

# Altmann Oliver Associates, LLC

PO Box 578

Carnation, WA 98014

Office (425) 333-4535

Fax (425) 333-4509

# AOA

Environmental  
Planning &  
Landscape  
Architecture



January 13, 2023

AOA-6689

Vann Lanz  
vann@lnlbuilds.com

**SUBJECT: Wetland Assessment for 2430 and 2436 – 74<sup>th</sup> Avenue SE  
Parcels 531510-0458 and -0455, Mercer Island, WA**

Dear Vann:

On February 22, 2022 I conducted a wetland reconnaissance on the undeveloped subject property utilizing the methodology outlined in the May 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. An additional field investigation was conducted by AOA on June 8, 2022.

The primary focus of the site reviews was to: 1) confirm that the previous delineation conducted on the site for Wetland B remained valid and 2) rate Wetland B per the current Department of Ecology rating system. The property consists primarily of a mixed forest with open shrub patches that slopes down from west to east. Wetland B is located in the central portion of the site and was previously delineated by Wetland Resources, Inc. as part of the adjacent development to the east (**Attachment B**).

## **WETLAND B**

Based on the recent field investigations the boundary of Wetland B as previously delineated and surveyed remains valid. Wetland B consists of a Slope Hydrogeomorphic (HGM) class wetland that was surveyed at 2,010 s.f. in size. The wetland contained hydric soils and saturation to the surface. Overflow runoff from the wetland infiltrates on the property slightly east of the wetland. Vegetation within the wetland consisted of a scrub-shrub plant community that was dominated by Himalayan blackberry (*Rubus armeniacus*), grasses, English ivy (*Hedera helix*) and soft rush (*Juncus effusus*).

Wetland B meets the criteria for a Category IV wetland with 4 Habitat Points per the current WA State Department of Ecology rating system (**Attachment A**).

### **PROPOSED PROJECT**

The proposed project consists of the construction of three residential structures. The City of Mercer Island allows Category IV wetlands less than 4,000 s.f. in size to be filled as part of a development proposal if the project meets mitigation sequencing provisions of MIMC 19.07.100 and the provisions of MIMC 19.07.190.D.1.a.

*Alterations to wetlands are allowed when the applicant has demonstrated how mitigation sequencing has been applied pursuant to section 19.07.100, mitigation sequencing, and when the applicant has demonstrated that the wetland is:*

*All isolated Category IV wetlands less than 4,000 square feet that:*

- i. *Are not associated with riparian areas or their buffers;*

Wetland B is an isolated Category IV wetland 2,010 s.f. in size that is not associated with a riparian area or its buffer.

- ii. *Are not associated with shorelines of the state or their associated buffers;*

Wetland B is not associated with a shoreline or its buffer.

- iii. *Are not part of a wetland mosaic;*

Wetland B is not part of a wetland mosaic.

- iv. *Do not score five or more points for habitat function based on the 2014 update to the Washington State Wetland Rating System for Western Washington: 2014 Update (Ecology Publication No. 14-06-029, or as revised and approved by Ecology);*

Wetland B scores 4 Habitat Points per the required rating system.

- v. *Do not contain a priority habitat or a priority area for a priority species identified by the Washington Department of Fish and Wildlife, do not contain federally listed species or their critical habitat, or species of local importance identified in section 19.07.170.*

Wetland B does not contain a priority habitat or a priority area for a priority species identified by the Washington Department of Fish and Wildlife, or federally listed species or their critical habitat, or species of local importance identified in section 19.07.170.

### **Mitigation Sequencing**

*An applicant for a development proposal or activity shall implement the following sequential measures, listed below in order of preference, to avoid, minimize, and mitigate impacts to environmentally critical areas and associated buffers. Applicants shall document how each measure has been addressed before considering and incorporating the next measure in the sequence:*

- A. Avoiding the impact altogether by not taking a certain action or parts of an action. The applicant shall consider reasonable, affirmative steps and make best efforts to avoid critical area impacts. However, avoidance shall not be construed to mean mandatory withdrawal or denial of the development proposal or activity if the proposal or activity is an allowed, permitted, or conditional use in this title. In determining the extent to which the proposal should be redesigned to avoid the impact, the code official may consider the purpose, effectiveness, engineering feasibility, commercial availability of technology, best management practices, safety and cost of the proposal and identified changes to the proposal. Development proposals should seek to avoid, minimize and mitigate overall impacts based on the functions and values of all of the relevant critical areas and based on the recommendations of a critical area study. If impacts cannot be avoided through redesign, use of a setback deviation pursuant to section 19.06.110(C), or because of site conditions or project requirements, the applicant shall then proceed with the sequence of steps in subsections B through E of this section;*

Wetland B is located in the central portion of the site and cannot be avoided as part of any realistic development on the relatively small lot. Due to its central location, a setback deviation would not grant sufficient relief for development.

- B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, using a setback deviation pursuant to section 19.06.110(C), using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;*

Wetland B is hydrologically supported by groundwater discharge and leaving a small portion of the wetland would not be functionally viable. Again, due to its central location a setback deviation would not grant sufficient relief for development.

- C. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;*

Since the wetland must be filled for development to occur there is no on-site opportunity for restoration.

- D. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;*

Since the wetland must be filled for development to occur there is no on-site opportunity for preservation.

*E. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or*

A mitigation fee In lieu plan has been prepared for the project using the King County Mitigation Reserves Program. It is anticipated that use of the King County Mitigation Reserves Program would replace the relatively minor wetland functions lost as part of the project. Mitigation conducted as part of this program is intended to mitigate for freshwater wetland functions and has proven success in mitigating for lost water quality, hydrologic, and habitat functions

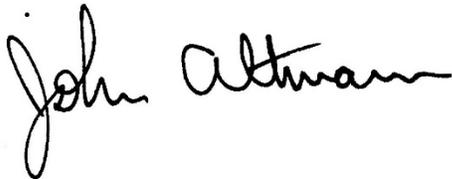
*F. Monitoring the impact and taking appropriate corrective measures to maintain the integrity of compensating measures.*

The King County Mitigation Reserves Program monitors mitigation sites to ensure all sites are meeting performance standards.

If you have any questions regarding the wetland assessment, please give me a call.

Sincerely,

ALTMANN OLIVER ASSOCIATES, LLC

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

John Altmann  
Ecologist

Attachments

# King County iMap



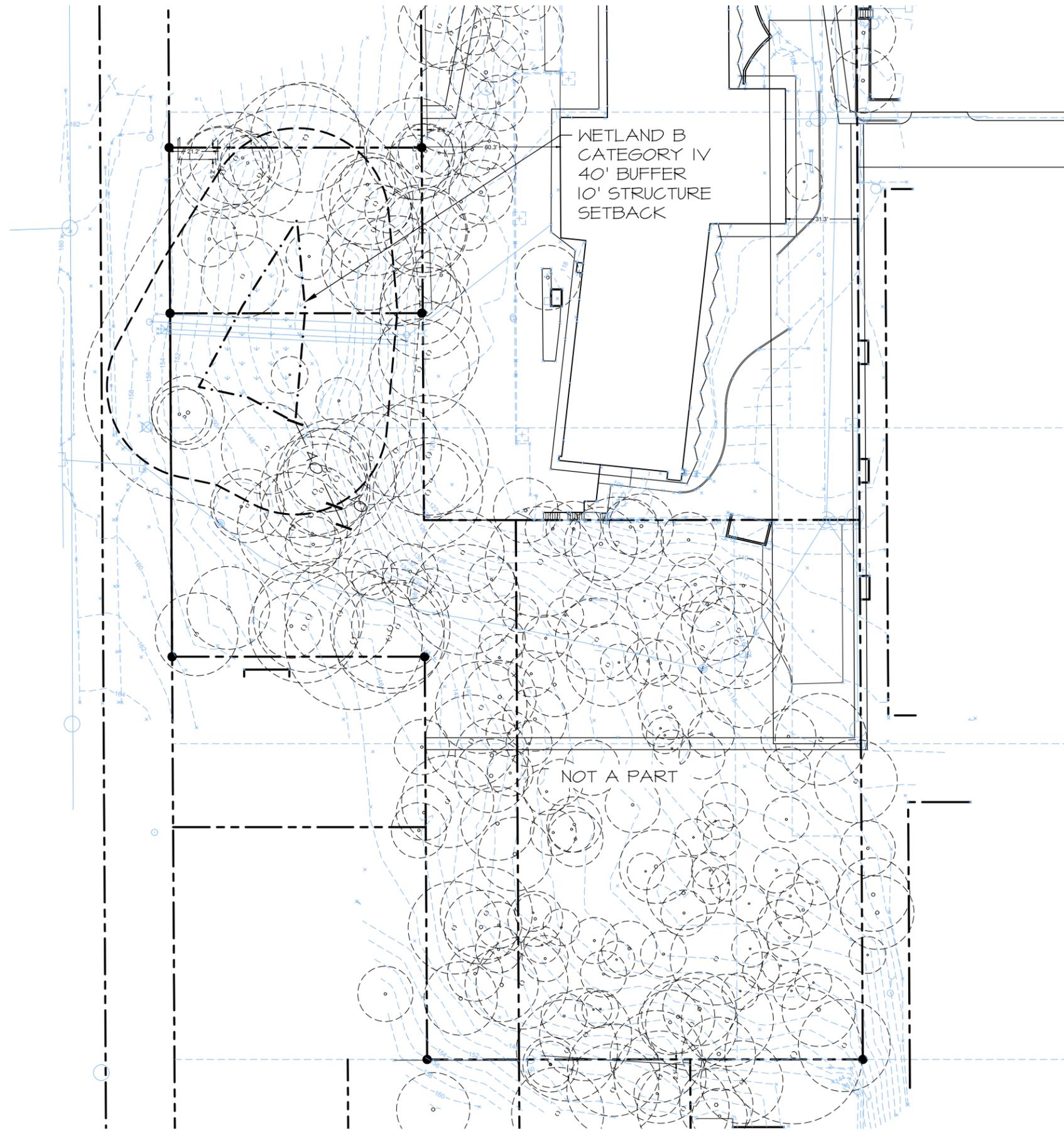
The information included on this map has been compiled by King County staff from a variety of sources and is subject to change without notice. King County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a survey product. King County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of King County.

Date: 1/13/2023

Notes:

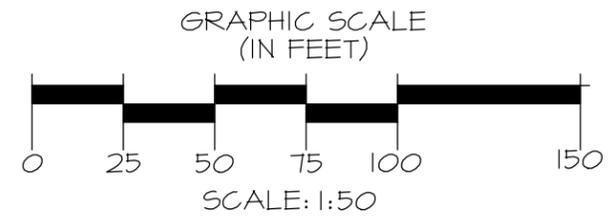


King County



**PLAN LEGEND**

- PROPERTY LINE
- - - - - WETLAND BOUNDARY
- - - - - 40' WETLAND BUFFER
- - - - - 10' STRUCTURE SETBACK



**NOTES**

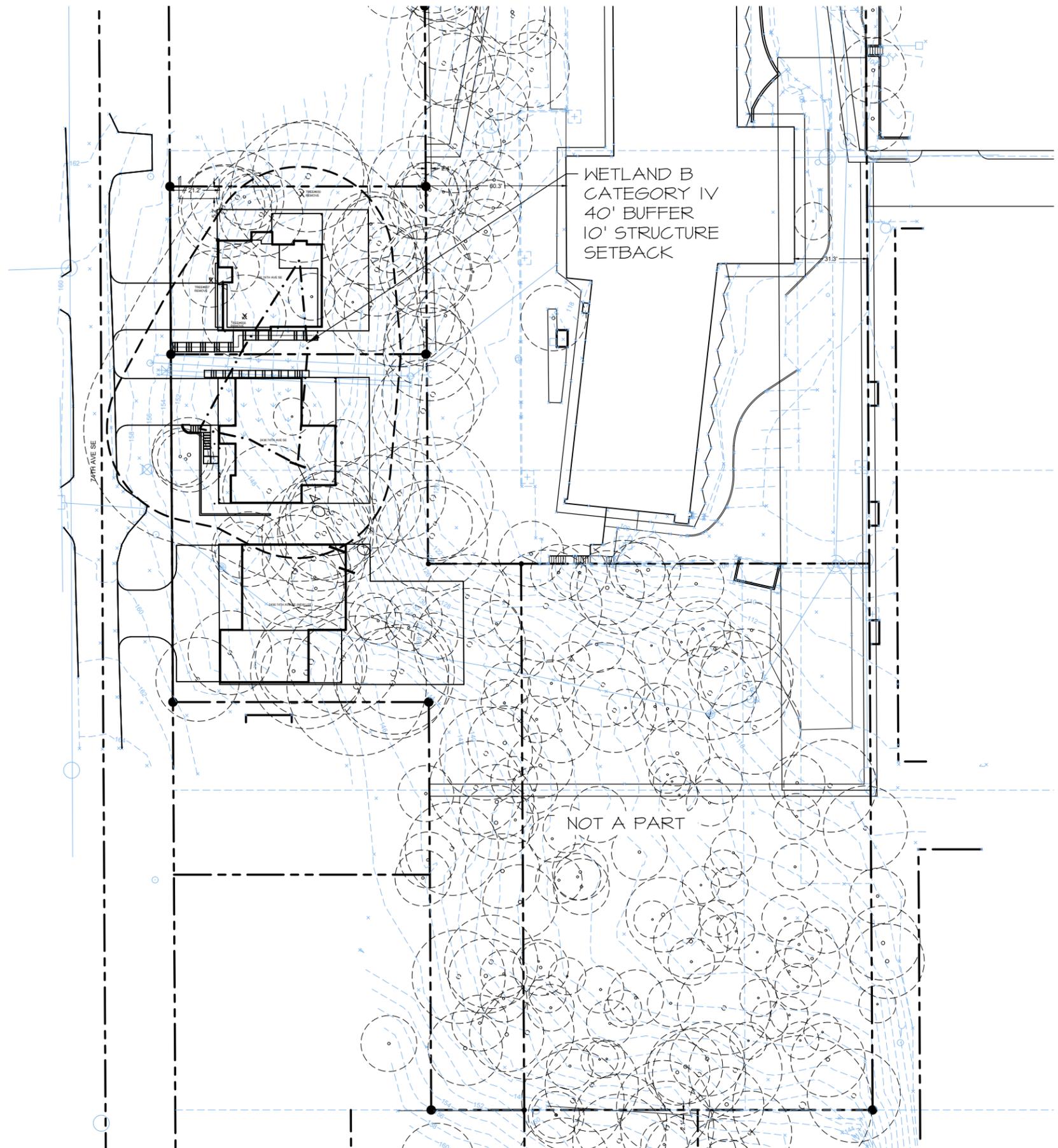
1. BASE INFORMATION PROVIDED BY MEDICI ARCHITECTS, 11711 SE 8TH STREET, BELLEVUE, WA 98005, 425.453.9298.

|         |          |
|---------|----------|
| PROJECT | 6689     |
| DRAWN   | SO       |
| SCALE   | AS NOTED |
| DATE    | 01-11-23 |
| REVISED | 1/2      |

FIGURE 1: EXISTING CONDITIONS MAP  
LNL BUILDS  
2430 & 2436 74TH AVE. SE, MERCER ISLAND, WASHINGTON  
PARCELS 531510-0458 & -0455

