12 inches below ground surface in the soil profile is too high, and the layer from 12-18 inches is technically a depleted matrix based on value and chroma, however the layer begins too deep within the soil profile to meet hydric soil specifications of an F3.

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC:	3 (A)
2. _____	%				
3. _____	%			Total Number of Dominant Species Across All Strata:	4 (B)
4. _____	%				
Total Cover:	%			Percent of Dominant Species That Are OBL, FACW, or FAC	75 (A/B)
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				Prevalence Index worksheet	
1. <i>Spiraea douglasii</i>	60%	yes	FACW	Total % Cover of:	Multiply by:
2. <i>Rubus ursinus</i>	15%	yes	FACU	OBL species	x 1=
3. _____	%			FACW species	x 2=
4. _____	%			FAC species	x 3=
5. _____	%			FACU species	x 4=
Total Cover:	75%			UPL species	x 5=
Herb Stratum (Plot size: 5 ft radius)				Column Totals:	(A) (B)
1. <i>Schedonorus arundinaceus</i>	50%	yes	FAC	Prevalence Index = B/A=	
2. _____	%			Hydrophytic Vegetation Indicators:	
3. _____	%			<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
4. _____	%			<input checked="" type="checkbox"/> 2 – Dominance Test is >50%	
5. _____	%			<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
6. _____	%			4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
7. _____	%			<input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup>	
8. _____	%			<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
Total Cover:	50%			<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.	
Woody Vine Stratum (Plot size: 15 ft radius)				Hydrophytic Vegetation Present?	
1. <i>Rubus armeniacus</i>	5%	yes	FAC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. _____	%				
Total Cover:	5%				
% Bare Ground in Herb Stratum 50%					

Remarks: The dominance test was met due to over 50% of dominant species being OBL, FACW, or FAC.

SOIL

Sampling Point: 12G

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/3	100%		%			silty clay loam	
12-18	10YR 4/2	90%	10YR 4/4	10%	C	M	silty clay loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

☐ Histosal (A1)

☐ Sandy Redox (S5)

☐ 2 cm Muck (A10)

☐ Histic Epipedon (A2)

☐ Stripped Matrix (S6)

☐ Red Parent Material (TF2)

☐ Black Histic (A3)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Very Shallow Dark Surface (TF12)

☐ Hydrogen Sulfide (A4)

☐ Loamy Gleyed Matrix (F2)

☐ Other (Explain in Remarks)

☐ Depleted Below Dark Surface (A11)

☐ Depleted Matrix (F3)

☐ Thick Dark Surface (A12)

☐ Redox Dark Surface (F6)

☐ Sandy Mucky Minerals (S1)

☐ Depleted Dark Surface (F7)

☐ Sandy Gleyed Matrix (S4)

☐ Redox Depressions (F8)

<sup>3</sup>Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present?

Yes☐ No☒

Remarks: Hydric soil indicators were not met due to the chroma from 0-12 inches below ground surface in the soil profile having a chroma that is too high. Additionally, the layer from 12-18 inches is technically a depleted matrix based on value and chroma, however the layer begins too deep within the soil profile to meet hydric soil specifications of an F3.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators  
(2 or more required)

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

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC-Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present?

Yes☐ No☒

Water Table Present?

Yes☒ No☐

Saturation Present?

Yes☒ No☐

(Includes Capillary fringe)

Depth (Inches): \_\_\_\_\_

Depth (Inches): 18

Depth (Inches): 16

Wetland Hydrology Present?

Yes☐ No☒

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

Remarks:Although the water table and soil saturation are present, the depth below the soil surface is too deep. For indicators A2 and A3 to be considered wetland hydrology, saturation and/water table must be present within 12 inches of the soil surface.

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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 2/29/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 13G  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Convex Slope (%): 0-3%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: MIA, McBee silt loam NWI classification: none  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Test plot located northeast of the northern portion of Wetland G. Although hydrophytic vegetation and wetland hydrology are present, the test plot was determined to not be sampled within a wetland because the vegetation was not strongly hydrophytic, and soils within this test plot did not meet any hydric soil indicators because they lacked any trace of redoximorphic concentrations.	

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
Total Cover:	%			
<b>Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)</b>				
1. _____	%	_____	_____	<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A= _____
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
Total Cover:	%			
<b>Herb Stratum (Plot size: <u>5</u> ft radius)</b>				
1. <u>Schedonorus arundinaceus</u>	50%	yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data In Remarks or on a separate sheet)  <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Phalaris arundinacea</u>	50%	yes	FACW	
3. <u>Cirsium vulgare</u>	30%	yes	FACU	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
6. _____	%	_____	_____	
7. _____	%	_____	_____	
8. _____	%	_____	_____	
Total Cover:	130%			
<b>Woody Vine Stratum (Plot size: <u>15</u> ft radius)</b>				
1. <u>Rubus armeniacus</u>	20%	yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.
2. _____	%	_____	_____	
Total Cover:	20%			
% Bare Ground in Herb Stratum <u>0%</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The dominance test was met due to over 50% of dominant species being OBL, FACW, or FAC.

SOIL

Sampling Point: 13G

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 3/2	100%		%			silty clay loam	
9-16	10YR 4/2	100%		%			silty clay loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosal (A1)  
☐ Histic Epipedon (A2)  
  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Minerals (S1)  
☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
  
☐ Loamy Mucky Mineral (F1) (except MLRA 1)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)

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

<sup>3</sup>Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):  
  
Type: \_\_\_\_\_  
  
Depth (inches): \_\_\_\_\_

Hydric Soil Present?  
  
Yes☐ No☒

Remarks: Mixed charcoal and rocks. The soils within this test plot did not meet hydric soil indicator F3 because a soil with a value of 4 and chroma of 2 requires redoximorphic concentrations. Additionally, the soils did not meet hydric soil indicator F6 because matrix colors of 3/2 require 5% or more distinct or prominent redoximorphic concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators  
(2 or more required)

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

☐ Surface Water (A1)  
☒ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or crust (B4)  
☐ Iron Deposits (B5)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)  
☐ Salt Crust (B11)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Stunted or Stressed Plants (D1) (LRR A)  
☐ Other (Explain in Remarks)

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

Field Observations:

Wetland Hydrology Present?

Surface Water Present? Yes☐ No☒ Depth (Inches): \_\_\_\_\_  
Water Table Present? Yes☒ No☐ Depth (Inches): 6  
Saturation Present? Yes☒ No☐ Depth (Inches): 2  
(Includes Capillary fringe)

Yes☒ No☐

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

Remarks:Water table and saturation were both present within 12 inches of the soil surface, meeting hydrology indicators A2 and A3.

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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 2/29/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 14G  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Concave Slope (%): 0-3%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: MIA, McBee silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: Test plot located within the northern portion of Wetland G. All three wetland parameters are met, therefore the test plot was sampled within a wetland.	

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
Total Cover:	%			
<b>Sapling/Shrub Stratum (Plot size: 15 ft. radius)</b>				
1. <i>Typha latifolia</i>	80%	yes	OBL	<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A= _____
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
Total Cover:	80%			
<b>Herb Stratum (Plot size: 5 ft radius)</b>				
1. <i>Phalaris arundinacea</i>	100%	yes	FACW	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
6. _____	%	_____	_____	
7. _____	%	_____	_____	
8. _____	%	_____	_____	
Total Cover:	100%			
<b>Woody Vine Stratum (Plot size: 15 ft radius)</b>				
1. _____	%	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.
2. _____	%	_____	_____	
Total Cover:	%			
% Bare Ground in Herb Stratum 0%				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The dominance test was met due to over 50% of dominant species being OBL, FACW, or FAC.

SOIL

Sampling Point: 14G

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/1	100%		%			silty clay loam	
6-16	10YR 5/1	80%	7.5YR 4/6	20%	C	M	clay loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosal (A1)  
☐ Histic Epipedon (A2)  
  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Minerals (S1)  
☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
  
☐ Loamy Mucky Mineral (F1) (except MLRA 1)  
☐ Loamy Gleyed Matrix (F2)  
☒ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)

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

Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_  
  
Depth (inches): \_\_\_\_\_

Hydric Soil Present?  
  
Yes☒ No☐

Remarks: Hydric soil indicator F3 was met due to a layer having a depleted matrix with 60% or more chroma of 2 or less and is at least 6 inches thick, beginning within 10 inches of the soil surface. A depleted matrix requires a value of 4 or more, and a chroma of 2 or less, which was observed within the soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators  
(2 or more required)

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

☐ Surface Water (A1)  
☒ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or crust (B4)  
☐ Iron Deposits (B5)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)  
☐ Salt Crust (B11)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☒ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Stunted or Stressed Plants (D1) (LRR A)  
☐ Other (Explain in Remarks)

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

Field Observations:

Surface Water Present? Yes☐ No☒ Depth (Inches): \_\_\_\_\_  
Water Table Present? Yes☒ No☐ Depth (Inches): 12  
Saturation Present? Yes☒ No☐ Depth (Inches): 0  
(Includes Capillary fringe)

Wetland Hydrology Present?  
  
Yes☒ No☐

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

Remarks:Water table and saturation were both present within 12 inches of the soil surface, meeting hydrology indicators A2 and A3. Additionally, oxidized rhizospheres among living roots were observed, which is a primary wetland hydrology indicator (C3).

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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 3/01/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 15M  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Convex Slope (%): 0-5%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: DoB, Dollar loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: Test plot located adjacent to the southern boundary of Wetland M. Although hydrophytic vegetation and wetland hydrology are present, the test plot was not considered to be contained within a wetland due to the lack of redoximorphic concentrations required to be present within hydric soils with a matrix of 3/1.	

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <i>Quercus garryana</i>	20%	yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
Total Cover:	20%			
<b>Sapling/Shrub Stratum (Plot size: 15 ft. radius)</b>				
1. <i>Oemleria cerasiformis</i>	15%	yes	FACU	<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A= _____
2. <i>Thuja plicata</i>	10%	yes	FAC	
3. <i>Rubus ursinus</i>	5%	no	FACU	
4. _____	%			
5. _____	%			
Total Cover:	30%			
<b>Herb Stratum (Plot size: 5 ft radius)</b>				
1. <i>Phalaris arundinacea</i>	90%	yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data In Remarks or on a separate sheet)  <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
Total Cover:	90%			
<b>Woody Vine Stratum (Plot size: 15 ft radius)</b>				
1. <i>Rubus armeniacus</i>	10%	yes	FAC	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	%			
Total Cover:	10%			
% Bare Ground in Herb Stratum 10%				
Remarks: Trace amount of Corylus cornuta (FACU). The dominance test was met due to over 50% of dominant species being OBL, FACW, or FAC.				

SOIL

Sampling Point: 15M

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/1	100%		%			gravelly clay loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

☐ Histosal (A1)

☐ Sandy Redox (S5)

☐ 2 cm Muck (A10)

☐ Histic Epipedon (A2)

☐ Stripped Matrix (S6)

☐ Red Parent Material (TF2)

☐ Black Histic (A3)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Very Shallow Dark Surface (TF12)

☐ Hydrogen Sulfide (A4)

☐ Loamy Gleyed Matrix (F2)

☐ Other (Explain in Remarks)

☐ Depleted Below Dark Surface (A11)

☐ Depleted Matrix (F3)

☐ Thick Dark Surface (A12)

☐ Redox Dark Surface (F6)

☐ Sandy Mucky Minerals (S1)

☐ Depleted Dark Surface (F7)

☐ Sandy Gleyed Matrix (S4)

☐ Redox Depressions (F8)

<sup>3</sup>Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soils did not meet any of the requirements for hydric soils because although the matrix meets the color criteria of an F6, a matrix of 3/1 requires 2% or more redoximorphic concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators  
(2 or more required)

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

☐ Surface Water (A1)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)

☐ Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☒ High Water Table (A2)

☐ Salt Crust (B11)

☐ Drainage Patterns (B10)

☒ Saturation (A3)

☐ Aquatic Invertebrates (B13)

☐ Dry-Season Water Table (C2)

☐ Water Marks (B1)

☐ Hydrogen Sulfide Odor (C1)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Sediment Deposits (B2)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Geomorphic Position (D2)

☐ Drift Deposits (B3)

☐ Presence of Reduced Iron (C4)

☐ Shallow Aquitard (D3)

☐ Algal Mat or crust (B4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ FAC-Neutral Test (D5)

☐ Iron Deposits (B5)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Surface Soil Cracks (B6)

☐ Other (Explain in Remarks)

☐ Frost-Heave Hummocks (D4)

☐ Inundation Visible on Aerial Imagery (B7)

Field Observations:

Surface Water Present? Yes ☐ No ☒

Water Table Present? Yes ☒ No ☐

Saturation Present? Yes ☒ No ☐

Depth (Inches): \_\_\_\_\_

Depth (Inches): 1

Depth (Inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:Water table and saturation were both present within 12 inches of the soil surface, meeting hydrology indicators A2 and A3.



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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 3/01/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 16M  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Convex Slope (%): 0-5%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: DoB, Dollar loam NWI classification: none  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Test plot located southwest of the most southwestern portion of Wetland M. No wetland indicators were present, therefore the test plot was sampled within an upland area.	

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <i>Quercus garryana</i>	30%	yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC:	3 (A)
2. <i>Pseudotsuga menziesii</i>	30%	yes	FACU	Total Number of Dominant Species Across All Strata:	6 (B)
3. _____	%			Percent of Dominant Species That Are OBL, FACW, or FAC	50 (A/B)
4. _____	%				
Total Cover:	60%				
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				Prevalence Index worksheet	
1. <i>Thuja plicata</i>	20%	yes	FAC	Total % Cover of:	Multiply by:
2. <i>Cornus sericea</i>	15%	yes	FACW	OBL species	x 1=
3. <i>Rubus ursinus</i>	10%	yes	FACU	FACW species	x 2=
4. _____	%			FAC species	x 3=
5. _____	%			FACU species	x 4=
Total Cover:	45%			UPL species	x 5=
Herb Stratum (Plot size: 5 ft radius)				Column Totals:	(A) (B)
1. _____	%			Prevalence Index = B/A=	
2. _____	%			Hydrophytic Vegetation Indicators:	
3. _____	%			<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
4. _____	%			<input type="checkbox"/> 2 – Dominance Test is >50%	
5. _____	%			<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
6. _____	%			4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
7. _____	%			<input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup>	
8. _____	%			<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
Total Cover:	%			<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.	
Woody Vine Stratum (Plot size: 15 ft radius)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
1. <i>Rubus armeniacus</i>	90%	yes	FAC		
2. _____	%				
Total Cover:	90%				
% Bare Ground in Herb Stratum 100%					

Remarks: Trace amount of *Phalaris arundinacea* (FACW). Hydrophytic vegetation is not present because only 50% of dominant species are OBL, FACW, or FAC.

SOIL

Sampling Point: 16M

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/2	100%		%			gravelly clay loam	
8-16	10YR 3/3	99%	7.5YR 4/6	1%	C	M	gravelly clay loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

☐ Histosal (A1)

☐ Sandy Redox (S5)

☐ 2 cm Muck (A10)

☐ Histic Epipedon (A2)

☐ Stripped Matrix (S6)

☐ Red Parent Material (TF2)

☐ Black Histic (A3)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Very Shallow Dark Surface (TF12)

☐ Hydrogen Sulfide (A4)

☐ Loamy Gleyed Matrix (F2)

☐ Other (Explain in Remarks)

☐ Depleted Below Dark Surface (A11)

☐ Depleted Matrix (F3)

☐ Thick Dark Surface (A12)

☐ Redox Dark Surface (F6)

☐ Sandy Mucky Minerals (S1)

☐ Depleted Dark Surface (F7)

☐ Sandy Gleyed Matrix (S4)

☐ Redox Depressions (F8)

<sup>3</sup>Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☐ No ☒

Remarks:No hydric soil indicators were met because a matrix of 3/2 requires 5% or more redoximorphic concentrations, in which none were observed. The layer from 8-16 inches has a chroma that is too high to meet any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators  
(2 or more required)

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

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC-Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present? Yes ☐ No ☒

Water Table Present? Yes ☐ No ☒

Saturation Present? Yes ☐ No ☒

Depth (Inches): \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:No wetland hydrology was observed at or near this test plot.

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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 3/01/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 17B  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Concave Slope (%): 0-5%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: DoB, Dollar loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Remarks: Test plot located within the southern portion of Wetland B. All three wetland parameters are met, therefore the test plot was sampled within a wetland.				

