



Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance

9505 19th Avenue S.E.
Suite 106
Everett, Washington 98208
(425) 337-3174
Fax (425) 337-3045

CRITICAL AREA STUDY AND HABITAT CONSERVATION REPORT

FOR

East Monroe Rezone

Wetland Resources, Inc. Project #13133

Prepared By:

Wetland Resources, Inc.
9505 19th Ave SE, Suite 106
Everett, WA 98208
(425) 337-3174

For:

PACE
Susan E. Boyd, Vice President
11255 Kirkland Way #300
Kirkland, WA 98033

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EXECUTIVE SUMMARY

The purpose of this critical area report is to provide a baseline condition analysis of all on-site wetlands, streams and shoreline areas for the East Monroe Comprehensive Plan Amendment and Rezone project.

The East Monroe Comprehensive Plan Amendment and Rezone project is located east of the intersection of State Route 2 and Old Owen Road in the city of Monroe, WA (a portion of Sections 5 and 6, Township 27N, Range 7E, W.M.).

In June of 2013, site visits were conducted on this 42.81-acre site to delineate and evaluate all on-site wetlands and streams. As part of this investigation, three wetlands and one stream were identified and delineated. The on-site slough and riparian wetland complex fall under the jurisdiction of the Shoreline Management Act and the City of Monroe's Shoreline Master Program due to their hydrologic connectivity and close proximity to the Skykomish River. Because the slough is located within a jurisdictional shoreline, the slough is classified as a Type 1 waterbody, and requires a 200-foot buffer.

One of the on-site wetlands, Wetland A, is classified as a Category II wetland with a moderate to high total function score of 55. These moderate to high function scores are due to shallow depth of storage above is outfall within the wetland, disturbances in wildlife corridor connectivity from roads and development, and the presence non-native and invasive plant species that reduce the opportunity to provide high quality habitat. The total score for functions of 55 is due to the wetlands association with a Type 1 stream (shoreline) rather than its individual functionality.

Wetlands B and C are classified as Category III wetlands and have low (heavy vegetation within the stream, shallow water depths) to moderate (connection to a river with flooding problems that provides an opportunity for the wetlands to improve flood storage) total function scores of 38 and 36. These low to moderate scores are due to lack of vegetation structure and diversity, limited opportunity for ponding (standing water), and connectivity and/or proximity to the Type 1 stream.

Because of its downstream connection to the Skykomish River and because it meets the parameters of WAC 222-16-031, it is assumed that the on-site stream is a salmon bearings stream. However, no fish were observed in the stream during the June site visit. This Type 1 stream is protected by the City of Monroe Shoreline Management Plan. Impacts to the stream from potential development are not anticipated. Impacts to buffers from mitigation measures used to compensate for development impacts could enhance the stream channel and improve water quality by including vegetation that would provide shade to the stream. Enhancement of the buffer areas of the stream and wetland area would provide a significant lift to the functions and values over the existing condition.

The wetlands on site are also protected by City of Monroe code, the Washington State Department of Ecology, and the US Army Corps of Engineers

On-site wetland and stream boundaries were reviewed and approved in the field by Paul Anderson, PWS, Washington State Department of Ecology Wetland Specialist. A copy of Mr. Anderson's letter is provided in Appendix C.

Table 1 provides a brief summary of the on-site critical areas. The following table summarizes the on-site slough and wetland data.

TABLE 1: Wetland/Stream Summary Table

Wetland/Stream	HGM Class	City of Monroe Classification	Total Score	Habitat Score	Buffer (Ft)
A	Riverine/Depressional	Category II	54	25	100
B	Slope	Category III	38	16	75
C	Depressional	Category III	36	12	75
Stream/Slough	N/A	Type 1	N/A	N/A	200

* Total Score and Habitat Score are from the *Washington Wetland Rating System for Western Washington, Revised*, Washington State Department of Ecology, August 2004 (Publication #04-06-025).

**Buffers are based on MMC 20.25

*** Stream Typing Based on WAC 222-16-030 or 222-16-031

SITE DESCRIPTION/BASELINE CONDITIONS

Wetland Resources, Inc. (WRI) delineated the on-site wetlands and the southern boundary of the on-site stream/slough in June 2013, on the entire 42.81-acre site located east of the intersection of State Route 2 & Old Owen Road in the City of Monroe, Washington. The site is located in a portion of Sections 5 and 6, Township 27N, Range 7E, W.M. All Information about off-site features described in this report was gathered from visual observations from the subject site, along public roads and right-of-ways, aerial photographs of the site and surrounding area and review of available on-line resources.

The majority of the site is relatively flat with the exception of a steep south aspect slope along the northerly edge of the property. The site is characterized by a stream/slough that horseshoes through the site south of the slope. State Route 2 (SR 2) borders the southern edge of the site with a railroad track running parallel just south of the highway. Vegetation on the subject property is currently dominated by herbaceous plants, pasture grasses, and invasive species. Forested areas are present along the edges of the subject site, and a narrow stand of trees is located in the northeast section of the site. Dense, established Himalayan blackberry and reed canarygrass stands are located within and along the edges of the stream/slough channel that moves through the site. A driveway off of SR 2 provides access and an old road crosses the slough on the eastern side of the site. The slough flows through a 24-inch culvert under this old road crossing. Historic aerial photos show an access road running from SR 2 across the property to the slough crossing. No structures currently exist on site.

This stream/slough was historically a channel of the Skykomish River and is now an “oxbow” that enters the site near the southeast property corner. The stream/slough receives water from a ditch that flows along the north side of SR 2, which appears to receive water from other drainage ditches on properties to the east of the subject site, as depicted on sheets 1/4 through 4/4. A culvert running under SR 2 and ending before the railroad tracks was observed on the east area of the slough. Based on a detailed upstream analysis conducted by Watershed Science and Engineering (memo dated May 28, 2015), the water from the stream/slough does not have a direct connection to the Skykomish River under the railroad tracts. Design drawings of this section of BNSF tracks confirm that there is no culvert connection under the railroad track.

After the stream/slough enters the site, it continues northwest to the base of the steep slope, follows the slope from east to west and then flows southwest and exits the site near the southwest corner. As the slough approaches SR 2 off-site, it flows into a four-foot concrete box culvert. This culvert is several hundred feet long and goes under SR 2. Approximately 30 feet south of where the culvert daylights, water from the slough continues through a second four foot concrete round culvert under the railroad tracks. The railroad culvert is approximately 55 feet long and daylights directly into the Skykomish River. There are no significant barriers that impede the passage of fish from the Skykomish River into the on-site slough during high flow periods and

flood events. As described above, the hydrologic function of the stream/slough is significantly altered over its natural condition.

Three wetland areas were identified on-site as part of this investigation. One wetland complex (Wetland A) is immediately adjacent to the slough in the central and east areas of the site and continues off-site to the east. A second wetland (Wetland B) is along the northeast edge of the property and also continues off-site to the east. A third small wetland (Wetland C) is located within the central pasture area and is entirely on-site. All of the on-site wetlands are within an area that was historically maintained pasture and are now generally dominated by invasive plant species typical of abandoned pastures in Snohomish County. Figure Sheets 2/4 & 4/4.

PROJECT DESCRIPTION

The proposed action is a change in the comprehensive land use designation and subsequent rezone of the project area from Limited Open Space (LOS) to General Commercial (GC). No specific development plans exist at this time.

REVIEW OF EXISTING INFORMATION

Before conducting the on-site investigation, a literature review was performed to identify records of wetlands and streams within the project area. The following information was examined:

- U.S. Geological Survey (USGS) topographic map (USGS, 2011)
- National Wetlands Inventory map of project area - online version located at: <http://www.fws.gov/wetlands/Data/mapper.html>
- *Web Soil Survey* (USDA) located at: http://www.or.nrcs.usda.gov/pnw_soil/wa_reports.html
- City of Monroe Critical Areas Regulations, Chapter 20.05
- City of Monroe Critical Areas and Buffers Map located at: <http://www.monroewa.gov/DocumentCenter/Home/View/199>
- Snohomish County Landscape Imaging “Snoscape” website located at: <http://gis.snoco.org/maps/snoscape/viewer.htm>
- *Hydric Soils List Snohomish County Area Washington* (NRCS, 2001)
- National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary Indicator by Region and Subregion (USFWS, March 2, 1997)
- WDFW Priority Habitats and Species Maps – online version located at: <http://wdfw.wa.gov/mapping/phs/>

SHORELINE DESIGNATION

Due to the close proximity and association with the Skykomish River, the on-site slough and associated riparian wetland complex (Wetlands A & B) fall under the jurisdiction of the Shorelines Management Act WAC 173 and the City of Monroe's Shoreline Master Program. A 200-foot Shoreline Designation from the edge of the ordinary high water mark of the slough and associated wetlands applies to a portion of the site (City of Monroe's Shoreline Master Program). The placement of fill or other disturbance to the slough/stream, associated wetlands, or areas within the 200-foot Shoreline Designation would require a Shoreline Permit from the City of Monroe.

WETLAND AND STREAM CLASSIFICATIONS - COWARDIN SYSTEM

According to the Cowardin System, as described in Classification of Wetlands and Deepwater Habitats of the United States, the classifications for subject wetlands and stream are as follows:

Wetland A: Palustrine, Emergent, Persistent, Semi-permanently Flooded.

Wetland B: Palustrine, Emergent, Persistent, Seasonally Flooded.

Wetland C: Palustrine, Emergent, Persistent, Temporarily Flooded.

Stream: Riverine, Lower Perennial, Unconsolidated Bottom, Mud.

WETLAND AND STREAM CLASSIFICATIONS - CITY OF MONROE

As required by the City of Monroe Critical Areas Regulations, Chapter 20.05, the on-site wetlands were rated and classified using the Washington State Department of Ecology (DOE) Wetland Rating system. Streams were classified using the water typing system set forth in WAC 222-16-031. The wetlands and stream are classified as follows:

Wetland A – Category II

This wetland complex is immediately adjacent to the slough, with a section continuing off-site to the east. Wetland A contains both riverine and depressional characteristics and therefore was rated as a depressional wetland. This wetland receives a total score of 54 points for all wetland functions, including 25 points for habitat functions. With a total score between 51 and 69 points, this wetland is classified as a Category II wetland. In the city of Monroe, Category II wetlands are typically dedicated 100-foot buffers.

Wetland B – Category III

This wetland is a slope wetland at the toe of a steep slope located north of the subject property. Wetland B receives a total score of 38 points for all wetland functions, including 16 points for habitat functions. In the city of Monroe, Category III wetlands are typically dedicated 75-foot buffers.

Wetland C – Category III

This wetland is a small wetland located in a topographic depression in the pasture area of the site. Wetland C receives a total score of 36 points for all wetland functions, including 12 points for habitat functions. In the city of Monroe, Category III wetlands are typically dedicated 75-foot buffers.

A Functions and Values Assessment of all wetlands is provided later in this report.

Stream/Slough – Type 1 Water

WAC 22-16-031 states that *“Type 1 Water” means all waters, within their ordinary high-water mark, as inventoried as “shorelines of the state” under chapter 90.58 RCW and the rules promulgated pursuant to chapter 90.58 RCW, but not including those waters’ associated wetlands as defined in chapter 90.58 RCW.* Therefore given this slough is classified as a shoreline of the state (as discussed above) it is automatically classified as a Type 1 Water regardless of its on-site characteristics. The slough has potential to support salmonids due to connectivity with the Skykomish River, but none were observed at the time of investigation. Several species of salmonids use the Skykomish River for breeding and migration. Type 1 streams in the City of Monroe are typically dedicated 200-foot protective buffers. A Functions and Values Assessment for the stream/slough is provided later in this report.

WETLAND DETERMINATION REPORT

Methodology

Wetland conditions were evaluated using routine methodology described in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, (referred as 2010 Regional Supplement). The methodology in the 2010 Regional Supplement coincides with the methodology described in the *Washington State Wetlands Identification and Delineation Manual* (Washington State Department of Ecology Publication #96-94, March 1997). In general, wetland delineation consisted of two tasks: (1) assessing vegetation, soil, and hydrologic characteristics to identify areas meeting the wetland identification criteria, and (2) mapping wetland boundaries using aerial photography and existing survey information.

The following criteria descriptions were used in the wetland boundary determination:

Vegetation Criteria

The 2010 Regional Supplement defines hydrophytic vegetation as “*the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence of the plant species present.*” Field indicators were used to determine whether the vegetation meets the definition for hydrophytic vegetation.

Soils Criteria and Mapped Description

The National Technical Committee for Hydric Soils, as described in the 2010 Regional Supplement, defines hydric soils as “*a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.*” Field indicators were used to determine whether a given soil meets the definition for hydric soils.

The *Soil Survey of Snohomish County Area Washington* maps four types of soil on the subject site: Puyallup Fine Sandy Loam, Sultan Silt Loam, Puget Silty Clay Loam, and Alderwood-Everett Gravelly Sandy Loam 25 to 70 percent slopes.