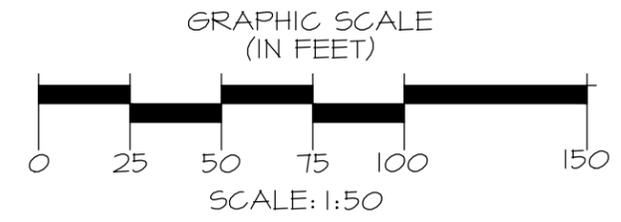


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**PLAN LEGEND**

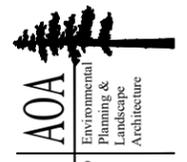
|  |                       |
|--|-----------------------|
|  | PROPERTY LINE         |
|  | WETLAND BOUNDARY      |
|  | 40' WETLAND BUFFER    |
|  | 10' STRUCTURE SETBACK |



- NOTES**
1. BASE INFORMATION PROVIDED BY MEDICI ARCHITECTS, 11711 SE 8TH STREET, BELLEVUE, WA 98005, 425.453.9298.

|         |          |
|---------|----------|
| PROJECT | 6689     |
| DRAWN   | SO       |
| SCALE   | AS NOTED |
| DATE    | 01-11-23 |
| REVISED | 2/2      |

FIGURE 2: SITE PLAN  
LNL BUILDS  
2430 & 2436 74TH AVE. SE, MERCER ISLAND, WASHINGTON  
PARCELS 531510-0458 & -0455



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## RATING SUMMARY – Western Washington

Name of wetland (or ID #):  Parcel 531510-0455  Date of site visit:  2/22/2022

Rated by  Altmann  Trained by Ecology?  Yes  No Date of training  03/08 & 03/15

HGM Class used for rating  Slope  Wetland has multiple HGM classes?  Yes  No

**NOTE: Form is not complete with out the figures requested** (*figures can be combined*).  
Source of base aerial photo/map  King County iMAP

**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
- X  Category IV - Total score = 9 - 15

**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

| FUNCTION                                 | Improving Water Quality | Hydrologic | Habitat |                           |
|--|-------------------------|------------|---------|---------------------------|
| <i>List appropriate rating (H, M, L)</i> |                         |            |         |                           |
| Site Potential                           | L                       | L          | L       |                           |
| Landscape Potential                      | M                       | M          | L       |                           |
| Value                                    | L                       | M          | M       |                           |
| <b>Score Based on Ratings</b>            | 4                       | 5          | 4       | <b>Total</b><br><b>13</b> |

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

| CHARACTERISTIC                     | Category |
|------------------------------------|----------|
| Estuarine                          |          |
| Wetland of High Conservation Value |          |
| Bog                                |          |
| Mature Forest                      |          |
| Old Growth Forest                  |          |
| Coastal Lagoon                     |          |
| Interdunal                         |          |
| None of the above                  | <b>X</b> |

## 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         | B             |
| Hydroperiods  | H 1.2                | B             |
| Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants  | S 1.3                | Last Approval |
| Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants<br>( <i>can be added to another figure</i> )              | S 4.1                | Last Approval |
| Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )   | S 2.1, S 5.1         | B             |
| 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  | A             |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website)   | S 3.1, S 3.2         | C             |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web)  | S 3.3                | D             |



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.*

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

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

**Rating of Site Potential** If score is:  12 = H  6 - 11 = M  0 - 5 = L *Record the rating on the first page*

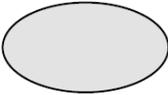
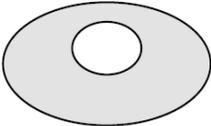
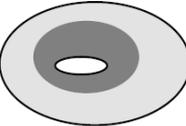
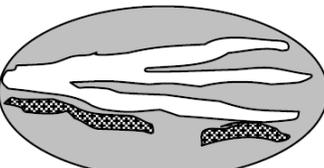
|  |                |                                   |
|--|----------------|-----------------------------------|
| S 2.0. Does the landscape have the potential to support the water quality function of the site?                    |                |                                   |
| S 2.1. Is >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

**Rating of Landscape Potential** If score is:  1 - 2 = M  0 = L *Record the rating on the first page*

|   |                |                                   |
|---|----------------|-----------------------------------|
| S 3.0. Is the water quality improvement provided by the site valuable to society?   |                |                                   |
| S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?  |                |                                   |
|   | Yes = 1 No = 0 | 0                                 |
| S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i>                                     |                |                                   |
|   | Yes = 1 No = 0 | 0                                 |
| 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 the unit is found?</i> |                |                                   |
|   | Yes = 2 No = 0 | 0                                 |
| Total for S 3   |                | Add the points in the boxes above |
|   |                | <b>0</b>                          |

**Rating of Value** If score is:  2 - 4 = H  1 = M  0 = L *Record the rating on the first page*



| These questions apply to wetlands of all HGM classes.  |   |  |
|--|---|--|
| <b>HABITAT FUNCTIONS</b> - Indicators that site functions to provide important habitat   |   |  |
| H 1.0. Does the site have the potential to provide habitat?  |   |  |
| <p>H 1.1. Structure of plant community: <i>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.</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Aquatic bed <span style="float: right;">4 structures or more: points = 4</span></li> <li><input type="checkbox"/> Emergent <span style="float: right;">3 structures: points = 2</span></li> <li><input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have &gt; 30% cover) <span style="float: right;">2 structures: points = 1</span></li> <li><input type="checkbox"/> Forested (areas where trees have &gt; 30% cover) <span style="float: right;">1 structure: points = 0</span></li> </ul> <p><i>If the unit has a Forested class, check if:</i></p> <ul style="list-style-type: none"> <li><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</li> </ul>   | 0 |  |
| <p>H 1.2. Hydroperiods<br/>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 (<i>see text for descriptions of hydroperiods</i>).</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Permanently flooded or inundated <span style="float: right;">4 or more types present: points = 3</span></li> <li><input type="checkbox"/> Seasonally flooded or inundated <span style="float: right;">3 types present: points = 2</span></li> <li><input type="checkbox"/> Occasionally flooded or inundated <span style="float: right;">2 types present: points = 1</span></li> <li><input checked="" type="checkbox"/> Saturated only <span style="float: right;">1 types present: points = 0</span></li> <li><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</li> <li><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</li> <li><input type="checkbox"/> <b>Lake Fringe wetland</b> <span style="float: right;"><b>2 points</b></span></li> <li><input type="checkbox"/> <b>Freshwater tidal wetland</b> <span style="float: right;"><b>2 points</b></span></li> </ul>  | 0 |  |
| <p>H 1.3. Richness of plant species<br/>Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. <i>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</i></p> <p>If you counted:    &gt; 19 species <span style="float: right;">points = 2</span><br/>                                   5 - 19 species <span style="float: right;">points = 1</span><br/>                                   &lt; 5 species <span style="float: right;">points = 0</span></p>   | 1 |  |
| <p>H 1.4. Interspersion of habitats<br/>Decide from the diagrams below whether interspersion 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. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i></p> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-bottom: 20px;"> <div style="text-align: center;">  <p><b>None</b> = 0 points</p> </div> <div style="text-align: center;">  <p><b>Low</b> = 1 point</p> </div> <div style="text-align: center;">  <p><b>Moderate</b> = 2 points</p> </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 20%;"> <p>All three diagrams in this row are <b>HIGH</b> = 3 points</p> </div> <div style="width: 60%;">    </div> </div> | 0 |  |



## 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.*

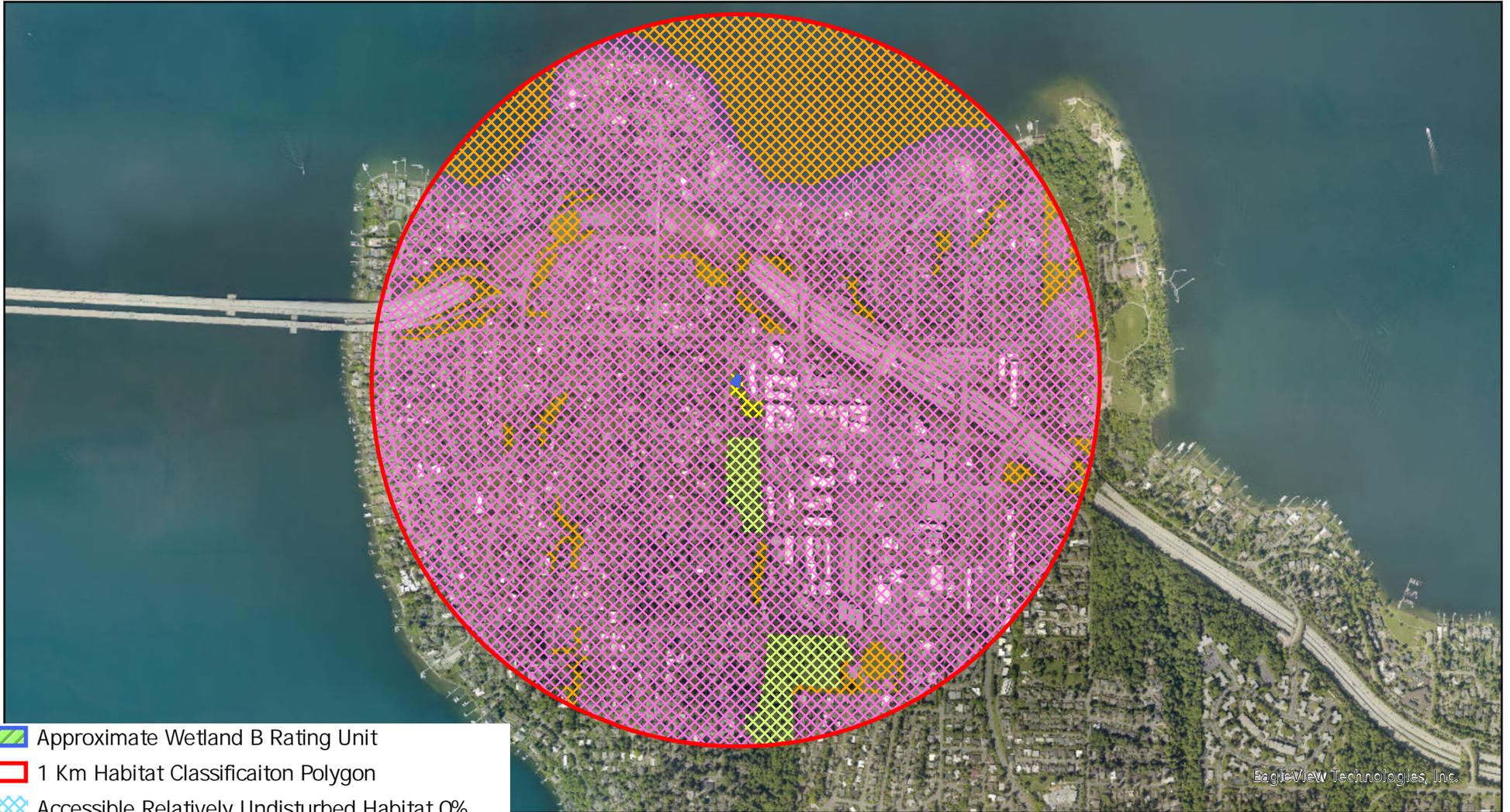
- Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds:** Variable size patches of grass 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.

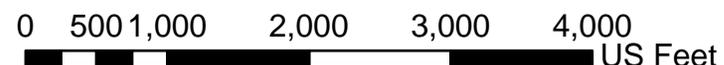
Mercer Island  
Parcels 531510-0458 and -0455

# Figure A

AOA - 6689



-  Approximate Wetland B Rating Unit
-  1 Km Habitat Classification Polygon
-  Accessible Relatively Undisturbed Habitat 0%
-  Accessible Low\_Moderate Intensity Habitat 0.2%
-  Relatively Undisturbed Habitat 2.2%
-  Low\_Moderate Intensity Habitat 13.0%
-  High Intensity Habitat 84.6%



EagleView Technologies, Inc.

Mercer Island  
Parcels 531510-0458 and -0455

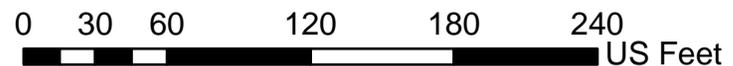
# Figure B

AOA - 6689

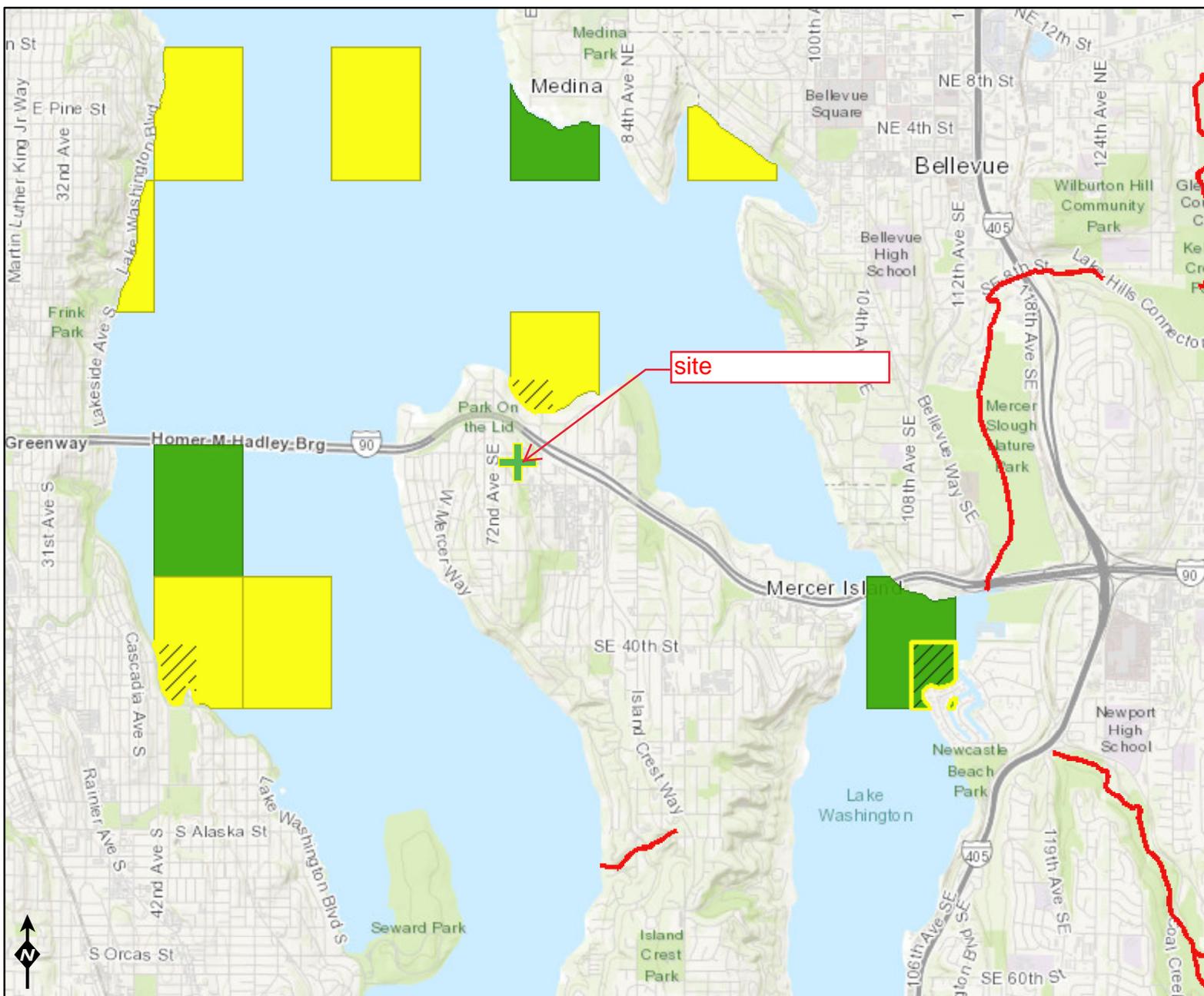


King County, EagleView Technologies, Inc.

