



**CRITICAL AREAS STUDY  
AND  
BUFFER ENHANCEMENT PLAN  
  
FOR**

**1603 DEBRELOH LANE  
MUKILTEO, WA**

*Wetland Resources, Inc. Project #17079*

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

Prepared For  
LOT Design Group  
Attn: Larry Throndsen  
22630 88<sup>th</sup> Avenue W  
Edmonds, WA 98026

October 17, 2018

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

## TABLE OF CONTENTS

1.0 INTRODUCTION .....	1
2.0 PROJECT DETAILS .....	2
3.0 CRITICAL AREAS DETERMINATION .....	2
3.1 REVIEW OF EXISTING INFORMATION .....	2
3.2 FIELD METHODOLOGY .....	3
3.2.1 Hydrophytic Vegetation Criteria .....	3
3.2.2 Soils Criteria and Mapped Description .....	4
3.2.3 Hydrology Criteria .....	4
3.3 RESULTS OF THE SITE INVESTIGATION .....	4
3.3.1 Wetland A .....	5
3.3.2 Off-site Wetland .....	5
4.0 COMPLIANCE WITH MMC 17.52.035 .....	7
4.1.1 NGPA Signage .....	7
5.0 BUFFER ENHANCEMENT PLAN .....	8
5.1 VEGETATIVE BUFFER ENHANCEMENT AREA .....	8
5.1.2 Soil Stabilization.....	8
5.2 PLANTING NOTES .....	9
5.3 MAINTENANCE.....	12
5.4 GENERAL PROJECT NOTES .....	13
6.0 PROJECT MONITORING PROGRAM.....	14
6.1 PROGRAM DETAILS.....	14
6.1.1 Inspection and Reporting Requirements.....	14
6.1.2 Monitoring Components .....	14
6.2 PROJECT SUCCESS & COMPLIANCE.....	15
6.2.1 Criteria for Success.....	15
6.3 CONTINGENCY PLAN .....	15
7.0 PERFORMANCE BOND.....	16
8.0 USE OF THIS REPORT .....	17
9.0 REFERENCES .....	18

## LIST OF FIGURES

FIGURE 1: AERIAL VIEW OF THE SUBJECT PROPERTY .....	1
FIGURE 2: VICINITY OF THE SUBJECT SITE.....	1

## LIST OF APPENDICES

APPENDIX A: U.S. CORPS OF ENGINEERS WETLAND DETERMINATION DATA FORMS
APPENDIX B: DEPARTMENT OF ECOLOGY WETLAND RATING FORM
APPENDIX C: CRITICAL AREAS STUDY AND BUFFER ENHANCEMENT MAP (SHEET 1/1)

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

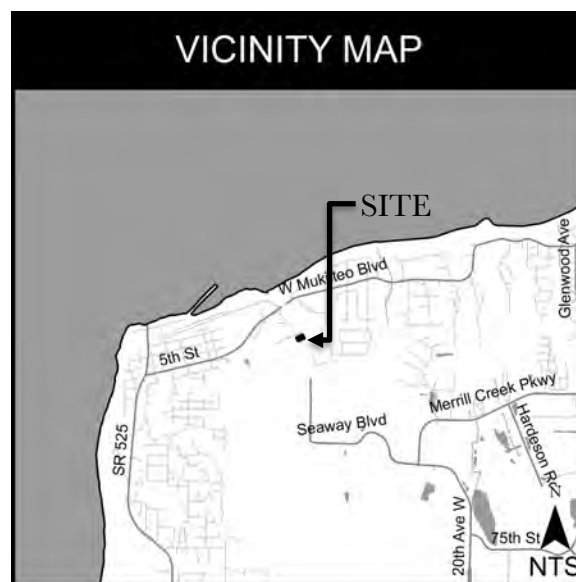
## 1.0 INTRODUCTION

Wetland Resources, Inc. (WRI) performed a site investigation on April 6, 2017 to determine the presence of any critical areas on or in the vicinity of Snohomish County Tax Parcel # 228040300200200 at 1603 Debreton Lane in the City of Mukilteo, Washington. The investigation area is located slightly south of Mukilteo Blvd. Site access is from the east, through an access easement running across the adjacent parcel, off a private road portion of Debreton Lane. The Public Land Survey System (PLSS) locator for the property is Section 10, Township 24N, Range 5E, W.M. This property is located within the Snohomish Watershed, Water Resources Inventory Area (WRIA) 7.

The 0.41-acre subject property is within a suburban single-family neighborhood, itself being developed as a single-family residence in the western-most portion of the site. A steeply-sloped area in the middle of the parcel separates the eastern half of the property from the single-family residence above. The eastern portion of the site is topographically lower than the existing residence and is currently maintained as lawn space. East of the site, past the access road (Debreton Lane), is a forested area that eventually slopes down into a ravine containing a tributary (Type 5: seasonal, non-fish) to Edgewater Creek. An off-site Category IV wetland is present within this forested area as well. The buffer widths associated with these off-site features do not extend onto the subject site. An on-site portion of a second Category IV wetland (Wetland A) is located in the southeastern corner of the property, emanating from the base of a forested slope south of the site. In the City of Mukilteo, Category IV wetlands typically receive 40-foot buffers, pursuant to Mukilteo Municipal Code (MMC) 17.52B.100.



**Figure 1:** Aerial view of the subject property



**Figure 2:** Vicinity of the subject site

## 2.0 PROJECT DETAILS

LOT Design Group, hereafter referred to as the applicant, is proposing to subdivide the subject parcel and subsequently construct a single-family residence in the eastern half. The proposed house footprint will be located within the northeast corner of the site, with a driveway installed to connect to an existing paved driveway on the adjacent parcel to the east. A proposed retaining wall will be constructed along the base of the steeply-sloped area's southern on-site portion. This wall is necessary to comply with steep slope setback requirements in MMC 17.52A.050. The home design has been developed specifically to avoid the on-site wetland buffer entirely. Additionally, a 5-foot separation between Wetland A and the southeast corner of the house (the closest point of the proposed structure to the wetland) will be maintained. No impacts are proposed to any critical areas or their associated buffers.

Pursuant to 17.52B.100(D)(3), the degraded buffer area (1,824 square feet) shall be planted with native vegetation to enhance its provided functions.

## 3.0 CRITICAL AREAS DETERMINATION

### 3.1 REVIEW OF EXISTING INFORMATION

Prior to conducting the site reconnaissance, public resource information was reviewed to gather background information on the subject property and the surrounding area in regards to wetlands, streams, and other critical areas. These sources include the following:

- USFWS National Wetlands Inventory (NWI)
- USDA/NRCS Web Soil Survey (WSS)
- Snohomish County PDS Map Portal (PDS)
- WDNR Forest Practices Application Mapping Tool (FPAMT)
- WDFW Priority Habitat and Species (PHS) Interactive Map
- WDFW SalmonScape online map
- StreamNet Mapper

#### *Streams, Lakes, and Marine Areas*

The subject site is located approximately 0.34 of a mile south of Possession sound, which along the coast in this area NWI describes as an Estuarine Intertidal wetland area. WDFW's PHS system shows that this intertidal area serves as Hardshell Clam habitat. Edge Water Creek Flows from south to north over 250 feet to the east of the property (FPAMT). Multiple publicly available resources confirm this location. Snohomish PDS depicts the channel as a seasonal, non-fish stream. The StreamNet Mapper appears to support this designation, as no fish distribution is recorded. However, the FPAMT system shows that the stream is fish-bearing downstream of a fish break in the vicinity of the subject site. SalmonScape depicts this break further downstream of the property, as there is no recorded or modeled salmonid presence above where Edgewater Creek crosses under Mukilteo Blvd (approximately 0.2 mile north of the site). A tributary to Edgewater Creek flows on the opposite side of Debreton Lane from the subject parcel, approximately 115 feet to the east. This tributary is depicted only on PDS, which depicts

is as unclassified. However, the channel is non-fish given the grade, and is seasonal considering the intermittent nature of Edgewater Creek. No lakes are present in the vicinity of the site.

#### *Wetlands*

No wetlands are depicted in the vicinity of the subject site by any of the listed publicly available resources. However, a public records request with the city revealed the presence of an off-site Category IV wetland east of the site, near the tributary to Edgewater Creek. The surveyed wetland boundary is over 100 feet northeast of the subject site.

#### *Wildlife Habitat*

No priority habitats are depicted on or adjacent to the subject parcel by any of the listed publicly available resources..

#### *Soils and Geologic Conditions*

The topography of the sites has a generally northeastern aspect (via PDS). The entire site is mapped as Alderwood-Everett gravelly Sandy Loam, 25 to 70 percent slopes (via WSS). This is consistent with the on-site topography.

### **3.2 FIELD METHODOLOGY**

WRI staff conducted a site visit on April 6, 2017 to locate any streams, lakes, and/or wetlands occurring within and near the project site.