Puyallup Fine Sandy Loam is described as very deep well drained soil on stream terraces. It formed in alluvium of mixed origin. Typically, the surface layer is very dark grayish brown fine sandy loam about 10 inches thick. The upper part of the underlying material is dark grayish brown and olive brown fine sandy loam about 20 inches thick. Included in this unit are small areas of Puget soils in depressional areas on flood plains and Pilchuck, Sultan, Sultan Variant and Sumas soils on flood plains. Included areas make up about 15 percent of the total acreage. Permeability of this Puyallup soil is moderately rapid. Available water capacity is moderate. Runoff is slow and rare periods of flooding occur from November to April. This soil is not listed as hydric on the *Hydric Soils List for Washington*.

Sultan Silt Loam is described as a very deep moderately well drained soil on flood plains. It formed in alluvium. Typically, the surface layer is dark grayish brown silt loam about 12 inches thick. The upper part of the underlying material is dark grayish brown silty clay loam about 30 inches thick. Included in this unit are small areas of Menzel soils on terraces, Puget soils in depressional areas on flood plains, Puyallup soils on stream terraces, and Sultan Variant soils on flood plains. Included areas make up about 15 percent of the total acreage. Permeability of this Sultan soil is moderately slow. Available water capacity is high. Sultan soils are listed as hydric on the *Hydric Soils List for Washington*.

Puget Silty Clay Loam is described as a very deep soil in depressional areas on flood plains. It has been artificially drained. The soil formed in alluvium. Typically, the surface layer is dark grayish brown silty clay loam about 9 inches thick. The underlying material to a depth of 60 inches or more is olive gray and gray silty clay loam. In some areas the soil is not drained and is not

protected from flooding. Included in this unit are areas of Snohomish, Sumas, Sultan, and Pilchuck soils on flood plains and Puyallup soils on stream terraces. Puget, Snohomish, and Sumas, soils are listed as hydric on the *Hydric Soils List for Washington*.

Alderwood-Everett Gravelly Sandy Loam, 25-70 percent slopes is on till plains, terraces, and outwash plains. This unit is about 60 percent Alderwood gravelly sandy loam and about 25 percent Everett gravelly sandy loam. Included in this unit are small areas of Ragnar, Indianola, McKenna, and Norma soils and Terric Medisaprists in depressional areas and drainageways on plains. Also included are colluvial soils, slump areas, and escarpments. Included areas make up about 15 percent of the total acreage. The Alderwood soil is moderately deep over a hardpan and is moderately well drained. It formed in glacial till. Typically, the surface layer is very dark grayish brown gravelly sandy loam about 7 inches thick. The upper part of the subsoil is dark yellowish brown and dark brown very gravelly sandy loam about 23 inches thick. A weakly cemented hardpan is at a depth of about 35 inches. Depth to the hardpan ranges from 20 to 40 inches. Permeability of the Alderwood soil is moderately rapid above the hardpan and very slow through it. Available water capacity is low. A seasonal perched water table is at a depth of 18 to 36 inches from January to March. Springs or seep areas are common.

The Everett soil is very deep and somewhat excessively drained. It formed in glacial outwash. Typically, the surface layer, where mixed to a depth of about 6 inches, is very dark grayish brown gravelly sandy loam. The subsoil is dark brown very sandy gravelly loam about 12 inches thick. The lower part to a depth of 60 inches or more is dark brown extremely gravelly sand. Permeability of the Everett soil is rapid. Available water capacity is low. Everett soils are not listed as hydric on the *Hydric soils list for Washington*.

Hydrology Criteria

As stated in the 2010 Regional Supplement, the “term wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season.” It also explains “areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and chemically reducing conditions, respectively.”

Additionally, the *US Army Corps of Engineers 1987 Wetland Delineation Manual* states that “areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days ≥ 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas inundated or saturated between 5 and 12.5 percent of the growing season in most years may or may not be wetlands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands.” Field indicators were used to determine whether wetland hydrology parameters were met on this site.

BOUNDARY DETERMINATION FINDINGS

Wetland A

Vegetation in this wetland is characterized by the presence of the following species: red-osier dogwood (*Cornus alba*, FACW), salmonberry (*Rubus spectabilis*, FAC), and lady fern (*Athyrium filix-femina*, FAC), water smartweed (*Persicaria amphibia*, OBL), reed canarygrass (*Phalaris arundinacea*, FACW), cattail (*Typha latifolia*, OBL), giant horsetail (*Equisetum telmateia*, FACW), touch-me-not (*Impatiens noli-tangere*, FACW), skunk cabbage (*Lysichiton americanus*, OBL), and red-tinge bulrush (*Scirpus microcarpus*, OBL). Red alder (*Alnus rubra*, FAC) and Sitka willow (*Salix sitchensis*, FACW) are present along the edges of Wetland A.

Soils within Wetland A are typically a very dark grayish brown (2.5Y 3/2) or a very dark brown (10YR 2/2) within the upper 7 to 10 inches. The sublayer is dark gray (10YR 4/1, 5Y 4/1) with dark reddish brown (5YR 3/4) or dark olive brown (2.5Y 3/3) redoximorphic features. Texture in the Wetland A soils varied across the site. Textures documented included: silt loam, silty clay loam, sandy clay loam, and what appeared to be mucky mineral.

Saturated soils, high water table, and standing surface water were observed within the wetland during the June 2013 visit.

The dominance of species rated “Facultative” or wetter meets the criteria for hydrophytic vegetation in the areas mapped as wetland. Based on field indicators, it appears that the areas mapped as Wetland A are saturated to the surface for more than 12.5 percent of the growing season, thereby fulfilling wetland hydrology criteria.



Photo 1: Wetland A just east of the slough. Note dense reed canarygrass.



Photo 2: Wetland A east of the slough.



Photo 3: Wetland A along eastern property edge.



Photo 4: Slough and riparian area of Wetland A in foreground. Reed canarygrass and upland forest in background.

Wetland B

Vegetation in the wetland is characterized by the presence of the following species: Sitka willow (*Salix sitchensis*, FACW), lady fern (*Athyrium filix-femina*, FAC), reed canarygrass (*Phalaris arundinacea*, FACW), tall fescue (*Festuca arundinacea*, FAC), creeping buttercup (*Ranunculus repens*, FAC), lamp rush (*Juncus effusus*, FACW), giant horsetail (*Equisetum telmateia*, FACW), and velvet grass (*Holcus lanatus*, FAC).

Soils within Wetland B are very dark gray (10YR 3/1) or very dark grayish brown (2.5Y 3/2) sandy silt loam within the top 10 inches. Redoximorphic features present within the sublayer are a yellowish brown (10YR 5/6) or dark yellowish brown (10YR 3/6). The sublayer matrix ranges from very dark gray (10YR 3/1) to gray (10YR 5/1) sandy silt loam. Saturated soils and high water table were observed within the wetland during the June 2013 visit. Surface water was not present at time of observation.

The dominance of species rated “Facultative” or wetter meets the criteria for hydrophytic vegetation in the areas mapped as Wetland B. Based on field indicators, it appears that the areas mapped as wetland are saturated to the surface for more than 12.5 percent of the growing season, thereby fulfilling wetland hydrology criteria.



Photo 5: Wetland B on east edge of property.



Photo 6: West side of Wetland B, looking toward slough.

Wetland C

Vegetation in this wetland is characterized by the presence of the following species: lamp rush (*Juncus effusus*, FACW), creeping buttercup (*Ranunculus repens*, FAC), colonial bent grass (*Agrostis capillaris*, FAC), and velvet grass (*Holcus lanatus*, FAC).

Soils within Wetland C are very dark grayish brown (2.5Y 3/2) loam in the upper 16 inches with a dark gray (2.5Y 4/1) silt loam sublayer. Redoximorphic features are present throughout the profile and range from a dark brown (7.5YR 3/4) to a dark yellowish brown (10YR 3/4). Evidence of a high water table was observed within the wetland during the June 2013 visit.

The dominance of species rated “Facultative” or wetter meets the criteria for hydrophytic vegetation in the areas mapped as Wetland C. Based on field indicators, it appears that the areas mapped as wetland are saturated to the surface for more than 12.5 percent of the growing season, thereby fulfilling wetland hydrology criteria. Surface water was not present at time of observation.



Photo 7: Wetland C, in small depression in field.

Non-Wetland

Vegetation in the areas mapped as non-wetland is represented by the following species: big leaf maple (*Acer macrophyllum*, FACU), red alder (*Alnus rubra*, FAC), western sword fern (*Polystichum munitum*, FACU), Himalayan blackberry (*Rubus armeniacus*, FACU), tall fescue (*Festuca arundinacea*, FAC), sweet vernal grass (*Anthoxanthum odoratum*, FACU), and bull thistle (*Cirsium vulgare*, FACU).

Soils underlying the areas mapped as non-wetland on the subject site vary from a dark brown (10YR 3/3) to an olive brown (2.5Y 4/3) silt loam in the upper layer with a reddish-brown (5Y 5/3) or reddish gray (5Y 5/2) silt loam in the sublayer. Upland soils ranged from moist to dry across the site.

Based on the lack of field indicators, it appears that area of the site mapped as non-wetland is not saturated to the surface for more than 12.5 percent of the growing season, thereby not fulfilling wetland hydrology criteria.



Photo 8: Buffer/Pasture area in central portion of site.



Photo 9: Dense fringe of Himalayan blackberry along the wetland boundary.

FUNCTIONS AND VALUES ASSESSMENT

Functional Components

Wetlands and streams in Western Washington perform a variety of ecosystem functions. Included among the most important functions provided by wetlands are: stormwater control, water quality improvement, fish and wildlife habitat, aesthetic value, recreational opportunities, and education. The most commonly assessed functions and their descriptions are listed below. Assessments of these functions for the project site are provided in the “Value Assessment” sections of this report.

Hydrologic Functions

Wetlands often function as natural water storage areas during periods of precipitation and flooding. By storing water that otherwise might be channeled into open flow systems, wetlands can attenuate or modify potentially damaging effects of storm events, reducing erosion and peak flows to downstream systems. Additionally, the soils underlying wetlands are often less permeable, providing long-term storage of stormwater or floodflow and controlling baseflows of downstream systems. Stormwater storage capacity and floodflow attenuation are generally a function of the size of the wetland and their topographic characteristics.

Water Quality

Surface water quality improvement is another evaluated function. Surface runoff during periods of precipitation increases the potential for sediments and pollutants to enter surface water. Wetlands improve water quality by acting as filters as water passes through them, trapping sediments and pollutants from surface water. Poned areas within depressional wetlands also allow sediments to drop out of suspension, thereby increasing water quality. As development increases, the potential for polluted water to reach wetlands and streams also increases. Unnaturally high inputs of pollutants, which are often found in urbanized areas, along with the size of the wetlands and the vegetation structure within them are the main limiting factors of this function.

Wildlife Habitat

Wetlands have potential to provide diverse habitat for aquatic, terrestrial, and avian species for nesting, rearing, resting, cover, and foraging. Wildlife species are commonly dependent upon a variety of intermingled habitat types, including: wetlands, adjacent uplands, large bodies of water, and movement corridors between them. Human intrusion, including development within and adjacent to wetlands, and impacts to movement corridors are the most limiting factors for wildlife habitat functions.

Value Assessment – Wetland A

Hydrologic Function

The Wetland A complex consists of depressional wetland areas adjacent to the on-site slough. These areas receive hydrology from precipitation and from the slough. This structure allows the wetland to collect water during high-volume seasonal storm events. By collecting water during these events, the wetland assists in reducing the volume of water moving through the channel. This wetland is performing a flood-reducing function. However, because the wetland is directly associated with the slough, which provides a relatively unconstrained outlet to the river and the depth of storage in much of the wetland area is less than three feet Wetland A provides a low value for flood-reduction.

Water Quality

This wetland provides some water quality benefits as water moves through the system. The amount of dense vegetation in this wetland allows for the wetland to perform a bio-filtration function. The areas of permanent ponding provide water quality improvement by increasing residence time, slowing velocity, and allowing particulates to settle. This wetland is near residential areas and SR 2, providing an opportunity for it to improve water quality. This wetland provides a moderate to high value for water quality improvement.

Wildlife Habitat

The presence of multiple Cowardin vegetation classes, multiple hydroperiods, and a high diversity of native plant species create the potential for this wetland to perform a high value habitat function. It contains multiple special and priority habitat features. This wetland is connected to vegetated corridors that continue to the northeast and to the Skykomish River. These corridors are disturbed or broken by development and roads, including SR 2. These disturbances in connectivity and the presence of multiple varieties of non-native/invasive vegetation species reduce the opportunity for this wetland to provide a high habitat value. With a habitat score of 25, the wetland provides a moderate value for habitat.