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <i>Fraxinus latifolia</i>	30%	yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:	6 (A)
2. _____	%				
3. _____	%				
4. _____	%			Total Number of Dominant Species Across All Strata:	6 (B)
Total Cover:	30%			Percent of Dominant Species That Are OBL, FACW, or FAC	100 (A/B)
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				Prevalence Index worksheet	
1. <i>Oenanth sarmentosa</i>	15%	yes	OBL	Total % Cover of:	Multiply by:
2. <i>Rosa pisocarpa</i>	10%	yes	FAC	OBL species	x 1=
3. <i>Rubus ursinus</i>	5%	no	FACU	FACW species	x 2=
4. <i>Populus trichocarpa</i>	5%	no	FAC	FAC species	x 3=
5. _____	%			FACU species	x 4=
Total Cover:	35%			UPL species	x 5=
Herb Stratum (Plot size: 5 ft radius)				Column Totals:	(A) (B)
1. <i>Juncus sp.</i>	10%	yes	FAC	Prevalence Index = B/A=	
2. <i>Rumex sp.</i>	5%	yes	FAC	Hydrophytic Vegetation Indicators:	
3. _____	%			<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
4. _____	%			<input checked="" type="checkbox"/> 2 – Dominance Test is >50%	
5. _____	%			<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
6. _____	%			4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
7. _____	%			<input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup>	
8. _____	%			<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
Total Cover:	15%			<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.	
Woody Vine Stratum (Plot size: 15 ft radius)				Hydrophytic Vegetation Present?	
1. <i>Rubus armeniacus</i>	10%	yes	FAC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. _____	%				
Total Cover:	10%				
% Bare Ground in Herb Stratum 85%					

Remarks: 20% of bare ground was covered in moss. The dominance test was met due to over 50% of dominant species being OBL, FACW, or FAC.

SOIL

Sampling Point: 17B

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	95%	5YR 4/6	5%	C	RC	sandy silt loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosal (A1)  
☐ Histic Epipedon (A2)  
  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Minerals (S1)  
☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
  
☐ Loamy Mucky Mineral (F1) (except MLRA 1)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☒ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)

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

<sup>3</sup>Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present?  
Yes☒ No☐

Remarks: Hydric soil indicator F6 was met because the layer was at least 4 inches thick within the upper 12 inches of the soil, and had a matrix value of 3 or less, and a chroma of 2 or less, with 5% or more distinct or prominent redox concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators  
(2 or more required)

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

☒ Surface Water (A1)  
☐ High Water Table (A2)  
☒ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or crust (B4)  
☐ Iron Deposits (B5)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)  
☐ Salt Crust (B11)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Tilled Soils (C6)  
☐ Stunted or Stressed Plants (D1) (LRR A)  
☐ Other (Explain in Remarks)

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

Field Observations:

Surface Water Present? Yes☐ No☒ Depth (Inches): \_\_\_\_\_  
Water Table Present? Yes☒ No☐ Depth (Inches): 4-6  
Saturation Present? Yes☒ No☐ Depth (Inches): 0  
(Includes Capillary fringe)

Wetland Hydrology Present?  
Yes☒ No☐

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

Remarks:Water table and saturation were both present within 12 inches of the soil surface, meeting hydrology indicators A2 and A3.

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

Project/Site: Green Mountain PRD City/County: Camas/Clark Sampling Date: 3/01/2016  
 Applicant/Owner: Green Mountain Land, LLC State: WA Sampling Point: 18B  
 Investigator(s): M. McGrath, F. Naglich, J. Madriz, L. Hoffmann Section, Township, Range: 20, 2N, 3E  
 Landform (hillslope, terrace, etc.): footslope Local relief: Convex Slope (%): 0-5%  
 Subregion (LRR): A2 Lat: 45.6471 Long: -122.4560 Datum: NAD83  
 Soil Map Unit Name: DoB, Dollar loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Area "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Test plot located north of Wetland B. No wetland indicators were present, therefore the test plot was sampled within an upland area.	

## VEGETATION (Use scientific names)

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <i>Populus trichocarpa</i>	70%	yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>6</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>16</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
Total Cover: 70%				
				<b>Prevalence Index worksheet</b>
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				Total % Cover of: _____ Multiply by: _____
1. <i>Gaultheria shallon</i>	30%	yes	FACU	OBL species _____ x 1= _____
2. <i>Rubus ursinus</i>	30%	yes	FACU	FACW species _____ x 2= _____
3. <i>Symphoricarpos albus</i>	20%	yes	FACU	FAC species _____ x 3= _____
4. <i>Acer circinatum</i>	15%	no	FAC	FACU species _____ x 4= _____
5. <i>Oemleria cerasiformis</i>	5%	no	FACU	UPL species _____ x 5= _____
Total Cover: 100%				Column Totals: (A) _____ (B) _____ Prevalence Index = B/A = _____
Herb Stratum (Plot size: 5 ft radius)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data In Remarks or on a separate sheet)  <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <i>Polystichum munitum</i>	30%	yes	FACU	
2. <i>Galium aparine</i>	25%	yes	FACU	
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
Total Cover: 55%				
Woody Vine Stratum (Plot size: 15 ft radius)				<sup>1</sup> Indicators of hydric soil and wetland hydrology Must be present, unless disturbed or problematic.
1. _____	%			
2. _____	%			
Total Cover: %				
% Bare Ground in Herb Stratum 45%				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Hydrophytic vegetation is not present because the number of OBL, FACW, and FAC plant observed within the vicinity of the test plot was less than 50% of the dominant vegetation present.				

SOIL

Sampling Point: 18B

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/3	100%		%			silty loam	
12-16	10YR 3/3	95%	10YR 4/6	5%	C	M	silty loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosol (A1)

☐ Sandy Redox (S5)

☐ 2 cm Muck (A10)

☐ Histic Epipedon (A2)

☐ Stripped Matrix (S6)

☐ Red Parent Material (TF2)

☐ Black Histic (A3)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Very Shallow Dark Surface (TF12)

☐ Hydrogen Sulfide (A4)

☐ Loamy Gleyed Matrix (F2)

☐ Other (Explain in Remarks)

☐ Depleted Below Dark Surface (A11)

☐ Depleted Matrix (F3)

☐ Thick Dark Surface (A12)

☐ Redox Dark Surface (F6)

☐ Sandy Mucky Minerals (S1)

☐ Depleted Dark Surface (F7)

☐ Sandy Gleyed Matrix (S4)

☐ Redox Depressions (F8)

<sup>3</sup>Indicators of hydrophytic vegetation and Wetland hydrology must be present

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present?

Yes☐ No☒

Remarks: No hydric soil indicators were met within the soil profile because the chroma of the sample was too high.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators  
(2 or more required)

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

☐ Surface Water (A1)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, & 4B)

☐ Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ High Water Table (A2)

☐ Salt Crust (B11)

☐ Drainage Patterns (B10)

☐ Saturation (A3)

☐ Aquatic Invertebrates (B13)

☐ Dry-Season Water Table (C2)

☐ Water Marks (B1)

☐ Hydrogen Sulfide Odor (C1)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Sediment Deposits (B2)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Geomorphic Position (D2)

☐ Drift Deposits (B3)

☐ Presence of Reduced Iron (C4)

☐ Shallow Aquitard (D3)

☐ Algal Mat or crust (B4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ FAC-Neutral Test (D5)

☐ Iron Deposits (B5)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Surface Soil Cracks (B6)

☐ Other (Explain in Remarks)

☐ Frost-Heave Hummocks (D4)

☐ Inundation Visible on Aerial Imagery (B7)

Field Observations:

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

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

Saturation Present? Yes☐ No☒ Depth (Inches): \_\_\_\_\_

(Includes Capillary fringe)

Wetland Hydrology Present?

Yes☐ No☒

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

Remarks:No indicators of wetland hydrology were observed at or near the test plot.

## **Appendix B**

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Wetland Rating Forms for Western Washington (2014 Rating System)

Wetland Rating Figure 1      150' Offset – South

Wetland Rating Figure 2      1 KM Offset – South

Wetland Rating Figure 3      150' Offset – North

Wetland Rating Figure 4      1 KM Offset – North

Wetland Rating Figure 5      303(d) Listed Waters and TMDLs for WRIA

Wetland name or number J

## RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland J Date of site visit: 2/29/2016 & 3/01/2016

Rated by J. Madriz, L. Hoffmann, and M. McGrath Trained by Ecology? Yes Date of training 09/2015

HGM Class used for rating Slope Wetland has multiple HGM classes? Y x N

**NOTE: Form is not complete without the figures requested (figures can be combined).**

Source of base aerial photo/map Google Earth (2015)

**OVERALL WETLAND CATEGORY III** (based on functions x or special characteristics   )

### 1. Category of wetland based on FUNCTIONS

       Category I – Total score = 23 – 27

       Category II – Total score = 20 – 22

  X   Category III – Total score = 16 – 19

       Category IV – Total score = 9 – 15

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

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

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	N/A



Wetland name or number J\_\_\_\_\_

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

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

### Riverine Wetlands

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

### Lake Fringe Wetlands

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

### Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	1
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	1
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	1
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5a
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	5b

## HGM Classification of Wetlands in Western Washington

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

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

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

**NO** – go to 2

**YES** – the wetland class is **Tidal Fringe** – go to 1.1

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

**NO** – Saltwater Tidal Fringe (Estuarine)

**YES** – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

**NO** – go to 3

**YES** – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;  
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

**NO** – go to 4

**YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- ☒ The wetland is on a slope (*slope can be very gradual*),  
☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,  
☒ The water leaves the wetland **without being impounded**.

**NO** – go to 5

**YES** – The wetland class is **Slope**

**NOTE:** Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,  
☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number J

NO – go to 6

YES – The wetland class is **Riverine** **NOTE:**

The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

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

Wetland name or number J

<b>SLOPE WETLANDS</b>	
<b>Water Quality Functions</b> - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i> Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	<b>2</b>
S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic <i>(use NRCS definitions)</i> : Yes = 3 No = 0	<b>0</b>
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	<b>3</b>
Total for S 1	Add the points in the boxes above <b>5</b>

**Rating of Site Potential** If score is: 12 = H 6-11 = M x 0-5 = L

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	<b>1</b>
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources Yes = 1 No = 0	<b>0</b>
Total for S 2	Add the points in the boxes above <b>1</b>

**Rating of Landscape Potential** If score is: x 1-2 = M 0 = L

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	<b>1</b>
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i> Yes = 1 No = 0	<b>1</b>
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the basin in which unit is found.</i> Yes = 2 No = 0	<b>2</b>
Total for S 3	Add the points in the boxes above <b>4</b>

**Rating of Value** If score is: x 2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number J

<b>SLOPE WETLANDS</b>	
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and stream erosion	
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually <math>&gt; \frac{1}{8}</math> in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, <b>rigid</b> plants cover > 90% of the area of the wetland All other conditions	<b>0</b>  points = 1 points = 0

**Rating of Site Potential** If score is: 1 = M x 0 = L

Record the rating on the first page

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	<b>1</b>  Yes = 1 No = 0

**Rating of Landscape Potential** If score is: x 1 = M 0 = L

Record the rating on the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	<b>1</b>  points = 2 points = 1 points = 0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	<b>0</b>  Yes = 2 No = 0
Total for S 6	<b>1</b>  Add the points in the boxes above

**Rating of Value** If score is: 2-4 = H x 1 = M 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

Wetland name or number J

**These questions apply to wetlands of all HGM classes.**

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

**H 1.0. Does the site have the potential to provide habitat?**

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- |   |                                  |          |
|---|----------------------------------|----------|
| <input type="checkbox"/> Aquatic bed  | 4 structures or more: points = 4 | <b>1</b> |
| <input checked="" type="checkbox"/> Emergent  | 3 structures: points = 2         |          |
| <input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover)   | 2 structures: points = 1         |          |
| <input type="checkbox"/> Forested (areas where trees have > 30% cover)  | 1 structure: points = 0          |          |
| <i>If the unit has a Forested class, check if:</i>  |                                  |          |
| <input type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon |                                  |          |

**H 1.2. Hydroperiods**

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

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

**H 1.3. Richness of plant species**

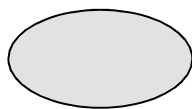
Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

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

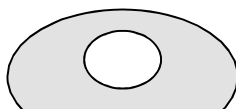
- |                              |            |          |
|------------------------------|------------|----------|
| If you counted: > 19 species | points = 2 | <b>1</b> |
| 5 - 19 species               | points = 1 |          |
| < 5 species                  | points = 0 |          |

**H 1.4. Interspersion of habitats**

Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



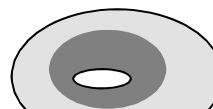
**None** = 0 points



**Low** = 1 point

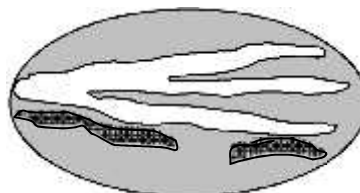
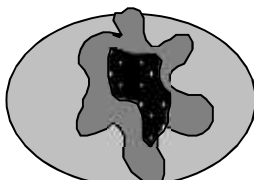
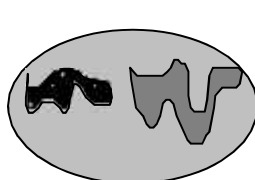


**Moderate** = 2 points



**1**

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



Wetland name or number J

<b>H 1.5. Special habitat features:</b> Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present ( <i>cut shrubs or trees that have not yet weathered where wood is exposed</i> ) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated ( <i>structures for egg-laying by amphibians</i> ) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants ( <i>see H 1.1 for list of strata</i> )		0
Total for H 1	Add the points in the boxes above	4

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

**H 2.0. Does the landscape have the potential to support the habitat functions of the site?**

<b>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</b> <i>Calculate:</i> % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>0</u> % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0		0
<b>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</b> <i>Calculate:</i> % undisturbed habitat <u>43</u> + [(% moderate and low intensity land uses)/2] <u>10</u> = <u>53</u> % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0		3
<b>H 2.3. Land use intensity in 1 km Polygon: If</b> > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0		0
Total for H 2	Add the points in the boxes above	4

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

**H 3.0. Is the habitat provided by the site valuable to society?**

**H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score that applies to the wetland being rated.**

Site meets ANY of the following criteria: points = 2

- ☐ It has 3 or more priority habitats within 100 m (see next page)
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- ☐ It is mapped as a location for an individual WDFW priority species
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

X Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1

Site does not meet any of the criteria above points = 0

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

Wetland name or number J

## WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.



Wetland name or number J

### **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<b>SC 1.0. Estuarine wetlands</b> 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 <div style="text-align: right;">Yes – Go to <b>SC 1.1</b>    <b>No = Not an estuarine wetland</b></div>	
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? <div style="text-align: right;">Yes = <b>Category I</b>    No - Go to <b>SC 1.2</b></div>	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <div style="text-align: right;">Yes = <b>Category I</b>    No = <b>Category II</b></div>	Cat. I  Cat. II
<b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b> SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <div style="text-align: right;">Yes – Go to <b>SC 2.2</b>    <b>No – Go to SC 2.3</b></div> SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <div style="text-align: right;">Yes = <b>Category I</b>    No = <b>Not a WHCV</b></div> SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a> <div style="text-align: right;">Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b>    <b>No = Not a WHCV</b></div> SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <div style="text-align: right;">Yes = <b>Category I</b>    No = <b>Not a WHCV</b></div>	Cat. I
<b>SC 3.0. Bogs</b> Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <div style="text-align: right;">Yes – Go to <b>SC 3.3</b>    <b>No – Go to SC 3.2</b></div> SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <div style="text-align: right;">Yes – Go to <b>SC 3.3</b>    <b>No = Is not a bog</b></div> SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <div style="text-align: right;">Yes = <b>Is a Category I bog</b>    No – Go to <b>SC 3.4</b></div> <b>NOTE:</b> If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <div style="text-align: right;">Yes = <b>Is a Category I bog</b>    No = <b>Is not a bog</b></div>	Cat. I

Wetland name or number J\_\_\_\_\_

<p><b>SC 4.0. Forested Wetlands</b></p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <b><i>If you answer YES you will still need to rate the wetland based on its functions.</i></b></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests</b> (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</li> <li>— <b>Mature forests</b> (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</li> </ul> <p>Yes = <b>Category I</b>    <b>No = Not a forested wetland for this section</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 5.0. Wetlands in Coastal Lagoons</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— 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</li> <li>— The lagoon in which the wetland is located contains ponded water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p>Yes – Go to <b>SC 5.1</b>    <b>No = Not a wetland in a coastal lagoon</b></p> <p><b>SC 5.1. Does the wetland meet all of the following three conditions?</b></p> <ul style="list-style-type: none"> <li>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</li> <li>— The wetland is larger than 1/10 ac (4350 ft<sup>2</sup>)</li> </ul> <p>Yes = <b>Category I</b>    No = <b>Category II</b></p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p>
<p><b>SC 6.0. Interdunal Wetlands</b></p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <b><i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></b></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>— Long Beach Peninsula: Lands west of SR 103</li> <li>— Grayland-Westport: Lands west of SR 105</li> <li>— Ocean Shores-Copalis: Lands west of SR 115 and SR 109</li> </ul> <p>Yes – Go to <b>SC 6.1</b>    <b>No = Not an interdunal wetland for rating</b></p> <p><b>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</b> Yes = <b>Category I</b>    No – Go to <b>SC 6.2</b></p> <p><b>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</b> Yes = <b>Category II</b>    No – Go to <b>SC 6.3</b></p> <p><b>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</b> Yes = <b>Category III</b>    No = <b>Category IV</b></p>	<p><b>Cat I</b></p> <p><b>Cat. II</b></p> <p><b>Cat. III</b></p> <p><b>Cat. IV</b></p>
<p><b>Category of wetland based on Special Characteristics</b></p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>N/A</p>

Wetland name or number   J  

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Wetland name or number L

## RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland L Date of site visit: 2/29/2016 & 3/01/2016

Rated by J. Madriz, L. Hoffmann, and M. McGrath Trained by Ecology? Yes Date of training 09/2015

HGM Class used for rating Slope Wetland has multiple HGM classes? Y x N

**NOTE: Form is not complete without the figures requested (figures can be combined).**

Source of base aerial photo/map Google Earth (2015)

**OVERALL WETLAND CATEGORY III** (based on functions x or special characteristics   )

### 1. Category of wetland based on FUNCTIONS

       Category I – Total score = 23 – 27

       Category II – Total score = 20 – 22

  X   Category III – Total score = 16 – 19

       Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	L	L	L	
Landscape Potential	M	M	M	
Value	H	M	M	<b>TOTAL</b>
Score Based on Ratings	6	5	5	16

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

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I      II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I      II
Interdunal	I   II   III   IV
None of the above	N/A

Wetland name or number L

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

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

### Riverine Wetlands

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

### Lake Fringe Wetlands

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

### Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	1
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	1
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	1
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5a
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	5b

## HGM Classification of Wetlands in Western Washington

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

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

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

**NO** – go to 2

**YES** – the wetland class is **Tidal Fringe** – go to 1.1

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

**NO** – Saltwater Tidal Fringe (Estuarine)

**YES** – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

**NO** – go to 3

**YES** – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;  
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

**NO** – go to 4

**YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- ☒ The wetland is on a slope (*slope can be very gradual*),  
☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,  
☒ The water leaves the wetland **without being impounded**.