Ordinary High Water Mark (OHWM) boundaries of streams, lakes, and marine waters are determined through use of methodology presented in The Washington State Department of Ecology document *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et al 2016). Designation of streams and lakes is consistent with the water typing system established in the Washington Administrative Code (WAC) 222-16-030.

Wetland boundaries were determined using the routine approach described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers 2010). Under the routine methodology, the process for making a wetland determination is based on three steps:

- 1.) Examination of the site for hydrophytic vegetation (species present and percent cover);
- 2.) Examination of the site for hydric soils;
- 3.) Determining the presence of wetland hydrology

#### **3.2.1 Hydrophytic Vegetation Criteria**

The Corps Manual and 2010 Regional Supplement define hydrophytic vegetation as “the assemblage of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence.” Field

indicators are used to determine whether the hydrophytic vegetation criteria have been met. Examples of these indicators include, but are not limited to, the rapid test for hydrophytic vegetation, a dominance test result of greater than 50%, and/or a prevalence index score less than or equal to 3.0.

### **3.2.2 Soils Criteria and Mapped Description**

The 2010 Regional Supplement (per the National Technical Committee for Hydric Soils) defines hydric soils as soils “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 are used to determine whether a given soil meets the definition for hydric soils. Indicators are numerous and include, but are not limited to, presence of a histosol or histic epipedon, a sandy gleyed matrix, depleted matrix, and redoximorphic depressions.

### **3.2.3 Hydrology Criteria**

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. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and chemically reducing conditions, respectively. The strongest indicators include the presence of surface water, a high water table, and/or soil saturation within at least 12 inches of the soil surface.

## **3.3 RESULTS OF THE SITE INVESTIGATION**

Based on the results of the site investigation and review of existing information, one wetland (Wetland A) extends onto the southeastern corner of the subject site. Wetland A lies at the bottom of a sloped forested tract to the south, southeast of the property, extending into the grassy area adjacent to and on the property. A tributary to Edgewater Creek and an off-site wetland are located across the road and are well away from the subject site.

In the City of Mukilteo, streams are typed through application of the Washington State Interim Water Typing system (WAC 222-16-031). Wetlands are classified based on categories determined through application of the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Hruby 2014).

Streams, lakes, marine waters, and wetlands are all additionally classified using the U.S. Fish and Wildlife Service (USFWS) document, *Classifications of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979), also known as the “Cowardin Classification System.” The U.S. Army Corps of Engineers manual, *A Hydrogeomorphic Classification for Wetlands* (Brinson 1993), or HGM system, is also used for further wetland classification.



### 3.3.1 Wetland A

*City of Mukilteo Rating:* Category IV

*Size:* Approximately ~0.01 acres (406 S.F.)

*Cowardin Classification:* Palustrine, Emergent, Persistent, Saturated (PEM1B)

*HGM Class:* Slope

*Standard Buffer:* 40 feet [per MMC 17.52B.100(3)]

Wetland A receives 14 total points based on all functions. Wetlands that score between 9 and 15 total points are rated as Category IV, and typically receive 40-foot standard buffers in the City of Mukilteo.

Dominant vegetation within the off-site wetland appears to be composed of red alder (*Alnus rubra*; FAC), Pacific willow (*Salix lucida*; FACW), creeping buttercup (*Ranunculus repens*; FAC), and perennial ryegrass (*Lolium perenne*; FAC). All of the dominant species within the wetland have an indicator status of facultative (FAC) or wetter, which meets the hydrophytic vegetation criteria per the Corps Manual and the 2010 Regional Supplement.

Soils with the area described as wetland have a Munsell color of very dark grayish brown (2.5Y 3/2) with a sandy loam texture for the first 4 inches below the surface. From 4 to 9 inches below the surface, soil matrix color and texture remain the same, but prominent brown (7.5YR 4/4) redoximorphic features are present. From 9 to 15 inches below the surface, soils are a dark gray (5Y 4/1) loamy sand with prominent olive brown (2.5Y 4/4) and prominent strong brown (7.5YR 4/6) redoximorphic features. Below 15 inches of depth, soils were a light gray (2.5Y 7/1) clay with prominent yellowish brown (10YR 5/6) redoximorphic features, and had inclusions of greenish gray (5GY 6/1) clay with dark yellowish brown (10YR 4/6) redoximorphic features. These conditions meet the Depleted Below Dark Surface (A11), Depleted Matirx (F3), and Redox Dark Surface (F6) hydric soil indicators.

During our site April 2017 site investigation, soils were saturated to the surface and the water table was observed 12 inches below. These conditions meet the High Water Table (A2) and Saturation (A3) wetland hydrology indicators.

Given that the dominant vegetation is a hydrophytic community, soils meet hydric conditions, and wetland hydrology is present, this area meets wetland criteria.

### 3.3.2 Off-site Wetland

*City of Mukilteo Rating:* Category IV

*Size:* Approximately 0.04 acres (~1,780 S.F.)

*Cowardin Classification:* Palustrine, Forested, Seasonally Flooded / Saturated (PFOE)

*HGM Class:* Slope

*Standard Buffer:* 40 feet [per MMC 17.52B.100(3)]

The off-site wetland was not accessible. Therefore, this analysis is based on visual observations from the subject site and publicly available information. Particularly the wetland's recorded category (IV) with the City of Mukilteo.

The off-site area where the wetland is located was previously assessed by Curran Environmental Services. The wetland was rated as a Category IV, which typically receive 40-foot standard buffers in the City of Mukilteo.

Dominant vegetation within the off-site wetland appears to have an overstory composed of mature deciduous and coniferous trees. Observations from Debreton Lane are consistent with the vegetation recorded as rooted within the wetland area. The dominant species include red alder (FAC), red osier dogwood (*Cornus sericea*; FAC), Osoberry (*Oemleria cerasiformis*; FACU), and Himalayan blackberry (*Rubus armeniacus*; FAC). Vegetation was not directly assessed due to lack of site access.

Soils within the wetland were not able to be sampled due to lack of access. Similarly, hydrology was not directly observable. However, the topography and geomorphic position of the area suggest a high probability of wetland hydrology, consistent with the recorded designation.

### ***Tributary to Edgewater Creek***

*WA State Water Interim Typing Classification:* Type 5 (analogous to Type Ns)

*Cowardin Classification:* Riverine, Upper Perennial, Unconsolidated Bottom, Seasonally Flooded (R3UBC)

*Standard Buffer:* 50 feet [per MMC 17.52C.090(A)(1)]

The tributary to Edgewater Creek is an intermittent non-fish stream flowing from southwest to northeast, approximately 115 feet east of the subject property, continuing into Edgewater Creek and eventually out to possession sound. The gradient is well above 16-percent, not meeting the WAC definition of a fish-bearing stream. The streambed is assumed to be unconsolidated bottom given the grade and surrounding soil conditions. Edgewater Creek is classified as seasonal in Snohomish County PDS. Therefore, any tributary to this system is also seasonal. Non-fish-bearing, seasonal streams are classified as Type 5 waters in the City of Mukilteo, which typically receive 50-foot standard buffers.

### ***On-site Characteristics (Non-wetland)***

The majority of on-site vegetation is maintained lawn. The soils on the subject site were primarily dark brown (10YR 3/3) sandy loam throughout the matrix. The site has a long history of grading manipulation, and the soils are correspondingly disturbed, with high a significant level of fill present.. the geomorphic position of the site does not indicate wetland hydrologic conditions, with the exception of the southeast corner where Wetland A extends onto the parcel. Soils were slightly moist at the time of our visit, but no saturation was seen on the site (outside of Wetland A).

The off-site forested area just southeast of the site was also investigated for wetland conditions. As discussed above, Wetland A is present at the lowest portion of this forested slope. Immediately uphill of Wetland A, within the forested area, there is a small area showing signs of increased hydrology but does not meet wetland criteria. This area, while wetter than surrounding upland forest, is not inundated for a long enough duration throughout the year to develop wetland conditions. Dominant vegetation is comprised of red alder (FAC), red

elderberry (*Sambucus racemosa*; FACU), club mosses (*Lycopodium* spp; FAC), and creeping buttercup (FAC). The majority of the vegetation is facultative or wetter, indicating a hydrophytic community. Soils are a very dark brown (10YR 2/2) sandy loam to about 10 inches of depth, underlain by dark brown (10YR 3/3) loamy sand. Some dark yellowish brown (10YR 4/6) redoximorphic features are present, but infrequently to meet hydric soil indicators. Soils were only slightly moist over most of this area. While a hydrophytic community is present, soils and hydrologic wetland conditions are not met.