Value Assessment – Wetland B

Hydrologic Function

Wetland B is a slope wetland and has a partially constricted outlet. Water in the wetland flows from east to west. The majority of the wetland drains into the slough on-site. This water then continues heading toward the Skykomish River. Typically slope wetlands have reduced potential to perform hydrologic functions, because the water moving through them has a low residence time. However, the ponded areas within this wetland do perform a low to moderate hydrologic function by increasing water residence time.

Water Quality

Wetland B provides some water quality benefits as water moves through the system. The amount of dense vegetation in this wetland allows for Wetland B to perform a bio-filtration

function. The areas of seasonal ponding provide water quality improvement by increasing residence time and allowing particulates to settle. This wetland is near residential and urban areas, providing an opportunity for it to improve water quality. This wetland provides a low to moderate value for improved water quality.

Wildlife Habitat

The presence of only one Cowardin vegetation class and few special or priority habitat features restricts the potential for Wetland B to perform a high value habitat function. This wetland is connected to vegetated corridors that continue to the northeast and to the Skykomish River. These corridors are disturbed or broken by development and roads, including SR 2. These disturbances in connectivity reduce the opportunity for this wetland to provide a high habitat value. With a habitat score of 16, Wetland B provides a low value for this function.

Value Assessment – Wetland C

Hydrologic Function

Wetland C is a depressional wetland with no outlet. Wetlands with limited outflow retain water longer and allow for higher potential to perform hydrologic functions. The water retained by this wetland would drain to a river that has flooding problems and therefore has the opportunity to improve hydrologic functions. Wetland C provides a moderate value for this function.

Water Quality

The water residence time, area of ponding, and the persistent vegetation over the entire wetland area creates potential for Wetland C to improve water quality functions. Being located near a residential area provides this wetland opportunity to improve water quality by retaining storm water. However, the functions provided by Wetland C are limited by its small size. Wetland C provides a low to moderate water quality value.

Habitat Quality

Wetland C contains only one vegetation class, few hydroperiods, a moderate diversity of vegetation species, and no habitat interspersions. These characteristics and the small size of the wetland severely limit the potential for Wetland C to perform a high habitat function. While the buffer is vegetated, the majority of this vegetation is herbaceous or Himalayan blackberry. The corridors and connections to other wetlands in the areas are disturbed. With a habitat score of 12, Wetland C provides a low habitat value.

Stream/Slough - Functions and Values Assessment

The slough is classified as a Shoreline of the State, per WAC 22-16-031. Shorelines of the state are automatically designated as a Type 1 Water. Due to its connectivity to the Skykomish River, it is presumed to provide habitat for anadromous fish as well as other aquatic species, however, no fish were observed at the time of investigation. This stream

provides floodwater storage and sediment and organic material transport. The riparian habitat provided by this stream adds to the diversity and complexity of the habitat elements provided by the adjacent wetland complex. The surrounding urban area, dense invasive plant species along the banks, lack of forested canopy along the bank for thermal control and culverts along this stream restrict the functions it provides.

On-site Wetland and Stream (slough) Buffer Functions and Values Assessment

Water Quality

Vegetated wetland and stream buffers obstruct water flow, thereby decreasing water velocity, allowing infiltration into the soil, and reducing soil erosion potential. The on-site wetland and stream/slough buffer areas are vegetated with a variety of emergent plants, a few shrubs, Himalayan blackberry, and infrequent trees. The on-site buffers do perform a water quality function, but it is limited by the lack of a diverse vegetation canopy and previous soil disturbance or tilling.

Hydrologic functions

Wetland and stream buffers help to moderate water level fluctuations. Buffer vegetation impedes the flow of runoff, increases the humus content of soil (greater absorption capacity), and preserves soil composition as intense rainfall hits the ground. Buffers adjacent to the wetland and stream/slough appear to perform this function. Again, this function is limited by the lack of diverse vegetation structure.

Wildlife Habitat

Many birds, mammals, and amphibians use wetland and stream buffers for some part of their life needs. Their use of these sites is dependent on the valuable edge habitat found at the wetland/upland border. The on-site buffer vegetation is not very diverse, but the wetland/stream buffers do appear to provide cover for safety, breeding, and escape, and a food source for some native wildlife species. Overall, the on-site buffer areas provide a low value for habitat functions. Considering the moderate habitat functions score for Wetland A, the buffer adjacent to Wetland A has a higher potential for providing wildlife habitat than the buffers adjacent to the other on-site stream/slough or wetlands.

PERMANENT PROTECTION

When an application for development occurs within the City of Monroe the following permanent protection measures are required pursuant to Monroe Municipal Code.

Native Growth Protection Easements

The City of Monroe requires that all critical areas and their associated buffers be placed in Native Growth Protection Easements (NGPE) or Critical Area Tracts (Monroe CAO, Section 20.05.070). An NGPE is an easement granted to the city for the protection of a critical area and/or its

associated buffer. NGPEs shall be required as specified in these rules and shall be recorded on plats, short plats and final development permits and all documents of title and with the county

Dedication of a Native Growth Protection Easement (NGPE) conveys to the public a beneficial interest in the land within the easement. This interest includes the preservation of existing vegetation for all purposes that benefit the public health, safety and welfare, including control of surface water and erosion, maintenance of slope stability, visual and aural buffering, and protection of plant and animal habitat. The NGPE imposes upon all present and future owners and occupiers of land subject to the easement the obligation, enforceable on behalf of the public of the City of Monroe, to leave undisturbed all trees and other vegetation within the easement. The vegetation in the easement may not be cut, pruned, covered by fill, removed, or damaged without express permission from the City of Monroe, which permission must be obtained in writing.

Before beginning and during the course of any grading, building construction or other development activity on a lot or development site subject to the NGPE, the common boundary between the easement and the area of development activity must be fenced or otherwise marked to the satisfaction of the City of Monroe.

NGPE Signs

According to the Monroe CAO, Section 20.05.070.D.1, the outer perimeter of the wetland, stream, or buffer and the limits of these areas to be disturbed pursuant to an approved permit or authorization shall be marked in the field so no unauthorized intrusion will occur and is subject to inspection by the Director or his designee prior to the commencement of permitted activities. This temporary marking shall be maintained throughout construction and shall not be removed until directed by the Director, or until permanent signs and/or fencing, if required, are in place.

Pursuant to the City of Monroe CAO, Section 20.05.070.D.2, the outer perimeter of the critical area or buffer that is not disturbed shall be permanently identified following the implementation of an approved development plan or alteration. Permanent marking and/or fencing is required. This identification shall include permanent wood or metal signs on treated wood or metal posts. Signs shall be worded as follows:

NATIVE GROWTH PROTECTION EASEMENT
PROTECTION OF THIS NATURAL AREA IS IN YOUR CARE.
ALTERATION OR DISTURBANCE IS PROHIBITED.
PLEASE CALL THE CITY OF MONROE FOR MORE INFORMATION.

City of Monroe personnel shall approve sign locations during review of the development proposal. Along boundaries, the signs shall be at least 4" X 6" in size and spaced one per lot or every one hundred fifty (150) feet for lots whose boundaries exceed one hundred fifty (150) feet. At road endings, crossings and other areas where public access to the critical area is allowed, the sign shall be a minimum of 18" X 24" in size and spaced one every one hundred fifty (150) feet.

Critical Area Tracts

Pursuant to the City of Monroe CAO, Section 20.05.070.B, Critical Area Tracts are legally created lots that contain critical areas and their buffers. These tracts are non-buildable and shall remain undeveloped pursuant to the CAO. Critical area tracts shall be incorporated into the area of the parent lot and they are not meant for resale, lease or transfer. When the development is in the form of a subdivision, short subdivision (short plat), planned residential development (PRD) or contract rezone, critical areas and their buffers shall be placed in a critical areas tract rather than a NGPE. As with NGPEs, maintenance and protection for these tracts is the obligation of the landowner. A note identifying these tracts shall be recorded on the face of all plats, PRD's or contract rezones and likewise recorded on the titles of affected lots.

Typical Building Setback Line (BSBL)

Pursuant to the City of Monroe CAO, Section 20.05.070.C, unless otherwise specified, a minimum Building Setback Boundary Line (BSBL) of ten (10) feet is required from the edge of any separate tract, buffer or NGPE, whichever is greatest.

WILDLIFE

During the June 2013 visits, few wildlife species were observed. Documentation by Washington Department of Fish and Wildlife (WDFW) reports the area of the Skykomish River associated with the subject site is used by several species of fish. These species include: Cutthroat trout (*Oncorhynchus clarki*), Chinook salmon (*Oncorhynchus tshawytscha*), Chum salmon (*Oncorhynchus keta*), Coho salmon (*Oncorhynchus kisutch*), Bull trout (*Salvelinus malma*), and Pink salmon (*Oncorhynchus gorbuscha*).

The following avian species expected to use the subject site include: common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), house finch (*Carpodacus mexicanus*), black-capped chickadee (*Poecile atricapillus*), bushtit (*Psaltriparus minimus*), northern flicker (*Colaptes auratus*), hairy woodpecker (*Picoides villosus*), downy woodpecker (*Dendrocopos villosus*), red-breasted nuthatch (*Sitka canadensis*), brown creeper (*Certhia americana*), swainson's thrush (*Hyocichla ustulata*), varied thrush (*Ixoreus naevius*), and sharp-shinned hawk (*Accipiter striatus*).

Mammals that may use this site include: Virginia opossum (*Didelphis virginiana*), shrews (*Sorex spp.*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), gray squirrel (*Sciurus*

carolinensis), black tailed deer (*Odocoileus hemionus columbianus*), and eastern cottontail rabbits (*Sylvilagus floridanus*). Evidence of North American beaver (*Castor Canadensis*) was directly observed within the on-site stream/slough.

Other wildlife expected to use this site include: pacific tree frog (*Hyla regilla*), northwestern salamander (*Ambystoma gracile*), and rough-skinned newt (*Taricha granulosa*). These lists are not meant to be all-inclusive and may omit species that currently utilize or could utilize the site.

FISH AND WILDLIFE HABITAT CONSERVATION REPORT

City of Monroe Fisheries Issues

The following fish are listed on Federal or State reports as endangered, threatened or species of concern and are present on or in the vicinity of the subject site. These fish include: Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), and Bull trout (*Salvelinus malma*).

The federal listing of local salmonids under the Endangered Species Act (ESA), in conjunction with the City of Monroe Critical Area Regulations (CAR), requires the preparation of a Fish and Wildlife Habitat Conservation Report for impacts that occur within 300 feet of any salmonid-bearing stream. This report is to include protective measures (if needed) for reducing or eliminating the impacts of development activities upon critical species in the area.

The Endangered Species Act (ESA) defines “critical habitat” for species in two ways. First, a “critical habitat” can be a designated area for specific species to occupy, which contain physical or biological features essential to conservation of species. Alternatively, a “critical habitat” may extend outside the specific areas occupied by a species if it can be demonstrated that these areas are essential for conservation. Under the ESA, “taking” of a threatened or endangered species or its habitat is not permitted. “Take” is an action that harms a critical species or critical habitat.

When determining fish and wildlife conservation areas, the Washington Administrative Code requires that areas of primary association with habitat for endangered, threatened, or sensitive species be included in the conservation areas. These areas are considered a critical component of the habitats of federally or state listed endangered, threatened, candidate, sensitive, priority, and monitored wildlife or plant species. Altering these habitats may reduce the likelihood that the species will persist and reproduce over the long term. Riparian corridors must remain in at least satisfactory condition for fish and wildlife use, as well as to allow the natural ecosystem to function with minimal disruption. Thus, maintenance of ecosystem function allows ease of fish movement, increased survival and fitness, reproductive success, and the removal of pollutants from stormwater that may otherwise enter the stream.

Salmonids require many habitat features to thrive, especially proper water temperature, availability of food, refuge from predators and high flow periods in the form of pools and undercut banks, clean and pervious gravel for spawning and clear and unpolluted water. Especially important in regulating these habitat features is the vegetation in the riparian area, specifically along banks and within the floodplain. Riparian vegetation provides many crucial aspects of salmonid habitat including shade, bank stabilization, nutrient cycling, pollutant removal and input of large woody debris (LWD) in the channel. LWD is especially important since it facilitates the formation of important habitat features like pools through bed scour, and it buffers the severity of sedimentation and erosion. Healthy floodplains store water during floods and release it during dry periods, thereby maintaining a steady base flow throughout the year. Long-term conservation of salmonids requires protection of both the immediate functions riparian vegetation provides and the ecological conditions within the riparian area needed to maintain natural communities.

Proposed Development

No specific development plan exists at this time. Development within the site, especially within critical areas, buffers, or shoreline jurisdiction may present impacts to fish and habitat.