**NO** – go to 5

**YES** – The wetland class is **Slope**

**NOTE:** Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,  
☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number   L  

NO – go to 6

YES – The wetland class is **Riverine** **NOTE:**

The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

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

Wetland name or number  L

<b>SLOPE WETLANDS</b> <b>Water Quality Functions</b> - Indicators that the site functions to improve water quality		
S 1.0. Does the site have the potential to improve water quality?		
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i> Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0		<b>2</b>
S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic <i>(use NRCS definitions)</i> : Yes = 3 No = 0		<b>0</b>
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0		<b>3</b>
Total for S 1 Add the points in the boxes above		<b>5</b>

**Rating of Site Potential** If score is:  12  = H  6-11  = M  x 0-5  = L

*Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0		<b>1</b>
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources Yes = 1 No = 0		<b>0</b>
Total for S 2 Add the points in the boxes above		<b>1</b>

**Rating of Landscape Potential** If score is:  x 1-2  = M  0  = L

*Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?		
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0		<b>1</b>
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i> Yes = 1 No = 0		<b>1</b>
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the basin in which unit is found.</i> Yes = 2 No = 0		<b>2</b>
Total for S 3 Add the points in the boxes above		<b>4</b>

**Rating of Value** If score is:  x 2-4  = H  1  = M  0  = L

*Record the rating on the first page*



Wetland name or number L

<b><u>SLOPE WETLANDS</u></b>	
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and stream erosion	
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually &gt; <math>\frac{1}{8}</math> in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, <b>rigid</b> plants cover > 90% of the area of the wetland All other conditions	<b>0</b>  points = 1 points = 0

**Rating of Site Potential** If score is: 1 = M x 0 = L

Record the rating on the first page

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	<b>1</b>  Yes = 1 No = 0

**Rating of Landscape Potential** If score is: x 1 = M 0 = L

Record the rating on the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	<b>1</b>  points = 2 points = 1 points = 0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	<b>0</b>  Yes = 2 No = 0
Total for S 6	<b>1</b>  Add the points in the boxes above

**Rating of Value** If score is: 2-4 = H x 1 = M 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

Wetland name or number L

**These questions apply to wetlands of all HGM classes.**

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

**H 1.0. Does the site have the potential to provide habitat?**

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- |   |                                  |          |
|---|----------------------------------|----------|
| <input type="checkbox"/> Aquatic bed  | 4 structures or more: points = 4 | <b>1</b> |
| <input checked="" type="checkbox"/> Emergent  | 3 structures: points = 2         |          |
| <input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover)   | 2 structures: points = 1         |          |
| <input type="checkbox"/> Forested (areas where trees have > 30% cover)  | 1 structure: points = 0          |          |
| <i>If the unit has a Forested class, check if:</i>  |                                  |          |
| <input type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon |                                  |          |

**H 1.2. Hydroperiods**

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

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

**H 1.3. Richness of plant species**

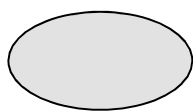
Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

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

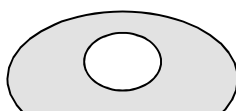
- |                              |            |          |
|------------------------------|------------|----------|
| If you counted: > 19 species | points = 2 | <b>1</b> |
| 5 - 19 species               | points = 1 |          |
| < 5 species                  | points = 0 |          |

**H 1.4. Interspersion of habitats**

Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



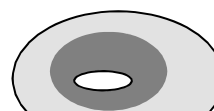
**None** = 0 points



**Low** = 1 point

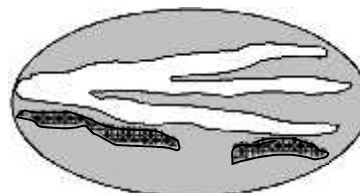
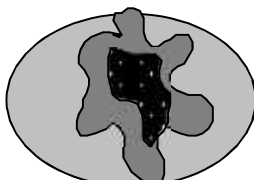
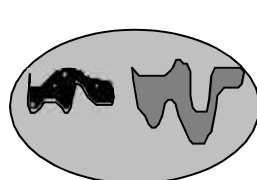


**Moderate** = 2 points



**1**

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



Wetland name or number L

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

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?

<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>0</u> %</p> <p>If total accessible habitat is:</p> <p>&gt; 1/3 (33.3%) of 1 km Polygon <span style="float: right;">points = 3</span></p> <p>20-33% of 1 km Polygon <span style="float: right;">points = 2</span></p> <p>10-19% of 1 km Polygon <span style="float: right;">points = 1</span></p> <p>&lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></p>		0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat <u>45</u> + [(% moderate and low intensity land uses)/2] <u>9.5</u> = <u>54.5</u> %</p> <p>Undisturbed habitat &gt; 50% of Polygon <span style="float: right;">points = 3</span></p> <p>Undisturbed habitat 10-50% and in 1-3 patches <span style="float: right;">points = 2</span></p> <p>Undisturbed habitat 10-50% and &gt; 3 patches <span style="float: right;">points = 1</span></p> <p>Undisturbed habitat &lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></p>		3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>&gt; 50% of 1 km Polygon is high intensity land use <span style="float: right;">points = (- 2)</span></p> <p>≤ 50% of 1 km Polygon is high intensity <span style="float: right;">points = 0</span></p>		0
Total for H 2	Add the points in the boxes above	3

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

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: points = 2

- ☐ It has 3 or more priority habitats within 100 m (see next page)
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- ☐ It is mapped as a location for an individual WDFW priority species
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan
- ☒ Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1

Site does not meet any of the criteria above points = 0

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

Wetland name or number   L  

## WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☒ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number L

### **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<b>SC 1.0. Estuarine wetlands</b> 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 <div style="text-align: right;">Yes – Go to <b>SC 1.1</b>    <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">No = <b>Not an estuarine wetland</b></span></div>	
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? <div style="text-align: right;">Yes = <b>Category I</b>    No - Go to <b>SC 1.2</b></div>	<b>Cat. I</b>
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <div style="text-align: right;">Yes = <b>Category I</b>    No = <b>Category II</b></div>	<b>Cat. I</b>  <b>Cat. II</b>
<b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b> SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <div style="text-align: right;">Yes – Go to <b>SC 2.2</b>    <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">No – Go to <b>SC 2.3</b></span></div> SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <div style="text-align: right;">Yes = <b>Category I</b>    No = <b>Not a WHCV</b></div> SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a> <div style="text-align: right;">Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b>    <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">No = <b>Not a WHCV</b></span></div> SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <div style="text-align: right;">Yes = <b>Category I</b>    No = <b>Not a WHCV</b></div>	<b>Cat. I</b>
<b>SC 3.0. Bogs</b> Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <div style="text-align: right;">Yes – Go to <b>SC 3.3</b>    <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">No – Go to <b>SC 3.2</b></span></div> SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <div style="text-align: right;">Yes – Go to <b>SC 3.3</b>    <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">No = <b>Is not a bog</b></span></div> SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <div style="text-align: right;">Yes = <b>Is a Category I bog</b>    No – Go to <b>SC 3.4</b></div> <p><b>NOTE:</b> If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <div style="text-align: right;">Yes = <b>Is a Category I bog</b>    No = <b>Is not a bog</b></div>	<b>Cat. I</b>

Wetland name or number L

<p><b>SC 4.0. Forested Wetlands</b></p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <b><i>If you answer YES you will still need to rate the wetland based on its functions.</i></b></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests</b> (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</li> <li>— <b>Mature forests</b> (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</li> </ul> <p>Yes = <b>Category I</b>    <b>No = Not a forested wetland for this section</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 5.0. Wetlands in Coastal Lagoons</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— 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</li> <li>— The lagoon in which the wetland is located contains ponded water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p>Yes – Go to <b>SC 5.1</b>    <b>No = Not a wetland in a coastal lagoon</b></p> <p><b>SC 5.1. Does the wetland meet all of the following three conditions?</b></p> <ul style="list-style-type: none"> <li>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</li> <li>— The wetland is larger than 1/10 ac (4350 ft<sup>2</sup>)</li> </ul> <p>Yes = <b>Category I</b>    No = <b>Category II</b></p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p>
<p><b>SC 6.0. Interdunal Wetlands</b></p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <b><i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></b></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>— Long Beach Peninsula: Lands west of SR 103</li> <li>— Grayland-Westport: Lands west of SR 105</li> <li>— Ocean Shores-Copalis: Lands west of SR 115 and SR 109</li> </ul> <p>Yes – Go to <b>SC 6.1</b>    <b>No = not an interdunal wetland for rating</b></p> <p><b>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</b> Yes = <b>Category I</b>    No – Go to <b>SC 6.2</b></p> <p><b>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</b> Yes = <b>Category II</b>    No – Go to <b>SC 6.3</b></p> <p><b>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</b> Yes = <b>Category III</b>    No = <b>Category IV</b></p>	<p><b>Cat I</b></p> <p><b>Cat. II</b></p> <p><b>Cat. III</b></p> <p><b>Cat. IV</b></p>
<p><b>Category of wetland based on Special Characteristics</b></p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>N/A</p>

Wetland name or number L

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Wetland name or number M

## RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland M Date of site visit: 2/29/2016 & 3/01/2016  
Rated by J. Madriz, L. Hoffmann, and M. McGrath Trained by Ecology? Yes Date of training 09/2015  
HGM Class used for rating Slope Wetland has multiple HGM classes? Y x N

**NOTE: Form is not complete without the figures requested (figures can be combined).**

Source of base aerial photo/map Google Earth (2015)

**OVERALL WETLAND CATEGORY III** (based on functions x or special characteristics   )

### 1. Category of wetland based on FUNCTIONS

       Category I – Total score = 23 – 27

       Category II – Total score = 20 – 22

  X   Category III – Total score = 16 – 19

       Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Circle the appropriate ratings				
Site Potential	L	M	L	
Landscape Potential	L	L	H	
Value	H	M	M	
Score Based on Ratings	5	5	6	<b>TOTAL</b> <b>16</b>

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

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

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I      II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I      II
Interdunal	I II III IV
None of the above	N/A



Wetland name or number M

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

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

### Riverine Wetlands

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

### Lake Fringe Wetlands

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

### Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	3
Hydroperiods	H 1.2	3
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	3
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5a
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	5b

## HGM Classification of Wetlands in Western Washington

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

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

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

**NO** – go to 2

**YES** – the wetland class is **Tidal Fringe** – go to 1.1

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

**NO** – Saltwater Tidal Fringe (Estuarine)

**YES** – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

**NO** – go to 3

**YES** – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;  
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

**NO** – go to 4

**YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- ☒ The wetland is on a slope (*slope can be very gradual*),  
☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,  
☒ The water leaves the wetland **without being impounded**.

**NO** – go to 5

**YES** – The wetland class is **Slope**

**NOTE:** Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,  
☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number   M  

NO – go to 6

YES – The wetland class is **Riverine** **NOTE:**

The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

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

Wetland name or number   M  

<b>SLOPE WETLANDS</b>		
<b>Water Quality Functions - Indicators that the site functions to improve water quality</b>		
S 1.0. Does the site have the potential to improve water quality?		
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i> Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0		<b>2</b>
S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic <i>(use NRCS definitions)</i> : Yes = 3 No = 0		<b>0</b>
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0		<b>3</b>
Total for S 1 Add the points in the boxes above		<b>5</b>

**Rating of Site Potential** If score is:   12   = H   6-11   = M   x   0-5 = L

*Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0		<b>0</b>
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources Yes = 1 No = 0		<b>0</b>
Total for S 2 Add the points in the boxes above		<b>0</b>

**Rating of Landscape Potential** If score is:   1-2   = M   x   0 = L

*Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?		
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0		<b>1</b>
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i> Yes = 1 No = 0		<b>1</b>
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the basin in which unit is found.</i> Yes = 2 No = 0		<b>2</b>
Total for S 3 Add the points in the boxes above		<b>4</b>

**Rating of Value** If score is:   x   2-4 = H   1   = M   0   = L

*Record the rating on the first page*

Wetland name or number   M  

<b><u>SLOPE WETLANDS</u></b>	
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and stream erosion	
<b>S 4.0. Does the site have the potential to reduce flooding and stream erosion?</b>	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually &gt; <math>\frac{1}{8}</math> in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, <b>rigid</b> plants cover > 90% of the area of the wetland All other conditions	<b>1</b>  points = 1 points = 0

**Rating of Site Potential** If score is:   x   **1** = M    **0** = L

*Record the rating on the first page*

<b>S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?</b>	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? <div style="text-align: right;">Yes = 1    No = 0</div>	<b>0</b>

**Rating of Landscape Potential** If score is:    **1** = M   x   **0** = L

*Record the rating on the first page*

<b>S 6.0. Are the hydrologic functions provided by the site valuable to society?</b>	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	<b>1</b>  points = 2 points = 1 points = 0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? <div style="text-align: right;">Yes = 2    No = 0</div>	<b>0</b>
Total for S 6 <div style="text-align: right;">Add the points in the boxes above</div>	<b>1</b>

**Rating of Value** If score is:    **2-4** = H   x   **1** = M    **0** = L

*Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number   M  

**These questions apply to wetlands of all HGM classes.**

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

**H 1.0. Does the site have the potential to provide habitat?**

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- |   |                                  |          |
|---|----------------------------------|----------|
| <input type="checkbox"/> Aquatic bed  | 4 structures or more: points = 4 | <b>1</b> |
| <input type="checkbox"/> Emergent   | 3 structures: points = 2         |          |
| <input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover)   | 2 structures: points = 1         |          |
| <input checked="" type="checkbox"/> Forested (areas where trees have > 30% cover)   | 1 structure: points = 0          |          |
| <i>If the unit has a Forested class, check if:</i>  |                                  |          |
| <input type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon |                                  |          |

**H 1.2. Hydroperiods**

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

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

**H 1.3. Richness of plant species**

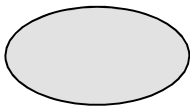
Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

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

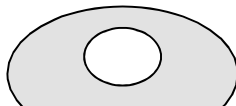
- |                              |            |          |
|------------------------------|------------|----------|
| If you counted: > 19 species | points = 2 | <b>1</b> |
| 5 - 19 species               | points = 1 |          |
| < 5 species                  | points = 0 |          |

**H 1.4. Interspersion of habitats**

Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



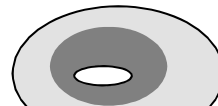
**None = 0 points**



**Low = 1 point**

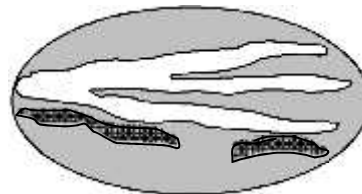
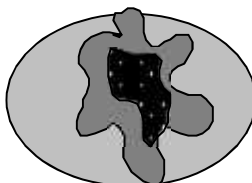
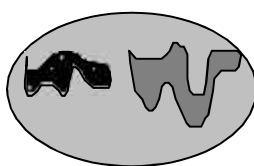


**Moderate = 2 points**



**1**

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



Wetland name or number   M  

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (&gt; 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh &gt; 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		0
Total for H 1	Add the points in the boxes above	3

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

**H 2.0. Does the landscape have the potential to support the habitat functions of the site?**

<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i>           % undisturbed habitat <u>  28  </u> + [(% moderate and low intensity land uses)/2] <u>  10.5  </u> = <u>  38.5  </u>%</p> <p>If total accessible habitat is:</p> <p>&gt; 1/3 (33.3%) of 1 km Polygon <span style="float: right;">points = 3</span></p> <p>20-33% of 1 km Polygon <span style="float: right;">points = 2</span></p> <p>10-19% of 1 km Polygon <span style="float: right;">points = 1</span></p> <p>&lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></p>		3
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i>           % undisturbed habitat <u>  65  </u> + [(% moderate and low intensity land uses)/2] <u>  10.5  </u> = <u>  70.5  </u>%</p> <p>Undisturbed habitat &gt; 50% of Polygon <span style="float: right;">points = 3</span></p> <p>Undisturbed habitat 10-50% and in 1-3 patches <span style="float: right;">points = 2</span></p> <p>Undisturbed habitat 10-50% and &gt; 3 patches <span style="float: right;">points = 1</span></p> <p>Undisturbed habitat &lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></p>		3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>&gt; 50% of 1 km Polygon is high intensity land use <span style="float: right;">points = (- 2)</span></p> <p>≤ 50% of 1 km Polygon is high intensity <span style="float: right;">points = 0</span></p>		0
Total for H 2	Add the points in the boxes above	6

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

**H 3.0. Is the habitat provided by the site valuable to society?**

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: points = 2

- ☐ It has 3 or more priority habitats within 100 m (see next page)
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- ☐ It is mapped as a location for an individual WDFW priority species
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan
- X   Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1

Site does not meet any of the criteria above points = 0

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

Wetland name or number   M  

## WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☒ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☒ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.