## **4.0 COMPLIANCE WITH MMC 17.52.035**

In the City of Mukilteo, regulated streams, wetlands and their buffers are designated collectively as Native Growth Protection Areas (NGPAs). All Native Growth Protection Areas (in this case, Wetland A and its associated buffer) shall be shown on the development site plans or final plat maps, and shall be noted as follows, per MMC 17.52.035:

*Any area in which development is prohibited by these critical areas regulations shall be set aside in a native growth protection area. NGPAs shall be placed in a separate tract on which development is prohibited, protected by execution of an easement, dedicated to a conservation organization or land trust, or similarly preserved through a permanent protective mechanism acceptable to the city. The location and limitation associated with the critical area and its buffer shall be shown on the face of the deed, site plan, or plat applicable to the property and shall be recorded with the Snohomish County assessor's office.*

*B. Native growth protection areas and buffers shall not be used for storage or deposit of construction debris or material, or deposit of vegetative spoils.*

*C. All native growth protection areas shall be shown on the development site plans or final plat maps, and shall be noted as follows:*

*There shall be no clearing, excavation, or fill within a native growth protection area shown on the face of this site plan/plat, with the exception of required utility installation, removal of dangerous trees, thinning of woodlands for the benefit of the woodlands as determined by a certified landscape architect or arborist, and removal of obstructions on drainage courses, or as allowed under Section 17.52A.070, Vegetation management on steep slopes.*

*D. A temporary sign shall be placed at the boundary of all native growth protection areas during periods of construction, clearing, grading, or excavation on adjacent property. The sign shall describe the limitations of on-site disturbance and development within the native growth protection area. A permanent sign shall be placed at the boundary of all native growth protection areas describing the limitation on development. NGPA signs shall be spaced fifty feet on center along the periphery of the critical area.*

### **4.1.1 NGPA Signage**

Signs designating the presence of the NGPA are required to be posted along the NGPA boundary, which in this case is the outer boundary of the on-site wetland buffer. Signs must be placed at approximately 50-foot intervals around the perimeter of a NGPA. A single type 1 sign will meet this requirement on the subject site. An example of type 1 sign language is as follows:

**NATIVE GROWTH PROTECTION AREA**  
THIS WETLAND AND UPLAND BUFFER ARE PROTECTED TO  
PROVIDE WILDLIFE HABITAT AND MAINTAIN WATER QUALITY.  
PLEASE DO NOT DISTURB THIS VALUABLE RESOURCE.  
\*SEE RECORDED PLAT FOR RESTRICTIONS

The sign shall be constructed of aluminum or similar durable material. It shall be secured to 4" x 4" x 7' (minimum) pressure treated post buried a minimum of two feet in quick setting concrete.

## **5.0 BUFFER ENHANCEMENT PLAN**

The buffer associated with Wetland A will be enhanced with native trees and shrubs in order to comply with MMC 17.52B.100(D)(3), which states that "if the existing buffer is unvegetated, sparsely vegetated, or vegetated with invasive species that do not perform needed functions, the buffer should either be planted to create the appropriate plant community or the buffer should be widened to ensure that adequate functions of the buffer are provided." Given that there is insufficient space to increase the width of the buffer, it's on-site portion shall be enhanced.

Enhancement of the on-site buffer will provide a functional lift to water quality, hydrologic, and habitat functions associated with Wetland A. Further, the installed native vegetation will additionally act as a protective barrier between residential activity and the wetland.

### **5.1 VEGETATIVE BUFFER ENHANCEMENT AREA**

A total of 1,824 square-foot area of on-site buffer associated with Wetland A will be enhanced with the following native plant species as specified:

COMMON NAME	LATIN NAME	SIZE	SPACING	QUANTITY
1. Western red cedar	<i>Thuja plicata</i>	2 gallon	10'	9
2. Douglas fir	<i>Pseudotsuga menziesii</i>	2 gallon	10'	9
3. Snowberry	<i>Symphoricarpos alba</i>	1 gallon	3.5'	14
4. Salal	<i>Gaultheria shallon</i>	1 gallon	3.5'	14
5. Oregon grape	<i>Mahonia aquifolium</i>	1 gallon	3.5'	14
6. Nootka rose	<i>Rosa nutkana</i>	1 gallon	3.5'	<u>13</u>
<b>Total:</b>				<b>73</b>

#### **5.1.2 Soil Stabilization**

Mulch or woodchips shall be applied to any disturbed soil within buffer areas. However, disturbance to buffer areas is not expected.

## 5.2 PLANTING NOTES

Plant in the early spring or late fall and obtain all plants from a reputable nursery. Care and handling of all plant materials is extremely important to the overall success of the project. The origin of all plant materials specified in this plan shall be native plants, nursery grown in the Puget Sound region of Washington. Some limited species substitution may be allowed, only with the agreement of the landscape designer, wetland biologist, and/or City staff.

### *Pre-Planting Meeting*

Prior to control of invasive species or installation of mitigation plantings, a site meeting between the contracted landscaper and the consulting environmental professional shall occur to resolve any questions that may arise. During this meeting a discussion regarding plant spacing and locations of plant species including wetland verses buffer species shall occur between the landscape contractor or owners, and the consulting environmental professional.

### *Flagging*

All mitigation plantings shall be clearly flagged with highly visible flagging tape at the time of the installation. Clear identification of mitigation plants will aide in future assessments of performance standards during monitoring visits.

### *Handling*

Plants shall be handled so as to avoid all damage, including: breaking, bruising, root damage, sunburn, drying, freezing or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots with shade and wet soil in the time period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant. Water all plants as necessary to keep moisture levels appropriate to the species horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Soak all containerized plants thoroughly prior to installation. Bare root plants are subject to the following special requirements, and shall not be used unless planted between November 15 and February 15, and only with the permission of consulting biologist and/or City staff. Bare root plants must have enough fibrous root to ensure plant survival. Roots must be covered at all times with: mud and/or wet straw, moss, or other suitable packing material until time of installation. Plants whose roots have dried out from exposure will not be accepted at installation inspection.

### *Storage*

Plants stored by the Permittee for longer than one month prior to planting shall be planted in nursery rows and treated in a manner suitable to those species' horticultural requirements. Plants must be re-inspected by the wetland biologist and/or landscape designer prior to installation.

### *Damaged plants*

Damaged, dried out, or otherwise mishandled plants will be rejected at installation inspection. All rejected plants shall be immediately removed from the site.

### *Plant Names*

Plant names shall comply with those generally accepted in the native plant nursery trade. Any question regarding plant species or variety shall be referred to the landscape designer, consulting biologist, or City staff. All plant materials shall be true to species and variety and legibly tagged.

### *Quality and condition*

Plants shall be normal in pattern of growth, healthy, well-branched, vigorous, with well-developed root systems, and free of pests and diseases. Damaged, diseased, pest-infested, scraped, bruised, dried out, burned, broken, or defective plants will be rejected. Plants with pruning wounds over 1" in diameter will be rejected.

### *Roots*

All plants shall be containerized, bare root, or whips as specified in the mitigation plan planting schedules, unless explicitly authorized by the consulting biologist. Rootbound plants or plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage (some broken and / or twisted roots) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened from top to bottom to a depth of approximately half an inch in two to four places. Bare root plantings of woody material are allowed only if installed between November 15 and February 15, and with permission from the consulting biologist and/or City staff.

### *Sizes*

Plant sizes shall be the size indicated in the plant schedule in approved plans. Larger stock may be acceptable provided that it has not been cut back to the size specified, and that the root ball is proportionate to the size of the plant. Smaller stock may be acceptable, and preferable under some circumstances, based on site-specific conditions. Measurements, caliper, and branching shall conform to the American Standard of Nursery Stock by the American Association of Nurserymen (latest edition).

### *Form*

Evergreen trees shall have single trunks and symmetrical, well-developed form. Deciduous trees shall be single trunked unless specified as multi-stem in the plant schedule. Shrubs shall have multiple stems and be well-branched.

### *Timing of Planting*

Unless otherwise determined by City staff, initial planting shall occur between October 15 and March 15. Overall, the earlier plants go into the ground during the dormant period, the more time they have to adapt to the site and extend their root systems before the water demands of spring and summer.

### *Weeding*

Existing and exotic vegetation in the mitigation areas will be hand-weeded from around all newly installed plants at the time of installation and on a routine basis throughout the monitoring period. No chemical control of vegetation on any portion of the site is recommended.

### *Planting Pits*

Planting pits shall be circular or square with vertical sides and shall be 6” deeper and 12” larger in diameter than the root ball of the plant. Break up the sides of the pit in compacted soils. Set plants upright in pits. Any burlap shall be removed from the planting pit. Backfill shall be worked back into holes such that air pockets are removed without adversely compacting down soils.

### *Soil Amendments*

Unless otherwise specified and approved by the City of Mukilteo, organic matter (compost or approved equal) will be incorporated into all planting pits, not including areas inside the dripline of existing trees and shrubs. One unit of loose, well-composted organic material should be incorporated with two units of silt loam topsoil to a depth of eight to ten inches (only three to four inches within three feet of existing drip lines) and mixed thoroughly.