-  Subject Properties
-  Approximate Wetland B Rating Unit
-  150' Pollution Assessment Polygon
-  Pollution Generating Surfaces 68.4%



6689 Figure C



**Assessed Water/Sediment**

**Water**

-  Category 5 - 303d
-  Category 4C
-  Category 4B
-  Category 4A
-  Category 2
-  Category 1

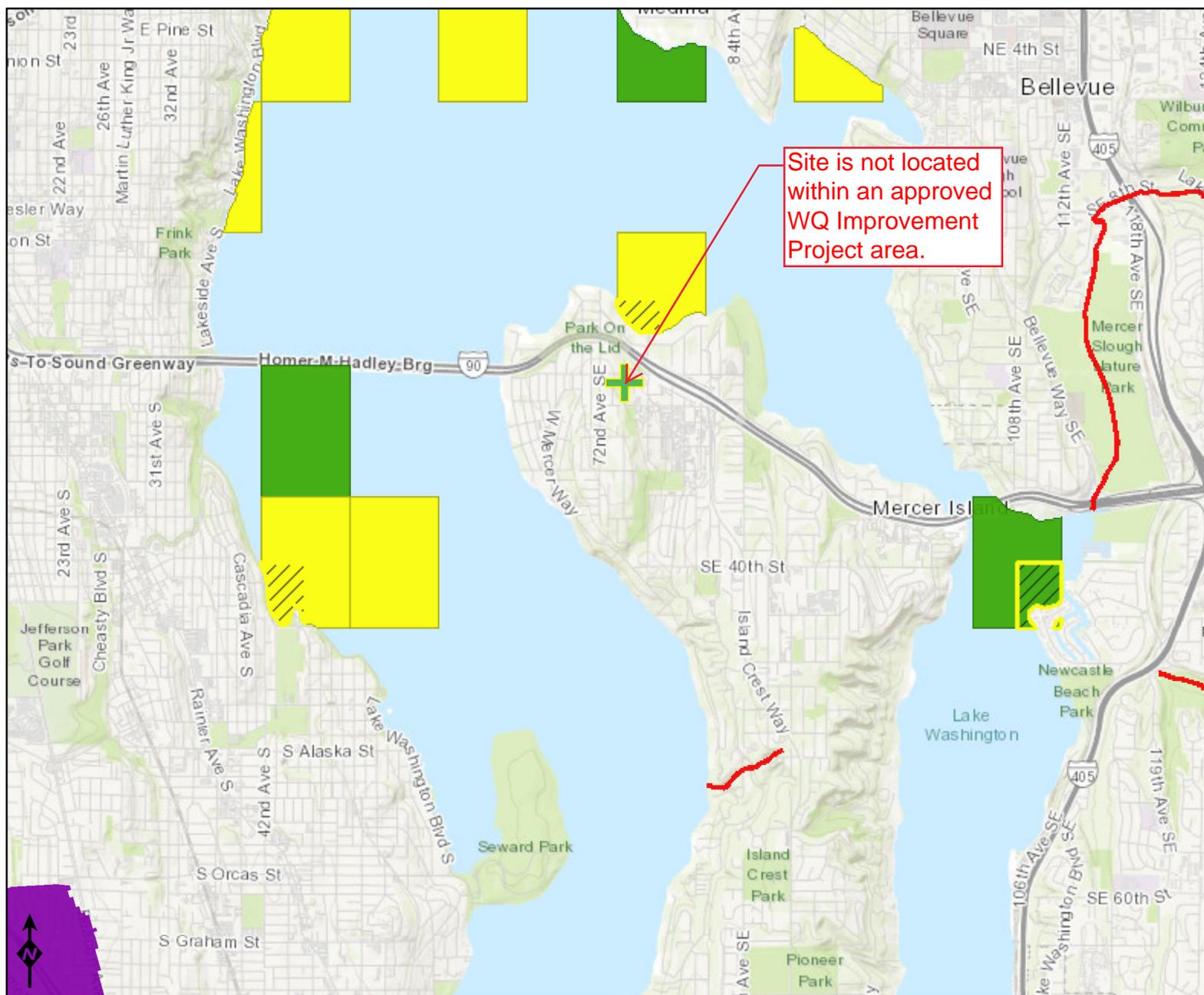
**Sediment**

-  Category 5 - 303d
-  Category 4C
-  Category 4B
-  Category 4A
-  Category 2
-  Category 1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and



# 6689 Figure D



### Assessed Water/Sediment

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

### Sediment

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

### WQ Improvement Projects

- Approved
- In Development

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and





**CRITICAL AREA REPORT  
AND  
BUFFER MITIGATION PLAN  
  
FOR  
  
**AEGIS 24TH STREET**  
**MERCER ISLAND, WA****

*Wetland Resources, Inc. Project #15007*

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

Prepared For  
Aegis Living LLC  
Attn: Walter Braun, Sr VP  
17602 NE Union Hill Road  
Redmond, WA 98005

Original: December 2015  
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**LIST OF ATTACHMENTS**

- DEPARTMENT OF ECOLOGY RATING FORMS
- CORPS OF ENGINEERS WETLAND DETERMINATION DATA FORMS
- CRITICAL AREA REPORT AND BUFFER MITIGATION PLAN MAP (SHEET 1/1)
- BOND QUANTITY WORKSHEET

## 1.0 INTRODUCTION

The subject site is a 2.37 acre parcel located at 7445 SE 24<sup>th</sup> St. Mercer Island, Washington, (parcel #: 5315100457) within a portion of Section 12, Township 24N, Range 4E, W.M. Land use in the project area is residential to west and south, commercial to the east, and is less than 500 feet from Interstate-90 to the north. The site is currently developed as a vacant senior multi-family residence with a parking lot.

*Wetland Resources, Inc.* visited the subject site on January 19, 2015, to determine if any critical areas are present on and near the subject property. One slope Category IV wetland (A) is present on the subject property. Wetland A is located in the southern portion of the subject site, and is approximately 9,204 square feet in size. Another slope Category IV wetland (B) is located off-site approximately 50 feet west of the center of the property. Wetland B is approximately 2,011 square feet in size.

Pursuant to Mercer Island Municipal Code (MIMC) 19.07.080, the standard buffer for Category IV wetlands is 35 feet, which have a maximum reduction down to 25 feet.

A stormwater conveyance feature constructed of a corrugated culvert half-pipe directs drainage from west to east, across the subject site, just north of Wetland A. This artificially constructed feature does not transport hydrology derived from natural surface flows, and is not considered a stream.



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

## 1.1 PROJECT DESCRIPTION

The applicant is proposing to replace the existing multi-family residence with a new one, roughly in the same location. The project also includes new landscaping and a new parking area. All proposed structures will be located outside of a reduced 25-foot buffer associated with Wetland A. The 35-foot standard buffer associated with Wetland B does not extend onto the subject site.

In order to accommodate the proposed construction and minimize critical area impacts, the applicant proposes to reduce the width of the standard 35-foot buffer (an area 1,316 square feet in size) adjacent to the structural construction. An area totaling 1,566 square feet in the southernmost portion of the subject site will be provided as additional buffer and will be enhanced, providing a greater than 1:1 replacement ratio. MIMC 19.07.080(C)3 allows for wetland buffer reductions through buffer averaging in the same manner as stipulated for buffers associated with watercourses (MIMC 19.07.070(B)(3)).

A portion of the buffer, totaling 1,221 square feet, associated with Wetland A will be temporarily impacted in order to replace and install a storm drainage pipe. MIMC 19.7.030(5) allows for replacement of existing utilities within critical area buffers. This area is located adjacent to the buffer reduction area and will be restored with native shrubs after installation of the storm water system. Areas of disturbed soil will be returned to roughly the original horizon structure. Currently, the northern portion of the temporary buffer impact area is vegetated with invasive Himalayan blackberry (*Rubus armeniacus*) and English ivy (*Hedera helix*), and the overall area is not expected to have any net functional losses after restoration.

In accordance with the buffer averaging requirement stipulated in MIMC 19.7.070(B)(3)(b), an additional 3,697 square feet of buffer adjacent to the proposed width reductions will be enhanced and planted with native vegetation. Currently, most of this area is forested and is comprised of native trees and a mix of native and invasive shrubs.

Given the existing presence of native forested vegetation in the planting area, enhancement will consist of infill plantings to supplement the established vegetation. This is expected to yield a more successful outcome than dense plantings that are more typical for areas requiring complete revegetation.

## 1.2 CRITICAL AREA CLASSIFICATIONS

### 1.2.1 Cowardin System Classifications

According to the Cowardin System, as described in Classification of Wetlands and Deepwater Habitats of the United States, the classification for the on-site critical areas are as follows:

**Wetland A:** Palustrine, Scrub-Shrub Wetland, Broad-leaved Deciduous.

**Wetland B:** Palustrine, Forested Wetland, Broad-Leaved Deciduous.

## 1.2.2 City of Mercer Island Classifications

Under Chapter 19.07 of the MIMC, the on-site critical areas are classified as follows:

### *Wetland A*

Category IV wetland: This wetland has one vegetation class, and provides low to moderate habitat value for wildlife. It scores a total of 23 points on the Wetland Rating Form (2004) for Western Washington, which equates to a Category IV rating. Pursuant to MIMC 19.07.080(C)(1), Category IV wetlands receive a standard buffer of 35 feet.

### *Wetland B*

Category IV wetland: This wetland has one vegetation class, and provides low habitat value for wildlife. It scores a total of 19 points on the Wetland Rating Form (2004) for Western Washington, which equates to a Category IV rating. Pursuant to MIMC 19.07.080.C.1, Category IV wetlands receive a standard buffer of 35 feet.

## 2.0 CRITICAL AREAS DETERMINATION REPORT

### 2.1 PUBLICLY AVAILABLE DATA

Prior to conducting the site investigation, 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 included the following:

#### *USDA/NRCS Web Soil Survey*

One soil map unit is predicted to occur on the subject parcel. Kitsap Silt Loam, 15 to 30 percent slopes, is mapped throughout the entirety of the subject site. A more detailed soil map unit description is provided in the “2.2 Field Determination Methodology” section below.

#### *USFWS National Wetlands Inventory (NWI)*

The closest wetland to the subject property, besides Lake Washington, is a palustrine, emergent wetland approximately 0.6 miles northwest. Lake Washington lies approximately 0.25 miles north of the subject property.

#### *DNR FPAMT Mapping Application for streams (nite)*

The closest stream to the subject site is approximately 0.7 miles southeast, and is described as having an unknown type.

#### *WDFW Priority Habitat and Species (PHS) Interactive Map*

Confirms that a palustrine wetland approximately 0.6 miles northwest of the subject site is the nearest previously mapped critical area other than Lake Washington. Additionally, two bald eagles nests are recorded within that wetland.

*WDFW Salmonscape Interactive Mapping System*

Coho, Chinook, sockeye, Kokanee, and steelhead are documented as present in Lake Washington, and bull trout are documented as using the lake for rearing.

*King County iMap*

No wetlands or streams were identified on or adjacent to the subject site.

*Mercer Island Watercourse Type Map*

The closest watercourse shown on the City-supplied map is a Type-2 perennial stream approximately 0.1 miles to the east of the subject site.

## **2.2 FIELD DETERMINATION METHODOLOGY**

Wetland Resources staff conducted a site visit on January 19, 2015, to locate wetlands and streams occurring within and near the project site. Pursuant to MIMC 19..07.080.A and 19.16.010, wetland conditions were evaluated using routine methodology described in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, (referred as 2010 Regional Supplement). The methodology in the 2010 Regional Supplement coincides with the methodology described in the Washington State Wetlands Identification and Delineation Manual (Washington State Department of Ecology Publication #96-94, March 1997). Our findings are consistent with both manuals.

The following criteria descriptions were used in the boundary determination:

- 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

The Washington State Department of Ecology document *Determining the Ordinary High Water Mark on Streams in Washington State (Second Review Draft)* (Olson and Stockdale 2010) was used to determine the presence of any streams on the subject site.

No streams were observed on the subject parcel.

### **2.2.1 Hydrophytic Vegetation Criteria**

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

more than 50 percent of a plant community consists of species rated “Facultative” and wetter on lists of plant species that occur in wetlands.

### **2.2.2 Soils Criteria and Mapped Description**

The manuals define hydric soils as those 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 for determining whether a given soil meets the definition for hydric soils.

According to NRCS Web Soil Survey, the soil map unit Kitsap Silt Loam, 15 to 30 percent slopes, is predicted to occur on the subject property.

Kitsap Silt Loam, 15 to 30 percent slopes, is made up of moderately well drained soils that formed in glacial lake deposits, under a cover of conifers and shrubs. These soils are on terraces and strongly dissected terrace fronts. They are generally undulating and rolling and moderately steep. Platy, silty sediments are at a depth of 18 to 40 inches. In a representative profile, the surface layer and subsoil are very dark brown and dark yellowish brown silt loam that extends to a depth of about 24 inches. The subsoil is olive-gray silty clay loam. It extends to a depth of 60 inches or more. Soils included with this soil in mapping make up no more than 30 percent of the total acreage. Some areas are up to 15 percent Alderwood gravelly sandy loam; some are up to 15 percent the very deep, sandy Indianola soils; and some are up to 2 percent the poorly drained Bellingham, Seattle, and Tukwila soils. Runoff is rapid, and the erosion hazard is severe. Slippage potential is severe. Permeability is moderate above the substratum and very slow within it. Available water capacity is moderate to moderately high.

### **2.2.3 Hydrology Criteria**

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

Based on the results of the site investigation, on wetland (A) was identified on the subject property, and a second (B) offsite to the east.

## **2.3 BOUNDARY DETERMINATION FINDINGS**

### **2.3.1 Wetland A**

This wetland is located in the southern portion of the site. The dominant vegetation within this slope wetland consists of red alder (*Alnus rubra*), Himalayan blackberry, and yellow buttercup (*Ranunculus repens*). The majority of the dominant species rate “facultative” or wetter, indicating that a hydrophytic vegetative community is present in the areas mapped as wetland.

Wetland soils from 0 to at least 18 inches below the surface have a Munsell color of dark grayish brown (2.5YR 4/2) with prominent dark brown (7.5YR 3/4) redoximorphic features, with a silty clay loam texture. These soils meet the F3 (Depleted Matrix) hydric soil indicator. Soils were saturated to the surface. The water table was not observed at the time of the site investigation.

Field observations indicate that the area mapped as Wetland A is flooded, ponded, or saturated long enough during the growing season to develop anaerobic conditions in the upper part of the soils. Therefore, the vegetation, soil, and hydrologic criteria are all met for this on-site wetland.

### **2.3.2 Wetland B**

This wetland is located off-site to the west of the center of the subject site. The dominant vegetation within this slope wetland consists of red alder, Himalayan blackberry, and various pasture grasses (*Agrostis* spp.). The red alder is only rooted along the outside boundary of the wetland. Regardless, the dominant species rate “facultative” or wetter, indicating that a hydrophytic vegetative community is present in the areas mapped as wetland.