Potential Impacts to Fish and Habitat

Vegetation and Temporal Losses

Vegetation adjacent to the south side of the on-site slough is primarily Himalayan blackberry, which provides little shade (thermal control) over the open water. Trees and shrubs are present along the north side of the slough. The portion of Wetland A on the east side of the site has a fairly diverse vegetation structure and does provide small areas of shade over open water. The majority of the site is previously disturbed undeveloped land, which primarily contains non-native herbaceous vegetation. Development on the site outside of the shoreline designation and required buffers would impact these areas. Given the 200 – foot buffer requirement for the slough, and the limits on development within the buffer, no vegetation or temporal losses are expected to occur within the habitat conservation area adjacent to the slough.

Hydrology

Increases of impervious surfaces in Snohomish County have been recognized to influence the magnitude of peak discharges and reduce summer base flows since less runoff infiltrates to ground water. Increased peak flows from an increase in impervious surfaces on-site will require mitigation in compliance with MMC stormwater regulations if application for development is made in the future. This will effectively protect the slough and associated wetland from experiencing increased peak flows due to development. Since the slough connects to the Skykomish River at the downstream side of the slough, hydrological changes on-site may affect the water volume of the river as well. Under the current zoning, the allowed maximum lot coverage is 30 percent. If the property is rezoned as General Commercial, MMC allows up to 100

percent of the lot area outside critical areas and associated buffers to be covered. Regardless of the specific development activity proposed in the future, the storm water system will be designed utilizing the most current storm water manual published by Department of Ecology, as required by the City of Monroe. This manual is specifically developed to reduce the hydrologic impact of impervious surfaces. In addition, the required 200-foot protective buffer is specifically intended to provide hydrologic and other protection to the on-site salmon resources.

Management Strategies

All development on-site will be required to comply with MMC 20.05, the City of Monroe Shoreline Master Program, and Shorelines Management Act WAC 173. Any development proposed within the floodplain will comply with the *Floodplain Habitat Assessment and Mitigation Draft Regional Guidance* provided by FEMA (2011). In addition, Washington Department of Fish and Wildlife's guidance for salmon habitat management (Land Use Planning for Salmon, Steelhead, and Trout) and Department of Ecology's best available science documents (Wetlands in Washington State Volume 2) will be used in the planning of future development on this site. Any development scenario will likely require mitigation involving controlling at least a portion of the invasive plant species located within the site and buffers. Planting native trees and shrubs within the on-site buffers would provide shade and enhance water quality within the stream and wetlands are just some of the available mitigation options. This type of restoration and/or enhancement would provide a long-term benefit for fish and wildlife species located on-site and in the immediate vicinity.

Any proposed development would need to be located outside of the stream and wetlands to avoid impacts. In order to avoid temporal losses of habitat and the potential for sending silt laden water downstream, it is not recommended that vegetation within the ordinary high water mark of the stream and wetlands be removed. Other means of mitigation or invasive species control such as planting trees and shrubs along the banks of the stream/slough to create shade can be utilized in order to avoid this temporal disturbance to the stream and wetlands while still providing a long term lift to the functions and values of the system.

USE OF THIS REPORT

This Critical Area Study and Habitat Conservation Report is supplied to PACE as a means of determining on-site critical area conditions, as required by the City of Monroe. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

The laws applicable to critical areas are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

The work for this report has conformed to the standard of cares employed by wetland ecologists. No other representation or warranty is made concerning the work or this report and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.



Scott Brainard, PWS
Principal Ecologist

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Attachment A: DOE WETLAND RATING FORMS

Wetland name or number Wetland A

WETLAND RATING FORM – WESTERN WASHINGTON

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

Name of wetland (if known): Wetland A Date of site visit: 6/6/2013

Rated by NP, JR, MK Trained by Ecology? Yes No Date of training 4/2013

SEC: 05 TOWNSHIP: 27 RANGE: 07E Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure _____ Estimated size ~7 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ___ II III ___ IV ___

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

Score for Water Quality Functions	24
Score for Hydrologic Functions	6
Score for Habitat Functions	25
TOTAL score for Functions	55

Category based on SPECIAL CHARACTERISTICS of wetland

I ___ II ___ Does not Apply ___

II

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

Summary of basic information about the wetland unit

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

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

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

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

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

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

Classification of Wetland Units in Western Washington

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

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

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

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

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

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

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

___ The vegetated part of the wetland is on the shores of a body of permanent 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 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**?

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

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

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

___ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

___ The overbank flooding occurs at least once every two years.

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

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

6. Is the 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**

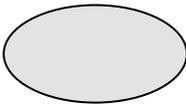
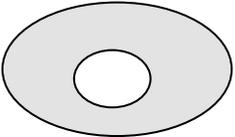
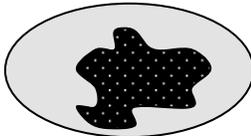
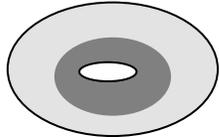
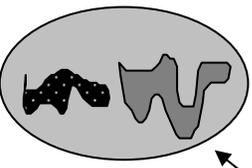
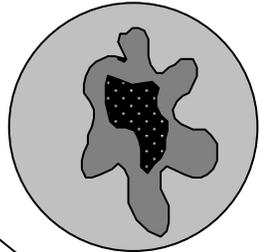
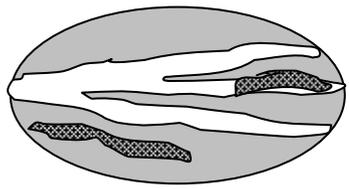
8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH 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 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	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Slope + Depressional	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Slope + Lake-fringe	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	<input checked="" type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Depressional + Lake-fringe	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Salt Water Tidal Fringe and any other class of freshwater wetland	<input type="checkbox"/>	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

If you are unable still 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.

These questions apply to wetlands of all HGM classes.	Points (only 1 score per box)								
HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat									
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?									
<p>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.</p> <p> <input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input checked="" type="checkbox"/> Forested (areas where trees have >30% cover) If the unit has a forested class check if: <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 Add the number of vegetation structures that qualify. If you have: <div style="display: flex; justify-content: space-between; align-items: flex-start; margin-top: 10px;"> <div style="width: 40%;"> <p>Map of Cowardin vegetation classes</p> </div> <div style="width: 50%;"> <table style="width: 100%; border: none;"> <tr><td><input type="checkbox"/> 4 structures or more</td><td>points = 4</td></tr> <tr><td><input type="checkbox"/> 3 structures</td><td>points = 2</td></tr> <tr><td><input checked="" type="checkbox"/> 2 structures</td><td>points = 1</td></tr> <tr><td><input type="checkbox"/> 1 structure</td><td>points = 0</td></tr> </table> </div> </div> </p>	<input type="checkbox"/> 4 structures or more	points = 4	<input type="checkbox"/> 3 structures	points = 2	<input checked="" type="checkbox"/> 2 structures	points = 1	<input type="checkbox"/> 1 structure	points = 0	<p>Figure _____</p> <p style="font-size: 2em; margin-top: 100px;">1</p>
<input type="checkbox"/> 4 structures or more	points = 4								
<input type="checkbox"/> 3 structures	points = 2								
<input checked="" type="checkbox"/> 2 structures	points = 1								
<input type="checkbox"/> 1 structure	points = 0								
<p>H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <p> <input checked="" type="checkbox"/> Permanently flooded or inundated <input checked="" type="checkbox"/> Seasonally flooded or inundated <input type="checkbox"/> Occasionally flooded or inundated <input checked="" type="checkbox"/> Saturated only <input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake-fringe wetland = 2 points <input type="checkbox"/> Freshwater tidal wetland = 2 points </p> <p style="text-align: right; margin-right: 50px;"> <input checked="" type="checkbox"/> 4 or more types present points = 3 <input type="checkbox"/> 3 types present points = 2 <input type="checkbox"/> 2 types present point = 1 <input type="checkbox"/> 1 type present points = 0 </p> <p style="text-align: right; margin-right: 50px;">Map of hydroperiods</p>	<p>Figure _____</p> <p style="font-size: 2em; margin-top: 100px;">3</p>								
<p>H 1.3. Richness of Plant Species (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft². (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</p> <p>If you counted:</p> <p>List species below if you want to:</p>	<p style="font-size: 2em; margin-top: 100px;">2</p>								

Total for page 6

<p>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 the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p><input type="checkbox"/> None = 0 points</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Low = 1 point</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Moderate = 2 points</p> </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>[riparian braided channels]</p> </div> </div> <p style="text-align: center;"><input checked="" type="checkbox"/> High = 3 points</p> <p style="text-align: center;">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</p>	<p>Figure _____</p> <p style="font-size: 2em;">3</p>
<p>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.</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). <input checked="" type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned grey/brown</i>) <input checked="" type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation 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 each stratum of plants <p style="text-align: center;">NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>	<p style="font-size: 2em;">4</p>
<p>H 1. TOTAL Score - potential for providing habitat Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	<p style="font-size: 2em;">13</p>

Comments

<p>H 2. Does the wetland unit have the opportunity to provide habitat for many species?</p> <p>H 2.1 Buffers (<i>see p. 80</i>) <i>Choose the description that best represents condition of buffer of wetland unit. 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 >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 > 50% circumference. Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3</p> <p><input checked="" type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3</p> <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >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 <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: center;">Aerial photo showing buffers</p>	<p>Figure _____</p> <p style="font-size: 2em; font-weight: bold;">3</p>
<p>H 2.2 Corridors and Connections (<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 = 4 points (<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? OR a Lake-fringe 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 = 2 points (<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><input type="checkbox"/> within 5 mi (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within 3 mi of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within 1 mi of a lake greater than 20 acres?</p> <p style="text-align: center;"><input type="checkbox"/> YES = 1 point <input type="checkbox"/> NO = 0 points</p>	<p style="font-size: 2em; font-weight: bold;">2</p>

Total for page 5

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

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

- Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
 - Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
 - Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
 - Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
 - Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
 - Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
 - Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
 - Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
 - Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).
 - Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
 - Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
 - Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
 - Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.
 - If wetland has **3 or more** priority habitats = **4 points**
 - If wetland has **2** priority habitats = **3 points**
 - If wetland has **1** priority habitat = **1 point** No habitats = 0 points
- Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*

4

<p>H 2.4 <u>Wetland Landscape</u> (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p><input checked="" type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p><input type="checkbox"/> There is at least 1 wetland within ½ mile. points = 2</p> <p><input type="checkbox"/> There are no wetlands within ½ mile. points = 0</p>	3
<p>H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	12
<p>TOTAL for H 1 from page 14</p>	13
<p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p>	25

<p>SC 2.0 Natural Heritage Wetlands (<i>see p. 87</i>) Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit 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 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 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 NO <input type="checkbox"/> not a Heritage Wetland</p>	<input type="checkbox"/> Cat. I
<p>SC 3.0 Bogs (<i>see p. 87</i>) Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below 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> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/> <input type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> Yes - go to Q. 3 <input type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? <input type="checkbox"/> Yes – Is a bog for purpose of rating <input type="checkbox"/> No - go to Q. 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I No <input type="checkbox"/> Is not a bog for purpose of rating</p>	
<div style="text-align: right;"><input type="checkbox"/> Cat. I</div>	

<p>SC 4.0 Forested Wetlands (see p. 90) Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife’s forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</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"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less 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 NO <input type="checkbox"/> not a forested wetland with special characteristics</p>	<p style="text-align: right;">Cat. I <input type="checkbox"/></p>
<p>SC 5.0 Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</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 (> 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 type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets 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><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p style="text-align: right;"><input type="checkbox"/> Cat. I</p> <p style="text-align: right;"><input type="checkbox"/> Cat. II</p>

<p>SC 6.0 Interdunal Wetlands (<i>see p. 93</i>)</p> <p>Is the wetland unit 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 NO <input type="checkbox"/> not an interdunal wetland for rating</p> <p><i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula- lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport- lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis- lands west of SR 115 and SR 109</p> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once 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 unit 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 <input type="checkbox"/></p> <p>Cat. III <input type="checkbox"/></p>
<p>Category of wetland based on Special Characteristics</p> <p>Choose the “highest” rating if wetland falls into several categories, and record on p. 1.</p> <p>If you answered NO for all types enter “Not Applicable” on p.1</p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>

Wetland name or number Wetland B

WETLAND RATING FORM – WESTERN WASHINGTON

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

Name of wetland (if known): Wetland B Date of site visit: 6/6/2013

Rated by NP, MK Trained by Ecology? Yes No Date of training 4/2013

SEC: 05 TOWNSHIP: 27 RANGE: 07E Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure _____ Estimated size ~0.75 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ___ II ___ III IV ___

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

Score for Water Quality Functions	12
Score for Hydrologic Functions	10
Score for Habitat Functions	16
TOTAL score for Functions	38

Category based on SPECIAL CHARACTERISTICS of wetland

I ___ II ___ Does not Apply ___

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

III

Summary of basic information about the wetland unit

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

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

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

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

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

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

Classification of Wetland Units in Western Washington

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

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

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

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

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

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

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

___ The vegetated part of the wetland is on the shores of a body of permanent 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 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**?

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

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

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

The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

The overbank flooding occurs at least once every two years.