### *Site conditions*

The contractor shall immediately notify the landscape designer and/or consulting biologist of drainage or soil conditions likely to be detrimental to the growth or survival of plants. Planting operations shall not be conducted under the following conditions: freezing weather, when the ground is frozen, excessively wet weather, excessively windy weather, or in excessive heat.

### *Fertilizer*

Slow release fertilizer may only be used if determined to be necessary and must be approved by the City of Mukilteo. Fertilizers shall be applied only at the base of plantings underneath the top layer of soil (that does not make contact with stems of the plants). No fertilizers will be placed in planting holes. Fertilizer will not be used in the first year after installation.

### *Staking*

Most shrubs and many trees DO NOT require any staking. If the plant can stand alone without staking in a moderate wind, do not use a stake. If the plant needs support, then strapping or webbing should be used as low as possible on the trunk to loosely brace the tree with two stakes. Do not brace the tree tightly or too high on the trunk. If the tree is unable to sway, it will further lose the ability to support itself. Do not use wire in a rubber hose for strapping as it exerts too much pressure on the bark. As soon as supporting the plant becomes unnecessary, remove the stakes. All stakes must be removed within two (2) years of installation.

### *Plant Location*

Colored surveyors ribbon or other appropriate marking shall be attached to the installed plants to assist in locating the plants while removing the competing non-native vegetation and during the monitoring period.

### *Arrangement and Spacing*

The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar

undisturbed sites in the area. Spacing of the plantings may be adjusted to maintain existing vegetation with the agreement of the landscape designer, wetland biologist, and/or City staff.

#### *Inspection(s)*

A consulting biologist shall be present on-site to inspect the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction.

#### *Mulch*

All landscaped areas denuded of vegetation and soil surface surrounding all planting pit areas shall receive no less than 2 to 4 inches of woodchips after planting. Woodchips shall be kept well away (at least 2 inches) from the trunks and stems of woody plants.

### **5.3 MAINTENANCE**

The mitigation areas will require periodic maintenance to remove undesirable species and replace vegetation mortality. Maintenance shall occur in accordance with the approved plans. Maintenance may include, but will not be limited to: removal of competing grasses (by hand if necessary), irrigation, fertilization (if necessary), and the replacement of plant mortality for each maintenance period. Chemical control, only if approved by City of Mukilteo staff, shall be applied by a licensed applicator following all label instructions.

#### *Duration and Extent*

In order to achieve performance standards, the permittee shall be responsible for maintaining the mitigation area for the duration of the five-year monitoring period. Maintenance will include: watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-750-005) as well as Himalayan blackberry and reed canary grass, and any other allowable measures needed to ensure plant survival.

#### *Survival*

The permittee shall be responsible for the health of 100% of all newly installed plants for one growing season after installation has been accepted by The City of Mukilteo. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 15 of the following year). For fall installation, the growing season will begin the following spring. The permittee shall replace any plants that are failing, weak, defective in manner of growth, or dead during this growing season.

#### *Installation Timing for Replacement Plants*

Replacement plants shall be installed between October 15 and March 15, unless otherwise determined.

#### *Standards for Replacement Plants*

Replacement plants shall meet the same standards for size and type as those specified for the original installation, unless otherwise directed by a qualified professional.



### *Replanting*

Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted.

### *Reflagging*

Any installed mitigation planting that has deteriorated flagging shall have that flagging replaced with highly visible flagging tape. Clear identification of mitigation plants will aide in future assessments of performance standards during monitoring visits.

### *Herbicides / Pesticides*

Unless deemed absolutely necessary by the consulting biologist, chemical controls shall not be used in the mitigation area, sensitive areas, or their buffers. Any chemical controls used shall be applied by a licensed applicator following all label instructions.

### *Irrigation / Watering*

Water shall be provided during the dry season (June 1 through October 15) for the first two years after any mitigation plant installation to ensure plant survival and establishment. A temporary above ground automated irrigation system shall provide water. Water should be applied at a rate of 1" of water twice per week for the first year following any plant installation, and 1" per week during the second year following any plant installation. If mitigation plantings are installed to replace mortality, this irrigation schedule restarts. Irrigation may be required after the first two years to maintain plant survival.

### *General*

The permittee shall include in general maintenance activities the replacement of any vandalized or damaged signs, habitat features, fences, or other structural components of this mitigation site.

## **5.4 GENERAL PROJECT NOTES**

### *Pre-Construction Meeting*

Mitigation projects are typically more complex to install than can be described in plans. Careful monitoring by a consulting biologist for all portions of this project is strongly recommended. Construction timing and sequencing is important to the success of this type of project. There will be a pre-construction meeting on this site between the Permittee, consulting biologist, and laborers. The objective will be to verify the location of erosion control facilities, verify the location of mitigation areas, and to discuss project sequencing.

### *Inspections*

A qualified consulting biologist shall be contracted to periodically inspect the mitigation installation described in this plan. Minor adjustments to the original design may be necessary prior to and during construction due to unusual or hidden site conditions. A City of Mukilteo representative and/or the consulting professional will make these decisions during construction.

## **6.0 PROJECT MONITORING PROGRAM**

### **6.1 PROGRAM DETAILS**

#### **6.1.1 Inspection and Reporting Requirements**

Initial compliance/as-built report will be prepared at completion of the mitigation installation.

Annual site inspection will occur once per year, in the late spring/early summer for 5 years.

Annual monitoring reports will be submitted by August 1<sup>st</sup> of each monitored year for 5 years, including a final report.

#### **6.1.2 Monitoring Components**

##### *Purpose for Monitoring*

The purpose for monitoring this mitigation project shall be to evaluate its success. Success will be determined if monitoring shows, at the end of the monitoring period, that the definitions of success stated below are met. The property owner shall grant access to the mitigation area for inspection and maintenance to the contracted landscaper, wetland specialist, and/or the City of Mukilteo during the period of the bond or until the project is evaluated as successful. Monitoring shall be performed once per year.

##### *Monitoring*

Monitoring shall be conducted for five years in accordance with the approved Mitigation Plan. The monitoring period will begin once the City receives written notification confirming the mitigation plan has been implemented, and City of Mukilteo staff (or contracted biologist) inspects the site and issues approval of the installation.

##### *Vegetation Monitoring*

Sampling points or transects will be established for vegetation monitoring and photo points will be established from which photos will be taken throughout the monitoring period. Permanent sampling points must be identified on the mitigation site plans in the first monitoring report (they may be drawn on approved plans by hand). Each sampling point shall detail herbaceous, shrub, and tree coverage. Monitoring of vegetation sampling points shall occur once annually in the fall (prior to leaf drop) as detailed in section 6.1.1 of this report, unless otherwise specified.

##### *Photo points*

No less than three permanent photo points will be established within the mitigation area. Photographs will be taken from these points to visually record condition of the enhancement area. Photos shall be taken annually between in the fall (prior to leaf drop), unless otherwise specified.

##### *Monitoring Report Contents*

Monitoring reports shall be submitted by November 31 of each year during the monitoring period. As applicable, monitoring reports must include descriptions / data for:

1. Site plan and vicinity map

2. Historic description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
3. Plant survival, vigor, and areal coverage for every plant community (transect or sampling point data), and explanation of monitoring methodology in the context of assessing performance standards
4. Current condition/need for replacement of flagging that identifies mitigation plantings
5. Wetland and buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures
6. Observed wildlife, including amphibians, avians, and others
7. Assessment of nuisance / exotic biota and recommendations for management
8. Receipts for any structural repair or replacement
9. Color photographs taken from permanent photo-points that shall be depicted on the monitoring report map

## 6.2 PROJECT SUCCESS & COMPLIANCE

### 6.2.1 Criteria for Success

Upon completion of the proposed mitigation project installation, an inspection by a qualified consulting biologist shall be made to determine plan compliance. An as-built report will be supplied to The City of Mukilteo within thirty-one (31) days after the completion of planting, to show compliance with the mitigation plan. The qualified consulting biologist will perform condition monitoring of the plantings and provide reports according to the schedule described in Section 6.1.1.

#### Goal

To enhance the functions and values provided by the wetland and buffer.

#### Objectives

Objective 1: Enhance 1,824 square feet of buffer area with 18 native trees and 55 native shrubs.

**Definition of Success:** The planting areas shall be considered successful if they meet the following performance standards:

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Survivorship*</b>	100%	>90%	>80%	>80%	>80%
<b>Native species cover**</b>	>20%	>30%	>40%	>60%	>80%
<b>Invasive species cover</b>	<10%	<15%	<20%	<20%	<20%

\*Only applies to installed native plantings.

\*\*Native volunteer species may be included to meet native cover requirements.

## 6.3 CONTINGENCY PLAN

If 20% of the plants are severely stressed during any of the inspections, or it appears 20% may not survive, additional plantings of the same or similar species may be added to the planting area as directed by the consulting biologist. Additionally, presence of invasive species, failure or

conditions likely to cause failure to achieve current performance standards, or other detrimental site conditions may trigger a contingency plan as deemed necessary by the consulting biologist. Elements of a contingency plan may include, but will not be limited to: more aggressive weed and invasive species control, pest control, replanting with larger plant material, species substitution, soil amendments, installation of habitat features, and/or irrigation.