Wetland soils from 0 to 18 inches below the surface have a Munsell color of grayish brown (2.5Y 5/2) with prominent dark yellowish brown (10YR 4/6) redoximorphic features. The soil profile has been highly disturbed, and has a gravelly loam texture. These soils meet the F3 (Depleted Matrix) hydric soil indicator. Soils were saturated to the surface. The water table was not observed at the time of the site investigation.

Field observations indicate that the area mapped as Wetland B is flooded, ponded, or saturated long enough during the growing season to develop anaerobic conditions in the upper part of the soils. Therefore, the vegetation, soil, and hydrologic criteria are all met for this on-site wetland.

### **2.3.3 Non-wetland Areas**

#### *Adjacent to Wetland A*

Dominant vegetation in the non-wetland area adjacent to Wetland A is represented by big-leaf maple (*Acer macrophylla*), red alder, and Himalayan blackberry. English ivy is also prevalent in adjacent areas north of Wetland A. Based on the observed dominant species, the majority of the vegetation community does not rate “facultative” or wetter, indicating that it is not hydrophytic.

Typical soils in the area mapped as non-wetland adjacent to Wetland A have a Munsell color of very dark grayish brown (10YR 3/2), and a silty clay loam texture, to at least 18 inches beneath the soil surface. This soil profile does not meet the criteria for any hydric soil indicators.

Soils were dry at the time of our January 2015 site investigation. Soils sampled in the area mapped as non-wetland do not appear to be flooded, ponded, or saturated long enough during the growing season to develop anaerobic conditions in the upper part, and therefore do not appear to meet wetland hydrology criteria.

Given that the dominant vegetative community is not hydrophytic, hydric soils are absent in these areas, and direct hydrologic indicators are lacking, it appears that areas mapped as non-wetland adjacent to Wetland A do not meet criteria for wetlands.

#### *Adjacent to Wetland B*

Dominant vegetation in the non-wetland area adjacent to Wetland B is represented by black cottonwood (*Populus balsamifera*), western red cedar (*Thuja plicata*), Himalayan blackberry (*Rubus armeniacus*), and Laurel (*Laurus nobilis*). Based on the observed dominant species, the majority of the vegetation community does not rate “facultative” or wetter, indicating that it is not hydrophytic.

Typical soils in the area mapped as non-wetland adjacent to Wetland B have a Munsell color of very dark grayish brown (10YR 2/2) to 4 inches beneath the soil surface, and have a sandy loam texture. From 4 to 18 inches below the surface, the soil has a color of olive brown (2.5Y 4/3). No redoximorphic features are present within the soil profile. This soil profile does not meet the criteria for any hydric soil indicators due to the low occurrence of the redoximorphic features.

Soils were dry at the time of our January 2015 site investigation. Soils sampled in the area mapped as non-wetland do not appear to be flooded, ponded, or saturated long enough during the growing season to develop anaerobic conditions in the upper part, and therefore do not appear to meet hydrology criteria.

Given that the dominant vegetative community is not hydrophytic, hydric soils are absent in these areas, and direct hydrologic indicators are lacking, it appears that areas mapped as non-wetland adjacent to Wetland B do not meet criteria for wetlands.

#### **2.3.4 Wildlife**

The site provides low to moderate habitat functions. Given the small size, the presence of invasive vegetation, and proximity to developed areas, the subject property does not provide a quality movement corridor, and contains limited resources such as food, water, thermal cover, and hiding cover. No mammalian species were detected during our on-site investigations in 2015, although several species, including gray squirrels (*Sciurus* spp.) and raccoon (*Procyon lotor*) are expected to occur within the area. Avian activity was not strongly detected. However, given the habitat available nearby, it is expected that the following avian species use the area: American Crow (*Corvus brachyrhynchos*), American Robin (*Turdus migratorius*), Steller’s Jay (*Cyanocitta stelleri*), Black-capped Chickadee (*Poecile atricapilla*), Dark-eyed Junco (*Junco hyemalis*), and Song Sparrow (*Melospiza melodia*).

## **3.0 FUNCTIONS AND VALUES ASSESSMENT**

### **3.1 METHODOLOGY**

The methodology for this functions and values assessment is based on professional opinion developed through past field analyses and interpretation. This assessment pertains specifically to the on-site wetlands, but is typical for assessments of similar systems common to western Washington.

### **3.2 FUNCTIONS AND VALUES COMPONENTS**

Wetlands in western Washington perform a variety of ecosystem functions. Included among the most important functions provided by wetlands are stormwater storage and flood flow attenuation, water quality improvement, and fish and wildlife habitat. An assessment of these functions for the project site is provided below.

### **3.3 EXISTING CONDITIONS**

#### **3.3.1 Wetland A**

This on-site Category IV wetland is a moderately sized, multi-strata, forested wetland within a highly developed matrix. A few special habitat features are present within the wetland, such as downed logs and snags. However, the presence of invasive vegetation, the lack of interspersions between vegetative structure, and the proximity to high intensity land use, results in this wetland providing low to moderate quality wildlife habitat as a whole.

Hydro-geomorphically sloped wetland areas, such as this, are intrinsically unable to provide significant flood storage, except marginally within any small depressions that may exist along the slope. Sloped areas with dense, persistently stemmed vegetation provide water quality functions by capturing sediment as surface flows are transported through the vegetative structure. This sediment is often ionically bonded to pollutants such as phosphorous. The majority of Wetland A is sloped with persistently stemmed vegetation, thus providing this important function.

#### **3.3.2 Wetland B**

This off-site Category IV wetland is a small, single-strata, scrub-shrub wetland within a highly developed matrix. Special habitat features are absent from this wetland, and it is located within an easement underneath power lines. At the time of our filed visit, scrub-shrub vegetation was only beginning to reestablish after having been recently cleared for utility maintenance. Additionally, the lack of interspersions between vegetative structure, and the proximity to high intensity land use, results in this wetland providing low quality wildlife habitat as a whole.

Unlike Wetland A, dense, persistently stemmed vegetation is mostly absent from Wetland B. Therefore, this wetland provide little to no filtration of sediment from surface hydrology.

Wetland B is sloped, and is unable to provide any significant flood storage. Given the lack of water quality or hydrologic (flood storage) functions provided by this wetland, coupled with low habitat quality, Wetland B provides little to now functions and values.

### **3.4 POST-MITIGATION FUNCTIONS AND VALUES**

#### *Proposed Protections*

Wetland A is to be protected in perpetuity by a reduced buffer as part of the proposed development plan. The buffer will only be reduced below the standard 35-foot width, as necessary, in areas adjacent to the construction project. The total reduction area will be 1,316 square feet, and will be mitigated through buffer averaging in order to avoid any net permanent impacts to the critical area buffer. A total of 1,566 square feet of forested habitat will be provided in the southernmost portion of the site as additional buffer and will be enhanced, providing a greater than 1:1 replacement ratio.

Currently, this wetland provides a low level of functions and values. The area of buffer reduction is primarily vegetated by invasive Himalayan blackberry and English Ivy, and is of very low habitat quality. In contrast, the area proposed as additional buffer is forested, and provides moderate habitat.

A total of 3,697 square feet of buffer adjacent to the proposed width reductions will be enhanced with native vegetation after proper removal of invasive plant species from that area. This modified buffer will be sufficient to preserve the functions and values provided by Wetland A, meeting the requirements of MIMC 19.07.080(C)(3) and 19.07.070(B)(3) for wetland protection.

An area of buffer (1,221 square feet) within the enhancement area will be temporarily impacted to accommodate replacement of a storm water pipe. This area is currently vegetated by invasive vegetation in its northern portion, and will be revegetated with native shrubs (trees can not be planted). Areas of disturbed soil will be returned to roughly the original horizon structure.

The existing vegetation within the area proposed for enhancement is partially comprised of native trees and shrubs, and will be enhanced with infill plantings. By using an infill planting strategy, overly dense planting will be avoided, which would hinder the successful establishment of the native plantings.

Wetland B is located off-site, and the standard buffer associated with it does not extend into the site area. Therefore, no impacts are proposed to Wetland B or the associated buffer.

#### *Expected Functions and Values*

The increase in the overall quality of habitat provided by the proposed modified buffer, over that of the existing standard buffer, is expected to provide a functional lift to the habitat associated with Wetland A.

Replacement, with native vegetation, of the invasive species component currently present within this portion of the buffer associated with Wetland A will provide a significant functional lift to the protective features of the buffer, as well as the hydrologic and water quality properties provided by the wetland. Habitat quality in the enhancement area is expected to also significantly improve.

The enhancement of the 1,221 square feet of the buffer adjacent to the proposed width reductions will sufficiently protect and restore the small area of temporary impacts within the buffer associated with Wetland A. The removal of invasive species, paired with revegetation with native shrubs, will avoid any negative net impacts to the level of wetland protection provided by the area of temporary impacts.

#### **4.0 BUFFER MITIGATION PLAN**

The buffer mitigation plan has been designed to comply with buffer averaging requirements pursuant to MIMC 19.07.080(C)(3) and 19.07.070(B)(3). In addition, temporary buffer impacts that will occur for the replacement of a storm drainpipe will be restored.

#### **4.1 BUFFER AVERAGING PLAN**

Pursuant to MIMC 19.07.080(C)(3), buffer widths may be averaged to allow for site alterations located within the standard buffer width, as long as the applicant demonstrates that the proposed buffer averaging modification complies with requirements stipulated in the code.

MIMC 19.07.070(B)(3) provides a list of criteria for buffer averaging.

Portions of the city of Mercer Island land use code are in italics below, with responses provided in normal text underneath:

*Averaging of Buffer Widths. The code official may allow the standard buffer width to be averaged if:*

*a. The proposal will result in a net improvement of critical area function;*

As described in the functions and values assessment above, the buffer area proposed for reduction through averaging is of low habitat quality, being primarily vegetated by invasive species. The area of equal size being proposed as additional buffer is natively forested, and provides significantly higher habitat quality.

Additionally, the 3,697 square feet of enhancement in the area adjacent to the proposed buffer width reduction and 1,566 square feet of enhancement in the additional buffer area will provide a lift to the protective, hydrologic, and water quality functions provided by the buffer associated with Wetland A.

*b. The proposal will include replanting of the averaged buffer using native vegetation;*

The area of the buffer adjacent to the proposed buffer width reduction will be enhanced with native vegetation to increase the functions and values provided to Wetland A. A total of 5,263 square feet (3,697 square feet and 1,566 square feet) will be planted with native trees and shrubs following the removal of any invasive plant species from the enhancement area.

*c. The total area contained in the averaged buffers on the development proposal site is not decreased below the total area that would be provided if the maximum width were not averaged;*

The 1,316 square feet of buffer area proposed for reduction through buffer averaging will be compensated at a greater than 1:1 ratio of replacement with an area 1,566 square feet in the southern portion of the subject site.

*d. The standard buffer width is not reduced to a width that is less than the minimum buffer width at any location; and*

The buffer associated with Wetland A will not be reduced below 25 feet in any location, which is the minimum buffer width allowed for Category IV wetlands pursuant to MIMC 19.07.080(C)(1).

*e. That portion of the buffer that has been reduced in width shall not contain a steep slope.*

Mercer Island defines a steep slope as any slope with a grade equal to or greater than 40-percent, calculated by measuring the rise over any horizontal 30-foot run. This method of calculation yields an approximately 20-percent grade in the area proposed as additional buffer; disqualifying it as steep slope.

## **4.2 BUFFER RESTORATION AND ENHANCEMENT**

To mitigate for temporary buffer impacts and buffer averaging, portions of the buffer of Wetland A will be enhanced including removal of invasive species and planting of native trees and shrubs. Given that the existing vegetation within the areas proposed for enhancement is partially comprised of native trees and shrubs, an infill planting strategy will be used. Spacing in the following planting plans refer to overall plant spacing including existing and installed plants.

### **4.2.1 Temporary Buffer Impact Restoration Planting Plan**

The portion of the buffer that will be temporarily impacted for the replacement of the storm drainpipe is currently in a degraded condition with invasive species including Himalayan blackberry (*Rubus armeniacus*) and English ivy (*Hedera helix*). Invasive species will be removed and native shrubs listed below will be planted in this area following installation of the storm drainpipe. Three trees (two 12-inch red alder and one 30-inch black cottonwood) will be

removed from this area. Trees will not be planted in this area as they are not permitted within eight feet of a water or sewer pipeline (MIMC 19.12.040(B)(11)(G)).

*Planting Area 1 (1,221 SF)*

| COMMON NAME       | LATIN NAME                  | SIZE     | SPACING | QUANTITY |
|-------------------|-----------------------------|----------|---------|----------|
| Nootka rose       | <i>Rosa nutkana</i>         | 1 gallon | 6'      | 10       |
| Salmonberry       | <i>Rubus spectabilis</i>    | 1 gallon | 6'      | 10       |
| Snowberry         | <i>Symphoricarpos albus</i> | 1 gallon | 6'      | 10       |
| Tall Oregon grape | <i>Mahonia aquifolium</i>   | 1 gallon | 6'      | 10       |

**4.2.2 Buffer Enhancement Planting Plan**

Pursuant to MIMC 19.07.070(B)(3), the averaged buffer will be enhanced including the removal of invasive species and planting of native trees and shrubs. The goal of the proposed buffer enhancement planting plan is to protect and improve buffer functions.

*Buffer Enhancement – Planting Area 2*

An additional buffer area adjacent to the temporary buffer impact area described above will be enhanced to protect and improve buffer functions. This area, located between Wetland A and the proposed development, currently consists of a mix of native and non-native shrubs and a few young trees. Invasive species will be removed from this area and additional trees and shrubs will be planted with the goal of creating a native forested canopy with native shrubs in the understory.

*Planting Area 2 (3,697 SF)*

| COMMON NAME       | LATIN NAME                   | SIZE     | SPACING | QUANTITY |
|-------------------|------------------------------|----------|---------|----------|
| Douglas fir       | <i>Pseudotsuga menziesii</i> | 6' min.  | 10'     | 10       |
| Western red cedar | <i>Thuja plicata</i>         | 6' min.  | 10'     | 10       |
| Big-leaf maple    | <i>Acer macrophyllum</i>     | 6' min.  | 10'     | 10       |
| Nootka rose       | <i>Rosa nutkana</i>          | 1 gallon | 6'      | 5        |
| Salmonberry       | <i>Rubus spectabilis</i>     | 1 gallon | 6'      | 5        |
| Snowberry         | <i>Symphoricarpos albus</i>  | 1 gallon | 6'      | 5        |
| Tall Oregon grape | <i>Mahonia aquifolium</i>    | 1 gallon | 6'      | 5        |
| Vine maple        | <i>Acer circinatum</i>       | 1 gallon | 6'      | 5        |

### *Buffer Addition Enhancement – Planting Area 3*

The buffer addition area is located at the southern end of Wetland A and consists of a mix of native and non-native shrubs with a canopy of red alder and big-leaf maple. Invasive species will be removed and the area will be inter-planted with native trees and shrubs to improve species and habitat diversity.