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

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

6. Is the 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 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 <input type="checkbox"/>
Slope + Depressional	Depressional <input type="checkbox"/>
Slope + Lake-fringe	Lake-fringe <input type="checkbox"/>
Depressional + Riverine along stream within boundary	Depressional <input type="checkbox"/>
Depressional + Lake-fringe	Depressional <input type="checkbox"/>
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics <input type="checkbox"/>

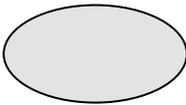
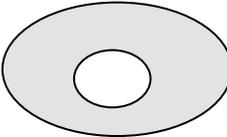
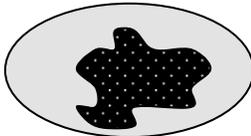
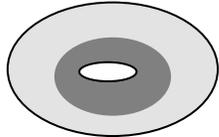
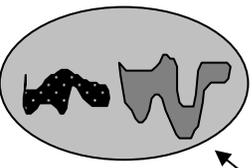
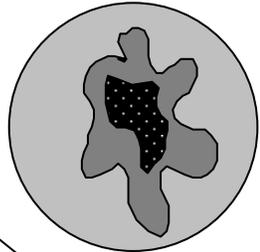
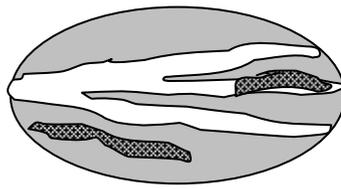
If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands		Points (only 1 score per box)
HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion		
	S 3. Does the wetland unit have the <u>potential</u> to reduce flooding and stream erosion?	(see p.68)
S	<p>S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)</p> <p><input type="checkbox"/> Dense, uncut, rigid vegetation covers > 90% of the area of the wetland. points = 6</p> <p><input checked="" type="checkbox"/> Dense, uncut, rigid vegetation > 1/2 area of wetland points = 3</p> <p><input type="checkbox"/> Dense, uncut, rigid vegetation > 1/4 area points = 1</p> <p><input type="checkbox"/> More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0</p>	3
S	<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><input checked="" type="checkbox"/> YES points = 2</p> <p><input type="checkbox"/> NO points = 0</p>	2
S	<i>Add the points in the boxes above</i>	5
S	<p>S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?</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? Note which of the following conditions apply.</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>(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))</p> <p><input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1</p>	(see p. 70) multiplier <u>2</u>
S	TOTAL - Hydrologic Functions Multiply the score from S 3 by S 4 <i>Add score to table on p. 1</i>	10

Comments

These questions apply to wetlands of all HGM classes.	Points (only 1 score per box)												
HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat													
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?													
<p>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.</p> <p> <input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover) If the unit has a forested class check if: <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 Add the number of vegetation structures that qualify. If you have:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="checkbox"/> 4 structures or more</td> <td style="width: 50%; text-align: right;">points = 4</td> </tr> <tr> <td><input type="checkbox"/> 3 structures</td> <td style="text-align: right;">points = 2</td> </tr> <tr> <td><input type="checkbox"/> 2 structures</td> <td style="text-align: right;">points = 1</td> </tr> <tr> <td><input checked="" type="checkbox"/> 1 structure</td> <td style="text-align: right;">points = 0</td> </tr> </table> <p>Map of Cowardin vegetation classes</p>	<input type="checkbox"/> 4 structures or more	points = 4	<input type="checkbox"/> 3 structures	points = 2	<input type="checkbox"/> 2 structures	points = 1	<input checked="" type="checkbox"/> 1 structure	points = 0	<p>Figure _____</p> <p style="font-size: 2em;">0</p>				
<input type="checkbox"/> 4 structures or more	points = 4												
<input type="checkbox"/> 3 structures	points = 2												
<input type="checkbox"/> 2 structures	points = 1												
<input checked="" type="checkbox"/> 1 structure	points = 0												
<p>H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="checkbox"/> Permanently flooded or inundated</td> <td style="width: 50%;"><input type="checkbox"/> 4 or more types present</td> <td style="width: 10%; text-align: right;">points = 3</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td><input checked="" type="checkbox"/> 3 types present</td> <td style="text-align: right;">points = 2</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td><input type="checkbox"/> 2 types present</td> <td style="text-align: right;">point = 1</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td><input type="checkbox"/> 1 type present</td> <td style="text-align: right;">points = 0</td> </tr> </table> <p> <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake-fringe wetland = 2 points <input type="checkbox"/> Freshwater tidal wetland = 2 points </p> <p style="text-align: right;">Map of hydroperiods</p>	<input type="checkbox"/> Permanently flooded or inundated	<input type="checkbox"/> 4 or more types present	points = 3	<input checked="" type="checkbox"/> Seasonally flooded or inundated	<input checked="" type="checkbox"/> 3 types present	points = 2	<input type="checkbox"/> Occasionally flooded or inundated	<input type="checkbox"/> 2 types present	point = 1	<input checked="" type="checkbox"/> Saturated only	<input type="checkbox"/> 1 type present	points = 0	<p>Figure _____</p> <p style="font-size: 2em;">2</p>
<input type="checkbox"/> Permanently flooded or inundated	<input type="checkbox"/> 4 or more types present	points = 3											
<input checked="" type="checkbox"/> Seasonally flooded or inundated	<input checked="" type="checkbox"/> 3 types present	points = 2											
<input type="checkbox"/> Occasionally flooded or inundated	<input type="checkbox"/> 2 types present	point = 1											
<input checked="" type="checkbox"/> Saturated only	<input type="checkbox"/> 1 type present	points = 0											
<p>H 1.3. Richness of Plant Species (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft². (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</p> <p>If you counted:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="checkbox"/> > 19 species</td> <td style="width: 50%; text-align: right;">points = 2</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5 - 19 species</td> <td style="text-align: right;">points = 1</td> </tr> <tr> <td><input type="checkbox"/> < 5 species</td> <td style="text-align: right;">points = 0</td> </tr> </table> <p>List species below if you want to:</p>	<input type="checkbox"/> > 19 species	points = 2	<input checked="" type="checkbox"/> 5 - 19 species	points = 1	<input type="checkbox"/> < 5 species	points = 0	<p style="font-size: 2em;">1</p>						
<input type="checkbox"/> > 19 species	points = 2												
<input checked="" type="checkbox"/> 5 - 19 species	points = 1												
<input type="checkbox"/> < 5 species	points = 0												

Total for page 3

<p>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 the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p><input type="checkbox"/> None = 0 points</p> </div> <div style="text-align: center;">  <p><input checked="" type="checkbox"/> Low = 1 point</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Moderate = 2 points</p> </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p><input type="checkbox"/> High = 3 points</p> </div> <div style="text-align: center;">  <p>[riparian braided channels]</p> </div> </div> <p style="text-align: center; margin-top: 10px;">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</p>	<p>Figure _____</p> <p style="text-align: center; font-size: 24px;">1</p>
<p>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.</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). <input checked="" type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland <input type="checkbox"/> 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) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned grey/brown</i>) <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation 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 each stratum of plants <p style="text-align: center; font-size: small;">NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>	
<p>H 1. TOTAL Score - potential for providing habitat Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	4

Comments

<p>H 2. Does the wetland unit have the opportunity to provide habitat for many species?</p> <p>H 2.1 Buffers (<i>see p. 80</i>) <i>Choose the description that best represents condition of buffer of wetland unit. 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 >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 > 50% circumference. Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3</p> <p><input checked="" type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3</p> <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >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 <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;"><i>Aerial photo showing buffers</i></p>	<p>Figure <u> </u></p> <p style="font-size: 2em; font-weight: bold;">3</p>
<p>H 2.2 Corridors and Connections (<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 = 4 points (<i>go to H 2.3</i>) <input 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? OR a Lake-fringe 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 = 2 points (<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="margin-left: 20px;"><input type="checkbox"/> within 5 mi (8km) of a brackish or salt water estuary OR</p> <p style="margin-left: 20px;"><input type="checkbox"/> within 3 mi of a large field or pasture (>40 acres) OR</p> <p style="margin-left: 20px;"><input type="checkbox"/> within 1 mi of a lake greater than 20 acres?</p> <p style="text-align: center;"><input type="checkbox"/> YES = 1 point <input type="checkbox"/> NO = 0 points</p>	<p style="font-size: 2em; font-weight: bold;">2</p>

Total for page 5

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

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

- Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
 - Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
 - Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
 - Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
 - Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
 - Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
 - Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
 - Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
 - Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).
 - Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
 - Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
 - Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
 - Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.
 - If wetland has **3 or more** priority habitats = **4 points**
 - If wetland has **2** priority habitats = **3 points**
 - If wetland has **1** priority habitat = **1 point** No habitats = 0 points
- Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*

4

<p>H 2.4 Wetland Landscape (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p><input checked="" type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p><input type="checkbox"/> There is at least 1 wetland within ½ mile. points = 2</p> <p><input type="checkbox"/> There are no wetlands within ½ mile. points = 0</p>	3
<p>H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	12
<p>TOTAL for H 1 from page 14</p>	4
<p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p>	16

<p>SC 2.0 Natural Heritage Wetlands (<i>see p. 87</i>) Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit 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 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 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 NO <input type="checkbox"/> not a Heritage Wetland</p>	<input type="checkbox"/> Cat. I
<p>SC 3.0 Bogs (<i>see p. 87</i>) Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below 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> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/> <input type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> Yes - go to Q. 3 <input type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? <input type="checkbox"/> Yes – Is a bog for purpose of rating <input type="checkbox"/> No - go to Q. 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I No <input type="checkbox"/> Is not a bog for purpose of rating</p>	
<p>2. <input type="checkbox"/> YES = Category I No <input type="checkbox"/> Is not a bog for purpose of rating</p>	<input type="checkbox"/> Cat. I

<p>SC 4.0 Forested Wetlands (see p. 90) Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife’s forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p style="padding-left: 40px;">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"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less 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 NO <input type="checkbox"/> not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC 5.0 Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</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 (> 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 type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets 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 style="padding-left: 40px;"><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p>

<p>SC 6.0 Interdunal Wetlands (<i>see p. 93</i>)</p> <p>Is the wetland unit 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 NO <input type="checkbox"/> not an interdunal wetland for rating</p> <p><i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula- lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport- lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis- lands west of SR 115 and SR 109</p> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once 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 unit 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 <input type="checkbox"/></p> <p>Cat. III <input type="checkbox"/></p>
<p>Category of wetland based on Special Characteristics</p> <p>Choose the “highest” rating if wetland falls into several categories, and record on p. 1.</p> <p>If you answered NO for all types enter “Not Applicable” on p.1</p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>

Wetland name or number Wetland C

WETLAND RATING FORM – WESTERN WASHINGTON

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

Name of wetland (if known): Wetland C Date of site visit: 6/6/2013

Rated by NP, JR Trained by Ecology? Yes No Date of training 4/2013

SEC: 05 TOWNSHIP: 27 RANGE: 05E Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure _____ Estimated size 1,210 square feet

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ___ II ___ III IV ___

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

Score for Water Quality Functions	10
Score for Hydrologic Functions	14
Score for Habitat Functions	12
TOTAL score for Functions	36

Category based on SPECIAL CHARACTERISTICS of wetland

I ___ II ___ Does not Apply ___

III

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

Summary of basic information about the wetland unit

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

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

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

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

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

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

Classification of Wetland Units in Western Washington

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

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

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

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

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

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

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

___ The vegetated part of the wetland is on the shores of a body of permanent 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 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**?

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

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

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

The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

The overbank flooding occurs at least once every two years.

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

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

6. Is the 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**

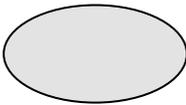
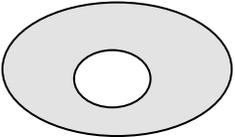
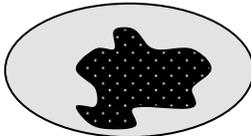
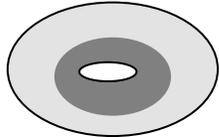
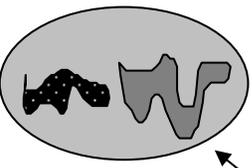
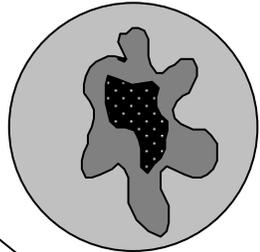
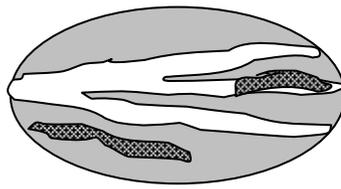
8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH 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 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 <input type="checkbox"/>
Slope + Depressional	Depressional <input type="checkbox"/>
Slope + Lake-fringe	Lake-fringe <input type="checkbox"/>
Depressional + Riverine along stream within boundary	Depressional <input type="checkbox"/>
Depressional + Lake-fringe	Depressional <input type="checkbox"/>
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics <input type="checkbox"/>

If you are unable still 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.