## 7.0 PERFORMANCE BOND

The following is a cost estimate for plant materials, labor, and an as-built inspection/report. This does not represent an actual bid. The bond, in the amount of 150% of expected mitigation project costs, shall be held until the City of Mukilteo approves a final mitigation monitoring report of mitigation project success of the buffer enhancement plan.

### Plants

\$11.50/1 gallon container or bare root (73 plants)	\$839.50
Labor/Installation:	\$600.00
<b>Subtotal:</b>	\$1,439.50
10.4% Sales Tax:	\$149.71
<b>Total cost:</b>	\$1,589.21
<b>150% of cost (bond amount):</b>	2,383.81

## 8.0 USE OF THIS REPORT

This Critical Areas Study and Buffer Enhancement Plan has been prepared for LOT Design Group to assist with identifying on-site and nearby critical areas and applying appropriate mitigation as required by the City of Mukilteo. 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.

This report conforms to the standard of care employed by 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.*

A handwritten signature in black ink that reads "Scott Walters". The signature is written in a cursive, flowing style.

Scott Walters  
*Associate Ecologist*

## 9.0 REFERENCES

- Anderson, P., S. Meyer, P. Olson, E. Stockdale. 2016. *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State*. DOE Publication no. 16-06-029. Shorelands and Environmental Assistance Program. Washington State Department of Ecology. Olympia, Washington. October 2016.
- Brinson, M.M. 1993. *A Hydrogeomorphic Classification for Wetlands*. Technical Report WRPDE-4. US Army Engineers Waterways Experiment Station, Vicksburg, MS.
- Lichvar, Tobert W. and J.T. Kartesz, 2014. *National Wetland Plant List, Version 3.0*. U.S. Army Corps of Engineers Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover NH and BONAP, Chapel Hill, NC.  
([http://wetland\\_plants.usace.army.mil](http://wetland_plants.usace.army.mil))
- Mukilteo, City of. 2018. *Mukilteo Municipal Code*. Title 17, Zoning.
- NRCS. 2018. Web Soil Survey. United States Department of Agriculture.  
<http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed August 2017.
- Snohomish, County of. 2018. PDS Map Portal.  
<http://gismaps.snoco.org/Html5Viewer/Index.html?viewer=pdsmapportal>. Accessed August 2018.
- StreamNet. 2018. StreamNet Mapper. <https://www.streamnet.org/data/interactive-maps-and-gis-data/>. Accessed August 2018.
- US Army COE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). Environmental Laboratory, Department of the Army, Corps Waterways Experiment Station, Vicksburg, MS
- U.S. Army COE. 1987. Wetland delineation manual. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS, USA. Technical Report Y-87-1.
- USFWS. 2018. National Wetlands Inventory (NWI) Online Mapper.  
<http://www.fws.gov/wetlands/Data/Mapper.html>. Accessed August 2018.
- WDFW. 2018a. Priority Habitat and Species (PHS) Interactive Map.  
<http://apps.wdfw.wa.gov/phsontheweb/>. Accessed August 2018.
- WDFW. 2018b. SalmonScape Online Mapping Application.  
<http://apps.wdfw.wa.gov/salmonscape/map.html>. Accessed August 2018.
- WDNR. 2018. *Forest Practices Application Mapping Tool (FPAMT)*.  
<http://fortress.wa.gov/dnr/protectiongis/fpamt/index.html#>. Accessed August 2018.

**APPENDIX A**  
U.S. CORPS OF ENGINEERS  
WETLAND DETERMINATION DATA FORMS

THIS PAGE IS LEFT BLANK INTENTIONALLY



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

Project/Site: 17079 LOT Design City/County: Mukilteo/Snohomish Sampling Date: 4/6/17  
 Applicant/Owner: LOT Design Group State: WA Sampling Point: S1  
 Investigator(s): SW Section, Township, Range: S3, T28N, R04RE  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): >2%  
 Subregion (LRR): LRR-A Lat: 47.9482573 Long: -122.2834080 Datum: NAD83  
 Soil Map Unit Name: Alderwood-Everett gravelly sandy loams 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"/>	Is the Sampled Area within a Wetland? 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"/>	
Remarks:	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m <sup>2</sup> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</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>100</u> (A/B)
1. <u>Alnus rubra</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = _____
<u>30</u> = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: 3m<sup>2</sup>)</b> 1. <u>Rubus spectabilis</u> Trace N FAC 2. <u>Rosa nutkana</u> Trace N FAC 3. _____ 4. _____ 5. _____				
<u>Trace</u> = Total Cover				
<b>Herb Stratum (Plot size: 1m<sup>2</sup>)</b> 1. <u>Lycopodium sp.</u> 75 Y FAC 2. <u>Ranunculus repens</u> 75 Y FAC 3. <u>Geum macrophyllum</u> 15 N FAC 4. <u>Urtica dioica</u> 10 N FAC 5. <u>Galium trifidum</u> 5 N FACW 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>180</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: 3m<sup>2</sup>)</b> 1. _____ 2. _____				
<u>0</u> = Total Cover				
<b>% Bare Ground in Herb Stratum</b> <u>0</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>Lycopodium sp. assumed to be FAC</u>				

# SOIL

Sampling Point: S1

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

Depth (inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-4	10YR 2/2	100					Loam	
4-9	10YR 3/2	100					Sandy Loam	
9-12	10YR 3/3	100					Loamy Sand	
12-15	10YR 2/2	100					Sandy Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <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) ( <b>except MLRA 1</b> ) |
| <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)                            |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, 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)

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

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

Saturation Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

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

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

Remarks:

Moist soils

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

Project/Site: 17079 LOT Design City/County: Mukilteo/Snohomish Sampling Date: 4/6/17  
 Applicant/Owner: LOT Design Group State: WA Sampling Point: S2  
 Investigator(s): SW Section, Township, Range: S3, T28N, R04RE  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): >2%  
 Subregion (LRR): LRR-A Lat: 47.9482573 Long: -122.2834080 Datum: NAD83  
 Soil Map Unit Name: Alderwood-Everett gravelly sandy loams 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"/>	Is the Sampled Area within a Wetland? 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 checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks:	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m <sup>2</sup> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> 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)
1. <u>Alnus rubra</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = _____
<u>50</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3m <sup>2</sup> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot size: 1m <sup>2</sup> )				
1. <u>Lycopodium sp.</u>	<u>75</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Ranunculus repens</u>	<u>20</u>	<u>N</u>	<u>FAC</u>	
3. <u>Geum macrophyllum</u>	<u>20</u>	<u>N</u>	<u>FAC</u>	
4. <u>Urtica dioica</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
5. <u>Galium trifidum</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>135</u> = Total Cover				
Woody Vine Stratum (Plot size: 3m <sup>2</sup> )				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				
Lycopodium sp. assumed to be FAC				

# SOIL

Sampling Point: S2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-9	10YR 2/2	100					Loam	
9-15	2.5Y 2.5/1	100					Sandy Clay Loam	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
--	--	--

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Remarks:

# HYDROLOGY

<b>Wetland Hydrology Indicators:</b> 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 checked="" 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) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) <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) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) <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) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)			

<b>Field Observations:</b> 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?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 9 (includes capillary fringe)	<b>Wetland Hydrology Present?</b> 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: 17079 LOT Design City/County: Mukilteo/Snohomish Sampling Date: 4/6/17  
 Applicant/Owner: LOT Design Group State: WA Sampling Point: S3  
 Investigator(s): SW Section, Township, Range: S3, T28N, R04RE  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): >2%  
 Subregion (LRR): LRR-A Lat: 47.9482573 Long: -122.2834080 Datum: NAD83  
 Soil Map Unit Name: Alderwood-Everett gravelly sandy loams 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"/>	Is the Sampled Area within a Wetland? 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"/>	
Remarks:	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m <sup>2</sup> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</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>100</u> (A/B)
1. <u>Alnus rubra</u>	<u>100</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = _____
<u>100</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3m <sup>2</sup> )				
1. <u>Sambucus racemosa</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>15</u> = Total Cover				
Herb Stratum (Plot size: 1m <sup>2</sup> )				
1. <u>Lycopodium spp.</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Ranunculus repens</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Geum macrophyllum</u>	<u>20</u>	<u>N</u>	<u>FAC</u>	
4. <u>Tolmiea menziesii</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>125</u> = Total Cover				
Woody Vine Stratum (Plot size: 3m <sup>2</sup> )				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks: <u>Lycopodium sp. assumed to be FAC</u>				

## SOIL

Sampling Point: S3

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

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-10.5	10YR 2/2	99	10YR 4/6	1	C	M	Sandy Loam	
10.5/17.5	10YR 3/3	97	10YR 4/6	3	C	N	Loamy sand	Charcoal in soil