Wetland name or number   M  

### **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<b>SC 1.0. Estuarine wetlands</b> 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 <div style="text-align: right;">             Yes – Go to <b>SC 1.1</b>    <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">No = <b>Not an estuarine wetland</b></span> </div>	
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? <div style="text-align: right;">             Yes = <b>Category I</b>    No - Go to <b>SC 1.2</b> </div>	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <div style="text-align: right;">             Yes = <b>Category I</b>    No = <b>Category II</b> </div>	Cat. I  Cat. II
<b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b> SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <div style="text-align: right;">             Yes – Go to <b>SC 2.2</b>    <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">No – Go to <b>SC 2.3</b></span> </div> SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <div style="text-align: right;">             Yes = <b>Category I</b>    No = <b>Not a WHCV</b> </div> SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a> <div style="text-align: right;">             Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b>    <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">No = <b>Not a WHCV</b></span> </div> SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <div style="text-align: right;">             Yes = <b>Category I</b>    No = <b>Not a WHCV</b> </div>	Cat. I
<b>SC 3.0. Bogs</b> Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <div style="text-align: right;">             Yes – Go to <b>SC 3.3</b>    <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">No – Go to <b>SC 3.2</b></span> </div> SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <div style="text-align: right;">             Yes – Go to <b>SC 3.3</b>    <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">No = <b>Is not a bog</b></span> </div> SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <div style="text-align: right;">             Yes = <b>Is a Category I bog</b>    No – Go to <b>SC 3.4</b> </div> <b>NOTE:</b> If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <div style="text-align: right;">             Yes = <b>Is a Category I bog</b>    No = <b>Is not a bog</b> </div>	Cat. I

Wetland name or number M

<p><b>SC 4.0. Forested Wetlands</b></p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <b><i>If you answer YES you will still need to rate the wetland based on its functions.</i></b></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests</b> (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</li> <li>— <b>Mature forests</b> (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</li> </ul> <p>Yes = <b>Category I</b>    <b>No = Not a forested wetland for this section</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 5.0. Wetlands in Coastal Lagoons</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— 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</li> <li>— The lagoon in which the wetland is located contains ponded water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p>Yes – Go to <b>SC 5.1</b>    <b>No = Not a wetland in a coastal lagoon</b></p> <p><b>SC 5.1. Does the wetland meet all of the following three conditions?</b></p> <ul style="list-style-type: none"> <li>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</li> <li>— The wetland is larger than 1/10 ac (4350 ft<sup>2</sup>)</li> </ul> <p>Yes = <b>Category I</b>    No = <b>Category II</b></p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p>
<p><b>SC 6.0. Interdunal Wetlands</b></p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <b><i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></b></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>— Long Beach Peninsula: Lands west of SR 103</li> <li>— Grayland-Westport: Lands west of SR 105</li> <li>— Ocean Shores-Copalis: Lands west of SR 115 and SR 109</li> </ul> <p>Yes – Go to <b>SC 6.1</b>    <b>No = not an interdunal wetland for rating</b></p> <p><b>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</b> Yes = <b>Category I</b>    No – Go to <b>SC 6.2</b></p> <p><b>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</b> Yes = <b>Category II</b>    No – Go to <b>SC 6.3</b></p> <p><b>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</b> Yes = <b>Category III</b>    No = <b>Category IV</b></p>	<p><b>Cat I</b></p> <p><b>Cat. II</b></p> <p><b>Cat. III</b></p> <p><b>Cat. IV</b></p>
<p><b>Category of wetland based on Special Characteristics</b></p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>N/A</p>

Wetland name or number M

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WETLAND L DETAIL  
1" = 40'

LEGEND:

- Wetland Unit Boundary
- 150' Wetland Offset
- Cowardin Vegetation Class Division
- Occasionally Flooded or Inundated
- Saturated Only
- Seasonally Flooded or Inundated
- Permanently Flowing Stream

- EM Emergent
- SS Scrub/shrub
- FO Forested

Wetland G (2004 Rating System)

- H 1.1/H 1.4 - Emergent and scrub-shrub. Moderate interspersions.
- H 1.2 - Seasonally flooded, occasionally flooded, saturated only.
- S 1.3 - Dense, ungrazed, herbaceous vegetation > 90% of wetland area.
- S 3.1 - Dense, uncut, **rigid** vegetation > 1/2 area of wetland.
- S 2. - Residential, urban areas, or golf courses are within 150 ft. upslope of the wetland.

Wetland J

- H 1.1/H 1.4 - Emergent, scrub-shrub. Low interspersions.
- H 1.2 - Occasionally flooded, saturated only.
- S 1.3 - Dense, uncut, herbaceous plants > 1/2 of the wetland area.
- S 4.1 - All other conditions.
- S 2.1 - > 10% of the area within 150 ft. on the uphill side of the wetland in land uses that generate pollutants.

Wetland L

- H 1.1/H 1.4 - Emergent, scrub-shrub. Low interspersions.
- H 1.2 - Occasionally flooded, saturated only, permanently flowing stream in or adjacent to the wetland.
- S 1.3 - Dense, uncut, herbaceous plants > 1/2 of the wetland area.
- S 4.1 - All other conditions.
- S 2.1 - > 10% of the area within 150 ft. on the uphill side of the wetland in land uses that generate pollutants.
- S 5.1 - > 25% of the area within 150 ft. upslope of wetland in land uses or cover that generate excess surface runoff.

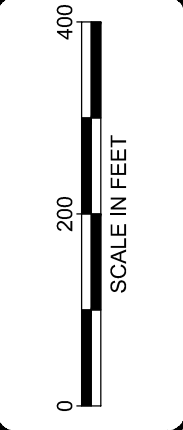
NOTE(S):  
1. Aerial photo from Google Earth™.

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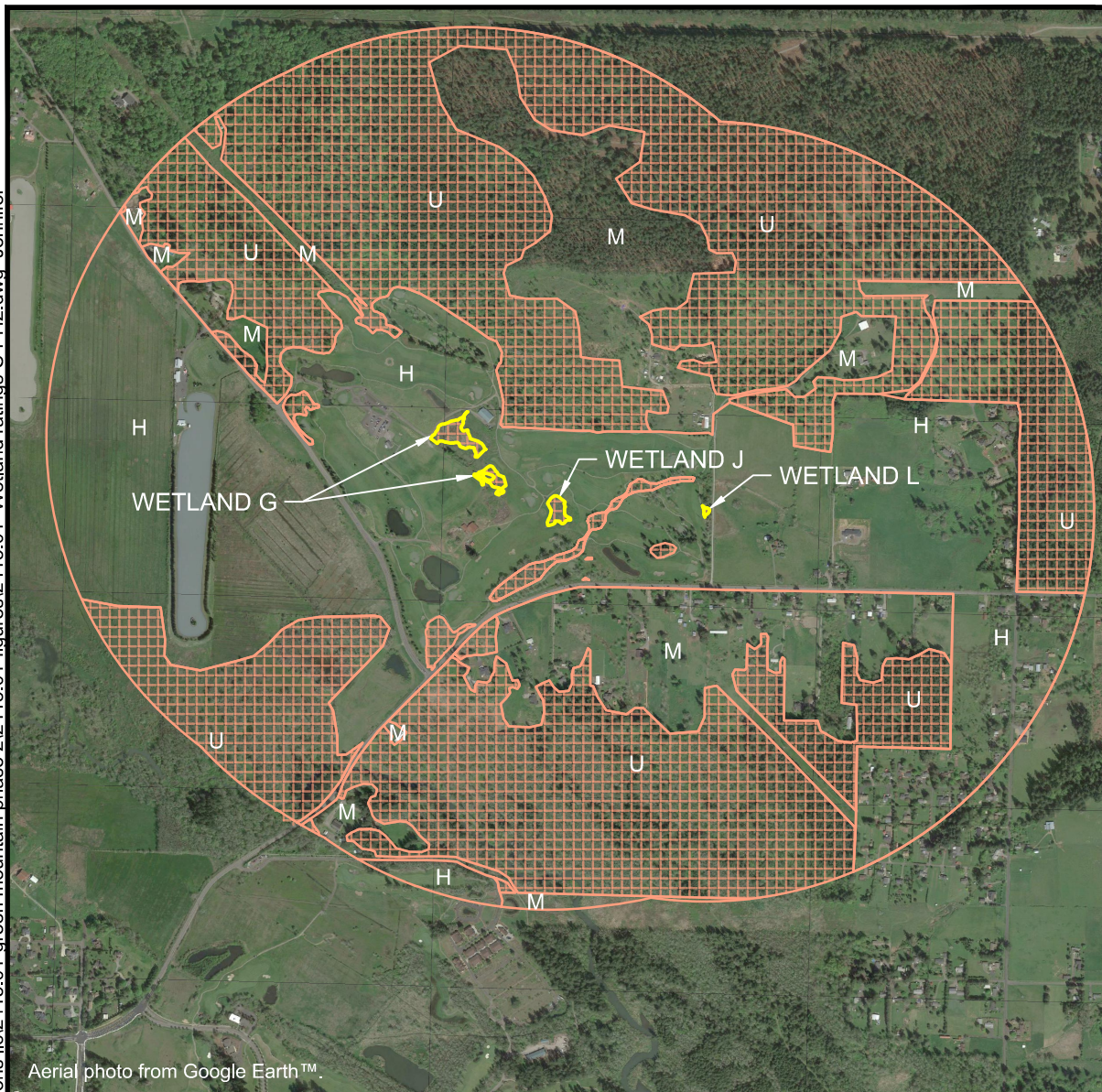
**Ecological Land Services**

DATE: 7/28/16  
DWN: JKJ  
REQ. BY: MM  
PRJ. MGR: MM  
CHK:  
PROJECT NO: 2415.01

Wetland Rating Figure 1  
150' OFFSET - SOUTH  
Green Mountain Mixed Use PRD Phase 2  
CLB Washington Options Solutions LLC  
City of Camas, Clark County, Washington  
Section 20, Township 2N, Range 3E, W.M.







Aerial photo from Google Earth™.

### LEGEND:

- Wetland Unit Boundary
- U Undisturbed Habitat
- H High Intensity Land Use
- M Moderate/Low Intensity Land Use

#### WETLAND G

H 2.1 - Accessible habitat is < 10% of 1 km Polygon (0%).  
 H 2.2 - Undisturbed habitat 10-50% of Polygon and in 1-3 patches (45%).  
 H 2.3 - ≤ 50% of polygon is high land use intensity (38%).

#### WETLAND J

H 2.1 - Accessible habitat is < 10% of 1 km Polygon (0%).  
 H 2.2 - Undisturbed habitat 10-50% of Polygon and in 1-3 patches (43%).  
 H 2.3 - ≤ 50% of polygon is high land use intensity (35%).

#### WETLAND L

H 2.1 - Accessible habitat is <10% of 1 km Polygon (9.5%).  
 H 2.2 - Undisturbed habitat > 50% of polygon (54.5%).  
 H 2.3 - ≤ 50% of polygon is high land use intensity (38%).

**Wetland Rating Figure 2**  
 1 KM OFFSET - SOUTH  
 Green Mountain Mixed Use PRD Phase 2  
 CLB Washington Options Solutions LLC  
 City of Camas, Clark County, Washington  
 Section 20, Township 2N, Range 3E, W.M.

DATE: 7/28/16  
 DWN: JKJ  
 REQ. BY: MM  
 PRJ. MGR: MM  
 CHK:  
 PROJECT NO: 2415.01

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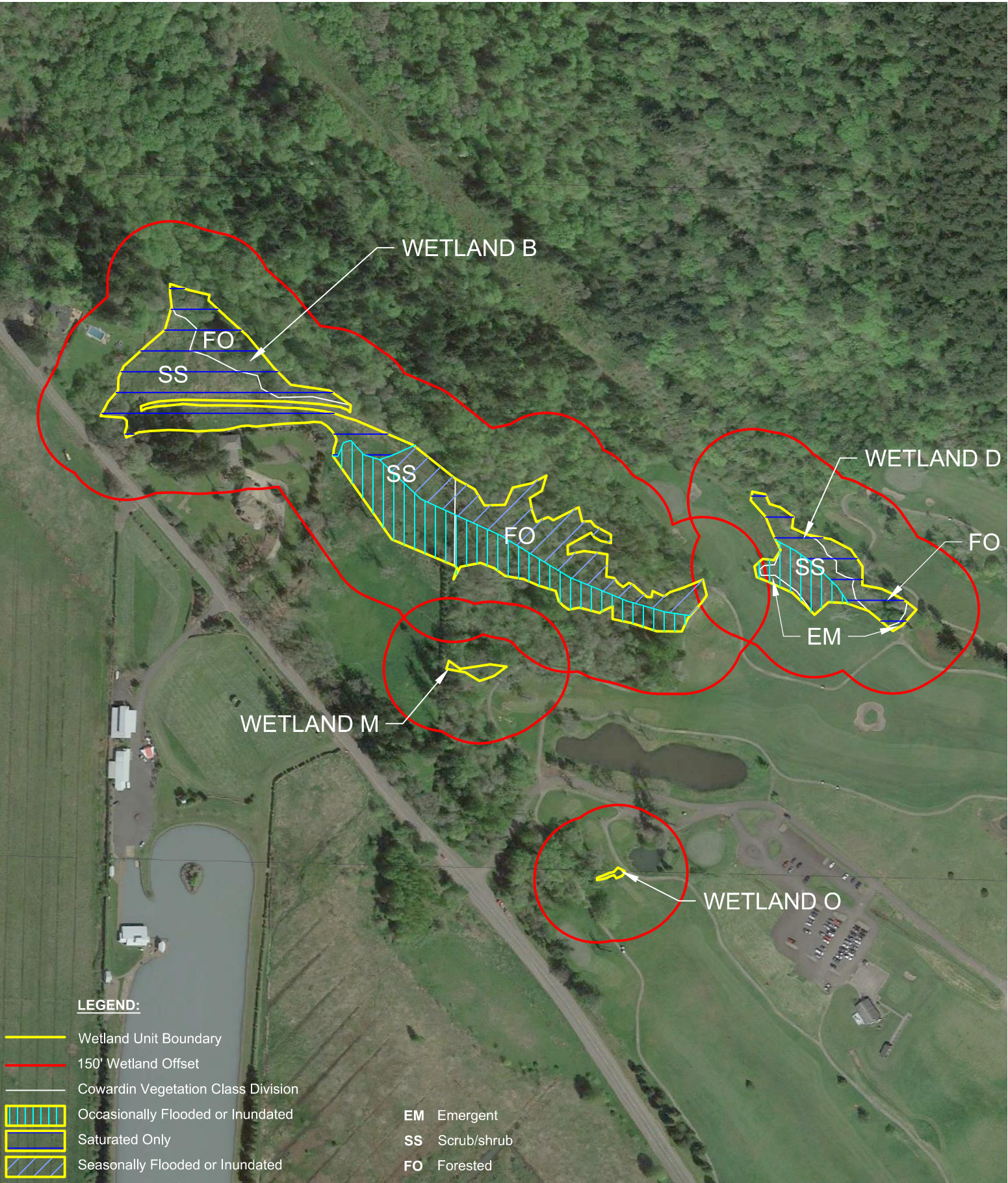
**Ecological  
Land Services**

3000  
1500  
0

SCALE IN FEET



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**NOTE(S):**  
1. Aerial photo from Google Earth™.

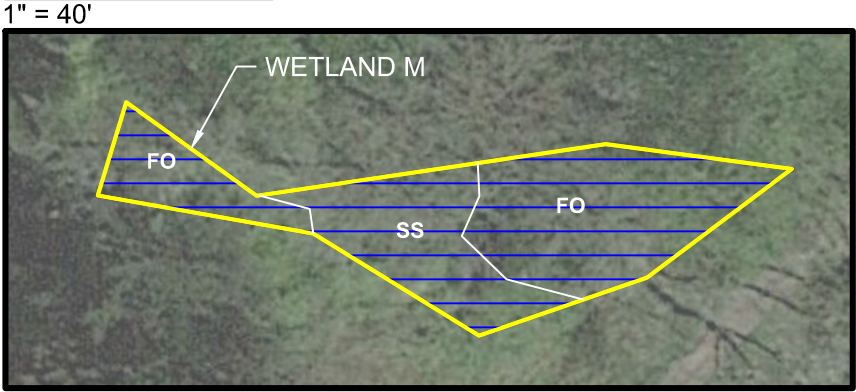
**Wetland B (2004 Rating System)**  
H 1.1/H 1.4 - Scrub-shrub, forested, forested has 3 out of 5 strata. Moderate interspersions.  
H 1.2 - Seasonally flooded, occasionally flooded, saturated only.  
S 1.3 - Dense, ungrazed, herbaceous vegetation > 90% of wetland area.  
S 3.1 - Dense, uncut, **rigid** vegetation > 1/2 area of wetland.  
S 2. - Residential, urban areas, or golf courses are within 150 ft. upslope of the wetland.

