Critical Areas Report

BUTTENWIESER & WILEY PROPERTY

CITY OF MERCER ISLAND

November 23, 2021
(Revised April 28, 2022)

Prepared for:

City of Mercer Island
Community Planning &
Development Department
9611 SE 36th Street
Mercer Island, WA 98040

Prepared on behalf of (applicant):

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THE WATERSHED COMPANY

Title-page image: Waterfront of subject parcel (photo taken: 5/19/21)

The information contained in this report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state and federal regulatory authorities. No other warranty, expressed or implied, is made.

THE WATERSHED COMPANY

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Reference Number: 210441

Contact: Nell Lund, PWS
Senior Ecologist

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1 Introduction

The applicants and their design team propose to demolish the existing single-family home present on the subject parcel and re-construct a new single-family home. The associated garage, yard, and parking areas will also be demolished and re-constructed. The driveway will be improved in a later phase of work. The property is located on the shore of Lake Washington and one wetland, Wetland A, sits along the driveway in the eastern portion of the property. The project will not result in any permanent impacts to Wetland A. This report satisfies the requirements of Mercer Island City Code (MICC). It provides a description of existing site conditions, proposed improvements, proposed shoreline enhancement, compliance with relevant code provisions in shoreline and non-shoreline jurisdiction, and mitigation sequencing to ensure no net loss of critical area or shoreline ecological functions.

2 Existing Conditions

The project site is located at 6838 96th Ave SE in Mercer Island, WA (parcel #3024059010) (Figure 1). The subject property is situated along Lake Washington which is considered a shoreline of the state. The study area is within in the Mercer Island sub-basin; Lake Washington-Sammamish River 12-digit Hydrologic Cataloging Unit (12-digit HUC) of the Cedar - Sammamish watershed (WRIA 8). It is situated within Section 30 of Township 24 North, Range 05 East of the Public Land Survey System.

The critical areas described below were identified and delineated on May 19, 2021. Findings were confirmed on July 23, 2021.

Figure 1. Study area and vicinity map. Study area highlighted in purple.

2.1 Wetlands

One wetland (Wetland A) was delineated and flagged in the study area. Wetland Ais summarized in Table 1 below.

Table 1. Wetland A assessment summary.

WETLAND A – Assessment Summary

Location:	Northwestern corner of the subject parcel, along northern edge of driveway.
WRIA / Sub-basin:	Cedar – Sammamish Watershed (WRIA 8) / Mercer Island Sub-basin

2014 Western WA Ecology Rating:	Category IV
Buffer Width and Buffer Setback:	40-foot buffer, 10-foot setback
Wetland Size:	Approx. 1,000 square feet
Cowardin Classification(s):	Palustrine emergent, palustrine scrub-shrub
HGM Classification(s):	Slope
Wetland Data Sheet(s):	DP-3
Upland Data Sheet (s):	DP-4
Flag Color:	Pink- and black-striped
Flag Numbers:	A-1 to A-9

Vegetation	Tree stratum:	N/A
	Shrub stratum:	Himalayan blackberry (*Rubus armeniacus*)
	Herb stratum:	Fringed willow herb (*Epilobium ciliatum*), American speedwell (*Veronica americanus),* giant horsetail (*Equisetum telmateia*)
Soils	Soil survey:	Kitsap silt loam 8-30 percent slopes
	Field data:	Loamy gleyed matrix (F2)
Hydrology	Source:	Groundwater seeps, runoff
	Field data:	High Water Table (A2), Saturation (A3)

Wetland Functions

	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	M	**L**	H	M	**L**	H	M	**L**	
Landscape Potential	H	**M**	L	H	**M**	L	H	**M**	L	
Value	H	**M**	L	H	M	**L**	H	**M**	L	**TOTAL**
Score Based on Ratings		5			4			5		14

Description and Comments

Wetland A is a small slope wetland that originates in the northwestern corner of the subject property and runs along the driveway. A portion of the wetland was above the rockery retaining wall that runs along the driveway. This area is supported by a native high groundwater table and seep.