#### *Planting Area 3 (1,566 SF)*

| COMMON NAME       | LATIN NAME                   | SIZE     | SPACING | QUANTITY |
|-------------------|------------------------------|----------|---------|----------|
| Douglas fir       | <i>Pseudotsuga menziesii</i> | 6' min.  | 10'     | 7        |
| Western red cedar | <i>Thuja plicata</i>         | 6' min.  | 10'     | 7        |
| Western hemlock   | <i>Tsuga heterophylla</i>    | 6' min.  | 10'     | 7        |
| Nootka rose       | <i>Rosa nutkana</i>          | 1 gallon | 6'      | 5        |
| Salmonberry       | <i>Rubus spectabilis</i>     | 1 gallon | 6'      | 5        |
| Snowberry         | <i>Symphoricarpos albus</i>  | 1 gallon | 6'      | 5        |
| Tall Oregon grape | <i>Mahonia aquifolium</i>    | 1 gallon | 6'      | 5        |
| Vine maple        | <i>Acer circinatum</i>       | 1 gallon | 6'      | 5        |

### **4.2.3 Grass Seeding**

Any disturbed soil in critical areas or buffers shall be seeded to the recommended grass seed mixtures below, or similar approved mixtures. Fertilizer shall only be used if absolutely necessary due to potential runoff into adjacent waters. If deemed absolutely necessary by the consulting biologist and/or City staff, an appropriate fertilizer will be recommended for the particular situation.

#### *Buffer Grass Mix*

| COMMON NAME        | LATIN NAME                 | LBS/1,000 S.F. |
|--------------------|----------------------------|----------------|
| Tall fescue        | <i>Festuca arundinacea</i> | 0.4            |
| Colonial bentgrass | <i>Agrostis capillaris</i> | 0.4            |
| Annual ryegrass    | <i>Lolium multiflorum</i>  | 0.5            |
| White clover       | <i>Trifolium repens</i>    | 0.2            |

### **4.3 PROJECT NOTES**

#### *Pre-Construction Meeting*

Mitigation projects are typically more complex to install than is described in plans. Careful monitoring by a wetland 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 shall be a pre-construction meeting on the project site between the Permittee, the consulting wetland biologist, equipment operator(s), and a City of Mercer Island representative. The objective will be to verify the location of proposed planting.

#### *Inspections*

A wetland 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 Mercer Island representative and/or the consulting biologist will make these decisions during construction.

#### *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 The City of Mercer Island

#### *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 1 and March 1, and only with the permission of the landscape designer, wetland biologist, and City of Mercer Island staff. Bare root plants must have enough fibrous root to insure 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 that species horticultural requirement. 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, wetland biologist, or City of Mercer Island 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 balled and burlapped or containerized, unless explicitly authorized by the landscape designer and/or wetland biologist. Rootbound plants or B&B 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 with permission from the landscape designer, wetland biologist and/or City of Mercer Island 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, branching, and balling and burlapping 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.

*Flagging*

All mitigation plantings will 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.

*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.

*Timing of Planting*

Unless otherwise approved by City of Mercer Island staff, all planting shall occur between October 15 and March 1. 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 allowed without the written permission of the City of Mercer Island staff.

*Site conditions*

The contractor shall immediately notify the landscape designer and/or wetland 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.

*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. 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.

*Fertilizer*

Slow release fertilizer may be used if pre-approved by the City of Mercer Island. Fertilizers shall be applied only at the base of plantings underneath the required covering of mulch (that does not make contact with stems of the plants). No soil amendment or fertilizers will be placed in planting holes.

*Water*

Plants shall be watered midway through backfilling, and again upon completion of backfilling. For spring plantings (if approved), a rim of earth shall be mounded around the base of the tree or shrub no closer than the drip line, or no less than 30" in diameter, except on steep slopes or in hollows. Plants shall be watered a second time within 24-48 hours after installation. The earthen rim / dam should be leveled prior to the second growing season.

*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*

Three foot by 2-inch by 1/4-inch lath stakes or suitable flagging material shall be placed next to or on each planting to assist in locating the plants while removing the competing non-native vegetation and to assist in locating the plants 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 The City of Mercer Island staff.

*Inspection(s)*

A wetland 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 wood chip mulch after planting. Mulch shall be kept at least 2 inches away from the trunks and stems of woody plants.

## **5.0 PROJECT MONITORING PROGRAM**

### **5.1 REQUIREMENTS FOR MONITORING PROJECT**

1. Initial compliance/as-built report
2. Annual site inspection (once per year in the fall) for up to five years
3. Annual reports including final report (one report submitted in the fall of each monitored year)

In the event that year 5 performance standards are met prior to the end of five years, the maintenance and monitoring period will be terminate at that point.

*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 five years that the definitions of success stated below are being met. Success may be met early if the year 5 performance standards are already achieved. The property owner shall grant access to the mitigation area for inspection and maintenance to the contracted landscape and/or wetland specialist and the City of Mercer Island during the period of the bond or until the project is evaluated as successful.

*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 staff inspects the site and issues approval of the installation.

*Vegetation Monitoring*

Representative photopoints shall be selected, and permanently marked in the field with rebar, PVC, or some other similar method. Photos must be taken from the original locations during each monitoring year to establish a record of plant growth throughout the monitoring period.

The exact location of permanent photopoints must be depicted in the as-built report (attached map), and Year 0 photographs shall be included in the as-built letter to document baseline conditions.

Plant survival shall be determined as follows: the contracted biologist will walk the entirety of the mitigation planting area and record the number of installed plantings that are alive and not severely stressed. Plant quantities may be counted by species if necessary. The total number of plants, or plants by species, will be divided by the total number of plants required in the approved final mitigation plan.

Vegetation sampling shall be conducted as a qualitative assessment, for the purpose of establishing approximate invasive cover and approximate areal coverage. Total invasive cover will be determined as follows: the contracted biologist will walk the entirety of the mitigation planting area and record the approximate area of invasive species coverage. Total observed area of invasive species cover divided by the total area of the mitigation site yields approximate invasive cover. The findings will be presented in the annual report.

Total areal coverage will be determined as follows: the contracted biologist will walk the entirety of the mitigation planting area and record approximate area of areal coverage. Total area of areal coverage divided by the total area of the mitigation site yields approximate areal coverage. The findings will be presented in the annual report.

Each monitoring report will establish an approximate percent coverage of invasive species and areal coverage, which will serve as the basis for maintenance recommendations (invasive species removal and re-planting). Maintenance shall occur following any monitoring report documenting an increase in invasive species cover, even if cover is reported below ten percent.

## **5.2 MONITORING REPORTS**

### *Report Contents*

Monitoring shall occur in the fall of each monitoring year. Reports shall be submitted by November 30 of each year during the monitoring period. As applicable, monitoring reports must include descriptions / data for:

1. Site plan and vicinity map
2. Description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
3. Plant survival and areal coverage (qualitative assessment)
4. Assessment of nuisance / exotic biota and recommendations for management
5. Receipts for any structural repair or replacement
6. Color photographs taken from permanent photo-points that shall be depicted on the monitoring report map.

## **5.3 PROJECT SUCCESS AND COMPLIANCE**

### **5.3.1 Criteria for Success**

Upon completion of the proposed mitigation project, an inspection by a qualified biologist will be made to document mitigation installation. A compliance letter (as-built) will be supplied to the City of Mercer Island for review, within 30 days after the completion of planting. City review and acceptance of successful mitigation installation is required prior to commencement of the 5-year monitoring period.

A landscape professional or wetland biologist will perform condition monitoring of the plantings annually in the fall. A written report describing the monitoring results will be submitted to the City of Mercer Island after each site inspection of each monitored year. Final inspection will occur five years after completion of this project. The contracted consultant will prepare a final report describing success or failure of the project. The monitoring period may terminate early if the year 5 performance standards are met prior to five years.

### **5.3.2 City of Mercer Island Contact**

Certain actions within the wetland and buffer mitigation areas may require inspection or approval by City of Mercer Island staff. Requests for inspection/approval shall be coordinated with the City.

### **5.3.3 Definition of Success**

The mitigation project goal will be deemed successful when objectives are met, as evidenced through the observation of set performance standards.

### **5.3.4 Goals**

1. To establish a diverse, native plant community in the wetland buffer that will persist and create an appropriate vegetative matrix.
2. To have significant native vegetative cover throughout the enhanced area.
3. To remove existing invasive species and limit the establishment and spread of those species in the buffer.

### **5.3.5 Performance standards**

The goals will be considered successfully achieved when, and if, the following performance standards are observed:

#### Performance Standard 1

End of Year 1: 100 percent survival of newly planted species, and no more than 10 percent cover by invasive plant species.

Performance Standard 2

End of Year 2: at least 95 percent survival of installed plant species, and no more than 10 percent cover by invasive plant species.

Performance Standard 3

End of Year 3: at least 90 percent survival of installed plant species, and no more than 10 percent cover by invasive plant species.

Performance Standard 4

End of Year 4: at least 85 percent survival of installed plant species, at least 60 percent aerial coverage by native species and groundcover, and no more than 10 percent cover by invasive plant species.

Performance Standard 5

End of Year 5: at least 80 percent survival of installed plant species, at least 80 percent aerial coverage by native species and groundcover, and no more than 10 percent cover by invasive plant species.

When assessing aerial coverage, native volunteer plants may be included when making calculations. However, for the purpose of assessing survival of planted species, only installed plantings shall be considered. Enhancement plantings should be clearly marked with flagging during installation, as described in the *Flagging* paragraph of section “4.4 Planting Notes.”

In the event that a performance standard is not met by the time specified, maintenance actions shall be implemented promptly to meet the standard, and thus bring the plan into compliance.

**5.4 MAINTENANCE**

This mitigation project will require periodic maintenance to replace mortality of the planted trees and shrubs. Maintenance is also necessary to control invasive, non-native plant species and competing grasses. The planting areas will be maintained in the spring of each year for the five-year monitoring period. Maintenance will include hand removal of competing grasses and non-native vegetation from a 2-foot diameter ring surrounding a given plant. Removal of invasive species shall be done by hand to decrease the likelihood of damage occurring to the plantings. All blackberry, reed canarygrass, and other aggressive invasive species sprouting anywhere within the mitigation site shall be removed during each maintenance period. Herbicide use is prohibited.

Water shall be provided during the dry season (July 1 through October 15 at minimum) for the first two years after installation to ensure plant survival and establishment. A temporary above ground irrigation system and/or water truck should provide water. Water should be applied at a rate of 1” of water twice per week for Year 1, and 1” per week during Year 2.

When necessary, mulch shall be replaced around each plant. Each plant shall receive a 2-foot

diameter ring of mulch to a height of 3 to 4 inches above the existing soil surface. A 4-inch diameter ring around the base of each plant shall be kept free of mulch. Wood chips or composted mulch is acceptable.

Following each monitoring site visit, recommendations will be made for the replacement of plant mortality and other general maintenance. All maintenance recommendations related to invasive cover shall be addressed within 45 days of the date written on the annual report requiring action, and the City shall be supplied with a letter documenting how these recommendations were addressed. If necessary, re-planting shall occur in the fall, and a brief memo will be drafted and submitted to the City of Mercer Island indicating that re-planting has successfully occurred.

**5.4.1 Contingency Plan**

If, during any of the inspections, more than 20 percent of the plants are severely stressed, or it appears more than 20 percent may not survive, additional plantings of the same species or, if necessary, alternative species may be added to the planting area. If this situation persists into the next inspection, a meeting with a representative for the City of Mercer Island, the consulting wetland biologist and the property owner will be scheduled to decide upon contingency plans. Elements of the contingency plan may include, but will not be limited to more aggressive weed control, plant mortality replacement, species substitution, fertilization, and/or soil amendments.

**6.0 FINANCIAL GUARANTEE**

Pursuant to MIMC 19.01.060(C) a financial guarantee in the amount of 150% of the estimated cost of the mitigation project including plant materials, installation, weed management, monitoring, and other costs shall be provided to ensure that the mitigation measures are implemented according to the accepted mitigation plan. A King County bond quantity worksheet (modified to reflect the city of Mercer Island’s requirement of 50% contingency) has been prepared for this project.

|                            |             |
|----------------------------|-------------|
| Plants                     | \$2,871.00  |
| Mulch                      | \$370.50    |
| Labor                      | \$320.00    |
| Maintenance and Monitoring | 10,490.85   |
| Total Estimated Cost       | \$14,052.35 |
| Contingency & Mobilization | \$2,136.90  |

**TOTAL ESTIMATED ASSURANCE AMOUNT            \$16,189.25**

## 7.0 USE OF THIS REPORT

This Critical Area Study and Buffer Mitigation Plan is supplied to Aegis Living LLC as a means of determining on-site critical area conditions, and mitigating for activities within critical area buffers, as required by the City of Mercer Island during the permitting process. 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 wetlands are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

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

*Wetland Resources, Inc.*



Scott Walters  
Associate Ecologist

## 8.0 REFERENCES

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Wetland name or number Wet A

**WETLAND RATING FORM – WESTERN WASHINGTON**

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

Name of wetland (if known): Wetland A Date of site visit: 1/19/2015

Rated by S. Walters Trained by Ecology? Yes  No  Date of training 4/2015

SEC: 12 TOWNSHIP: 24 RANGE: 4 Is S/T/R in Appendix D? Yes  No

Map of wetland unit: Figure      Estimated size 2,011 S.F.

**SUMMARY OF RATING**

**Category based on FUNCTIONS provided by wetland**

I  II  III  IV

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

|                                   |          |
|-----------------------------------|----------|
| Score for Water Quality Functions | 0        |
| Score for Hydrologic Functions    | 0        |
| Score for Habitat Functions       | 6        |
| <b>TOTAL score for Functions</b>  | <b>6</b> |

**Category based on SPECIAL CHARACTERISTICS of wetland**

I  II  Does not Apply

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

**IV**

**Summary of basic information about the wetland unit**

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

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

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

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

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

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

## Classification of Wetland Units in Western Washington

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

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

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

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

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

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

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

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

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

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

\_\_\_ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

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

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

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

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

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

The water leaves the wetland **without being impounded**?

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

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

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

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

The overbank flooding occurs at least once every two years.