**Wetland D (2004 Rating System)**  
H 1.1/H 1.4 - Emergent and scrub-shrub. Moderate interspersions.  
H 1.2 - Seasonally flooded, occasionally flooded, saturated only.  
D 1.1/D 3.1 - Wetland has an intermittently flowing, OR highly constricted, permanently flowing outlet.  
D 2. - Residential, urban areas, or golf courses are within 150 ft. upslope of the wetland.  
D 3.2 - Marks are at least 0.5 ft. to <2 ft. from surface or bottom of outlet

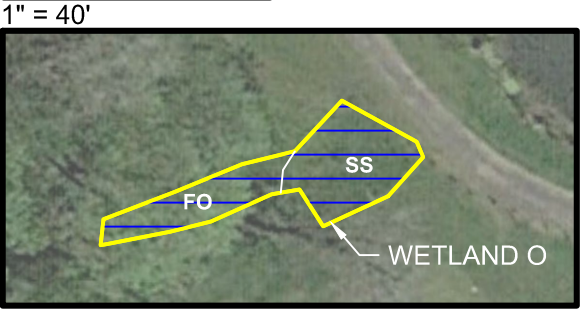
**Wetland M**  
H 1.1/H 1.4 - Scrub-shrub, forested. Low interspersions.  
H 1.2 - Saturated only.  
S 1.3 - Dense, uncut, herbaceous plants > 1/2 of the wetland area.  
S 4.1 - Dense, uncut, **rigid** plants cover > 90% of the area of the wetland.  
S 2.1 - < 10% of the area within 150 ft. on the uphill side of the wetland in land uses that generate pollutants.  
S 5.1 - < 25% of the area within 150 ft. upslope of wetland in land uses or cover that generate excess surface runoff.

**Wetland O (2004 Rating System)**  
H 1.1/H 1.4 - Forested. No interspersions.  
H 1.2 - Seasonally flooded and saturated only.  
S 1.3 - Dense, ungrazed, herbaceous vegetation > 90% of wetland area.  
S 3.1 - More than 3/4 of area is grazed, mowed, tilled or vegetation is not rigid  
S 2. - Residential, urban areas, or golf courses are within 150 ft. upslope of the wetland.

**WETLAND M DETAIL**

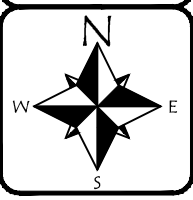
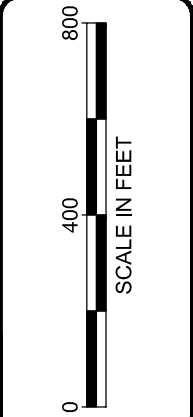


**WETLAND O DETAIL**



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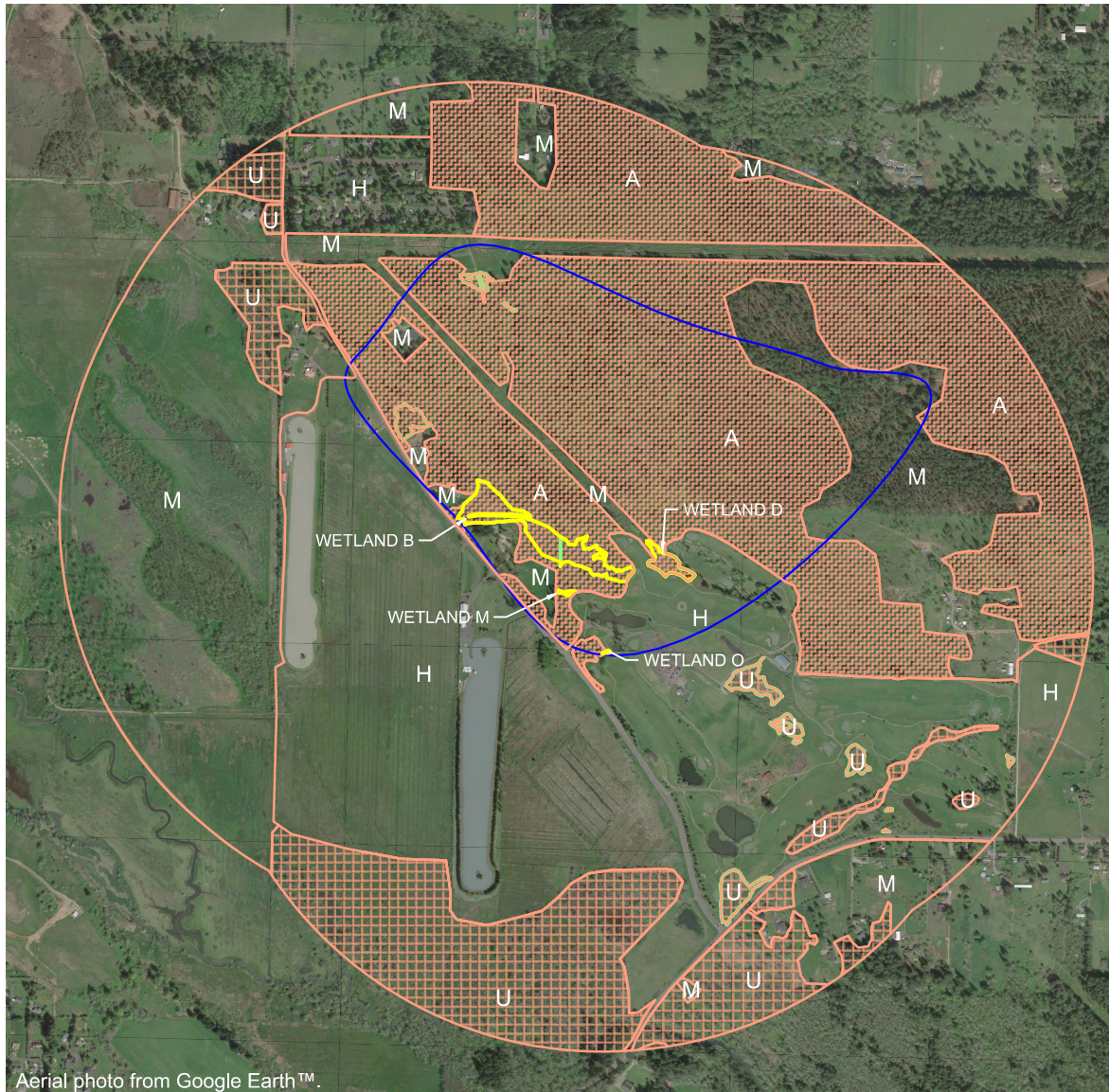
**Ecological Land Services**



DATE: 7/28/16  
DWN: JKL  
REQ. BY: MM  
PRJ. MGR: MM  
CHK:  
PROJECT NO:  
2415.01

Wetland Rating Figure 3  
150' OFFSET - NORTH  
Green Mountain Mixed Use PRD Phase 2  
CLB Washington Options Solutions LLC  
City of Camas, Clark County, Washington  
Section 20, Township 2N, Range 3E, W.M.





**Wetland Rating Figure 4**  
**1 KM OFFSET - NORTH**  
 Green Mountain Mixed Use PRD Phase 2  
 CLB Washington Options Solutions LLC  
 City of Camas, Clark County, Washington  
 Section 20, Township 2N, Range 3E, W.M.

DATE: 7/28/16  
 DWN: JKJ  
 REQ. BY: MM  
 PRJ. MGR: MM  
 CHK:  
 PROJECT NO:  
 2415.01

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### LEGEND:

- Wetland Unit Boundary
- A Accessible Habitat
- U Undisturbed Habitat
- H High Intensity Land Use
- M Moderate/Low Intensity Land Use
- Contributing Basin

### WETLAND B

H 2.1 - Accessible habitat is 20-33% of 1 km Polygon (28%).  
 H 2.2 - Undisturbed habitat 10-50% of Polygon and in 1-3 patches (35%).  
 H 2.3 - ≤ 50% of polygon is high land use intensity (35%).

### WETLAND D

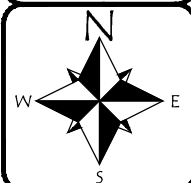
D4.3 - Area of contributing basin is 10 to 100 times area of unit.  
 D 5.3 - < 25% of the contributing basin is covered with intensive human land uses.  
 H 2.1 - Accessible habitat is > 1/3 of 1 km Polygon (45.5%).  
 H 2.2 - Undisturbed habitat > 50% of Polygon.  
 H 2.3 - ≤ 50% of polygon is high land use intensity (38%).

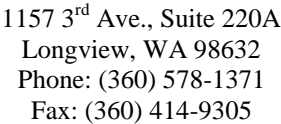
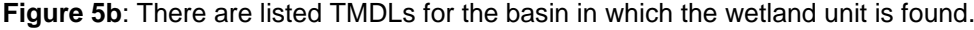
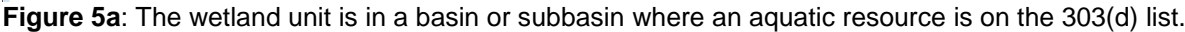
### WETLAND M

H 2.1 - Accessible habitat is > 1/3 of 1 km Polygon (38.5%).  
 H 2.2 - Undisturbed habitat > 50% of Polygon.  
 H 2.3 - ≤ 50% of polygon is high land use intensity (38%).

### WETLAND O

H 2.1 - Accessible habitat is < 10% of 1 km Polygon (9%).  
 H 2.2 - Undisturbed habitat is 10-50% and in > 3 patches.  
 H 2.3 - ≤ 50% of polygon is high land use intensity (48%).





DATE: 3/21/2016  
DWN: JM  
PRJ. MGR: MM  
PROJ.#: 2048.01

Wetland Rating Figure 5  
303(d) LISTED WATERS AND  
TMDLS FOR WRIA  
Green Mountain PRD  
Green Mountain Land, LLC  
City of Camas, Washington



## **Appendix C**

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Wetland Rating Forms for Western Washington (2004 Rating System)

Wetland name or number: Wetland B

**WETLAND RATING FORM – WESTERN WASHINGTON**

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland B

Date of site visit: Oct. 2013

Rated by A. Aberle Trained by Ecology? Yes X No \_\_\_\_\_ Date of Training: Oct. 2006

SECTION: 20 TOWNSHIP: 2N RANGE: 3E Is S/T/R in Appendix D? Yes X No \_\_\_

Map of wetland unit: Figure \_\_\_ Estimated size 4.48 acres

**DRAFT SUMMARY OF RATING**

**Category based on FUNCTIONS provided by wetland**

I \_\_\_\_\_ II \_\_\_\_\_ III X IV \_\_\_\_\_

Category I = Score  $\geq 70$   
Category II = Score 51-69  
Category III = Score 30-50  
Category IV = Score  $< 30$

Score for Water Quality Functions

14

Score for Hydrologic Functions

5

Score for Habitat Functions

21

**TOTAL Score for functions**

**40**

**Category based on SPECIAL CHARACTERISTICS of wetland**

I \_\_\_\_\_ II \_\_\_\_\_ Does not Apply X

**Final Category** (choose the “highest” category from above)

III

**Check the appropriate type and class of wetland being rated.**

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	X	Check if unit has multiple HGM classes present	<input type="checkbox"/>

**Comments**

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

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

Check List for Wetlands That Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered <b>animal</b> or <b>plant</b> species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i>		X
SP4. <i>Does the wetland have a local significance in addition to its functions?</i> 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.		X

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.

**Comments** Formal priority and habitat species request has been completed.

## Classification of Wetland Units in Western Washington

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

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

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

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? ☐ YES – **Freshwater Tidal Fringe**    ☐ NO – **Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.    ).*

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

☒ NO – go to 3    ☐ YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the wetland **meet both** of the following criteria?

- ☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4    ☐ YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the wetland **meet all** of the following criteria?

- ☒ The wetland is on a slope (*slope can be very gradual*),
- ☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☒ The water leaves the wetland **without being impounded**?  
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks( depressions are usually <3ft diameter and less than 1 foot deep).*

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

**Comments**

**5. Does the entire wetland unit *meet all* of the following criteria?**

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river
- ☐ The overbank flooding occurs at least once every two years.

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

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

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

☐ NO – go to 7    ☐ **YES** – The wetland class is **Depressional**

**7. Is the wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.**

☐ NO – go to 8    ☐ **YES** – The wetland class is **Depressional**

**8. Your wetland seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.**

<i>HGM Classes within the wetland unit being rated</i>	<i>HGM Class to Use in Rating</i>
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.

**Comments**

[illegible]



<b>S Slope Wetlands</b>		<b>Points</b> (only 1 score per box)
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream erosion</b>		
<b>S</b>	<b>S 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?</b>	(see p. 68)
<b>S</b>	<p>S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms.  <i>Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually &gt; 1/8 in), or dense enough, to remain erect during surface flows)</i></p> <p>Dense, uncut, <b>rigid</b> vegetation covers &gt;90% of area of the wetland. points = 6</p> <p>Dense, uncut, <b>rigid</b> vegetation &gt;1/2 area of wetland points = 3</p> <p>Dense, uncut, <b>rigid</b> vegetation &gt;1/4 area of wetland points = 1</p> <p>More than 3/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0</p>	3
<b>S</b>	<p>S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows:  The slope wetland has small surface depressions that can retain water over at least 10% of its area.</p> <p>YES points = 2</p> <p>NO points = 0</p>	2
<b>S</b>	<i>Add the points in the boxes above</i>	5
<b>S</b>	<p><b>S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?</b></p> <p>Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? <i>Note which of the following conditions apply.</i></p> <p><input type="checkbox"/> Wetland has surface runoff that drains to a river or stream that has flooding problems</p> <p><input type="checkbox"/> Other _____</p> <p><i>Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam.)</i></p> <p><input type="checkbox"/> YES multiplier is 2    <input checked="" type="checkbox"/> NO multiplier is 1</p>	(see p. 70)
<b>S</b>	<p><b>TOTAL - Hydrologic Functions</b> Multiply the score from S 3 by S 4</p> <p><i>Add score to table on p. 1</i></p>	5

Comments

**These questions apply to wetlands of all HGM classes****Points**  
(only 1 score per box)**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)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.

- ☐ Aquatic bed  
☐ Emergent plants  
☒ Scrub/shrub (areas where shrubs have >30% cover)  
☒ Forested (areas where trees have >30% cover)

If the unit has a forested class check if:

- ☒ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 types or more	points = 4
3 types	points = 2
2 types	points = 1
1 type	points = 0

**Map of Cowardin vegetation classes****Figure\_\_**

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 description of hydroperiods.)

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

**Figure\_\_**

2

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

Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. (Different patches of the same species can be combined to meet the size threshold.)

You do not have to name the species.

Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

If you counted: > 19 species points = 2

5 - 19 species points = 1

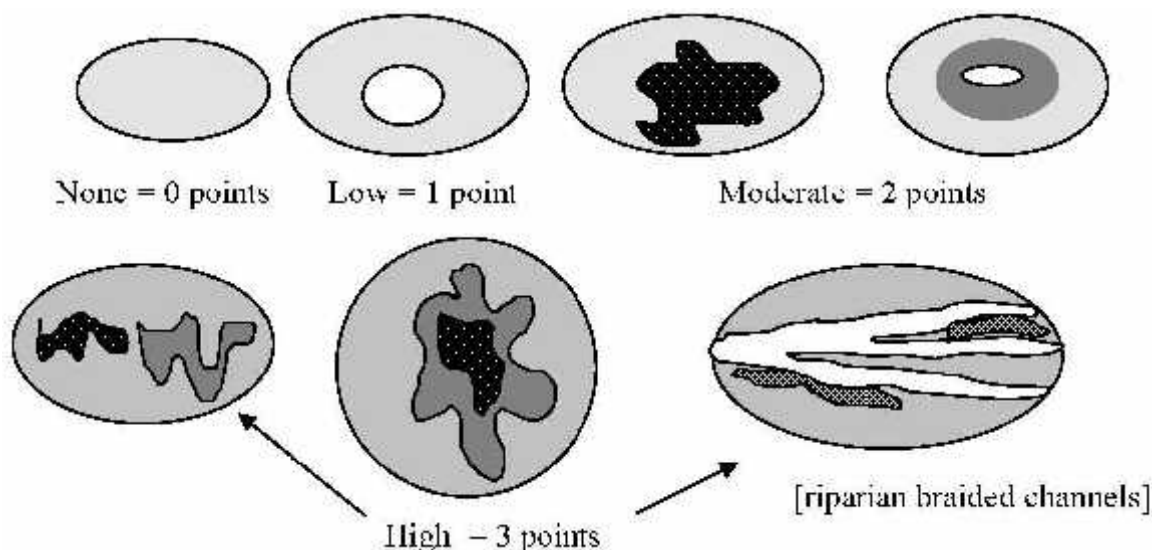
List species below if you want to: <5 species points = 0

2

Total for page 6

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

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



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

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

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

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

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

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

Figure\_\_

1

3

10

**Comments:**

H 2. Does the wetland have the opportunity to provide habitat for many species?)	
<p>H 2.1 <u>Buffers</u> (<i>see p. 80</i>)  <i>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."</i></p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no grazing, no landscaping, no daily human use) <b>Points = 5</b></p> <p><input type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;50% circumference. <b>Points = 4</b></p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. <b>Points = 4</b></p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;25% circumference. <b>Points = 3</b></p> <p><input checked="" type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference. <b>Points = 3</b></p> <p style="text-align: center;"><b>If buffer does not meet any of the three criteria above</b></p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing or lawns are OK <b>Points = 2</b></p> <p><input type="checkbox"/> Heavy grazing in buffer. <b>Points = 1</b></p> <p><input type="checkbox"/> Vegetated buffers are &lt;2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) <b>Points = 0</b></p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. <b>Points = 1</b></p> <p style="text-align: right;"><b>Aerial photo showing buffers</b></p>	<p><b>Figure__</b></p> <p style="text-align: center;"><b>3</b></p>
<p>H 2.2 <u>Corridors and Connections</u> (<i>see p. 81</i>)</p> <p>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? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p style="text-align: center;"><input type="checkbox"/> YES = <b>4 points</b> (<i>go to H 2.3</i>)      <input checked="" type="checkbox"/> NO = go to H 2.2.2</p> <p>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? <b>OR a Lake-fringe</b> wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;"><input checked="" type="checkbox"/> YES = <b>2 points</b> (<i>go to H 2.3</i>)      <input type="checkbox"/> NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p style="padding-left: 40px;">within 5 mi (8km) of a brackish or salt water estuary OR</p> <p style="padding-left: 40px;">within 3 mi of a large field or pasture (&gt;40 acres) OR</p> <p style="padding-left: 40px;">within 1 mi of a lake greater than 20 acres?</p> <p style="text-align: center;"><input type="checkbox"/> YES = <b>1 point</b>      <input type="checkbox"/> NO = <b>0 points</b></p>	<p style="text-align: center;"><b>2</b></p>

Total for page 5

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82)

Which of the following priority habitats are within 330ft (100m) of the wetland? (*NOTE: the connections do not have to be relatively undisturbed.*)

*These are DFW definitions. Check with your local DFW biologist if there are any questions*

- ☐ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.
- ☐ **Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages
- ☒ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.
- ☒ **Urban Natural Open Space:** A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.
- ☐ **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.
- ☐ **Marine/Estuarine Shorelines:** Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point**

No habitats = 0 points

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

3

<p><b>H 2.4 Wetland Landscape</b> (<i>choose the <b>one</b> description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p>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. <span style="float: right;">points = 5</span></p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile <span style="float: right;">points = 5</span></p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed <span style="float: right;">points = 3</span></p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetlands within ½ mile <span style="float: right;">points = 3</span></p> <p>There is at least 1 wetland within ½ mile. <span style="float: right;">points = 2</span></p> <p>There are no wetlands within ½ mile. <span style="float: right;">points = 0</span></p>	3
<p><b>H 2. TOTAL Score</b> -opportunity for providing habitat <i>Add the scores in the column above</i></p>	
<p>TOTAL for H 1 from page 14</p>	10
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	<b>21</b>

**Comments**



## **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

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

Wetland Type	Category
<p><i>Check off any criteria that apply to the wetland. Select the appropriate Category (from dropdown menu in Category column) when the appropriate criteria are met.</i></p>	
<p><b>SC 1.0 Estuarine wetlands (see p. 86)</b></p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <div style="margin-left: 20px;"> <input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.  <input type="checkbox"/> YES = Go to SC 1.1   <input checked="" type="checkbox"/> NO         </div>	
<p>SC 1.1 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <div style="margin-left: 20px;"> <input type="checkbox"/> YES = Category I                      <input checked="" type="checkbox"/> NO go to SC 1.2         </div>	Cat. I
<p>SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II</p> <div style="margin-left: 20px;"> <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.  <input type="checkbox"/> 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.  <input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.         </div>	Cat. I Cat. II  Dual rating  I/II

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b>  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.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>)  S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input checked="" type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO <input type="checkbox"/></p> <p>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?  <input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = not in a Heritage Wetland</p>	<p>Cat. I</p>
<p><b>SC 3.0 Bogs (see p. 87)</b>  Does the wetland (or part of the wetland) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> <li>Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)  Yes <input type="checkbox"/> - go to Q. 3 No <input checked="" type="checkbox"/> go to Q. 2</li> <li>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 <input type="checkbox"/> - go to Q. 3 No <input checked="" type="checkbox"/> - Is not a bog for purpose of rating</li> <li>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 <input type="checkbox"/> – Is a bog for purpose of rating No <input checked="" type="checkbox"/> -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.</li> </ol> <ol style="list-style-type: none"> <li>Is the wetland forested (&gt; 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 (&gt; 30% coverage of the total shrub/herbaceous cover)?</li> <li>YES <input type="checkbox"/> = Category I NO <input checked="" type="checkbox"/> Is not a bog for purpose of rating</li> </ol>	<p>Cat. I</p>

<p><b>SC 4.0 Forested Wetlands (see p. 90)</b>  Does the wetland have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> <b>Old-growth forests:</b> (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.</p> <p>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.</p> <p><input type="checkbox"/> <b>Mature forests:</b> (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 than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I                      <input checked="" type="checkbox"/> NO not a forested wetland with special characteristics</p>	<p>Cat. I</p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b>  Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1      NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p><b>SC 5.1 Does the wetland meet all of the following three conditions?</b></p> <p><input type="checkbox"/> 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).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p>YES <input type="checkbox"/> = Category I                      NO <input type="checkbox"/> = Category II</p>	

<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>          Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?  <input type="checkbox"/> YES = Go to SC 6.1      <input checked="" type="checkbox"/> NO -- not an interdunal wetland for rating  <i>If you answer yes you will still need to rate the wetland based on its functions.</i>          In practical terms that means the following geographic areas:  <ul style="list-style-type: none"> <li>• Long Beach Peninsula – lands west of SR103</li> <li>• Grayland-Westport- lands west of SR 105</li> <li>• Ocean Shores-Copalis- lands west of SR 115 and SR 109</li> </ul>         SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?  <input type="checkbox"/> YES = Category II      <input type="checkbox"/> 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,?  <input type="checkbox"/> YES = Category III       </p>	<p></p> <p>Cat.II</p> <p>Cat.III</p>
<p><b>Category of wetland based on Special Characteristics</b>          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.       </p>	<p>N/A</p>

**Comments**

The wetland has been previously disturbed, therefore, it is not high quality undisturbed wetland. Based on ELS observations on-site, the wetland does not contain state threatened or endangered species.

Wetland name or number: Wetland D

**WETLAND RATING FORM – WESTERN WASHINGTON**

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland D

Date of site visit: Oct. 2013

Rated by A. Aberle Trained by Ecology? Yes X No \_\_\_\_\_ Date of Training: Oct. 2006

SECTION: 20 TOWNSHIP: 2N RANGE: 3E Is S/T/R in Appendix D? Yes X No \_\_\_

**Map of wetland unit: Figure 2 Estimated size 0.99 acres**

**DRAFT SUMMARY OF RATING**

**Category based on FUNCTIONS provided by wetland**

I \_\_\_\_\_ II \_\_\_\_\_ III X IV \_\_\_\_\_

Category I = Score  $\geq 70$   
Category II = Score 51-69  
Category III = Score 30-50  
Category IV = Score  $< 30$

Score for Water Quality Functions

14

Score for Hydrologic Functions

8

Score for Habitat Functions

18

**TOTAL Score for functions**

**40**

**Category based on SPECIAL CHARACTERISTICS of wetland**

I \_\_\_\_\_ II \_\_\_\_\_ Does not Apply X

**Final Category** (choose the “highest” category from above)

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			
None of the above	X	Check if unit has multiple HGM classes present	<input type="checkbox"/>

**Comments**

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

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

Check List for Wetlands That Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered <b>animal</b> or <b>plant</b> species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i>		X
SP4. <i>Does the wetland have a local significance in addition to its functions?</i> 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.		X

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.

**Comments** Formal priority and habitat species request has been completed.



## Classification of Wetland Units in Western Washington

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

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

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

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? ☐ YES – **Freshwater Tidal Fringe**     ☐ NO – **Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.    ).*

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

☒ NO – go to 3     ☐ YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the wetland **meet both** of the following criteria?

- ☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4     ☐ YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the wetland **meet all** of the following criteria?

- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded**?  
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks( depressions are usually <3ft diameter and less than 1 foot deep).*

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

**Comments**

**5. Does the entire wetland unit *meet all* of the following criteria?**

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river
- ☐ The overbank flooding occurs at least once every two years.

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

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

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

☐ **NO** – go to 7    ☒ **YES** – The wetland class is **Depressional**

**7. Is the wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.**

☐ **NO** – go to 8    ☐ **YES** – The wetland class is **Depressional**

**8. Your wetland seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.**

<i>HGM Classes within the wetland unit being rated</i>	<i>HGM Class to Use in Rating</i>
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.

**Comments**

<b>D</b>	<b>Depressional and Flats Wetlands</b> <b>WATER QUALITY FUNCTION</b> – Indicators that the wetland unit functions to improve water quality	<b>Points</b> (only 1 score per box)
<b>D</b>	<b>D 1. Does the wetland have the <u>potential</u> to improve water quality?</b>	<i>(see p.38)</i>
<b>D</b>	<b>D 1.1 Characteristics of surface water flows out of the wetland:</b> Unit is a depression with no surface water leaving it (no outlet) points = 3 Wetland has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet ( <i>permanently flowing</i> ) points = 1 Unit is a “flat” depression (Q. 7 on key), or in the Flats class, with permanent surface outflow <b>and no obvious natural outlet</b> and/or outlet is a man-made ditch points = 1 (if ditch is not permanently flowing treat unit as “intermittently flowing”) <div style="text-align: right;"><b>Provide photo or drawing</b></div>	<b>Figure__</b>  <div style="text-align: center;">2</div>
<b>D</b>	<b>D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)</b> YES points = 4 NO points = 0	<div style="text-align: center;">0</div>
<b>D</b>	<b>D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest class):</b> Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation < 1/10 of area points = 0 <div style="text-align: right;"><b>Map of Cowardin vegetation classes</b></div>	<b>Figure 8B</b>  <div style="text-align: center;">3</div>
<b>D</b>	<b>D1.4 Characteristics of seasonal ponding or inundation.</b> <i>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.</i> Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 <div style="text-align: right;"><b>Map of Hydroperiods</b></div>	<b>Figure 9B</b>  <div style="text-align: center;">2</div>
<b>D</b>	<b>Total for D 1</b> <i>Add the points in the boxes above</i>	<div style="text-align: center;">7</div>
<b>D</b>	<b>D 2. Does the wetland have the <u>opportunity</u> to improve water quality?</b> 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? <i>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.</i> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> Tilled fields or orchards within 150 ft of wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> <b>YES</b> multiplier is 2 <input type="checkbox"/> <b>NO</b> multiplier is 1	<i>(see p.44)</i>           <div style="text-align: center;">multiplier</div>  <div style="text-align: center;">2</div>
<b>D</b>	<b>TOTAL - Water Quality Functions</b> Multiply the score from D1 by D2 <div style="text-align: right;"><i>Add score to table on p. 1</i></div>	<div style="text-align: center;">14</div>

D	<b>Depressional and Flats Wetlands</b> HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	Points
	<b>D 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?</b>	(see p.46)
D	<b>D 3.1 Characteristics of surface water flows out of the wetland unit</b> Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is flat depression (Q. 7 on key), or in the Flats class, with permanent surface outflow <b>and no obvious natural outlet</b> and/or is a man-made ditch points = 1 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	Figure__  <b>2</b>
D	<b>D 3.2 Depth of storage during wet periods</b> <i>Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).</i> Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Wetland is flat (yes to Q 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	Figure__  <b>3</b>
D	<b>D 3.3 Contribution of wetland to storage in the watershed</b> <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i> The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	Figure__  <b>3</b>
D	<b>Total for D 3</b>	<i>Add the points in the boxes above</i>  <b>8</b>
D	<b>D 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?</b> 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 in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other _____ <input type="checkbox"/> <b>YES</b> multiplier is 2 <input checked="" type="checkbox"/> <b>NO</b> multiplier is 1	(see p.49)          multiplier          <b>1</b>
D	<b>TOTAL - Hydrologic Functions</b> Multiply the score from D 3 by D 4  <i>Add score to table on p. 1</i>	<b>8</b>

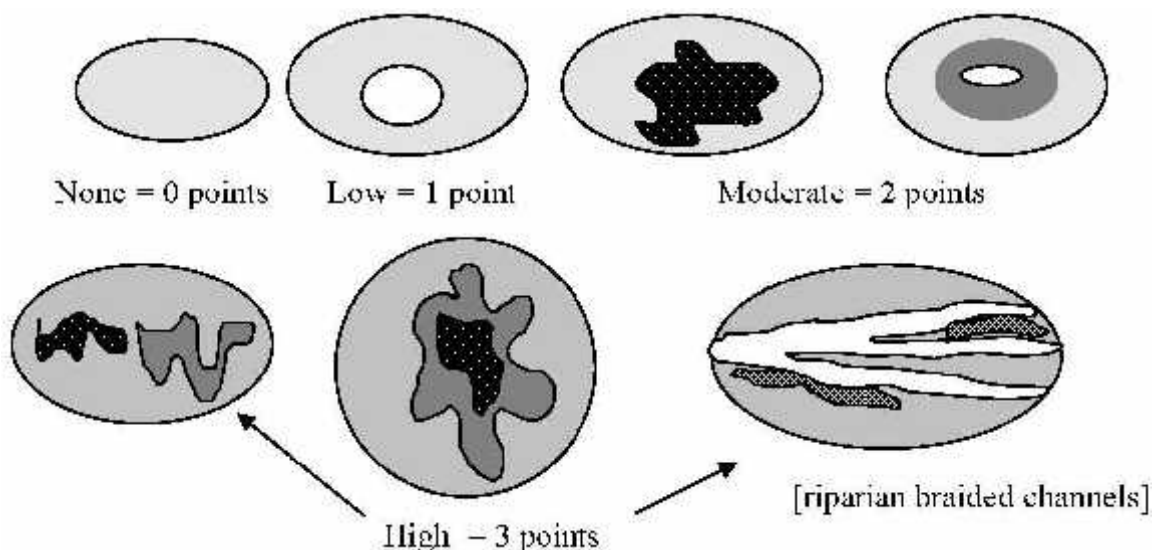
Comments Go to Page 13

<b><i>These questions apply to wetlands of all HGM classes</i></b>		<b>Points</b> (only 1 score per box)								
<b>HABITAT FUNCTIONS</b> – Indicators that wetland functions to provide important habitat										
<b>H 1. Does the wetland have the <u>potential</u> to provide habitat for many species?</b>										
<p><b>H 1.1 <u>Vegetation structure</u> (see p. 72)</b></p> <p><i>Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p> <input type="checkbox"/> Aquatic bed  <input checked="" type="checkbox"/> Emergent plants  <input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)  <input checked="" type="checkbox"/> Forested (areas where trees have &gt;30% cover)         </p> <p><i>If the unit has a forested class check if:</i></p> <p> <input type="checkbox"/> Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon         </p> <p><i>Add the number of vegetation types that qualify. If you have:</i></p> <table> <tr> <td>4 types or more</td> <td>points = 4</td> </tr> <tr> <td>3 types</td> <td>points = 2</td> </tr> <tr> <td>2 types</td> <td>points = 1</td> </tr> <tr> <td>1 type</td> <td>points = 0</td> </tr> </table> <p><b>Map of Cowardin vegetation classes</b></p>		4 types or more	points = 4	3 types	points = 2	2 types	points = 1	1 type	points = 0	<p><b>Figure</b></p> <p>2</p>
4 types or more	points = 4									
3 types	points = 2									
2 types	points = 1									
1 type	points = 0									
<p><b>H 1.2 <u>Hydroperiods</u> (see p. 73)</b></p> <p><i>Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (See text for description of hydroperiods.)</i></p> <p> <input type="checkbox"/> Permanently flooded or inundated  <input checked="" type="checkbox"/> Seasonally flooded or inundated  <input checked="" type="checkbox"/> Occasionally flooded or inundated  <input checked="" type="checkbox"/> Saturated only  <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland  <input type="checkbox"/> Seasonally flowing stream or river in, or adjacent to, the wetland  <input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>  <input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b> </p>		<p><b>Figure</b></p> <p>2</p>								
<p><b>H 1.3 <u>Richness of Plant Species</u> (see p. 75)</b></p> <p><i>Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. (Different patches of the same species can be combined to meet the size threshold.)</i></p> <p><i>You do not have to name the species.</i></p> <p><i>Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.</i></p> <p><i>If you counted:</i></p> <table> <tr> <td>&gt; 19 species</td> <td>points = 2</td> </tr> <tr> <td>5 - 19 species</td> <td>points = 1</td> </tr> <tr> <td>&lt;5 species</td> <td>points = 0</td> </tr> </table> <p><i>List species below if you want to:</i></p>		> 19 species	points = 2	5 - 19 species	points = 1	<5 species	points = 0	<p>1</p>		
> 19 species	points = 2									
5 - 19 species	points = 1									
<5 species	points = 0									