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <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) ( <b>except MLRA 1</b> ) |
| <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)                            |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, 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)

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

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

Saturation Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

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

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

Remarks:

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

Project/Site: 17079 LOT Design City/County: Mukilteo/Snohomish Sampling Date: 4/6/17  
 Applicant/Owner: LOT Design Group State: WA Sampling Point: S3  
 Investigator(s): SW Section, Township, Range: S3, T28N, R04RE  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): >2 to 5  
 Subregion (LRR): LRR-A Lat: 47.9482573 Long: -122.2834080 Datum: NAD83  
 Soil Map Unit Name: Alderwood-Everett gravelly sandy loams 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"/>	Is the Sampled Area within a Wetland? 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"/>	
Remarks:	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m <sup>2</sup> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</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>100</u> (A/B)
1. <u>Alnus rubra</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = _____
<u>15</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3m <sup>2</sup> )				
1. <u>Salix lucida</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Rubus spectabilis</u>	<u>Trace</u>	<u>N</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. <u>Rubus armeniacus</u>	<u>Trace</u>	<u>N</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>5</u> = Total Cover				
Herb Stratum (Plot size: 1m <sup>2</sup> )				
1. <u>Ranunculus repens</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Lolium perenne</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Galium trifidum</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
4. <u>Geum macrophyllum</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
5. <u>Equisetum telmateia</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>95</u> = Total Cover				
Woody Vine Stratum (Plot size: 3m <sup>2</sup> )				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

# SOIL

Sampling Point: S3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4	2.5Y 3/2	100					Sandy Loam	
4-9	2.5Y 3/2	97	7.5YR 4/4	3	C	M	Sandy Loam	
9-15	5Y 4/1	89	2.5Y 4/4	7	C	M	Loamy Sand	
			7.5YR 4/6	4	C	M	Loamy Sand	
15+	2.5Y 7/1	80	10YR 5/6	20	C	M	Clay	
15+	5GY 6/1	88	10YR 4/6	12	C	M	Clay	inclusion

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<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 checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> 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)	

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

Remarks:

# HYDROLOGY

Wetland Hydrology Indicators:	
<b>Primary Indicators (minimum of one required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" 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)	<b>Secondary Indicators (2 or more required)</b> <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)

<b>Field Observations:</b> 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): 12 Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): Surface (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

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

Remarks:



# **APPENDIX B**

DEPARTMENT OF ECOLOGY WETLAND RATING FORM

THIS PAGE IS LEFT BLANK INTENTIONALLY

Wetland name or number A

## RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: April 6, 2017  
Rated by S. Walters Trained by Ecology? ☒ Yes ☐ No Date of training March 2015  
HGM Class used for rating SLOPE Wetland has multiple HGM classes? ☐ Y ☒ N

**NOTE: Form is not complete without the figures requested** (*figures can be combined*).  
Source of base aerial photo/map ESRI World Imagery

**OVERALL WETLAND CATEGORY IV** (based on functions ☒ or special characteristics ☐)

### 1. Category of wetland based on FUNCTIONS

- ☐ Category I – Total score = 23 - 27  
☐ Category II – Total score = 20 - 22  
☐ Category III – Total score = 16 - 19  
☒ Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
Circle the appropriate ratings										
Site Potential	H	M	<u>L</u>	H	M	<u>L</u>	H	M	<u>L</u>	
Landscape Potential	H	<u>M</u>	L	H	M	<u>L</u>	<u>H</u>	M	L	
Value	H	M	<u>L</u>	H	M	<u>L</u>	<u>H</u>	M	L	
Score Based on Ratings	4			3			7			TOTAL 14

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

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

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

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	<input checked="" type="checkbox"/>

Wetland name or number A

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

### Depressional Wetlands

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

### Riverine Wetlands

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

### Lake Fringe Wetlands

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

### Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	A1
Hydroperiods	H 1.2	A1
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	A5
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	A5
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	A1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	A2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	A3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	A4

## HGM Classification of Wetlands in Western Washington

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

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

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

**NO** – go to 2

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

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

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

**YES** – **Freshwater Tidal Fringe**

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

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

**NO** – go to 3

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

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

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

The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

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

**NO** – go to 4

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

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

✓ The wetland is on a slope (*slope can be very gradual*),

✓ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

✓ The water leaves the wetland **without being impounded**.

**NO** – go to 5

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

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

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

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

\_\_\_ The overbank flooding occurs at least once every 2 years.

Wetland name or number A

NO – go to 6

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

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

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

NO – go to 7

**YES** – The wetland class is **Depressional**

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

NO – go to 8

**YES** – The wetland class is **Depressional**

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

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

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

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

Wetland name or number A

### **SLOPE WETLANDS**

#### **Water Quality Functions - Indicators that the site functions to improve water quality**

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

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

*Record the rating on the first page*

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

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

*Record the rating on the first page*

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

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

*Record the rating on the first page*

Question S 3.2 uses "basin" or "sub-basin" to refer to contributing basins of a downstream aquatic resource. Wetland A is not upstream of an aquatic resource on the 303d list, only adjacent.

Question S 3.3: There is no TMDL for the Edgewater Creek Basin.

Wetland name or number A

### SLOPE WETLANDS

#### Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually  $> \frac{1}{8}$  in), or dense enough, to remain erect during surface flows.*

- ☐ Dense, uncut, **rigid** plants cover  $> 90\%$  of the area of the wetland  
☒ All other conditions

points = 1  
points = 0

**0**

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

*Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?

Yes = 1 ☐ No = 0

**0**

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

*Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?

S 6.1. Distance to the nearest areas downstream that have flooding problems:

- ☐ The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2  
☐ Surface flooding problems are in a sub-basin farther down-gradient points = 1  
☒ No flooding problems anywhere downstream points = 0

**0**

S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

Yes = 2 ☐ No = 0

**0**

Total for S 6

Add the points in the boxes above

**0**

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

*Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:



Wetland name or number A

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

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

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

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

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

**H 1.2. Hydroperiods**

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

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

**H 1.3. Richness of plant species**

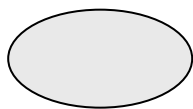
Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

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

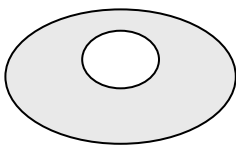
- |                              |                   |          |
|------------------------------|-------------------|----------|
| If you counted: > 19 species | points = 2        | <b>1</b> |
| <b>5 - 19 species</b>        | <b>points = 1</b> |          |
| < 5 species                  | points = 0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

**H 1.4. Interspersion of habitats**

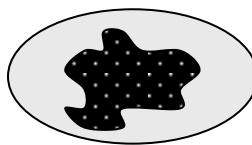
Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



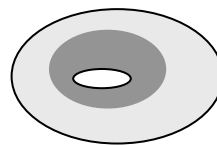
**None** = 0 points



**Low** = 1 point

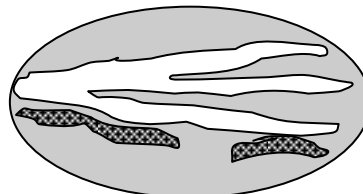
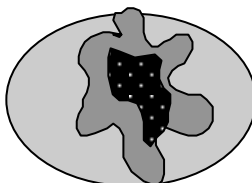
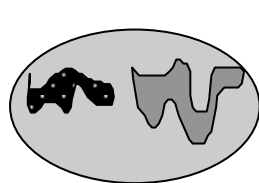


**Moderate** = 2 points



**2**

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



Wetland name or number A

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (&gt; 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh &gt; 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		<b>1</b>
Total for H 1	Add the points in the boxes above	<b>5</b>

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?		
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p>Calculate: % undisturbed habitat <u>31</u> + [(% moderate and low intensity land uses)/2] <u>1</u> = <u>32</u> %</p> <p>If total accessible habitat is:</p> <p><input type="checkbox"/> &gt; 1/3 (33.3%) of 1 km Polygon points = 3</p> <p><input checked="" type="checkbox"/> 20-33% of 1 km Polygon points = 2</p> <p><input type="checkbox"/> 10-19% of 1 km Polygon points = 1</p> <p><input type="checkbox"/> &lt; 10% of 1 km Polygon points = 0</p>		<b>2</b>
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p>Calculate: % undisturbed habitat <u>42</u> + [(% moderate and low intensity land uses)/2] <u>7</u> = <u>49</u> %</p> <p><input type="checkbox"/> Undisturbed habitat &gt; 50% of Polygon points = 3</p> <p><input checked="" type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and &gt; 3 patches points = 1</p> <p><input type="checkbox"/> Undisturbed habitat &lt; 10% of 1 km Polygon points = 0</p>		<b>2</b>
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p><input type="checkbox"/> &gt; 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p><input checked="" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>		<b>0</b>
Total for H 2	Add the points in the boxes above	<b>4</b>