These questions apply to wetlands of all HGM classes.	Points (only 1 score per box)
HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
<p>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.</p> <p> <input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover) If the unit has a forested class check if: <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 Add the number of vegetation structures that qualify. If you have: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 40%;"> <input type="checkbox"/> 4 structures or more <input type="checkbox"/> 3 structures <input type="checkbox"/> 2 structures <input checked="" type="checkbox"/> 1 structure </div> <div style="width: 50%;"> points = 4 points = 2 points = 1 points = 0 </div> </div> </p> <p style="text-align: right; margin-right: 50px;">Map of Cowardin vegetation classes</p>	<p>Figure _____</p> <p style="font-size: 2em; margin-top: 20px;">0</p>
<p>H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <p> <input type="checkbox"/> Permanently flooded or inundated <input checked="" type="checkbox"/> Seasonally flooded or inundated <input 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 in, or adjacent to, the wetland <input type="checkbox"/> Lake-fringe wetland = 2 points <input type="checkbox"/> Freshwater tidal wetland = 2 points </p> <p style="text-align: right; margin-right: 50px;">Map of hydroperiods</p>	<p>Figure _____</p> <p style="font-size: 2em; margin-top: 20px;">1</p>
<p>H 1.3. Richness of Plant Species (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft². (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</p> <p style="text-align: center;">If you counted:</p> <p>List species below if you want to:</p>	<p> <input type="checkbox"/> > 19 species points = 2 <input checked="" type="checkbox"/> 5 - 19 species points = 1 <input type="checkbox"/> < 5 species points = 0 </p> <p style="font-size: 2em; margin-top: 20px;">1</p>

Total for page 2

<p>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 the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p><input checked="" type="checkbox"/> None = 0 points</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Low = 1 point</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Moderate = 2 points</p> </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p><input type="checkbox"/> High = 3 points</p> </div> <div style="text-align: center;">  <p>[riparian braided channels]</p> </div> </div> <p style="text-align: center; margin-top: 10px;">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</p>	<p>Figure _____</p> <p style="font-size: 2em;">0</p>
<p>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.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). <input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland <input type="checkbox"/> 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) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned grey/brown</i>) <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation 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 each stratum of plants <p style="text-align: center; font-size: small;">NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>	<p style="font-size: 2em;">0</p>
<p>H 1. TOTAL Score - potential for providing habitat Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	<p style="font-size: 2em;">2</p>

Comments

<p>H 2. Does the wetland unit have the opportunity to provide habitat for many species?</p> <p>H 2.1 Buffers (<i>see p. 80</i>) <i>Choose the description that best represents condition of buffer of wetland unit. 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 >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 > 50% circumference. Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3</p> <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <p><input checked="" type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >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 <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;"><i>Aerial photo showing buffers</i></p>	<p>Figure <u> </u></p> <p style="font-size: 2em;">2</p>
<p>H 2.2 Corridors and Connections (<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 = 4 points (<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? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;"><input type="checkbox"/> YES = 2 points (<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><input type="checkbox"/> within 5 mi (8km) of a brackish or salt water estuary OR</p> <p><input checked="" type="checkbox"/> within 3 mi of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within 1 mi of a lake greater than 20 acres?</p> <p style="text-align: center;"><input checked="" type="checkbox"/> YES = 1 point <input type="checkbox"/> NO = 0 points</p>	<p style="font-size: 2em;">1</p>

Total for page 3

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

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

- Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
 - Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
 - Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
 - Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
 - Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
 - Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
 - Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
 - Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
 - Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).
 - Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
 - Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
 - Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
 - Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.
 - If wetland has **3 or more** priority habitats = **4 points**
 - If wetland has **2** priority habitats = **3 points**
 - If wetland has **1** priority habitat = **1 point** No habitats = 0 points
- Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*

4

<p>H 2.4 <u>Wetland Landscape</u> (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p><input checked="" type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p><input type="checkbox"/> There is at least 1 wetland within ½ mile. points = 2</p> <p><input type="checkbox"/> There are no wetlands within ½ mile. points = 0</p>	3
<p>H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	10
<p>TOTAL for H 1 from page 14</p>	2
<p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p>	12

<p>SC 2.0 Natural Heritage Wetlands (<i>see p. 87</i>) Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit 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 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 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 NO <input type="checkbox"/> not a Heritage Wetland</p>	<input type="checkbox"/> Cat. I
<p>SC 3.0 Bogs (<i>see p. 87</i>) Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below 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> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/> <input type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> Yes - go to Q. 3 <input type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? <input type="checkbox"/> Yes – Is a bog for purpose of rating <input type="checkbox"/> No - go to Q. 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I No <input type="checkbox"/> Is not a bog for purpose of rating</p>	
<div style="text-align: right;"><input type="checkbox"/> Cat. I</div>	

<p>SC 4.0 Forested Wetlands (see p. 90) Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife’s forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</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"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less 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 NO <input type="checkbox"/> not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC 5.0 Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</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 (> 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 type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets 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><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p>

<p>SC 6.0 Interdunal Wetlands (<i>see p. 93</i>)</p> <p>Is the wetland unit 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 NO <input type="checkbox"/> not an interdunal wetland for rating</p> <p><i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula- lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport- lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis- lands west of SR 115 and SR 109</p> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once 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 unit 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 <input type="checkbox"/></p> <p>Cat. III <input type="checkbox"/></p>
<p>Category of wetland based on Special Characteristics</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><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>

Attachment B: WETLAND FIELD DETERMINATION FORMS

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

Project/Site: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/4/2013
 Applicant/Owner: Pace Engineering, Inc. State: WA Sampling Point: S2 (Wetland A)
 Investigator(s): JR Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): _____ Slope (%): 3%
 Subregion (LRR): A Lat: 47.86 Long: -121.95 Datum: _____
 Soil Map Unit Name: Sultan silt loam NWI classification: NA

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

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

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

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				
1. <u>Alnus rubra</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: 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. <u>Frangula purshiana</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Salix lasiandra</u>	<u>5%</u>		<u>FACW</u>	
4. _____				
	<u>35%</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>30'</u>)				
1. <u>Rubus armeniacus</u>	<u>65%</u>	<u>Yes</u>	<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u>Cornus alba</u>	<u>10%</u>		<u>FACW</u>	
3. <u>Sambucus racemosa</u>	<u>5%</u>		<u>FACU</u>	
4. _____				
5. _____				
<u>80%</u> = Total Cover				
Herb Stratum (Plot size: <u>10'</u>)				
1. <u>Equisetum telmateia</u>	<u>20%</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Athyrium filix femina</u>	<u>1%</u>		<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>21%</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>79%</u>				
Remarks: _____				

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

Project/Site: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineering, Inc. State: WA Sampling Point: S3 (Wetland A)
 Investigator(s): JR Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): Peninsula (w/in slough) Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): A Lat: 47.85 Long: -121.94 Datum: _____
 Soil Map Unit Name: Sultan silt loam NWI classification: PEMC

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology 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"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>50%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>20'</u>)				
1. <u>Rubus armeniacus</u>	<u>5%</u>	<u>Yes</u>	<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>20'</u>)				
1. <u>Phalaris arundinaceae</u>	<u>100%</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Athyrium filix-femina</u>	<u>2%</u>	_____	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>102%</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: The <u>Rubus armeniacus</u> shrub appears to be extending from a small upland area to the northeast. Cover is negligible; it is being disregarded for this sample plot.				

SOIL

Sampling Point: S3(peninsula)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-3.5"	10YR 3/3						Silt loam	
3.5-18"	5Y 4/1	78%	5YR 3/4	5%	C	PL	Silt loam	
			2.5Y 3/3	10%	C	M		
			7.5YR 3/4	7%	C	PL		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)		<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> 2 cm Muck (A10)				
<input type="checkbox"/> Histic Epipedon (A2)		<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Red Parent Material (TF2)				
<input type="checkbox"/> Black Histic (A3)		<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)				
<input type="checkbox"/> Hydrogen Sulfide (A4)		<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Other (Explain in Remarks)				
<input type="checkbox"/> Depleted Below Dark Surface (A11)		<input checked="" type="checkbox"/> Depleted Matrix (F3)						
<input type="checkbox"/> Thick Dark Surface (A12)		<input type="checkbox"/> Redox Dark Surface (F6)						
<input type="checkbox"/> Sandy Mucky Mineral (S1)		<input type="checkbox"/> Depleted Dark Surface (F7)						
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Redox Depressions (F8)						
Restrictive Layer (if present):								
Type: _____								
Depth (inches): _____								
						Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		
		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Live ORZ's were observed in the upper 12" of the soil profile.			

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

Project/Site: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineering, Inc. State: WA Sampling Point: S4 (Wetland A)
 Investigator(s): JR Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): A Lat: 47.85 Long: -121.94 Datum: _____
 Soil Map Unit Name: Sultan silt loam NWI classification: PEMC

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology 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"/>
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Dominance Test worksheet: 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				
Sapling/Shrub Stratum (Plot size: <u>20'</u>)				
1. <u>Salix sitchensis</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u>Rubus armeniacus</u>	<u>2%</u>	_____	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>12%</u> = Total Cover				
Herb Stratum (Plot size: <u>10'</u>)				
1. <u>Phalaris arundinacea</u>	<u>90%</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Typha latifolia</u>	<u>2%</u>	_____	<u>OBL</u>	
3. <u>Scirpus microcarpus</u>	<u>5%</u>	_____	<u>OBL</u>	
4. <u>Carex stipata</u>	<u>2%</u>	_____	<u>OBL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>99%</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks:

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

Project/Site: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineers, Inc. State: WA Sampling Point: S5 (Wetland A)
 Investigator(s): MK Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 47.85 Long: -121.94 Datum: _____
 Soil Map Unit Name: Sultan Silt Loam NWI classification: PFOC

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology 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"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
	_____ = Total Cover			
Sapling/Shrub Stratum (Plot size: <u>15x15 ft</u>)				
1. <u>Salix sitchensis</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Rubus spectabilis</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Rubus armeniacus</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>90</u> = Total Cover			
Herb Stratum (Plot size: <u>15x15</u>)				
1. <u>Athyrium felix-femina</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	<u>10</u> = Total Cover			
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	_____ = Total Cover			
% Bare Ground in Herb Stratum _____				

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

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

Hydrophytic Vegetation Indicators:
 Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--

Remarks: _____

SOIL

Sampling Point: S5 (Wet A)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-10	10YR 2/2	100					mu mi	
10-15	10YR 2/1	100					sa cl lo	
15-18	5Y 4/1	100					sa lo	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
Restrictive Layer (if present):						Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): 8	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): surface	
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: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineers, Inc. State: WA Sampling Point: S6 (near Wet A)

Investigator(s): MK Section, Township, Range: S5, T27, R07E

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): _____ Slope (%): 3%

Subregion (LRR): LRR A Lat: 47.85 Long: -121.94 Datum: _____

Soil Map Unit Name: Sultan Silt Loam NWI classification: none

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology 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"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15x15 ft</u>)				
1. <u>Rubus armeniacus</u>	<u>90</u>	<u>Y</u>	<u>FACU</u>	Prevalence Index worksheet: _____ Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>90</u> = Total Cover				
Herb Stratum (Plot size: <u>15x15</u>)				
1. <u>Agrostis caplariis</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Festuca arundinacea</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>10</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

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

Project/Site: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineers, Inc. State: WA Sampling Point: S7 (Wetland B)
 Investigator(s): NP Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 47.85 Long: -121.94 Datum: _____
 Soil Map Unit Name: Alderwood-Everett Gravelly Sandy Loam 25-70% slopes NWI classification: none

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

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology 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"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>50</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15x15 ft</u>)				
1. <u>Rubus armeniacus</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>20</u> = Total Cover				
Herb Stratum (Plot size: <u>15x15 ft</u>)				
1. <u>Phalaris arundinacea</u>	<u>75</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Athyrium felix-femina</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>80</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

SOIL

Sampling Point: S7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-12	10YR 3/2	90	10YR 5/6	10	C	M	sa si lo	
12-18	5Y 5/2	10	10YR 5/6	2	C	M	sa si lo	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)		<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> 2 cm Muck (A10)				
<input type="checkbox"/> Histic Epipedon (A2)		<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Red Parent Material (TF2)				
<input type="checkbox"/> Black Histic (A3)		<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)				
<input type="checkbox"/> Hydrogen Sulfide (A4)		<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Other (Explain in Remarks)				
<input type="checkbox"/> Depleted Below Dark Surface (A11)		<input type="checkbox"/> Depleted Matrix (F3)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.				
<input type="checkbox"/> Thick Dark Surface (A12)		<input type="checkbox"/> Redox Dark Surface (F6)						
<input type="checkbox"/> Sandy Mucky Mineral (S1)		<input type="checkbox"/> Depleted Dark Surface (F7)						
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Redox Depressions (F8)						
Restrictive Layer (if present):								
Type: _____								
Depth (inches): _____						Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: mottles from 9-18								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
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: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineers, Inc. State: WA Sampling Point: S8 (Wetland B)
 Investigator(s): NP Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 47.85 Long: -121.94 Datum: _____
 Soil Map Unit Name: Alderwood-Everett Gravelly Sandy Loam 25-70% slopes NWI classification: none