Total for page 5

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

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



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

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

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

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

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

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

**Comments:**

**Figure**

2

2

9



H 2. Does the wetland have the opportunity to provide habitat for many species?)		Figure__
<p>H 2.1 <u>Buffers</u> (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."</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no grazing, no landscaping, no daily human use) <b>Points = 5</b></p> <p><input type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;50% circumference. <b>Points = 4</b></p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. <b>Points = 4</b></p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;25% circumference. <b>Points = 3</b></p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference. <b>Points = 3</b></p> <p><b>If buffer does not meet any of the three criteria above</b></p> <p><input checked="" type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing or lawns are OK <b>Points = 2</b></p> <p><input type="checkbox"/> Heavy grazing in buffer. <b>Points = 1</b></p> <p><input type="checkbox"/> Vegetated buffers are &lt;2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) <b>Points = 0</b></p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. <b>Points = 1</b></p> <p style="text-align: right;"><b>Aerial photo showing buffers</b></p>		2
<p>H 2.2 <u>Corridors and Connections</u> (see p. 81)</p> <p>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).</p> <p style="text-align: center;"><input type="checkbox"/> YES = <b>4 points</b> (go to H 2.3) <span style="margin-left: 100px;"><input checked="" type="checkbox"/> NO = go to H 2.2.2</span></p> <p>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? <b>OR</b> a <b>Lake-fringe</b> wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;"><input type="checkbox"/> YES = <b>2 points</b> (go to H 2.3) <span style="margin-left: 100px;"><input checked="" type="checkbox"/> NO = H 2.2.3</span></p> <p>H 2.2.3 Is the wetland:</p> <p style="padding-left: 40px;">within 5 mi (8km) of a brackish or salt water estuary OR</p> <p style="padding-left: 40px;">within 3 mi of a large field or pasture (&gt;40 acres) OR</p> <p style="padding-left: 40px;">within 1 mi of a lake greater than 20 acres?</p> <p style="text-align: center;"><input checked="" type="checkbox"/> YES = <b>1 point</b> <span style="margin-left: 100px;"><input type="checkbox"/> NO = <b>0 points</b></span></p>		1

Total for page 3

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82)

Which of the following priority habitats are within 330ft (100m) of the wetland? (*NOTE: the connections do not have to be relatively undisturbed.*)

*These are DFW definitions. Check with your local DFW biologist if there are any questions*

- ☐ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.
- ☐ **Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages
- ☒ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.
- ☒ **Urban Natural Open Space:** A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.
- ☐ **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.
- ☐ **Marine/Estuarine Shorelines:** Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point**

No habitats = 0 points

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

3

<p><b>H 2.4 Wetland Landscape</b> (<i>choose the <b>one</b> description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p>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. <span style="float: right;">points = 5</span></p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile <span style="float: right;">points = 5</span></p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed <span style="float: right;">points = 3</span></p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetlands within ½ mile <span style="float: right;">points = 3</span></p> <p>There is at least 1 wetland within ½ mile. <span style="float: right;">points = 2</span></p> <p>There are no wetlands within ½ mile. <span style="float: right;">points = 0</span></p>	3
<p><b>H 2. TOTAL Score</b> -opportunity for providing habitat <i>Add the scores in the column above</i></p>	9
<p>TOTAL for H 1 from page 14</p>	
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	18

**Comments**

## **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

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

Wetland Type	Category
<p><i>Check off any criteria that apply to the wetland. Select the appropriate Category (from dropdown menu in Category column) when the appropriate criteria are met.</i></p>	
<p><b>SC 1.0 Estuarine wetlands (see p. 86)</b></p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <div style="margin-left: 20px;"> <input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.  <input type="checkbox"/> YES = Go to SC 1.1    <input checked="" type="checkbox"/> NO         </div>	
<p>SC 1.1 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <div style="margin-left: 20px;"> <input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO go to SC 1.2         </div>	Cat. I
<p>SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II</p> <div style="margin-left: 20px;"> <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.  <input type="checkbox"/> 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.  <input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.         </div>	Cat. I Cat. II  Dual rating  I/II

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b>  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.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>)  S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input checked="" type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO <input type="checkbox"/></p> <p>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?  <input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = not in a Heritage Wetland</p>	<p>Cat. I</p>
<p><b>SC 3.0 Bogs (see p. 87)</b>  Does the wetland (or part of the wetland) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> <li>Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)  Yes <input type="checkbox"/> - go to Q. 3 No <input checked="" type="checkbox"/> go to Q. 2</li> <li>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 <input type="checkbox"/> - go to Q. 3 No <input checked="" type="checkbox"/> - Is not a bog for purpose of rating</li> <li>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 <input type="checkbox"/> – Is a bog for purpose of rating No <input checked="" type="checkbox"/> -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.</li> </ol> <ol style="list-style-type: none"> <li>Is the wetland forested (&gt; 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 (&gt; 30% coverage of the total shrub/herbaceous cover)?</li> <li>YES <input type="checkbox"/> = Category I NO <input checked="" type="checkbox"/> Is not a bog for purpose of rating</li> </ol>	<p>Cat. I</p>

<p><b>SC 4.0 Forested Wetlands (see p. 90)</b>  Does the wetland have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> <b>Old-growth forests:</b> (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.</p> <p>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.</p> <p><input type="checkbox"/> <b>Mature forests:</b> (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 than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I                      <input checked="" type="checkbox"/> NO not a forested wetland with special characteristics</p>	<p>Cat. I</p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b>  Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1      NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p><b>SC 5.1</b> Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> 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).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p>YES <input type="checkbox"/> = Category I                      NO <input type="checkbox"/> = Category II</p>	



<p><b>SC 6.0 Interdunal Wetlands</b> (<i>see p. 93</i>)</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p><input type="checkbox"/> YES = Go to SC 6.1                      <input checked="" type="checkbox"/> NO -- not an interdunal wetland for rating</p> <p><b><i>If you answer yes you will still need to rate the wetland based on its functions.</i></b></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>• Long Beach Peninsula – lands west of SR103</li> <li>• Grayland-Westport- lands west of SR 105</li> <li>• Ocean Shores-Copalis- lands west of SR 115 and SR 109</li> </ul> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?</p> <p><input type="checkbox"/> YES = Category II                      <input type="checkbox"/> NO go to SC 6.2</p> <p>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,?</p> <p><input type="checkbox"/> YES = Category III</p>	<p>Cat.II</p> <p>Cat.III</p>
<p><b>Category of wetland based on Special Characteristics</b></p> <p><i>Choose the “highest” rating if wetland falls into several categories, and record on p. 1.</i></p> <p>If you answered NO for all types enter “Not Applicable” on p. 1.</p>	<p>N/A</p>

## Comments

The wetland has been previously disturbed, therefore, it is not high quality undisturbed wetland. Based on ELS observations on-site, the wetland does not contain state threatened or endangered species.

Wetland name or number: Wetland G

**WETLAND RATING FORM – WESTERN WASHINGTON**

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland G

Date of site visit: Oct. 2013

Rated by A. Aberle Trained by Ecology? Yes X No \_\_\_\_\_ Date of Training: Oct. 2006

SECTION: 20 & 21 TOWNSHIP: 2N RANGE: 3E Is S/T/R in Appendix D? Yes X No \_\_\_\_\_

**Map of wetland unit: Figure\_\_ Estimated size 1.94 acres**

**DRAFT SUMMARY OF RATING**

**Category based on FUNCTIONS provided by wetland**

I \_\_\_\_\_ II \_\_\_\_\_ III X IV \_\_\_\_\_

Category I = Score $\geq 70$	Score for Water Quality Functions	14
Category II = Score 51-69	Score for Hydrologic Functions	5
Category III = Score 30-50	Score for Habitat Functions	16
Category IV = Score $< 30$	<b>TOTAL Score for functions</b>	<b>36</b>

**Category based on SPECIAL CHARACTERISTICS of wetland**

I \_\_\_\_\_ II \_\_\_\_\_ Does not Apply X

**Final Category** (choose the “highest” category from above)

III

**Check the appropriate type and class of wetland being rated.**

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	X	Check if unit has multiple HGM classes present	<input type="checkbox"/>

**Comments**

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

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

Check List for Wetlands That Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered <b>animal</b> or <b>plant</b> species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i>		X
SP4. <i>Does the wetland have a local significance in addition to its functions?</i> 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.		X

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.

**Comments** Formal priority and habitat species request has been completed.

## Classification of Wetland Units in Western Washington

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

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

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

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? ☐ YES – **Freshwater Tidal Fringe**    ☐ NO – **Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.    ).*

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

☒ NO – go to 3    ☐ YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the wetland **meet both** of the following criteria?

- ☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4    ☐ YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the wetland **meet all** of the following criteria?

- ☒ The wetland is on a slope (*slope can be very gradual*),
- ☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☒ The water leaves the wetland **without being impounded**?  
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks( depressions are usually <3ft diameter and less than 1 foot deep).*

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

**Comments**

**5. Does the entire wetland unit *meet all* of the following criteria?**

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river
- ☐ The overbank flooding occurs at least once every two years.

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

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

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

☐ NO – go to 7    ☐ **YES** – The wetland class is **Depressional**

**7. Is the wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.**

☐ NO – go to 8    ☐ **YES** – The wetland class is **Depressional**

**8. Your wetland seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.**

<i>HGM Classes within the wetland unit being rated</i>	<i>HGM Class to Use in Rating</i>
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.

**Comments**

[illegible]



<b>S Slope Wetlands</b>		<b>Points</b> (only 1 score per box)
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream erosion</b>		
<b>S</b>	<b>S 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?</b>	(see p. 68)
<b>S</b>	<p>S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms.  <i>Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually &gt; 1/8 in), or dense enough, to remain erect during surface flows)</i></p> <p>Dense, uncut, <b>rigid</b> vegetation covers &gt;90% of area of the wetland. points = 6</p> <p>Dense, uncut, <b>rigid</b> vegetation &gt;1/2 area of wetland points = 3</p> <p>Dense, uncut, <b>rigid</b> vegetation &gt;1/4 area of wetland points = 1</p> <p>More than 3/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0</p>	3
<b>S</b>	<p>S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows:  The slope wetland has small surface depressions that can retain water over at least 10% of its area.</p> <p>YES points = 2</p> <p>NO points = 0</p>	2
<b>S</b>	Add the points in the boxes above	5
<b>S</b>	<p><b>S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?</b></p> <p>Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? <i>Note which of the following conditions apply.</i></p> <p><input checked="" type="checkbox"/> Wetland has surface runoff that drains to a river or stream that has flooding problems</p> <p><input type="checkbox"/> Other _____</p> <p><i>Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam.)</i></p> <p><input checked="" type="checkbox"/> <b>YES</b> multiplier is 2    <input type="checkbox"/> <b>NO</b> multiplier is 1</p>	<p>(see p. 70)</p> <p>multiplier</p> <p><u>2</u></p>
<b>S</b>	<p><b>TOTAL - Hydrologic Functions</b> Multiply the score from S 3 by S 4</p> <p>Add score to table on p. 1</p>	5

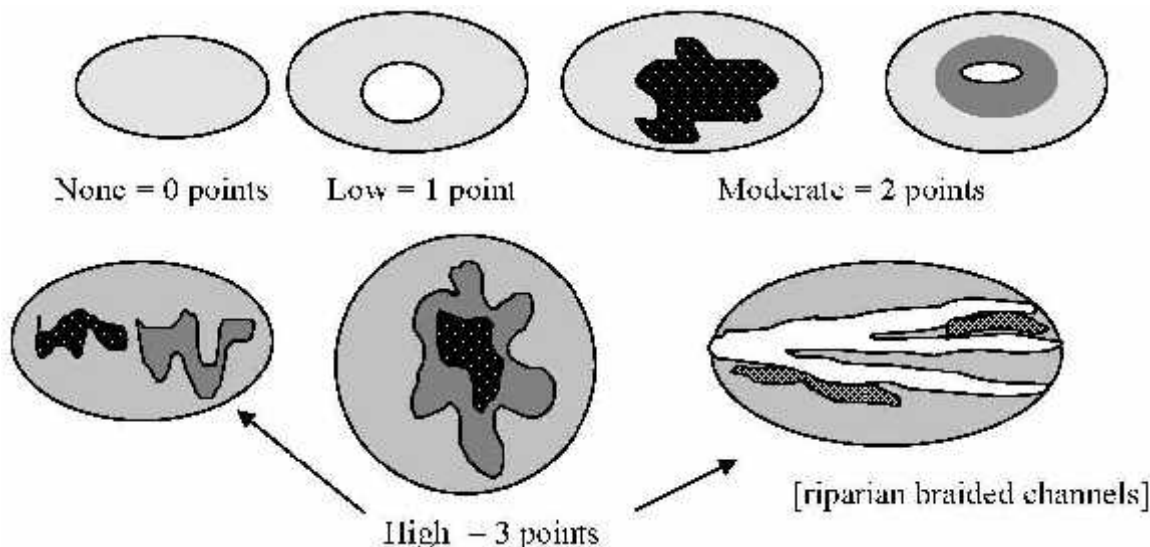
Comments

[illegible]

Total for page 4

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

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



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

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

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

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

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

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

**Comments:**

**Figure**

1

2

7

H 2. Does the wetland have the opportunity to provide habitat for many species?)		Figure__
<p>H 2.1 <u>Buffers</u> (see p. 80)</p> <p>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."</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no grazing, no landscaping, no daily human use) Points = 5</p> <p><input type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;50% circumference. Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;25% circumference. Points = 3</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference. Points = 3</p> <p><b>If buffer does not meet any of the three criteria above</b></p> <p><input checked="" type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing or lawns are OK Points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer. Points = 1</p> <p><input type="checkbox"/> Vegetated buffers are &lt;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</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. Points = 1</p> <p style="text-align: right;">Aerial photo showing buffers</p>	2	
<p>H 2.2 <u>Corridors and Connections</u> (see p. 81)</p> <p>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).</p> <p><input type="checkbox"/> YES = 4 points (go to H 2.3) <input checked="" type="checkbox"/> NO = go to H 2.2.2</p> <p>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? <b>OR</b> a <b>Lake-fringe</b> wetland, if it does not have an undisturbed corridor as in the question above?</p> <p><input type="checkbox"/> YES = 2 points (go to H 2.3) <input checked="" type="checkbox"/> NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p>within 5 mi (8km) of a brackish or salt water estuary OR</p> <p>within 3 mi of a large field or pasture (&gt;40 acres) OR</p> <p>within 1 mi of a lake greater than 20 acres?</p> <p><input checked="" type="checkbox"/> YES = 1 point <input type="checkbox"/> NO = 0 points</p>	1	

Total for page\_3\_

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82)

Which of the following priority habitats are within 330ft (100m) of the wetland? (*NOTE: the connections do not have to be relatively undisturbed.*)

*These are DFW definitions. Check with your local DFW biologist if there are any questions*

- ☐ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.
- ☐ **Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages
- ☒ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.
- ☒ **Urban Natural Open Space:** A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.
- ☐ **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.
- ☐ **Marine/Estuarine Shorelines:** Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point**

No habitats = 0 points

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

3

<p><b>H 2.4 Wetland Landscape</b> (<i>choose the <b>one</b> description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p>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. <span style="float: right;">points = 5</span></p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile <span style="float: right;">points = 5</span></p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed <span style="float: right;">points = 3</span></p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetlands within ½ mile <span style="float: right;">points = 3</span></p> <p>There is at least 1 wetland within ½ mile. <span style="float: right;">points = 2</span></p> <p>There are no wetlands within ½ mile. <span style="float: right;">points = 0</span></p>	3
<p><b>H 2. TOTAL Score</b> -opportunity for providing habitat <i>Add the scores in the column above</i></p>	7
<p>TOTAL for H 1 from page 14</p>	9
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	<b>16</b>

**Comments**



## **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

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

Wetland Type	Category
<p><i>Check off any criteria that apply to the wetland. Select the appropriate Category (from dropdown menu in Category column) when the appropriate criteria are met.</i></p>	
<p><b>SC 1.0 Estuarine wetlands (see p. 86)</b></p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <div style="margin-left: 20px;"> <input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.  <input type="checkbox"/> YES = Go to SC 1.1   <input checked="" type="checkbox"/> NO         </div>	
<p>SC 1.1 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <div style="margin-left: 20px;"> <input type="checkbox"/> YES = Category I                      <input checked="" type="checkbox"/> NO go to SC 1.2         </div>	Cat. I
<p>SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II</p> <div style="margin-left: 20px;"> <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.  <input type="checkbox"/> 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.  <input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.         </div>	Cat. I Cat. II  Dual rating  I/II

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b>  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.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>)  S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO <input checked="" type="checkbox"/></p> <p>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?  <input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = not in a Heritage Wetland</p>	<p>Cat. I</p>
<p><b>SC 3.0 Bogs (see p. 87)</b>  Does the wetland (or part of the wetland) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> <li>Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)  Yes <input type="checkbox"/> - go to Q. 3 No <input checked="" type="checkbox"/> go to Q. 2</li> <li>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 <input type="checkbox"/> - go to Q. 3 No <input checked="" type="checkbox"/> - Is not a bog for purpose of rating</li> <li>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 <input type="checkbox"/> – Is a bog for purpose of rating No <input checked="" type="checkbox"/> -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.</li> </ol> <ol style="list-style-type: none"> <li>Is the wetland forested (&gt; 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 (&gt; 30% coverage of the total shrub/herbaceous cover)?</li> <li>YES <input type="checkbox"/> = Category I NO <input checked="" type="checkbox"/> Is not a bog for purpose of rating</li> </ol>	<p>Cat. I</p>

<p><b>SC 4.0 Forested Wetlands (see p. 90)</b>          Does the wetland have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> <b>Old-growth forests:</b> (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.</p> <p>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.</p> <p><input type="checkbox"/> <b>Mature forests:</b> (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 than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I                      <input checked="" type="checkbox"/> NO not a forested wetland with special characteristics</p>	<p>Cat. I</p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b>          Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1      NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p><b>SC 5.1</b> Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> 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).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p>YES <input type="checkbox"/> = Category I                      NO <input type="checkbox"/> = Category II</p>	

<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>          Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?  <input type="checkbox"/> YES = Go to SC 6.1      <input checked="" type="checkbox"/> NO -- not an interdunal wetland for rating  <i>If you answer yes you will still need to rate the wetland based on its functions.</i>          In practical terms that means the following geographic areas:  <ul style="list-style-type: none"> <li>• Long Beach Peninsula – lands west of SR103</li> <li>• Grayland-Westport- lands west of SR 105</li> <li>• Ocean Shores-Copalis- lands west of SR 115 and SR 109</li> </ul>         SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?  <input type="checkbox"/> YES = Category II      <input checked="" type="checkbox"/> 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,?  <input type="checkbox"/> YES = Category III       </p>	           Cat.II  Cat.III
<p><b>Category of wetland based on Special Characteristics</b>          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.       </p>	N/A

**Comments**

The wetland has been previously disturbed, therefore, it is not high quality undisturbed wetland. Based on ELS observations on-site, the wetland does not contain state threatened or endangered species.