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

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

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

Wetland name or number A

## WDFW Priority Habitats

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

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

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

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

Wetland name or number A

### CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<b>SC 1.0. Estuarine wetlands</b> Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt <span style="float: right;">Yes – Go to <b>SC 1.1</b>    <span style="border: 1px solid black; padding: 2px;">No = Not an estuarine wetland</span></span>	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <span style="float: right;">Yes = <b>Category I</b>    No - Go to <b>SC 1.2</b></span>	<b>Cat. I</b>
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) <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 unmowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <span style="float: right;">Yes = <b>Category I</b>    No = <b>Category II</b></span>	<b>Cat. I</b>  <b>Cat. II</b>
<b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b> SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <span style="float: right;">Yes – Go to <b>SC 2.2</b>    <span style="border: 1px solid black; padding: 2px;">No – Go to <b>SC 2.3</b></span></span> SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <span style="float: right;">Yes = <b>Category I</b>    No = <b>Not a WHCV</b></span> SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a> <span style="float: right;">Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b>    <span style="border: 1px solid black; padding: 2px;">No = Not a WHCV</span></span> SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <span style="float: right;">Yes = <b>Category I</b>    No = <b>Not a WHCV</b></span>	<b>Cat. I</b>
<b>SC 3.0. Bogs</b> Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <span style="float: right;">Yes – Go to <b>SC 3.3</b>    <span style="border: 1px solid black; padding: 2px;">No – Go to <b>SC 3.2</b></span></span> SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <span style="float: right;">Yes – Go to <b>SC 3.3</b>    <span style="border: 1px solid black; padding: 2px;">No = Is not a bog</span></span> SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <span style="float: right;">Yes = <b>Is a Category I bog</b>    No – Go to <b>SC 3.4</b></span> <b>NOTE:</b> If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <span style="float: right;">Yes = <b>Is a Category I bog</b>    No = <b>Is not a bog</b></span>	<b>Cat. I</b>

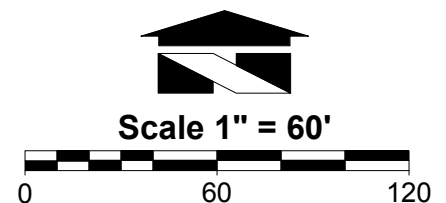
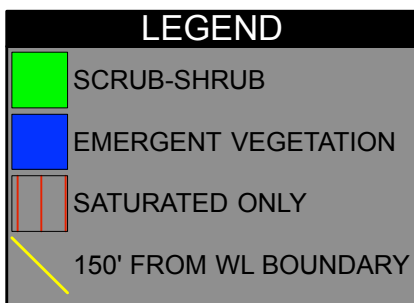
Wetland name or number A

<b>SC 4.0. Forested Wetlands</b> Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i> <input type="checkbox"/> <b>Old-growth forests</b> (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. <input type="checkbox"/> <b>Mature forests</b> (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <div style="text-align: right;">           Yes = <b>Category I</b>      No = <b>Not a forested wetland for this section</b> </div>		<b>Cat. I</b>
<b>SC 5.0. Wetlands in Coastal Lagoons</b> Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? <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 <input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon ( <i>needs to be measured near the bottom</i> ) <div style="text-align: right;">           Yes – Go to <b>SC 5.1</b>      No = <b>Not a wetland in a coastal lagoon</b> </div> <b>SC 5.1.</b> Does the wetland meet all of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). <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 unmowed grassland. <input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft <sup>2</sup> ) <div style="text-align: right;">           Yes = <b>Category I</b>      No = <b>Category II</b> </div>		<b>Cat. I</b>
<b>SC 6.0. Interdunal Wetlands</b> Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i> In practical terms that means the following geographic areas: <input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103 <input type="checkbox"/> Grayland-Westport: Lands west of SR 105 <input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <div style="text-align: right;">           Yes – Go to <b>SC 6.1</b>      No = <b>not an interdunal wetland for rating</b> </div> <b>SC 6.1.</b> Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? <div style="text-align: right;">           Yes = <b>Category I</b>      No – Go to <b>SC 6.2</b> </div> <b>SC 6.2.</b> Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? <div style="text-align: right;">           Yes = <b>Category II</b>      No – Go to <b>SC 6.3</b> </div> <b>SC 6.3.</b> Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? <div style="text-align: right;">           Yes = <b>Category III</b>      No = <b>Category IV</b> </div>		<b>Cat. I</b>
<b>Category of wetland based on Special Characteristics</b> If you answered No for all types, enter "Not Applicable" on Summary Form		<b>N/A</b>

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

*This page left blank intentionally*

17079 LOT DESIGN - DEBRELOAN LANE  
WETLAND RATING FIGURE A1 - WETLAND A



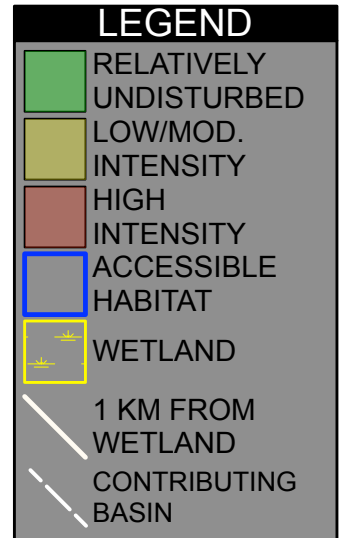
*Wetland Resources, Inc.*  
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance  
9505 19th Avenue S.E. Suite 106 Everett, Washington 98208  
Phone: (425) 337-3174  
Fax: (425) 337-3045  
Email: mailbox@wetlandresources.com

WETLAND RATING Wetland A	
LOT Design Group Attn: Larry Thronsdon 22630 88th Avenue W Edmonds, WA 98026	Figure A1 WRI Job # 17079 Drawn by: SW

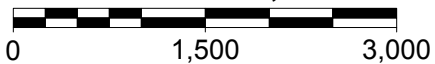
THIS PAGE IS LEFT BLANK INTENTIONALLY



17079 LOT DESIGN - DEBRELOAN LANE  
WETLAND RATING FIGURE A2 - WETLAND A



Scale 1" = 1,500'



*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

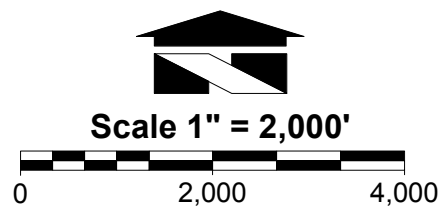
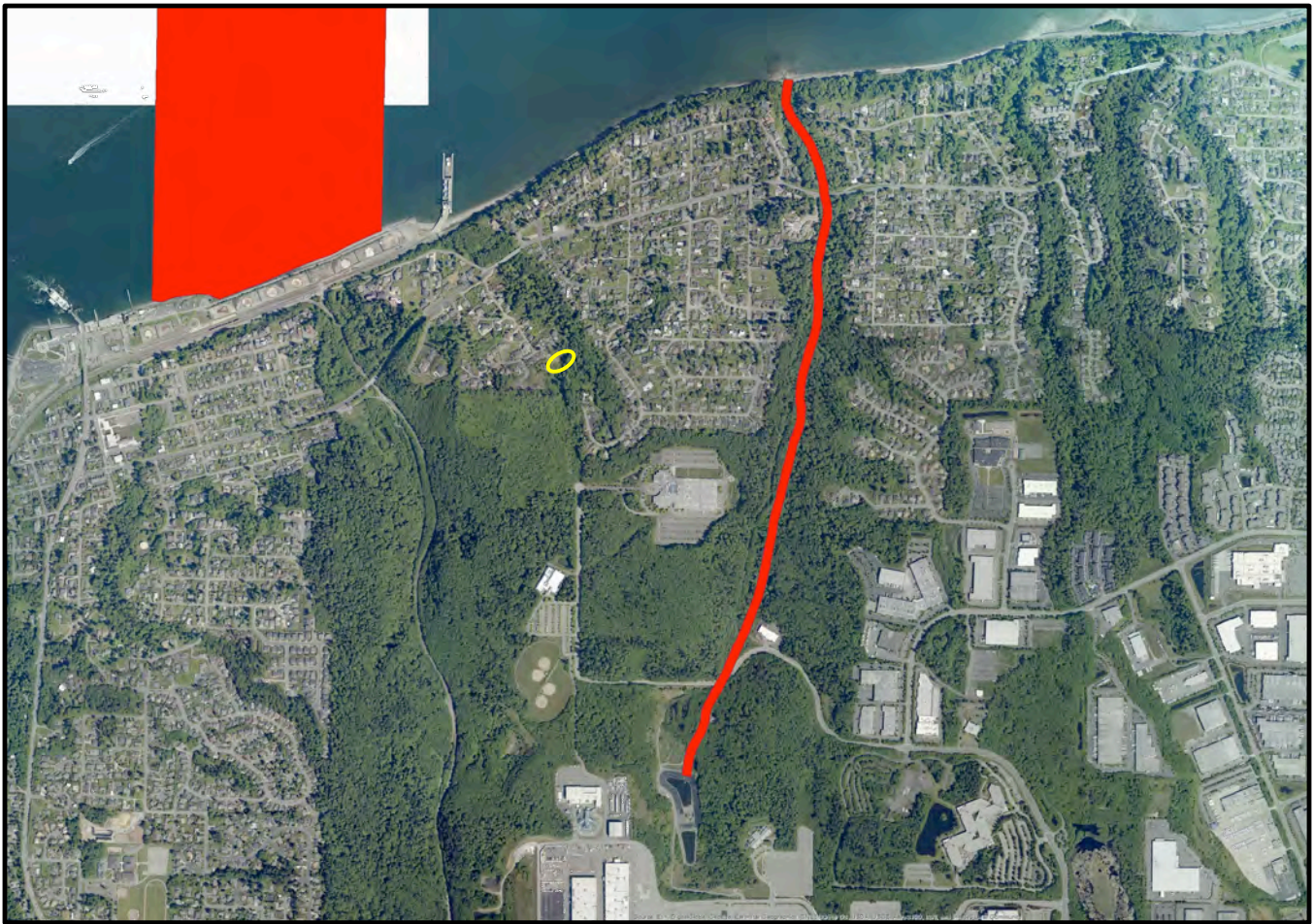
**WETLAND RATING  
Wetland A**