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

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

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

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

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

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

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

| <i>HGM Classes within the wetland unit being rated</i>            | <i>HGM Class to Use in Rating</i>   |
|---|---|
| Slope + Riverine  | Riverine <input type="checkbox"/>   |
| Slope + Depressional  | Depressional <input type="checkbox"/>   |
| Slope + Lake-fringe   | Lake-fringe <input type="checkbox"/>  |
| Depressional + Riverine along stream within boundary              | Depressional <input type="checkbox"/>   |
| Depressional + Lake-fringe  | Depressional <input type="checkbox"/>   |
| Salt Water Tidal Fringe and any other class of freshwater wetland | Treat as ESTUARINE under wetlands with special characteristics <input type="checkbox"/> |

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

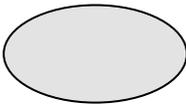
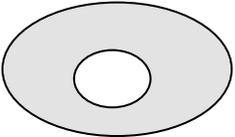
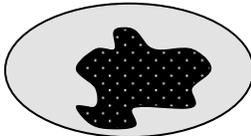
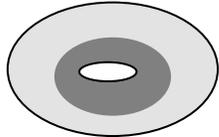
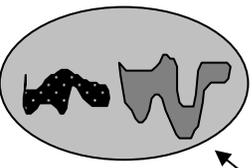
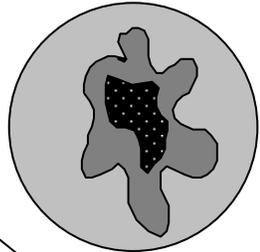
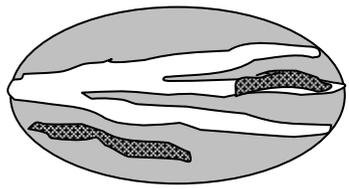
| <b>S Slope Wetlands</b><br>WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality |  | <b>Points</b><br>(only 1 score per box) |
|--|--|---|
| <b>S</b>   | <b>S 1. Does the wetland unit have the <u>potential</u> to improve water quality?</b>  | (see p.64)                              |
| <b>S</b>   | <p>S 1.1 Characteristics of average slope of unit:</p> <p><input type="checkbox"/> Slope is 1% or less (a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance) points = 3</p> <p><input type="checkbox"/> Slope is 1% - 2% points = 2</p> <p><input type="checkbox"/> Slope is 2% - 5% points = 1</p> <p><input checked="" type="checkbox"/> Slope is greater than 5% points = 0</p>   | 0                                       |
| <b>S</b>   | <p>S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)</p> <p><input type="checkbox"/> YES = 3 points <input checked="" type="checkbox"/> NO = 0 points</p>  | 0                                       |
| <b>S</b>   | <p>S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.</p> <p><input type="checkbox"/> Dense, uncut, herbaceous vegetation &gt; 90% of the wetland area points = 6</p> <p><input type="checkbox"/> Dense, uncut, herbaceous vegetation &gt; 1/2 of area points = 3</p> <p><input type="checkbox"/> Dense, woody, vegetation &gt; 1/2 of area points = 2</p> <p><input type="checkbox"/> Dense, uncut, herbaceous vegetation &gt; 1/4 of area points = 1</p> <p><input checked="" type="checkbox"/> Does not meet any of the criteria above for vegetation points = 0</p> <p>Aerial photo or map with vegetation polygons</p>  | Figure ____<br>0                        |
| <b>S</b>   | <b>Total for S 1</b> Add the points in the boxes above   | 0                                       |
| <b>S</b>   | <p><b>S 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?</b></p> <p>Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</p> <p><input type="checkbox"/> Grazing in the wetland or within 150ft</p> <p><input type="checkbox"/> Untreated stormwater discharges to wetland</p> <p><input checked="" type="checkbox"/> Tilled fields, logging, or orchards within 150 feet of wetland</p> <p><input checked="" type="checkbox"/> Residential, urban areas, or golf courses are within 150 ft upslope of wetland</p> <p><input type="checkbox"/> Other _____</p> <p><input type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1</p> | (see p.67)<br><br>multiplier<br>2       |
| <b>S</b>   | <b>TOTAL - Water Quality Functions</b> Multiply the score from S1 by S2<br>Add score to table on p. 1  | 0                                       |

Comments

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

**Comments**



|  |   |
|--|---|
| <p><b>H 1.4. Interspersion of habitats (see p. 76)</b><br/>                 Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p><input checked="" type="checkbox"/> None = 0 points</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Low = 1 point</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Moderate = 2 points</p> </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>[riparian braided channels]</p> </div> </div> <p style="text-align: center;"><input type="checkbox"/> High = 3 points</p> <p style="text-align: center;">NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes</p> | <p><b>Figure</b> _____</p> <p style="text-align: center; font-size: 24px;">0</p>                          |
| <p><b>H 1.5. Special Habitat Features: (see p. 77)</b><br/>                 Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</li> <li><input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</li> <li><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)</li> <li><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned grey/brown</i>)</li> <li><input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (<i>structures for egg-laying by amphibians</i>)</li> <li><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</li> </ul> <p style="text-align: center;">NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>   | <p style="text-align: center; font-size: 24px;">0</p>   |
| <p><b>H 1. TOTAL</b> Score - potential for providing habitat<br/>                 Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>   | <div style="border: 2px dashed black; display: inline-block; padding: 5px 15px; font-size: 24px;">1</div> |

**Comments**

Within maintained power

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

Total for page   2

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

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

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

1

|  |   |
|--|---|
| <p><b>H 2.4 Wetland Landscape</b> (<i>choose the <b>one</b> description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. <span style="float: right;">points = 5</span></p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile <span style="float: right;">points = 5</span></p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed <span style="float: right;">points = 3</span></p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetland within ½ mile <span style="float: right;">points = 3</span></p> <p><input checked="" type="checkbox"/> There is at least 1 wetland within ½ mile. <span style="float: right;">points = 2</span></p> <p><input type="checkbox"/> There are no wetlands within ½ mile. <span style="float: right;">points = 0</span></p> | 2 |
| <p><b>H 2. TOTAL Score</b> - opportunity for providing habitat<br/><i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>   | 5 |
| <p>TOTAL for H 1 from page 14</p>  | 1 |
| <p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>  | 6 |



|   |  |
|---|--|
| <p><b>SC 2.0 Natural Heritage Wetlands</b> (<i>see p. 87</i>)<br/>                 Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>)<br/>                 S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2                      NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?<br/> <input type="checkbox"/> YES = Category I    NO <input checked="" type="checkbox"/> not a Heritage Wetland</p>   | <input type="checkbox"/> <b>Cat. I</b> |
| <p><b>SC 3.0 Bogs</b> (<i>see p. 87</i>)<br/>                 Does the wetland unit (<b>or any part of the unit</b>) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/>                      <input checked="" type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?<br/> <input type="checkbox"/> Yes - go to Q. 3                      <input checked="" type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?<br/> <input type="checkbox"/> Yes – Is a bog for purpose of rating    <input type="checkbox"/> No - go to Q. 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (&gt; 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (&gt; 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I    No <input type="checkbox"/> Is not a bog for purpose of rating</p> |  |
| <input type="checkbox"/> <b>Cat. I</b>  |  |

|   |  |
|---|--|
| <p><b>SC 4.0 Forested Wetlands (see p. 90)</b><br/>                 Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife’s forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> <b>Old-growth forests:</b> (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and “OR” so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> <b>Mature forests:</b> (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I      NO <input checked="" type="checkbox"/> not a forested wetland with special characteristics</p> | <p>Cat. I <input type="checkbox"/></p>   |
| <p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b><br/>                 Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1      NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p><input type="checkbox"/> YES = Category I    <input type="checkbox"/> NO = Category II</p>  | <p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p> |

|   |  |
|---|--|
| <p><b>SC 6.0 Interdunal Wetlands</b> (<i>see p. 93</i>)</p> <p>Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p><input type="checkbox"/> YES - go to SC 6.1                      NO <input checked="" type="checkbox"/> not an interdunal wetland for rating</p> <p><i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula- lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport- lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis- lands west of SR 115 and SR 109</p> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?</p> <p><input type="checkbox"/> YES = Category II                      <input type="checkbox"/> NO – go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?</p> <p><input type="checkbox"/> YES = Category III</p> | <p><b>Cat. II</b> <input type="checkbox"/></p> <p><b>Cat. III</b> <input type="checkbox"/></p>   |
| <p><b>Category of wetland based on Special Characteristics</b></p> <p><i>Choose the “highest” rating if wetland falls into several categories, and record on p. 1.</i></p> <p>If you answered NO for all types enter “Not Applicable” on p.1</p>  | <p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p> <p><input type="checkbox"/> Cat. III</p> <p><input checked="" type="checkbox"/> N/A</p> |

Wetland name or number Wet B

**WETLAND RATING FORM – WESTERN WASHINGTON**

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

Name of wetland (if known): Wetland B Date of site visit: 1/19/2015

Rated by S. Walters Trained by Ecology? Yes  No  Date of training 4/2015

SEC: 12 TOWNSHIP: 24 RANGE: 4 Is S/T/R in Appendix D? Yes  No

Map of wetland unit: Figure      Estimated size 9,204 S.F.

**SUMMARY OF RATING**

**Category based on FUNCTIONS provided by wetland**

I  II  III  IV

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

|                                   |           |
|-----------------------------------|-----------|
| Score for Water Quality Functions | 6         |
| Score for Hydrologic Functions    | 6         |
| Score for Habitat Functions       | 11        |
| <b>TOTAL score for Functions</b>  | <b>23</b> |

**Category based on SPECIAL CHARACTERISTICS of wetland**

I  II  Does not Apply

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

**IV**

**Summary of basic information about the wetland unit**

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

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

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

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

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

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

## Classification of Wetland Units in Western Washington

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

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

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

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

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

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

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

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

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

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

\_\_\_ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

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

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

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

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

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

The water leaves the wetland **without being impounded**?

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

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

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

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

The overbank flooding occurs at least once every two years.

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

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

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

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

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

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

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

| <i>HGM Classes within the wetland unit being rated</i>            | <i>HGM Class to Use in Rating</i>   |
|---|---|
| Slope + Riverine  | Riverine <input type="checkbox"/>   |
| Slope + Depressional  | Depressional <input type="checkbox"/>   |
| Slope + Lake-fringe   | Lake-fringe <input type="checkbox"/>  |
| Depressional + Riverine along stream within boundary              | Depressional <input type="checkbox"/>   |
| Depressional + Lake-fringe  | Depressional <input type="checkbox"/>   |
| Salt Water Tidal Fringe and any other class of freshwater wetland | Treat as ESTUARINE under wetlands with special characteristics <input type="checkbox"/> |

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

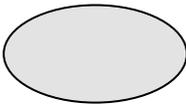
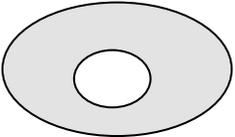
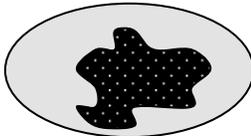
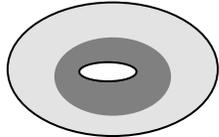
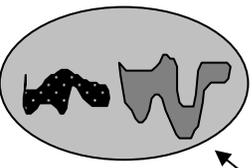
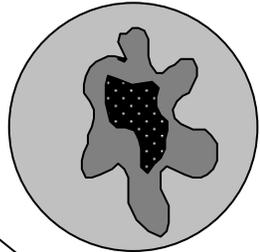
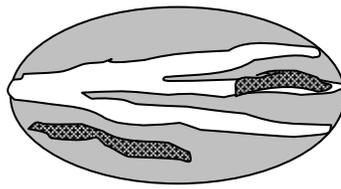
| <b>S Slope Wetlands</b>  |  | <b>Points</b>   |
|--|--|---|
| <b>WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality</b> |  | (only 1 score per box)  |
| <b>S</b>   | <b>S 1. Does the wetland unit have the <u>potential</u> to improve water quality?</b>  | (see p.64)  |
| <b>S</b>   | <p>S 1.1 Characteristics of average slope of unit:</p> <p><input type="checkbox"/> Slope is 1% or less (a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance) points = 3</p> <p><input type="checkbox"/> Slope is 1% - 2% points = 2</p> <p><input type="checkbox"/> Slope is 2% - 5% points = 1</p> <p><input checked="" type="checkbox"/> Slope is greater than 5% points = 0</p>   | 0   |
| <b>S</b>   | <p>S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)</p> <p><input type="checkbox"/> YES = 3 points <input checked="" type="checkbox"/> NO = 0 points</p>  | 0   |
| <b>S</b>   | <p>S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.</p> <p><input type="checkbox"/> Dense, uncut, herbaceous vegetation &gt; 90% of the wetland area points = 6</p> <p><input checked="" type="checkbox"/> Dense, uncut, herbaceous vegetation &gt; 1/2 of area points = 3</p> <p><input type="checkbox"/> Dense, woody, vegetation &gt; 1/2 of area points = 2</p> <p><input type="checkbox"/> Dense, uncut, herbaceous vegetation &gt; 1/4 of area points = 1</p> <p><input type="checkbox"/> Does not meet any of the criteria above for vegetation points = 0</p> <p>Aerial photo or map with vegetation polygons</p>  | Figure ___<br><br>3   |
| <b>S</b>   | <b>Total for S 1</b> Add the points in the boxes above   | 3   |
| <b>S</b>   | <p><b>S 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?</b></p> <p>Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</p> <p><input type="checkbox"/> Grazing in the wetland or within 150ft</p> <p><input type="checkbox"/> Untreated stormwater discharges to wetland</p> <p><input checked="" type="checkbox"/> Tilled fields, logging, or orchards within 150 feet of wetland</p> <p><input checked="" type="checkbox"/> Residential, urban areas, or golf courses are within 150 ft upslope of wetland</p> <p><input type="checkbox"/> Other _____</p> <p><input type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1</p> | (see p.67)<br><br><br><br><br><br><br><br><br><br>multiplier<br><br>2 |
| <b>S</b>   | <b>TOTAL - Water Quality Functions</b> Multiply the score from S1 by S2 Add score to table on p. 1   | 6   |

**Comments**

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

**Comments**



|  |  |
|--|--|
| <p><b>H 1.4. Interspersion of habitats (see p. 76)</b><br/>                 Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p><input checked="" type="checkbox"/> None = 0 points</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Low = 1 point</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Moderate = 2 points</p> </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p><input type="checkbox"/> High = 3 points</p> </div> <div style="text-align: center;">  <p>[riparian braided channels]</p> </div> </div> <p style="text-align: center; margin-top: 10px;">NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes</p> | <p><b>Figure</b> _____</p> <p style="text-align: center; font-size: 24px;">0</p> |
| <p><b>H 1.5. Special Habitat Features: (see p. 77)</b><br/>                 Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</li> <li><input checked="" type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</li> <li><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)</li> <li><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned grey/brown</i>)</li> <li><input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (<i>structures for egg-laying by amphibians</i>)</li> <li><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</li> </ul> <p style="text-align: center; font-size: small;">NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>   | <p style="text-align: center; font-size: 24px;">2</p>                            |
| <p><b>H 1. TOTAL Score</b> - potential for providing habitat<br/>                 Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>   | <p style="font-size: 24px; border: 2px dashed black;">5</p>                      |

**Comments**

Within maintained power

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

Total for page   2

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

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

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

1

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| <p><b>H 2.4 Wetland Landscape</b> (<i>choose the <b>one</b> description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. <span style="float: right;">points = 5</span></p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile <span style="float: right;">points = 5</span></p> <p><input checked="" type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed <span style="float: right;">points = 3</span></p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetland within ½ mile <span style="float: right;">points = 3</span></p> <p><input type="checkbox"/> There is at least 1 wetland within ½ mile. <span style="float: right;">points = 2</span></p> <p><input type="checkbox"/> There are no wetlands within ½ mile. <span style="float: right;">points = 0</span></p> | 3  |
| <p><b>H 2. TOTAL Score</b> - opportunity for providing habitat<br/><i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>   | 6  |
| <p>TOTAL for H 1 from page 14</p>  | 5  |
| <p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>  | 11 |



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| <p><b>SC 2.0 Natural Heritage Wetlands</b> (<i>see p. 87</i>)<br/>         Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>)<br/>         S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2                      NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?<br/> <input type="checkbox"/> YES = Category I    NO <input checked="" type="checkbox"/> not a Heritage Wetland</p>   | <input type="checkbox"/> <b>Cat. I</b> |
| <p><b>SC 3.0 Bogs</b> (<i>see p. 87</i>)<br/>         Does the wetland unit (<b>or any part of the unit</b>) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/>                      <input checked="" type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?<br/> <input type="checkbox"/> Yes - go to Q. 3                      <input checked="" type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?<br/> <input type="checkbox"/> Yes – Is a bog for purpose of rating    <input type="checkbox"/> No - go to Q. 4<br/>         NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (&gt; 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (&gt; 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I    No <input type="checkbox"/> Is not a bog for purpose of rating</p> | <input type="checkbox"/> <b>Cat. I</b> |