Wetland name or number: Wetland O

**WETLAND RATING FORM – WESTERN WASHINGTON**

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland O

Date of site visit: Oct. 2013

Rated by A. Aberle Trained by Ecology? Yes X No \_\_\_\_\_ Date of Training: Oct. 2006

SECTION: 20 TOWNSHIP: 2N RANGE: 3E Is S/T/R in Appendix D? Yes X No \_\_

**Map of wetland unit: Figure\_\_ Estimated size 0.02 acres**

**DRAFT SUMMARY OF RATING**

**Category based on FUNCTIONS provided by wetland**

I \_\_\_\_\_ II \_\_\_\_\_ III \_\_\_\_\_ IV X

Category I = Score $\geq 70$	Score for Water Quality Functions	12
Category II = Score 51-69	Score for Hydrologic Functions	1
Category III = Score 30-50	Score for Habitat Functions	13
Category IV = Score $< 30$	<b>TOTAL Score for functions</b>	<b>26</b>

**Category based on SPECIAL CHARACTERISTICS of wetland**

I \_\_\_\_\_ II \_\_\_\_\_ Does not Apply X

**Final Category** (choose the “highest” category from above)

IV

**Check the appropriate type and class of wetland being rated.**

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	X	Check if unit has multiple HGM classes present	<input type="checkbox"/>

**Comments**

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

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

Check List for Wetlands That Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered <b>animal</b> or <b>plant</b> species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i>		X
SP4. <i>Does the wetland have a local significance in addition to its functions?</i> 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.		X

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.

**Comments** Formal priority and habitat species request has been completed.



## Classification of Wetland Units in Western Washington

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

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

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

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? ☐ YES – **Freshwater Tidal Fringe**     ☐ NO – **Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.    ).*

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

☒ NO – go to 3     ☐ YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the wetland **meet both** of the following criteria?

- ☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4     ☐ YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the wetland **meet all** of the following criteria?

- ☒ The wetland is on a slope (*slope can be very gradual*),
- ☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☒ The water leaves the wetland **without being impounded**?  
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks( depressions are usually <3ft diameter and less than 1 foot deep).*

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

**Comments**

**5. Does the entire wetland unit *meet all* of the following criteria?**

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river
- ☐ The overbank flooding occurs at least once every two years.

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

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

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

☐ NO – go to 7    ☐ **YES** – The wetland class is **Depressional**

**7. Is the wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.**

☐ NO – go to 8    ☐ **YES** – The wetland class is **Depressional**

**8. Your wetland seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.**

<i>HGM Classes within the wetland unit being rated</i>	<i>HGM Class to Use in Rating</i>
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.

**Comments**

[illegible]

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

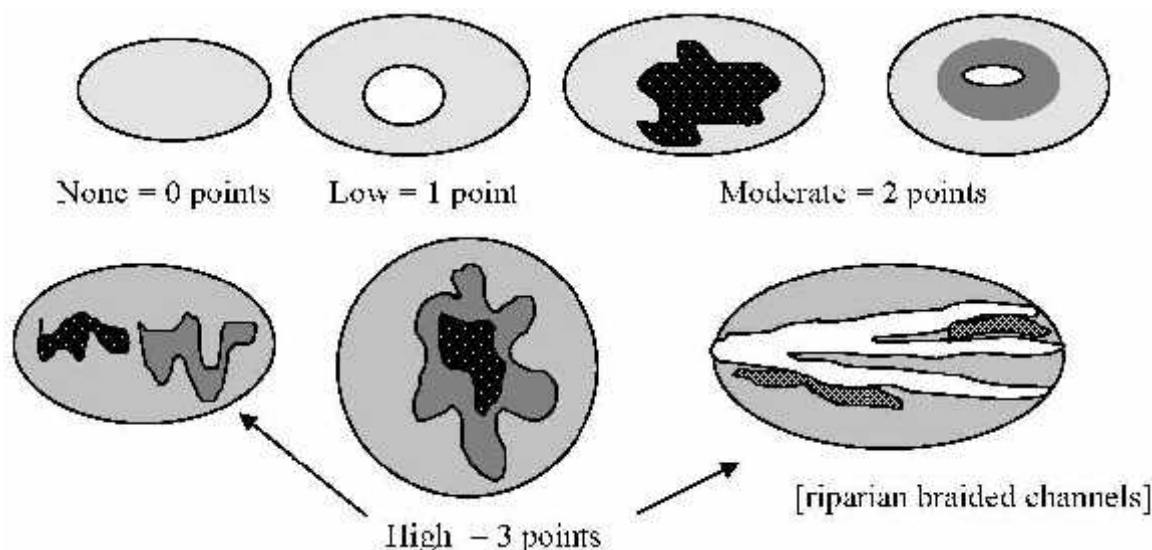
Comments

[illegible]

Total for page 1

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

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



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

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

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

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

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

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

**Comments:**

**Figure**

1

0

4



H 2. Does the wetland have the opportunity to provide habitat for many species?)		Figure__
<p>H 2.1 <u>Buffers</u> (see p. 80)  <i>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."</i></p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no grazing, no landscaping, no daily human use) <b>Points = 5</b></p> <p><input type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;50% circumference. <b>Points = 4</b></p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. <b>Points = 4</b></p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;25% circumference. <b>Points = 3</b></p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference. <b>Points = 3</b></p> <p><b>If buffer does not meet any of the three criteria above</b></p> <p><input checked="" type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing or lawns are OK <b>Points = 2</b></p> <p><input type="checkbox"/> Heavy grazing in buffer. <b>Points = 1</b></p> <p><input type="checkbox"/> Vegetated buffers are &lt;2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) <b>Points = 0</b></p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. <b>Points = 1</b></p> <p style="text-align: right;"><b>Aerial photo showing buffers</b></p>		2
<p>H 2.2 <u>Corridors and Connections</u> (see p. 81)</p> <p>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? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p style="text-align: center;"><input type="checkbox"/> YES = <b>4 points</b> (go to H 2.3) <span style="margin-left: 100px;"><input checked="" type="checkbox"/> NO = go to H 2.2.2</span></p> <p>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? <b>OR a Lake-fringe</b> wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;"><input type="checkbox"/> YES = <b>2 points</b> (go to H 2.3) <span style="margin-left: 100px;"><input checked="" type="checkbox"/> NO = H 2.2.3</span></p> <p>H 2.2.3 Is the wetland:</p> <p style="padding-left: 40px;">within 5 mi (8km) of a brackish or salt water estuary OR</p> <p style="padding-left: 40px;">within 3 mi of a large field or pasture (&gt;40 acres) OR</p> <p style="padding-left: 40px;">within 1 mi of a lake greater than 20 acres?</p> <p style="text-align: center;"><input checked="" type="checkbox"/> YES = <b>1 point</b> <span style="margin-left: 100px;"><input type="checkbox"/> NO = <b>0 points</b></span></p>		1

Total for page 3

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82)

Which of the following priority habitats are within 330ft (100m) of the wetland? (*NOTE: the connections do not have to be relatively undisturbed.*)

*These are DFW definitions. Check with your local DFW biologist if there are any questions*

- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.
- ☐ **Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.
- ☒ **Urban Natural Open Space:** A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.
- ☐ **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.
- ☐ **Marine/Estuarine Shorelines:** Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point**

No habitats = 0 points

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

3

<p><b>H 2.4 Wetland Landscape</b> (<i>choose the <b>one</b> description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p>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. <span style="float: right;">points = 5</span></p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile <span style="float: right;">points = 5</span></p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed <span style="float: right;">points = 3</span></p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetlands within ½ mile <span style="float: right;">points = 3</span></p> <p>There is at least 1 wetland within ½ mile. <span style="float: right;">points = 2</span></p> <p>There are no wetlands within ½ mile. <span style="float: right;">points = 0</span></p>	3
<p><b>H 2. TOTAL Score</b> -opportunity for providing habitat <i>Add the scores in the column above</i></p>	9
<p>TOTAL for H 1 from page 14</p>	4
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	<b>13</b>

**Comments**

## CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

<b>Wetland Type</b>	<b>Category</b>
<p><i>Check off any criteria that apply to the wetland. Select the appropriate Category (from dropdown menu in Category column) when the appropriate criteria are met.</i></p> <p><b>SC 1.0 Estuarine wetlands (see p. 86)</b></p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <div style="margin-left: 20px;"> <input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.  <input type="checkbox"/> YES = Go to SC 1.1    <input checked="" type="checkbox"/> NO         </div>	
<p>SC 1.1 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?  <input type="checkbox"/> YES = Category I                                  <input checked="" type="checkbox"/> NO go to SC 1.2</p>	Cat. I
<p>SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II</p> <div style="margin-left: 20px;"> <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.   <input type="checkbox"/> 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.   <input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.         </div>	Cat. I Cat. II  Dual rating  I/II

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b>  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.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>)  S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO <input checked="" type="checkbox"/></p> <p>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?  <input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = not in a Heritage Wetland</p>	<p>Cat. I</p>
<p><b>SC 3.0 Bogs (see p. 87)</b>  Does the wetland (or part of the wetland) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> <li>Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)  Yes <input type="checkbox"/> - go to Q. 3 No <input checked="" type="checkbox"/> go to Q. 2</li> <li>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 <input type="checkbox"/> - go to Q. 3 No <input checked="" type="checkbox"/> - Is not a bog for purpose of rating</li> <li>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 <input type="checkbox"/> – Is a bog for purpose of rating No <input checked="" type="checkbox"/> -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.</li> </ol> <ol style="list-style-type: none"> <li>Is the wetland forested (&gt; 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 (&gt; 30% coverage of the total shrub/herbaceous cover)?</li> <li>YES <input type="checkbox"/> = Category I NO <input checked="" type="checkbox"/> Is not a bog for purpose of rating</li> </ol>	<p>Cat. I</p>

<p><b>SC 4.0 Forested Wetlands (see p. 90)</b>          Does the wetland have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> <b>Old-growth forests:</b> (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.</p> <p>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.</p> <p><input type="checkbox"/> <b>Mature forests:</b> (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 than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I                      <input checked="" type="checkbox"/> NO not a forested wetland with special characteristics</p>	<p>Cat. I</p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b>          Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1      NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p><b>SC 5.1</b> Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> 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).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p>YES <input type="checkbox"/> = Category I                      NO <input type="checkbox"/> = Category II</p>	



<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>          Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?  <input type="checkbox"/> YES = Go to SC 6.1      <input checked="" type="checkbox"/> NO -- not an interdunal wetland for rating  <i>If you answer yes you will still need to rate the wetland based on its functions.</i>          In practical terms that means the following geographic areas:  <ul style="list-style-type: none"> <li>• Long Beach Peninsula – lands west of SR103</li> <li>• Grayland-Westport- lands west of SR 105</li> <li>• Ocean Shores-Copalis- lands west of SR 115 and SR 109</li> </ul>         SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?  <input type="checkbox"/> YES = Category II      <input checked="" type="checkbox"/> 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,?  <input type="checkbox"/> YES = Category III       </p>	<p></p> <p>Cat.II</p> <p>Cat.III</p>
<p><b>Category of wetland based on Special Characteristics</b>          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.       </p>	<p>N/A</p>

**Comments**

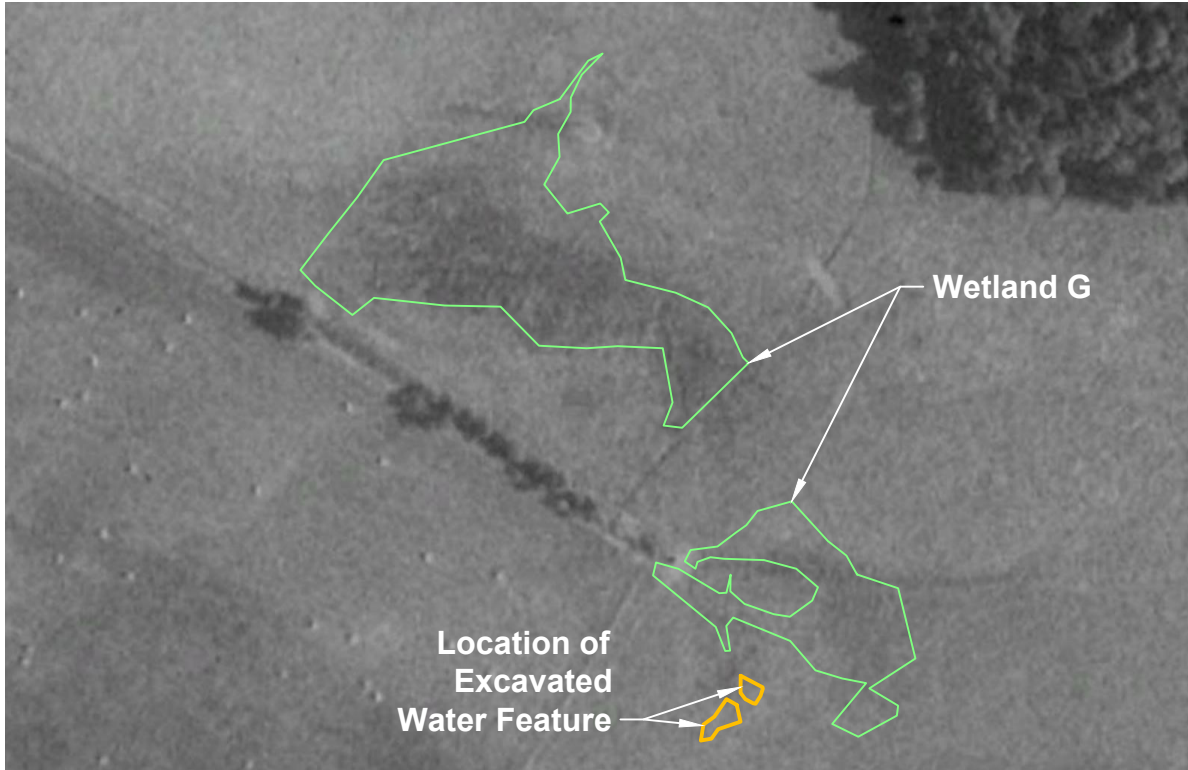
The wetland has been previously disturbed, therefore, it is not high quality undisturbed wetland. Based on ELS observations on-site, the wetland does not contain state threatened or endangered species.

## **Appendix D**

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Historic Aerial Photos

Figure D-1 Wetland G Historic Aerials



**GOOGLE EARTH AERIAL 7-14-1990**



**GOOGLE EARTH AERIAL 4-30-2002**

**LEGEND:**

- Wetland Boundary
- Man-made Water Feature

**NOTE(S):**

1. Historic aerial photos provided by Google Earth™.



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DATE: 4/21/16  
DWN: JKJ  
REQ. BY: MM  
PRJ. MGR: MM  
CHK:  
PROJECT NO: 2048.01

Figure D-1  
**WETLAND G HISTORIC AERIALS**  
Green Mountain Mixed Use PRD  
Green Mountain Land, LLC  
City of Camas, Clark County, Washington  
Section 20, Township 2N, Range 3E, W.M.