LOT Design Group  
Attn: Larry Throndsen  
22630 88th Avenue W  
Edmonds, WA 98026

Figure A2  
WRI Job # 17079  
Drawn by: SW



THIS PAGE IS LEFT BLANK INTENTIONALLY

17079 LOT DESIGN - DEBRELOAN LANE  
WETLAND RATING FIGURE A3 - WETLAND A



Scale 1" = 2,000'

**LEGEND**

-  WETLAND LOCATION
-  AQUATIC RESOURCES ON THE 303(d) LIST

*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 RATING  
Wetland A**

LOT Design Group  
Attn: Larry Thronsdon  
22630 88th Avenue W  
Edmonds, WA 98026

Figure A3  
WRI Job # 17079  
Drawn by: SW

THIS PAGE IS LEFT BLANK INTENTIONALLY



# 17079 LOT DESIGN - DEBRELOAN LANE

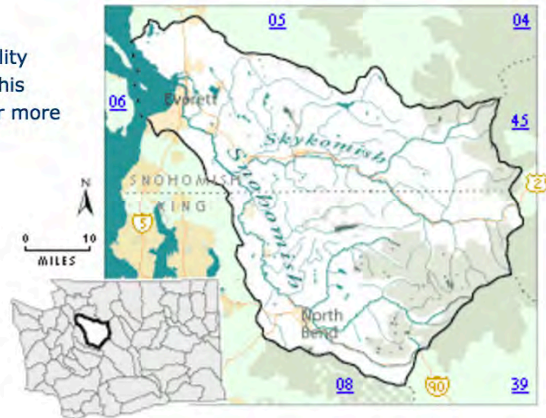
## WETLAND RATING FIGURE A4 - WETLAND A

### WRIA 7: Snohomish

The following table lists overview information and links to specific water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.

#### Counties

- [King](#)
- [Snohomish](#)



Waterbody Name	Pollutant(s)	Status**	TMDL Lead
<a href="#">Lake Loma</a>	Total Phosphorus	Straight to implementation project under development	<a href="#">Tricia Shoblom</a> 425-649-7288
<a href="#">Snohomish River</a>	<a href="#">French Creek / Pilchuck River</a>	Under development	<a href="#">Ralph Svrcek</a> 425-649-7165
	<ul style="list-style-type: none"> <li>• Dissolved Oxygen</li> <li>• Temperature</li> </ul>		
	<a href="#">Dioxin</a>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
	<a href="#">Estuary</a>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
	<ul style="list-style-type: none"> <li>• Ammonia</li> <li>• BOD</li> </ul>		
<a href="#">Tributaries</a>	<ul style="list-style-type: none"> <li>• Fecal Coliform</li> </ul>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
	Tributaries: <ul style="list-style-type: none"> <li>• Allen Creek</li> <li>• Quilceda Creek</li> <li>• French Creek</li> <li>• Woods Creek</li> <li>• Pilchuck River</li> <li>• Marshlands (Wood Creek)</li> <li>{2}</li> </ul>		
<a href="#">Snoqualmie River</a>	<ul style="list-style-type: none"> <li>• Ammonia-N</li> <li>• BOD (5-day)</li> <li>• Fecal Coliform</li> </ul>	EPA approved	<a href="#">Ralph Svrcek</a> 425-649-7165
	Temperature	EPA approved Has an implementation plan	

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

**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 RATING Wetland A





LOT Design Group  
 Attn: Larry Thronsdon  
 22630 88th Avenue W  
 Edmonds, WA 98026

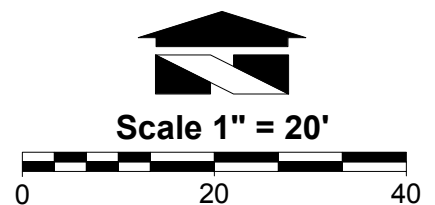
Figure A4  
 WRI Job # 17079  
 Drawn by: SW

THIS PAGE IS LEFT BLANK INTENTIONALLY

17079 LOT DESIGN - DEBRELOON LANE  
WETLAND RATING FIGURE A5 - WETLAND A



LEGEND	
	WETLAND
	DENSE WOODY
	DENSE UNCUT HERBACEOUS
	DENSE UNCUT RIDGID



*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 RATING**  
**Wetland A**

LOT Design Group  
Attn: Larry Throndsen  
22630 88th Avenue W  
Edmonds, WA 98026

Figure A5  
WRI Job # 17079  
Drawn by: SW

THIS PAGE IS LEFT BLANK INTENTIONALLY



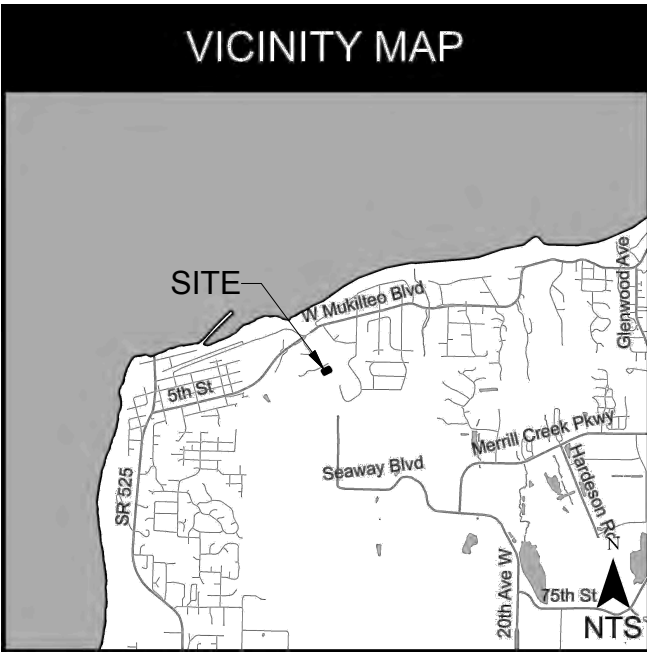
**APPENDIX C**  
CRITICAL AREAS STUDY  
AND  
BUFFER ENHANCEMENT PLAN MAP  
(SHEET 1/1)

THIS PAGE IS LEFT BLANK INTENTIONALLY

CRITICAL AREAS STUDY AND MITIGATION PLAN MAP

**1603 DEBRELON LANE**

PORTION OF SECTION 03, TOWNSHIP 28N, RANGE 04E, W.M.



OFF-SITE WETLAND  
CATEGORY IV  
40' BUFFER

TRIBUTARY TO  
EDGEWATER CREEK  
50' BUFFER

PROPOSED  
RESIDENCE

DEBRELON LANE

WETLAND A  
CATEGORY IV  
40' BUFFER

PROPOSED  
SUBDIVISION  
LINE

5'

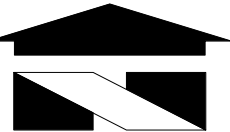
40'

BUFFER  
ENHANCEMENT  
(1,824 SF)

PROPOSED  
RETAINING  
WALL

LEGEND

- WETLAND
- BUFFER  
ENHANCEMENT
- BUFFER
- STREAM  
(APPROXIMATE)
- PROPOSED  
BOUDARY  
LINE
- TYPE 1  
NGPA SIGN



Scale 1" = 30'



***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 STUDY AND  
MITIGATION PLAN MAP  
**1603 Debreton Lane**  
Mukilteo, Washington

LOT Design Group  
Attn: Larry Thronsdon  
22630 88th Avenue W  
Edmonds, WA 98026

Sheet 1/1  
WRI Job#: 17079  
Drawn by: S. Walters  
Date: Oct. 17, 2018