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| <p><b>SC 4.0 Forested Wetlands (see p. 90)</b><br/>                 Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife’s forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> <b>Old-growth forests:</b> (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and “OR” so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> <b>Mature forests:</b> (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I      NO <input checked="" type="checkbox"/> not a forested wetland with special characteristics</p> | <p>Cat. I <input type="checkbox"/></p>   |
| <p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b><br/>                 Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1      NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p><input type="checkbox"/> YES = Category I    <input type="checkbox"/> NO = Category II</p>  | <p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p> |

|   |  |
|---|--|
| <p><b>SC 6.0 Interdunal Wetlands</b> (<i>see p. 93</i>)</p> <p>Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p><input type="checkbox"/> YES - go to SC 6.1                      NO <input checked="" type="checkbox"/> not an interdunal wetland for rating</p> <p><i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula- lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport- lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis- lands west of SR 115 and SR 109</p> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?</p> <p><input type="checkbox"/> YES = Category II                      <input type="checkbox"/> NO – go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?</p> <p><input type="checkbox"/> YES = Category III</p> | <p><b>Cat. II</b> <input type="checkbox"/></p> <p><b>Cat. III</b> <input type="checkbox"/></p>   |
| <p><b>Category of wetland based on Special Characteristics</b></p> <p><i>Choose the “highest” rating if wetland falls into several categories, and record on p. 1.</i></p> <p>If you answered NO for all types enter “Not Applicable” on p.1</p>  | <p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p> <p><input type="checkbox"/> Cat. III</p> <p><input checked="" type="checkbox"/> N/A</p> |

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

Project/Site: Aegis City/County: Mercer Island Sampling Date: 1/19/15  
 Applicant/Owner: Aegis Living LLC Attn. Walter Brown State: WA Sampling Point: S1  
 Investigator(s): S. Walters Section, Township, Range: S12, T24N, R04E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): ~20  
 Subregion (LRR): A Lat: 47.587499 Long: -122.239369 Datum: WGS84  
 Soil Map Unit Name: Kitsap silt loam NWI classification: none

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

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

|   |   |
|---|---|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/><br>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/><br>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Remarks:<br>Vegetation, soil, and hydrology indicators met.   |   |

## VEGETATION – Use scientific names of plants.

|   | Absolute % Cover | Dominant Species? | Indicator Status |   |
|---|------------------|-------------------|------------------|---|
| <b>Tree Stratum</b> (Plot size: .)            |                  |                   |                  |   |
| 1. <u>Alnus rubra</u>                         | 65               | Y                 | FAC              | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>3</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)  |
| 2. _____                                      |                  |                   |                  |   |
| 3. _____                                      |                  |                   |                  |   |
| 4. _____                                      |                  |                   |                  |   |
|   | 65               | = Total Cover     |                  |   |
| <b>Sapling/Shrub Stratum</b> (Plot size: .)   |                  |                   |                  |   |
| 1. <u>Rubus armeniacus</u>                    | 90               | Y                 | FACU             | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by:<br>OBL species _____ x 1 = <u>0</u><br>FACW species _____ x 2 = <u>0</u><br>FAC species _____ x 3 = <u>0</u><br>FACU species _____ x 4 = <u>0</u><br>UPL species _____ x 5 = <u>0</u><br>Column Totals: <u>0</u> (A) <u>0</u> (B)<br><br>Prevalence Index = B/A = _____  |
| 2. _____                                      |                  |                   |                  |   |
| 3. _____                                      |                  |                   |                  |   |
| 4. _____                                      |                  |                   |                  |   |
| 5. _____                                      |                  |                   |                  |   |
|   | 90               | = Total Cover     |                  |   |
| <b>Herb Stratum</b> (Plot size: .)            |                  |                   |                  |   |
| 1. <u>Ranunculus repens</u>                   | 40               | Y                 | FACW             | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> Dominance Test is >50%<br><input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup><br><input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br><input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup><br><input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)<br><sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. _____                                      |                  |                   |                  |   |
| 3. _____                                      |                  |                   |                  |   |
| 4. _____                                      |                  |                   |                  |   |
| 5. _____                                      |                  |                   |                  |   |
| 6. _____                                      |                  |                   |                  |   |
| 7. _____                                      |                  |                   |                  |   |
| 8. _____                                      |                  |                   |                  |   |
| 9. _____                                      |                  |                   |                  |   |
| 10. _____                                     |                  |                   |                  |   |
| 11. _____                                     |                  |                   |                  |   |
|   | 40               | = Total Cover     |                  |   |
| <b>Woody Vine Stratum</b> (Plot size: .)      |                  |                   |                  |   |
| 1. _____                                      |                  |                   |                  | <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>  |
| 2. _____                                      |                  |                   |                  |   |
|   | 0                | = Total Cover     |                  |   |
| <b>% Bare Ground in Herb Stratum</b> <u>0</u> |                  |                   |                  |   |

Remarks:  
 Vegetation passes dominance test.

**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> |                  |            |         |
| 0-18           | 2.5Y 4/2      | 97 | 7.5YR 3/4      | 3 | C                 | M                | silty loam |         |
|                |               |    |                |   |                   |                  |            |         |
|                |               |    |                |   |                   |                  |            |         |
|                |               |    |                |   |                   |                  |            |         |
|                |               |    |                |   |                   |                  |            |         |
|                |               |    |                |   |                   |                  |            |         |
|                |               |    |                |   |                   |                  |            |         |
|                |               |    |                |   |                   |                  |            |         |
|                |               |    |                |   |                   |                  |            |         |

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

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

|  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     |   |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3)          |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |   |
|  |   |   |
|  |   |   |

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:  
 F3 hydric soil indicator met.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

|  |   |                            |   |
|--|---|----------------------------|---|
| Surface Water Present?   | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Depth (inches): _____      | <b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Water Table Present?   | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Depth (inches): _____      |   |
| Saturation Present? (includes capillary fringe)  | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Depth (inches): surface 0" |   |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: |   |                            |   |

Remarks:  
 Saturation present at surface. A3 met.

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

Project/Site: Aegis City/County: Mercer Island Sampling Date: 1/19/15  
 Applicant/Owner: Aegis Living LLC Attn. Walter Brown State: WA Sampling Point: S2  
 Investigator(s): S. Walters Section, Township, Range: S12, T24N, R04E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): ~20  
 Subregion (LRR): A Lat: 47.587499 Long: -122.239369 Datum: WGS84  
 Soil Map Unit Name: Kitsap silt loam NWI classification: none

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

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

|   |   |
|---|---|
| Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/><br>Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/><br>Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Remarks:<br>No vegetation, soil, or hydrology indicators met.   |   |

## VEGETATION – Use scientific names of plants.

|   | Absolute % Cover | Dominant Species? | Indicator Status |  |  |
|---|------------------|-------------------|------------------|--|--|
| <b>Tree Stratum</b> (Plot size: .)          |                  |                   |                  |  |  |
| 1. <u>Acer macrophyllum</u>                 | 40               | Y                 | FACU             | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>4</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)  |  |
| 2. <u>Alnus rubra</u>                       | 30               | Y                 | FAC              |  |  |
| 3. _____                                    |                  |                   |                  |  |  |
| 4. _____                                    |                  |                   |                  |  |  |
| _____                                       |                  |                   |                  |  |  |
| _____ = Total Cover                         |                  |                   |                  | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by:<br>OBL species _____ x 1 = <u>0</u><br>FACW species _____ x 2 = <u>0</u><br>FAC species _____ x 3 = <u>0</u><br>FACU species _____ x 4 = <u>0</u><br>UPL species _____ x 5 = <u>0</u><br>Column Totals: <u>0</u> (A) <u>0</u> (B)<br><br>Prevalence Index = B/A = _____   |  |
| <b>Sapling/Shrub Stratum</b> (Plot size: .) |                  |                   |                  |  |  |
| 1. <u>Rubus armeniacus</u>                  | 85               | Y                 | FACU             |  |  |
| 2. <u>Ilex aquifolium</u>                   | 15               | N                 | FACU             |  |  |
| 3. _____                                    |                  |                   |                  |  |  |
| 4. _____                                    |                  |                   |                  |  |  |
| 5. _____                                    |                  |                   |                  |  |  |
| _____ = Total Cover                         |                  |                   |                  | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> Rapid Test for Hydrophytic Vegetation<br><input type="checkbox"/> Dominance Test is >50%<br><input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup><br><input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br><input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup><br><input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)<br><sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |  |
| <b>Herb Stratum</b> (Plot size: .)          |                  |                   |                  |  |  |
| 1. <u>Polystichum munitum</u>               | 5                | Y                 | FACU             |  |  |
| 2. _____                                    |                  |                   |                  |  |  |
| 3. _____                                    |                  |                   |                  |  |  |
| 4. _____                                    |                  |                   |                  |  |  |
| 5. _____                                    |                  |                   |                  |  |  |
| 6. _____                                    |                  |                   |                  |  |  |
| 7. _____                                    |                  |                   |                  |  |  |
| 8. _____                                    |                  |                   |                  |  |  |
| 9. _____                                    |                  |                   |                  |  |  |
| 10. _____                                   |                  |                   |                  |  |  |
| 11. _____                                   |                  |                   |                  |  |  |
| 5 _____ = Total Cover                       |                  |                   |                  |  |  |
| <b>Woody Vine Stratum</b> (Plot size: .)    |                  |                   |                  |  |  |
| 1. _____                                    |                  |                   |                  |  |  |
| 2. _____                                    |                  |                   |                  |  |  |
| 0 _____ = Total Cover                       |                  |                   |                  |  |  |
| % Bare Ground in Herb Stratum <u>0</u>      |                  |                   |                  |  |  |

Remarks:  
 Vegetation does not meet dominance test.



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

Project/Site: Aegis City/County: Mercer Island Sampling Date: 1/19/15  
 Applicant/Owner: Aegis Living LLC Attn. Walter Brown State: WA Sampling Point: S3  
 Investigator(s): S. Walters Section, Township, Range: S12, T24N, R04E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): ~20  
 Subregion (LRR): A Lat: 47.587672 Long: -122.239766 Datum: WGS84  
 Soil Map Unit Name: Kitsap silt loam NWI classification: none

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

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

|   |   |
|---|---|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/><br>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/><br>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Remarks:<br>Vegetation, soil, and hydrology indicators met.   |   |

## VEGETATION – Use scientific names of plants.

|   | Absolute % Cover | Dominant Species? | Indicator Status |   |
|---|------------------|-------------------|------------------|---|
| <b>Tree Stratum</b> (Plot size: _____)          |                  |                   |                  |   |
| 1. <u>Alnus rubra</u>                           | <u>20</u>        | <u>Y</u>          | <u>FAC</u>       | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>3</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66%</u> (A/B)   |
| 2. _____  | _____            | _____             | _____            |   |
| 3. _____  | _____            | _____             | _____            |   |
| 4. _____  | _____            | _____             | _____            |   |
| _____   | <u>20</u>        | = Total Cover     |                  |   |
| <b>Sapling/Shrub Stratum</b> (Plot size: _____) |                  |                   |                  |   |
| 1. <u>Rubus armeniacus</u>                      | <u>60</u>        | <u>Y</u>          | <u>FACU</u>      | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by:<br>OBL species _____ x 1 = <u>0</u><br>FACW species _____ x 2 = <u>0</u><br>FAC species _____ x 3 = <u>0</u><br>FACU species _____ x 4 = <u>0</u><br>UPL species _____ x 5 = <u>0</u><br>Column Totals: <u>0</u> (A) <u>0</u> (B)<br><br>Prevalence Index = B/A = _____  |
| 2. _____  | _____            | _____             | _____            |   |
| 3. _____  | _____            | _____             | _____            |   |
| 4. _____  | _____            | _____             | _____            |   |
| 5. _____  | _____            | _____             | _____            |   |
| <b>Herb Stratum</b> (Plot size: _____)          |                  |                   |                  |   |
| 1. <u>Agrostis capillaris</u>                   | <u>40</u>        | <u>Y</u>          | <u>FAC</u>       | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> Dominance Test is >50%<br><input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup><br><input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br><input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup><br><input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)<br><sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. _____  | _____            | _____             | _____            |   |
| 3. _____  | _____            | _____             | _____            |   |
| 4. _____  | _____            | _____             | _____            |   |
| 5. _____  | _____            | _____             | _____            |   |
| 6. _____  | _____            | _____             | _____            |   |
| 7. _____  | _____            | _____             | _____            |   |
| 8. _____  | _____            | _____             | _____            |   |
| 9. _____  | _____            | _____             | _____            |   |
| 10. _____                                       | _____            | _____             | _____            |   |
| 11. _____                                       | _____            | _____             | _____            |   |
| <b>Woody Vine Stratum</b> (Plot size: _____)    |                  |                   |                  |   |
| 1. _____  | _____            | _____             | _____            | <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>  |
| 2. _____  | _____            | _____             | _____            |   |
| _____ = Total Cover                             |                  |                   |                  |   |
| _____ = Total Cover                             |                  |                   |                  |   |
| % Bare Ground in Herb Stratum <u>0</u>          |                  |                   |                  |   |

Remarks:  
 Vegetation passes dominance test.

**SOIL**

Sampling Point: S3

| Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) |               |    |                |    |                   |                  |           |         |
|---|---------------|----|----------------|----|-------------------|------------------|-----------|---------|
| Depth<br>(inches)   | Matrix        |    | Redox Features |    |                   | Loc <sup>2</sup> | Texture   | Remarks |
|   | Color (moist) | %  | Color (moist)  | %  | Type <sup>1</sup> |                  |           |         |
| 0-18  | 2.5Y 5/2      | 90 | 10YR 4/6       | 10 | C                 | M                | gv.s.loam |         |
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|   |               |    |                |    |                   |                  |           |         |

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

Project/Site: Aegis City/County: Mercer Island Sampling Date: 1/19/15  
 Applicant/Owner: Aegis Living LLC Attn. Walter Brown State: WA Sampling Point: S4  
 Investigator(s): S. Walters Section, Township, Range: S12, T24N, R04E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): -20  
 Subregion (LRR): A Lat: 47.587672 Long: -122.239766 Datum: WGS84  
 Soil Map Unit Name: Kitsap silt loam NWI classification: none

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

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

|   |   |
|---|---|
| Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/><br>Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/><br>Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Remarks:<br>No vegetation, soil, or hydrology indicators met.   |   |

## VEGETATION – Use scientific names of plants.

|   | Absolute % Cover | Dominant Species? | Indicator Status |  |  |
|---|------------------|-------------------|------------------|--|--|
| <b>Tree Stratum</b> (Plot size: _____)          |                  |                   |                  |  |  |
| 1. <u>Populus balsamifera trichocarpa</u>       | <u>10</u>        | <u>Y</u>          | <u>FAC</u>       | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>5</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B)  |  |
| 2. <u>Thuja plicata</u>                         | <u>5</u>         | <u>Y</u>          | <u>FAC</u>       |  |  |
| 3. _____  |                  |                   |                  |  |  |
| 4. _____  |                  |                   |                  |  |  |
| _____   | <u>15</u>        | = Total Cover     |                  |  |  |
| <b>Sapling/Shrub Stratum</b> (Plot size: _____) |                  |                   |                  |  |  |
| 1. <u>Rubus armeniacus</u>                      | <u>10</u>        | <u>Y</u>          | <u>FACU</u>      | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by:<br>OBL species _____ x 1 = <u>0</u><br>FACW species _____ x 2 = <u>0</u><br>FAC species _____ x 3 = <u>0</u><br>FACU species _____ x 4 = <u>0</u><br>UPL species _____ x 5 = <u>0</u><br>Column Totals: <u>0</u> (A) <u>0</u> (B)<br><br>Prevalence Index = B/A = _____ |  |
| 2. <u>Prunus caroliniana</u>                    | <u>7</u>         | <u>Y</u>          | <u>FACU</u>      |  |  |
| 3. _____  |                  |                   |                  |  |  |
| 4. _____  |                  |                   |                  |  |  |
| 5. _____  |                  |                   |                  |  |  |
| _____   | <u>17</u>        | = Total Cover     |                  |  |  |
| <b>Herb Stratum</b> (Plot size: _____)          |                  |                   |                  |  |  |
| 1. <u>Polystichum munitum</u>                   | <u>5</u>         | <u>Y</u>          | <u>FACU</u>      |  |  |
| 2. _____  |                  |                   |                  |  |  |
| 3. _____  |                  |                   |                  |  |  |
| 4. _____  |                  |                   |                  |  |  |
| 5. _____  |                  |                   |                  |  |  |
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| 8. _____  |                  |                   |                  |  |  |
| 9. _____  |                  |                   |                  |  |  |
| 10. _____                                       |                  |                   |                  |  |  |
| 11. _____                                       |                  |                   |                  |  |  |
| _____   | <u>5</u>         | = Total Cover     |                  |  |  |
| <b>Woody Vine Stratum</b> (Plot size: _____)    |                  |                   |                  |  |  |
| 1. _____  |                  |                   |                  |  |  |
| 2. _____  |                  |                   |                  |  |  |
| _____   | <u>0</u>         | = Total Cover     |                  |  |  |
| <b>% Bare Ground in Herb Stratum</b> <u>0</u>   |                  |                   |                  |  |  |

Remarks:  
 Vegetation does not pass dominance test.