2.2 Lake Washington

The subject property is located along the Lake Washington shoreline. The shoreline is a rock bulkhead with gravel both above and below the rockery, which is approximately three to four feet high on average. There is a small amount of riparian vegetation present on the north end of the subject parcel, which consists primarily of rhododendrons (*Rhododendron sp.*) and black locust (*Robinia pseudoacacia*).

Photo 1. Lake Washington Shoreline from subject parcel, looking south.

2.3 Non-wetlands

Non-wetland areas do not meet criteria for hydrophytic vegetation, hydric soils, or wetland hydrology. The northern portion of the property is vegetated with native trees and shrubs, including big leaf maple (*Acer macrophyllum*), beaked hazelnut (*Corylus cornuta*), and English ivy

(*Hedera helix*). The southwest corner of the subject parcel is also vegetated by native vegetation, including western red cedar (*Thuja plicata*), red alder (*Alnus rubra*), Douglas-fir (*Pseudotsuga menziesii*), cherry laurel (*Prunus laurocerasus*), Oso berry (*Oemleria cerasiformis*), English ivy, and sword fern (*Polystichum munitum*). The southeastern portion of the subject parcel is occupied by the residence and its associated yard and lawn. This area is primarily dominated by lawn grasses and other ornamental plants.

Photo 2. Southwestern corner of subject parcel.

1 Local Regulations

The Shoreline of Lake Washington is regulated under MICC Chapter 19.13 – Shoreline Master Program. Wetlands are regulated under MICC Chapter 19.07 – Environment.

1.1 Shoreline Jurisdiction

Lake Washington is a shoreline of the state, and therefore all lands within 200 feet of the OHWM (lakeshore) are regulated by Mercer Island City Code (MICC) Chapter 19.13, Mercer Island Shoreline Master Program Regulations. Portions of the subject parcel are within shoreline jurisdiction, those area within 200-feet from the Lake Washington OHWM. Some upland areas are located outside of Shoreline Jurisdiction, including Wetland A located on the northwestern corner of the subject parcel, along the northern edge of the existing driveway configuration.

The property is located with the Urban Residential shoreline environment. Development standards for the Urban Residential (UR) environment are outlined in MICC 19.13.030. A 25-foot setback from the OHWM is required. Single-family residences, including appurtenant features, in the Urban Residential shoreline designation are allowed as a Shoreline Exemption.

Shoreland Development Standards

Proposed improvements located 0-ft to 50-ft landward Lake Washington's ordinary high water mark on the subject property must comply with standards specified in MICC 19.13.050(A), Table C. This includes a maximum hardscape and lot coverage as follows:

- A maximum lot coverage of 10 percent within 25 feet of the OHWM; and,
- A maximum lot coverage of 30 percent from 25 to 50 feet away from the OHWM.

1.2 Wetlands

Wetlands are assigned buffers based on a combination of the wetland category along with its habitat score. Wetland buffer widths are determined based on the 2014 wetland rating category, habitat function, and adjacent land use intensity. Wetland A is a Category IV wetland with five habitat points. Category IV wetlands with a habitat score of 4-5 habitat points require a 40-foot buffer.

The surveyed location of Wetland A is located greater than 200 feet from the ordinary high-water mark of Lake Washington and will be regulated under MICC Chapter 19.07. It is outside of shoreline jurisdiction.

1.2.1 Building Setback Line

A building setback and other structures must be setback a minimum of ten feet from the wetland buffer (MIMC 19.07.190.C.7).

1.3 Wetland Buffer Modification

The proposed site improvements wholly avoid direct wetland impacts. Given fire department requirements for the new driveway width, complete avoidance of new buffer impacts was unavoidable. Due to this change to the driveway footprint exemptions for existing nonconformance no longer apply. Therefore, the impact calculation is a cumulative total of existing and proposed wetland buffer impacts. Temporary buffer impact areas not otherwise covered by will be restored to a pre-construction condition or greater.