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology 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"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Dominance Test worksheet: 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	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover	_____	_____	_____	
Herb Stratum (Plot size: <u>15x15 ft</u>)				
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover	<u>100</u>	_____	_____	
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover	_____	_____	_____	
% Bare Ground in Herb Stratum _____				
Remarks: _____				

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

Project/Site: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineering, Inc. State: WA Sampling Point: S9(Wetland C)
 Investigator(s): JR Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): A Lat: 47.85 Long: -121.94 Datum: _____
 Soil Map Unit Name: Sultan silt loam NWI classification: NA

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology 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"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Dominance Test worksheet: 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				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>10'</u>)				
1. <u>Juncus effusus</u>	<u>35%</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Agrostis capillaris</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Holcus lanatus</u>	<u>15%</u>	_____	<u>FAC</u>	
4. <u>Ranunculus repens</u>	<u>5%</u>	_____	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>105%</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

SOIL

Sampling Point: S9 (Wet. C)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-16"	2.5Y 3/2	90%	7.5YR 3/4	5%	C	M	Loam	
			7.5YR 3/4	5%	C	PL		
16-20"	2.5Y 4/1	93%	10YR 3/4	7%	C	M	Silt loam	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input checked="" type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
Restrictive Layer (if present):						Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): 9 inches	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
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: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineers, Inc. State: WA Sampling Point: S 10
 Investigator(s): MK Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): _____ Slope (%): 1%
 Subregion (LRR): LRR A Lat: 47.85 Long: -121.94 Datum: _____
 Soil Map Unit Name: Sultan Silt Loam NWI classification: none

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology 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"/>
Remarks:	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
				_____ = Total Cover
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
<u>Herb Stratum</u> (Plot size: <u>15x15</u>)				
1. <u>Festuca arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Ranunculus repens</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Cirsium vulgare</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
				<u>90</u> = Total Cover
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
				_____ = Total Cover
% Bare Ground in Herb Stratum _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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

Hydrophytic Vegetation Indicators:
 Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

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

Project/Site: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineers, Inc. State: WA Sampling Point: S 11 (Field)
 Investigator(s): MK Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 47.85 Long: -121.94 Datum: _____
 Soil Map Unit Name: Sultan Silt Loam NWI classification: none

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology 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"/>
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
	_____ = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	_____ = Total Cover			
Herb Stratum (Plot size: <u>15x15</u>)				
1. <u>Ranunculus repens</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Holcus lanatus</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Festuca arundinacea</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	<u>90</u> = Total Cover			
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	_____ = Total Cover			
% Bare Ground in Herb Stratum _____				

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

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

Hydrophytic Vegetation Indicators:
 Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

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

Project/Site: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineers, Inc. State: WA Sampling Point: S12
 Investigator(s): NP Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 47.85 Long: -121.94 Datum: _____
 Soil Map Unit Name: Sultan Silt Loam NWI classification: none

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology 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"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
	_____ = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	_____ = Total Cover			
Herb Stratum (Plot size: <u>15x15</u>)				
1. <u>Juncus effusus</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Holcus lanatus</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Cirsium vulgare</u>	<u>15</u>	<u>N</u>	<u>FACU</u>	
4. <u>Agrosits capilaris</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
5. <u>Phalaris arundinacea</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	<u>90</u> = Total Cover			
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	_____ = Total Cover			
% Bare Ground in Herb Stratum _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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

Hydrophytic Vegetation Indicators:
 Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--

Remarks: _____

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

Project/Site: Pace - East Monroe City/County: Monroe/Snohomish Sampling Date: 6/6/2013
 Applicant/Owner: Pace Engineers, Inc. State: WA Sampling Point: S 13
 Investigator(s): NP Section, Township, Range: S5, T27, R07E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 47.85 Long: -121.94 Datum: _____
 Soil Map Unit Name: Sultan Silt Loam NWI classification: none

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

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology 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"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>50</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15x15</u>)				
1. <u>Rubus armeniacus</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>50</u> = Total Cover				
Herb Stratum (Plot size: <u>15x15</u>)				
1. <u>Holcus lanatus</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Cirisium vulgare</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Agrostis capilaris</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>50</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

SOIL

Sampling Point: S13

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-18	10YR 4/3	100					sa si lo	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	

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

Remarks:

Attachment C:
DEPARTMENT OF ECOLOGY VERIFICATION LETTER



**STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY**

Northwest Regional Office 3190 160th SE Bellevue, Washington 98008-5452 (425) 649-7000

October 10, 2013

Scott Brainard
Wetland Resources, Inc.
9505 19th Ave SE, Suite 106
Everett, WA 98208

Dear Mr. Brainard:

RE: Verification of East Monroe Wetland Delineation Boundary

Thank you for taking time to meet with me on September 30, 2013, for verification of the wetland boundaries on the East Monroe Rezone site. The 43-acre project site is located in the City of Monroe near the eastern city limits on the north side of US Highway 2. Wetland Resources, Inc. (WRI) delineated wetlands on the site this past June, summarizing their findings in a critical areas study dated July 18, 2013.

I concur with the WRI wetland delineation as flagged in the field and as shown on Sheets 1 through 4 in the delineation summary. Consistent with federal policy, the Washington Department of Ecology (Ecology) considers this delineation verification to be valid for a period of five years from the date of this letter unless new information warrants revisions to the verification. You should be aware that the wetlands on this site may also be regulated by the U.S. Army Corps of Engineers (Corps) and that Corps staff may choose to conduct a separate boundary verification relative to federal regulation.

Wetlands are regulated as waters of the state by Ecology under authority of the state Water Pollution Control Act (RCW 90.48). Should development activities on the East Monroe Rezone property result in the discharge of pollutants to wetlands or other state waters (i.e., mechanized clearing, excavating, grading or filling), written authorization is required from Ecology and the Corps prior to commencing those activities. Development activities that only affect the wetland buffers outside of shoreline jurisdiction may be regulated by the City of Monroe.

If you have any questions about my findings, please give me a call at (425) 649-7148 or send an email to paan461@ecy.wa.gov.

Scott Brainard
RE: East Monroe Wetland Boundary Verification
October 10, 2013
Page 2

Sincerely,

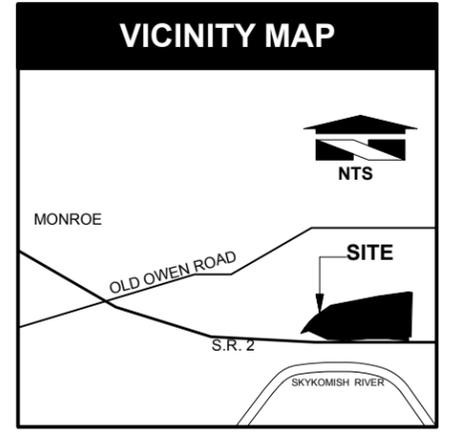
A handwritten signature in cursive script that reads "Paul S. Anderson".

Paul Anderson, PWS
Wetland Specialist
Shorelands and Environmental Assistance Program

PSA: ca

cc: Erik Stockdale, Ecology Shorelands & Environmental Assistance Program
Matthew Bennett, U.S. Army Corps of Engineers
Paul Popelka, City of Monroe

CRITICAL AREAS AND EXISTING CONDITIONS MAP
EAST MONROE REZONE
 PORTION OF SECTIONS 5 AND 6, TOWNSHIP 27, RANGE 07E, WM.



LEGEND

-  DELINEATED WETLAND
-  APPROXIMATE NORTH WETLAND AND STREAM BOUNDARY


SCALE 1" = 200'


Wetland Resources, Inc.
 Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
 9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
 Phone: (425) 337-3174
 Fax: (425) 337-3045
 Email: mailbox@wetlandresources.com

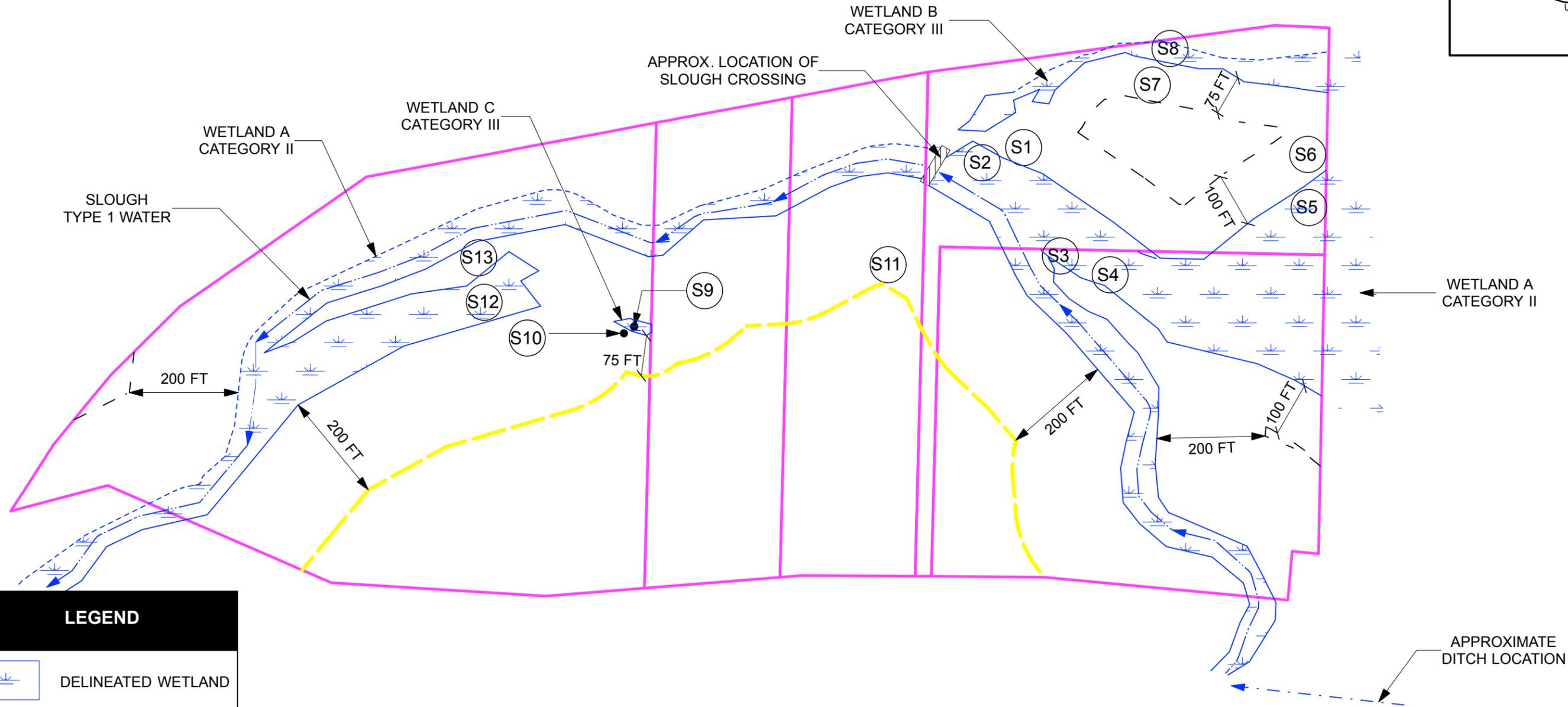
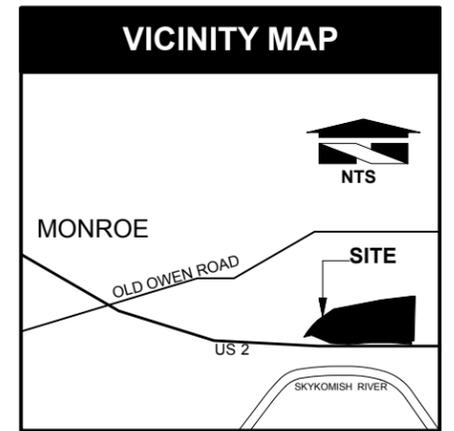
CRITICAL AREAS AND EXISTING CONDITIONS MAP
EAST MONROE REZONE

PACE Engineers, Inc. Attn: Susan Boyd 11255 Kirkland Way #300 Kirkland WA 98033	Sheet 1/4 WRI Job # 13133 Drawn by: MK Date: 07.16.2013 Revision: 06.03.15
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WETLAND, STREAM, AND BUFFER MAP

EAST MONROE REZONE

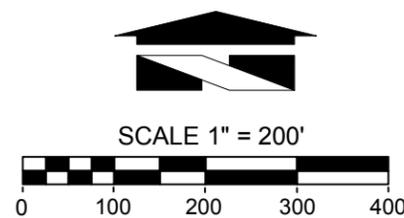
PORTION OF SECTIONS 5 AND 6, TOWNSHIP 27, RANGE 07E, WM.