**SOIL**

Sampling Point: S4

| 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 3/2      | 100 |                |   |                   |                  | sandy loam    |         |
| 4-18  | 2.5Y 4/3      | 100 |                |   |                   |                  | co 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.)  | Indicators for Problematic Hydric Soils <sup>3</sup> :  |
|--|---|
| <input type="checkbox"/> Histosol (A1)<br><input type="checkbox"/> Histic Epipedon (A2)<br><input type="checkbox"/> Black Histic (A3)<br><input type="checkbox"/> Hydrogen Sulfide (A4)<br><input type="checkbox"/> Depleted Below Dark Surface (A11)<br><input type="checkbox"/> Thick Dark Surface (A12)<br><input type="checkbox"/> Sandy Mucky Mineral (S1)<br><input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Sandy Redox (S5)<br><input type="checkbox"/> Stripped Matrix (S6)<br><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)<br><input type="checkbox"/> Loamy Gleyed Matrix (F2)<br><input type="checkbox"/> Depleted Matrix (F3)<br><input type="checkbox"/> Redox Dark Surface (F6)<br><input type="checkbox"/> Depleted Dark Surface (F7)<br><input type="checkbox"/> Redox Depressions (F8) |
|  | <input type="checkbox"/> 2 cm Muck (A10)<br><input type="checkbox"/> Red Parent Material (TF2)<br><input type="checkbox"/> Very Shallow Dark Surface (TF12)<br><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><br>Type: _____<br>Depth (inches): _____ | <b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
|--|---|

Remarks:  
Soils do not pass any hydric indicators.

**HYDROLOGY**

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

# CRITICAL AREA REPORT AND BUFFER MITIGATION PLAN MAP

## ***AEGIS 24TH ST***

PORTION OF SECTION 12, TOWNSHIP 24N, RANGE 4E

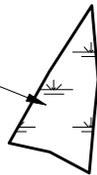
SE 24TH STREET



Scale 1" = 100'



WETLAND B  
CATEGORY IV  
35' STANDARD BUFFER



STORMWATER PIPE  
TO BE INSTALLED

BUFFER AVERAGING  
REDUCTION  
(1,316 S.F.)

TEMPORARY BUFFER  
IMPACTS-  
PLANTING AREA 1 (1,221 S.F.)

WETLAND A  
CATEGORY IV  
35' STANDARD BUFFER

BUFFER ENHANCEMENT-  
PLANTING AREA 2  
(3,697 S.F.)

35' STANDARD  
BUFFER

BUFFER AVERAGING  
ADDITION/ENHANCEMENT-  
PLANTING AREA 3  
(1,566 S.F.)

### LEGEND

-  WETLAND
-  STANDARD BUFFER
-  REDUCED BUFFER
-  BUFFER AVERAGING  
(ADDITION)
-  BUFFER AVERAGING  
(REDUCTION)
-  TEMPORARY BUFFER  
IMPACTS  
(TO BE RESTORED)
-  BUFFER ENHANCEMENT  
AREA

***Wetland Resources, Inc.***

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

CRITICAL AREA REPORT AND  
BUFFER MITIGATION PLAN MAP  
***AEGIS 24TH ST***  
MERCER ISLAND, WA

Sheet 1/1  
WRI Job #15007  
Aegis Living, LLC  
Attn: Walter Braun  
17602 NE Union Hill Rd  
Redmond, WA 98005  
Date: December 16, 2015  
Revision 1: June 6, 2016  
Drawn by: SW



## Critical Areas Mitigation Bond Quantity Worksheet

**King County**

**Aegis - SE 24th St**

**Date: 7-Jun-16 Prepared by: JG**

**Project Number:**

**Project Description: Buffer Enhancement/Restoration**

**Location: 7445 SE 24th St., Mercer Island**

**Applicant: Aegis Living LLC**

**Phone: 425-284-1624**

**PLANT MATERIALS\***

| Type                                     | Unit Price | Unit | Quantity | Description | Cost         |                    |
|--|------------|------|----------|-------------|--------------|--------------------|
| PLANTS: Potted, 4" diameter, medium      | \$5.00     | Each |          |             | \$ -         |                    |
| PLANTS: Container, 1 gallon, medium soil | \$11.50    | Each | 90.00    |             | \$ 1,035.00  |                    |
| PLANTS: Container, 2 gallon, medium soil | \$20.00    | Each |          |             | \$ -         |                    |
| PLANTS: Container, 5 gallon, medium soil | \$36.00    | Each | 51.00    |             | \$ 1,836.00  |                    |
| PLANTS: Seeding, by hand                 | \$0.50     | SY   |          |             | \$ -         |                    |
| PLANTS: Slips (willow, red-osier)        | \$2.00     | Each |          |             | \$ -         |                    |
| PLANTS: Stakes (willow)                  | \$2.00     | Each |          |             | \$ -         |                    |
| PLANTS: Stakes (willow)                  | \$2.00     | Each |          |             | \$ -         |                    |
| PLANTS: Flats/plugs                      | \$2.00     | Each |          |             | \$ -         |                    |
|  |            |      |          |             | \$ -         |                    |
| * All costs include installation         |            |      |          |             | <b>TOTAL</b> | <b>\$ 2,871.00</b> |

**INSTALLATION COSTS ( LABOR, EQUIPMENT, & OVERHEAD)**

| Type   | Unit Price | Unit | Quantity | Description | Cost         |                  |
|--|------------|------|----------|-------------|--------------|------------------|
| Compost, vegetable, delivered and spread               | \$37.88    | CY   |          |             | \$ -         |                  |
| Decompacting till/hardpan, medium, to 6" depth         | \$1.57     | CY   |          |             | \$ -         |                  |
| Decompacting till/hardpan, medium, to 12" depth        | \$1.57     | CY   |          |             | \$ -         |                  |
| Hydroseeding   | \$0.51     | SY   |          |             | \$ -         |                  |
| Labor, general (landscaping)                           | \$40.00    | HR   | 8.00     |             | \$ 320.00    |                  |
| Labor, general (construction)                          | \$40.00    | HR   |          |             | \$ -         |                  |
| Labor: Consultant, supervising                         | \$55.00    | HR   |          |             | \$ -         |                  |
| Labor: Consultant, on-site re-design                   | \$95.00    | HR   |          |             | \$ -         |                  |
| Rental of decompacting machinery & operator            | \$70.00    | HR   |          |             | \$ -         |                  |
| Sand, coarse builder's, delivered and spread           | \$42.00    | CY   |          |             | \$ -         |                  |
| Staking material (set per tree)                        | \$7.00     | Each |          |             | \$ -         |                  |
| Surveying, line & grade                                | \$250.00   | HR   |          |             | \$ -         |                  |
| Surveying, topographical                               | \$250.00   | HR   |          |             | \$ -         |                  |
| Watering, 1" of water, 50' soaker hose                 | \$3.62     | MSF  |          |             | \$ -         |                  |
| Irrigation - temporary                                 | \$3,000.00 | Acre |          |             | \$ -         |                  |
| Irrigation - buried                                    | \$4,500.00 | Acre |          |             | \$ -         |                  |
| Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep | \$1.02     | SY   |          |             | \$ -         |                  |
|  | \$25.00    | HR   |          |             | \$ -         |                  |
|  |            |      |          |             | \$ -         |                  |
| * All costs include installation                       |            |      |          |             | <b>TOTAL</b> | <b>\$ 320.00</b> |

**HABITAT STRUCTURES\***

| ITEMS  | Unit Cost  | Unit | Quantity | Description | Cost         |             |
|--|------------|------|----------|-------------|--------------|-------------|
| Fascines (willow)                                    | \$ 2.00    | Each |          |             | \$ -         |             |
| Logs, (cedar), w/ root wads, 16"-24" diam., 30' long | \$1,000.00 | Each |          |             | \$ -         |             |
| Logs (cedar) w/o root wads, 16"-24" diam., 30'       | \$400.00   | Each |          |             | \$ -         |             |
| Logs, w/o root wads, 16"-24" diam., 30' long         | \$245.00   | Each |          |             | \$ -         |             |
| Logs w/ root wads, 16"-24" diam., 30' long           | \$460.00   | Each |          |             | \$ -         |             |
| Rocks, one-man                                       | \$60.00    | Each |          |             | \$ -         |             |
| Rocks, two-man                                       | \$120.00   | Each |          |             | \$ -         |             |
| Root wads  | \$163.00   | Each |          |             | \$ -         |             |
| Spawning gravel, type A                              | \$22.00    | CY   |          |             | \$ -         |             |
| Weir - log   | \$1,500.00 | Each |          |             | \$ -         |             |
| Weir - adjustable                                    | \$2,000.00 | Each |          |             | \$ -         |             |
| Woody debris, large                                  | \$163.00   | Each |          |             | \$ -         |             |
| Snags - anchored                                     | \$400.00   | Each |          |             | \$ -         |             |
| Snags - on site                                      | \$50.00    | Each |          |             | \$ -         |             |
| Snags - imported                                     | \$800.00   | Each |          |             | \$ -         |             |
|  |            |      |          |             | \$ -         |             |
|  |            |      |          |             | \$ -         |             |
| * All costs include delivery and installation        |            |      |          |             | <b>TOTAL</b> | <b>\$ -</b> |

**EROSION CONTROL**

| ITEMS                              | Unit Cost | Unit | Quantity | Description | Cost |
|------------------------------------|-----------|------|----------|-------------|------|
| Backfill and Compaction-embankment | \$ 4.89   | CY   |          |             | \$ - |
| Crushed surfacing, 1 1/4" minus    | \$30.00   | CY   |          |             | \$ - |
| Ditching                           | \$7.03    | CY   |          |             | \$ - |
| Excavation, bulk                   | \$4.00    | CY   |          |             | \$ - |



| GENERAL ITEMS  |           |      |              |             |
|--|-----------|------|--------------|-------------|
| ITEMS  | Unit Cost | Unit |              | Cost        |
| Fencing, chain link, 6' high                                 | \$18.89   | LF   |              | \$ -        |
| Fencing, chain link, corner posts                            | \$111.17  | Each |              | \$ -        |
| Fencing, chain link, gate                                    | \$277.63  | Each |              | \$ -        |
| Fencing, split rail, 3' high (2-rail)                        | \$10.54   | LF   |              | \$ -        |
| Fencing, temporary (NGPE)                                    | \$1.20    | LF   |              | \$ -        |
| Signs, sensitive area boundary (inc. backing, post, install) | \$28.50   | Each |              | \$ -        |
|  |           |      |              | \$ -        |
|  |           |      |              | \$ -        |
|  |           |      |              | \$ -        |
|  |           |      | <b>TOTAL</b> | <b>\$ -</b> |

| OTHER        |                                 |      |              | (Construction Cost Subtotal) \$ | 3,561.50        |
|--------------|---------------------------------|------|--------------|---------------------------------|-----------------|
| ITEMS        | Percentage of Construction Cost | Unit |              | Cost                            |                 |
| Mobilization | 10%                             | 1    |              | \$                              | 356.15          |
| Contingency  | 50%                             | 1    |              | \$                              | 1,780.75        |
|              |                                 |      |              |                                 |                 |
|              |                                 |      | <b>TOTAL</b> | <b>\$</b>                       | <b>2,136.90</b> |

| MAINTENANCE AND MONITORING  |             |      |   |                     |
|---|-------------|------|---|---------------------|
| NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintenance ranges may be assessed anywhere from 5 to 10 years. |             |      |   |                     |
| ITEMS   | Unit Cost   | Unit |   | Cost                |
| Maintenance, annual   |             |      |   |                     |
| Less than 1,000 sq.ft. and buffer mitigation only   | \$ 1.08     | SF   | (3 X SF total for 3 annual events; Includes monitoring) | \$ -                |
| Less than 1,000 sq.ft. with wetland or aquatic area mitigation  | \$ 1.35     | SF   | (3 X SF total for 3 annual events; Includes monitoring) | \$ -                |
| Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of buffer mitigation   | \$ 180.00   | EACH | (4hr @\$45/hr)  | \$ -                |
| Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of wetland or aquatic area mitigation  | \$ 270.00   | EACH | (6hr @\$45/hr)  | \$ -                |
| Larger than 5,000 sq.ft. but < 1 acre -buffer mitigation only   | \$ 360.00   | EACH | 10.00 (8 hrs @ 45/hr)                                   | \$ 3,600.00         |
| Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area mitigation   | \$ 450.00   | EACH | (10 hrs @ \$45/hr)                                      | \$ -                |
| Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation   | \$ 1,600.00 | DAY  | (WEC crew)  | \$ -                |
| Larger than 5 acres - buffer and / or wetland or aquatic area mitigation  | \$ 2,000.00 | DAY  | (1.25 X WEC crew)                                       | \$ -                |
| Monitoring, annual  |             |      |   |                     |
| Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation   | \$ 720.00   | EACH | (8 hrs @ 90/hr)   | \$ -                |
| Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts  | \$ 900.00   | EACH | 5.00 (10 hrs @ \$90/hr)                                 | \$ 4,500.00         |
| Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts  | \$ 1,440.00 | DAY  | (16 hrs @ \$90/hr)                                      | \$ -                |
| Larger than 5 acres - buffer and / or wetland or aquatic area impacts   | \$ 2,400.00 | DAY  | (24 hrs @ \$90/hr)                                      | \$ -                |
| Maintenance and Monitoring Inspection (DDES), annual  | \$362.25    | EACH | 5.00 (2.5 hrs @ \$144.90/hr)                            | \$ 1,811.25         |
| Maintenance and Monitoring Inspection (DDES), final   | \$579.60    | EACH | 1.00 (4 hrs @ \$144.90/hr)                              | \$ 579.60           |
|   |             |      |   |                     |
|   |             |      | <b>TOTAL</b>  | <b>\$ 10,490.85</b> |

|              |                    |
|--------------|--------------------|
| <b>Total</b> | <b>\$16,189.25</b> |
|--------------|--------------------|