2 Mitigation Notes

The project has been designed to avoid, minimize and compensate for temporary and permanent impacts to the greatest extent possible given the constraints of the site. The following describes how the mitigation sequencing requirements of the MICC 19.07.100 have been met.

Avoid

The project team worked on several design iterations of the construction staging and driveway dimensions to avoid all direct wetland impacts. Additionally, impervious surface removals from the wetland buffer extend new proposed impervious in the buffer. Therefore, net permanent wetland buffer impacts are also avoided.

With the exception steps to the shoreline, and a pad, the project will completely avoid permanent impacts to the 0-foot to 25-foot shoreline and shoreline setback. Impacts in the 25-ft to 50-ft shoreline setback could not be wholly avoided due to site topography and lot constraints. The project will result in a net impervious increase of 514 square feet in the 50-ft shoreline setback.

Minimize

Impacts are minimized by utilizing the existing developed footprint as feasible within on-site critical area buffers and setbacks. The driveway design largely overlays the existing footprint and shifts the alignment further away from the adjacent wetland. Shoreline redevelopment leaves the 0-25-ft shoreline setback largely intact and incorporates a bioretention pond to manage site drainage. Opportunities to remove existing impervious where no longer needed are also capitalized upon to off-set new impacts. Lastly, impact areas are characterized by lawn and weedy herbaceous vegetation and relatively low functioning.

Redevelopment in the 50-foot shoreline setback limits impervious surfaces below the allowed maximums. Proposed impervious in the inner 0-25-foot buffer is 7.9 percent of the area, well below the 10 percent allowed by code. Redevelopment in the 25-50-foot setback is 24.5 percent impervious, just shy of the 30 percent allowed.

Mitigate

Mitigation for the addition of impervious surfaces within shoreline jurisdiction will be accomplished by limiting impervious surfaces in the 50-foot shoreline setback to the allow maximums. Since the total change in lot coverage exceeds 1,000 square feet, the applicant is required to plant native vegetation in 75 percent of the first 20-ft of shoreline setback. Existing lawn will be replaced with a mix of native trees, shrubs, and ground cover, excluding nonnative grasses and plants on the current King County noxious weed list, in accordance with the Mercer Island Shoreline Master Program.

By improving shoreline buffer functions close to the OWHM, the project will ensure no net loss of functions.

Existing and proposed project impacts located within wetland buffer will be mitigated through buffer enhancement at a one-to-one ratio. Temporary impacts not otherwise covered by buffer enhancement will be restored in-place to an equivalent or better condition at a one-to-one ratio. In this case, a native grass seed mix will be applied to temporary impacts.

Goals

1. Maintain no net loss of wetland buffer and shoreline setback functions.
2. Restore temporary disturbance areas to an equivalent or greater condition.
3. Increase native plant cover and diversity in the shoreline.
4. Maintain low invasive plant cover in the mitigation areas.

Performance Standards

The performance of the mitigation area will be gauged using standards designed to measure its success. If performance standards are met at the end of Year 5, the site will then be deemed successful. The performance standards below only apply to plantings within the mitigation area.

Survival:

1. Achieve 100% survival of installed trees and shrubs by the end of Year 1. This standard can be met through plant establishment or through replanting as necessary to achieve the required numbers.

2. A survival standard of 80% of native trees, shrubs, and groundcover plants by Year 5 may apply in lieu of standard 4, below, in the case that standard 4 is not achieved.

Native vegetation cover:

3. Achieve 60% cover of trees and shrubs by Year 3. In areas planted with groundcover plants, achieve 40% cover by the end of Year 3. Native volunteer species may count towards this cover standard.

4. Achieve 80% cover of native trees and shrubs by Year 5. In areas planted with groundcover plants, achieve 60% cover by the end of Year 5. Native volunteer species may count towards this cover standard.