LEGEND

- DELINEATED WETLAND
- WETLAND AND STREAM BUFFER*
- APPROXIMATE NORTH WETLAND AND STREAM BOUNDARY
- DATA SITES

* WHERE WETLAND AND STREAM BUFFERS OVERLAP, THE MORE RESTRICTIVE BUFFER IS DEPICTED ON THIS MAP.



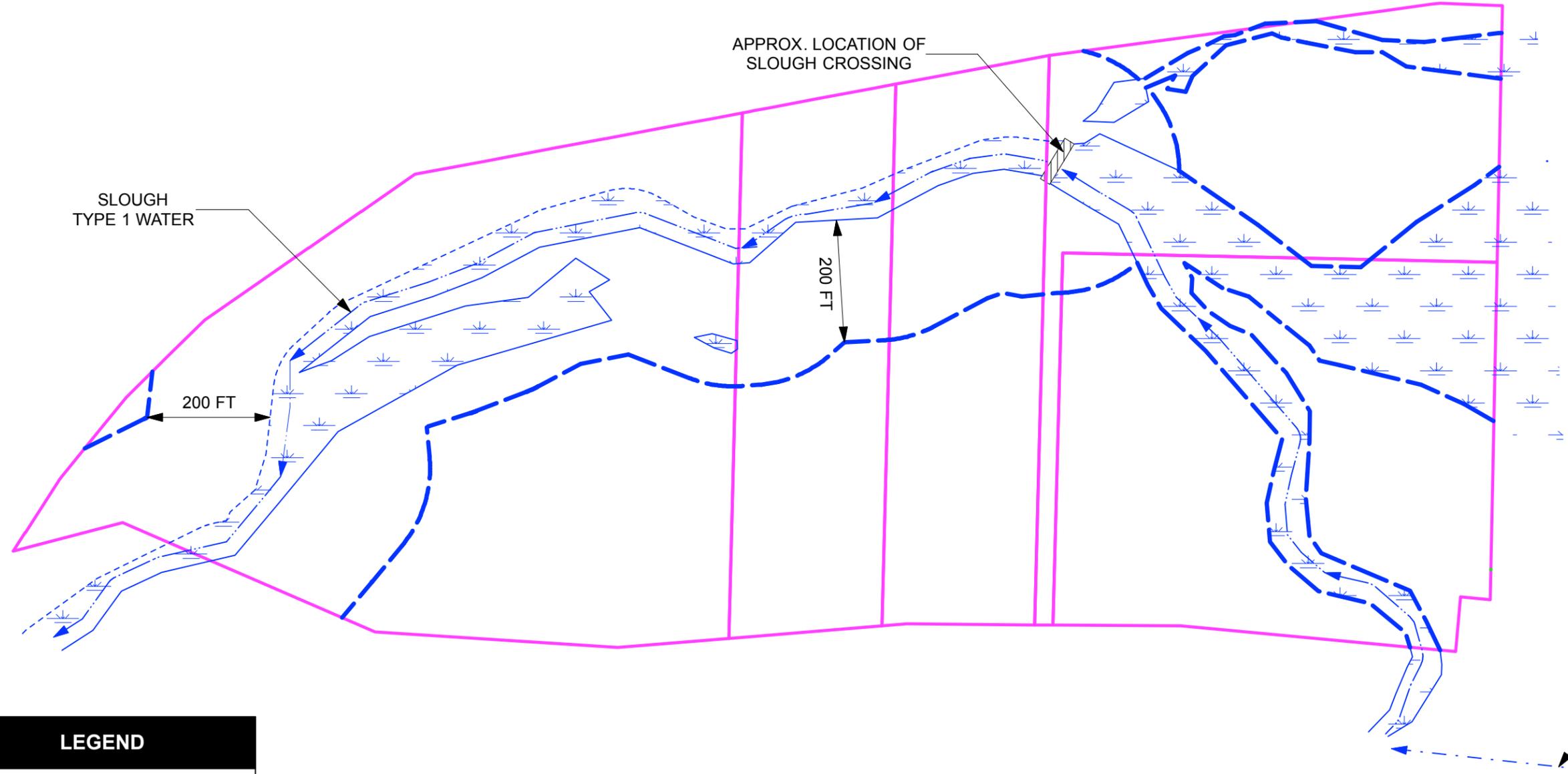
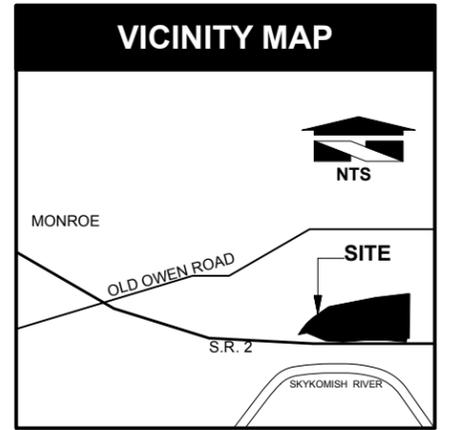
NOTE: THE SHORELINE DESIGNATION AREA IS NOT SHOWN ON THIS MAP. SEE SHEET 3 FOR THE SHORELINE DESIGNATION AREA.

Wetland Resources, Inc.
 Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
 9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
 Phone: (425) 337-3174
 Fax: (425) 337-3045
 Email: mailbox@wetlandresources.com

WETLAND, STREAM AND BUFFER MAP
EAST MONROE REZONE

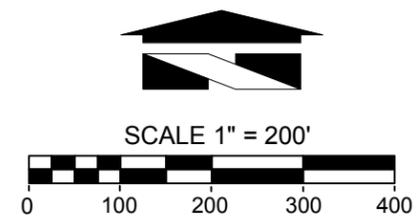
PACE Engineers, Inc. Attn: Susan Boyd 11255 Kirkland Way #300 Kirkland WA 98033	Sheet 2/4 WRI Job # 13133 Drawn by: MK Date: 07.16.2013 Revision: 06.03.15
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SHORELINE DESIGNATION MAP ***EAST MONROE REZONE*** PORTION OF SECTIONS 5 AND 6, TOWNSHIP 27, RANGE 07E, WM.



LEGEND

- WETLAND
- SHORELINE DESIGNATION LIMIT
- APPROXIMATE NORTH WETLAND AND STREAM BOUNDARY



NOTE: LIMIT OF SHORELINE DESIGNATION IS BASED ON THE CITY OF MONROE SHORELINE MASTER PROGRAM WITH THE EXCEPTION OF THE ASSOCIATED WETLANDS. STANDARD WETLAND BUFFERS ARE NOT DEPICTED ON THIS MAP. SEE SHEET 2 FOR STANDARD WETLAND BUFFERS.

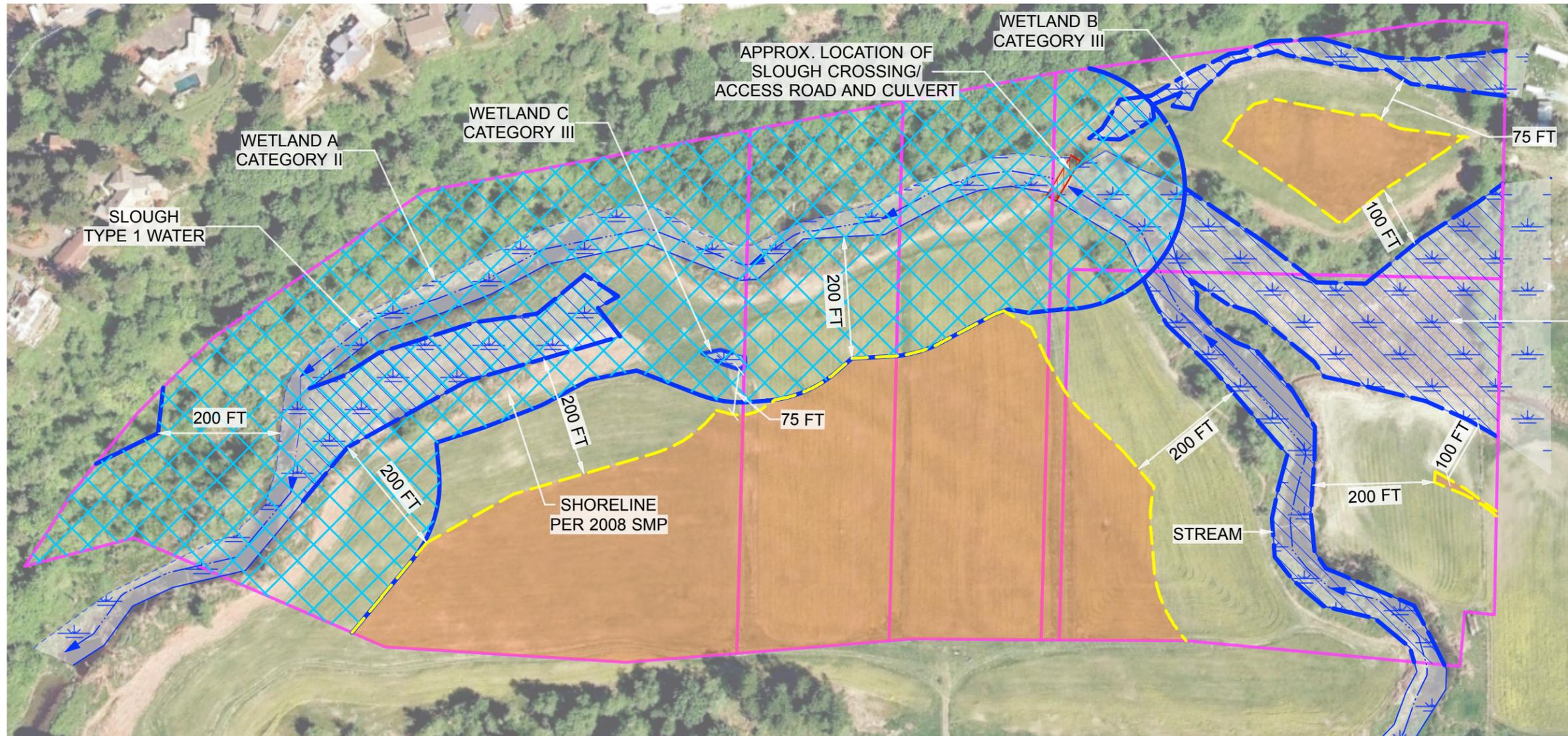
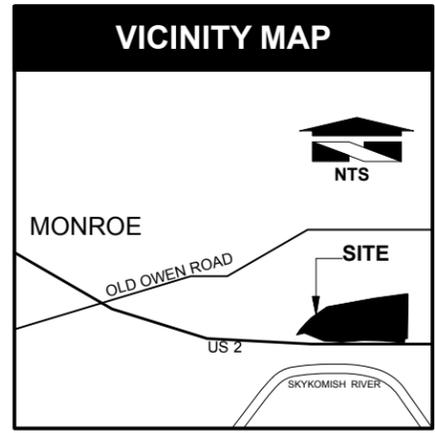
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SHORELINE DESIGNATION MAP
EAST MONROE REZONE

PACE Engineers, Inc.
Attn: Susan Boyd
11255 Kirkland Way #300
Kirkland WA 98033

Sheet 3/4
WRI Job # 13133
Drawn by: MK
Date: 7.16.2013
Revision: 06/03/15

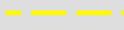
**WETLAND, STREAM, BUFFERS, AND SHORELINE DESIGNATION
COMPOSITE MAP
EAST MONROE REZONE**
PORTION OF SECTIONS 5 AND 6, TOWNSHIP 27, RANGE 7E, WM.



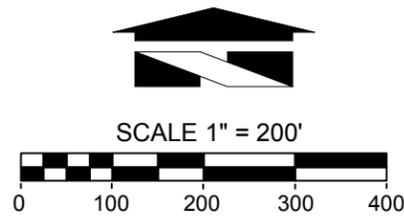
WETLAND A
CATEGORY II
(ASSOCIATED
WETLAND)

APPROXIMATE
DITCH LOCATION

LEGEND

	DELINEATED WETLAND		URBAN CONSERVANCY SHORELINE PER 2008 CITY OF MONROE SMP
	WETLAND AND STREAM BUFFER*		SHORELINE ASSOCIATED WETLANDS (PER WA ECOLOGY)
	APPROXIMATE NORTH WETLAND AND STREAM BOUNDARY		DEVELOPABLE AREA

* WHERE WETLAND AND STREAM BUFFERS OVERLAP, THE MORE RESTRICTIVE BUFFER IS DEPICTED ON THIS MAP.



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WETLAND, STREAM, BUFFERS, AND
SHORELINE DESIGNATION
COMPOSITE MAP
EAST MONROE REZONE

PACE Engineers, Inc. Attn: Susan Boyd 11255 Kirkland Way #300 Kirkland WA 98033	Sheet 4/4 WRI Job # 13133 Drawn by: MK Date: 08.09.2013 Revision: 06.03.15
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