5. In areas planted with native grass seed mix, achieve relatively uniform and dense coverage of native grasses. Re-seed as necessary to achieve 80% groundcover in these areas by the end of Year 5. Native grass in the shoreline mitigation area to be maintained in a no-mow condition.

Invasive vegetation cover:

6. Invasive cover: No more than 10% cover by invasive weed species in the buffer mitigation area in any monitoring year.

Species diversity:

7. Establish at least one species of native trees, two species of native shrubs, four groundcover plant species within the mitigation area.

Monitoring Plan

A five-year monitoring and maintenance plan is proposed to ensure the success of planted mitigation areas and shoreline native vegetation coverage over time in accord with MICC 19.07.080.

This monitoring program is designed to track the success of the mitigation site over time and to measure the degree to which it is meeting the performance standards outlined elsewhere in this document.

An as-built plan will be prepared by the **restoration specialist** prior to the beginning of the monitoring period. The as-built plan will be a mark-up of the planting plans

included in this plan set. The as-built plan will document any departures in plant placement or other components from the accepted mitigation plan.

Monitoring will take place twice annually for five years. During each year there will be a spring and a late summer or fall visit. First-year monitoring will be performed in the first spring subsequent to installation. In Year 1, a total plant count will be conducted. In Years 2 and 3, representative samples of the mitigation area will be assessed and progress toward the performance standards measured. Visual cover class estimates will be used to evaluate native cover. If 80% cover by native trees and shrubs is not achieved in Year 5, a full plant count will be conducted to measure survival (see Performance Standard 2.). Invasive species cover will be visually estimated in each year.

The spring monitoring visit will record maintenance issues such as the need for plant replacement and invasive species removal. Following the spring visit, the **restoration specialist** will notify the owner and/or maintenance crews of necessary early growing season maintenance needs. The late summer/early fall monitoring visit will include performance standard measurements and a subsequent annual report submitted to the City of Mercer Island. The report will contain:

1. General summary of the spring visit.
2. First-year counts of plants by species in the planted area.
3. Counts of dead plants where mortality is significant in any monitoring year.
4. Estimate of native sapling tree and shrub cover using visual cover class estimates.
5. Estimate of invasive weedy cover using visual cover class estimates.
6. Photographic documentation from fixed reference points.
7. Recommendations for maintenance or repair of any portion of the mitigation area.

Monitoring Plan

The site will be maintained for three years following completion of the construction. Note: specifications for items in **bold** can be found above under "Material Specifications and Definitions."

1. Replace each plant found dead in the summer monitoring visits during frost-free periods only in the upcoming fall dormant season (October 15 to March

1) for the first monitoring year. Replace plants as directed in monitoring reports.

2. Follow the recommendations noted in the spring monitoring site visit.
3. General weeding for all planted areas:
4. At least twice yearly, remove all competing grass and weeds, including roots, from beneath each installed plant and any desirable volunteer vegetation to a distance of 18 inches from the main plant stem. Weeding should occur at least twice during the spring and summer. Frequent weeding will result in lower mortality and lower plant replacement costs.
5. More frequent weeding may be necessary depending on weed conditions that develop after plan installation.
6. Do not weed the area near the plant bases with string trimmer (weed whacker/weed eater). Native plants are easily damaged or killed, and weeds easily recover after trimming.
7. To keep weed coverage throughout the planting area below the 10% threshold.
8. Apply slow release granular **fertilizer** to each installed plant annually in the spring (by June 1) of Years 2 through 5.
9. Mulch the weeded areas beneath each plant with **wood chips** as necessary to maintain a 4-inch-thick wood chip mulch layer and keep down weeds.
10. The applicant shall ensure that water is provided for the entire planted area with a minimum of 2 inches of water provided per week from June 1 through September 30 for at least the first two years following installation.

Summary

The proposed site redevelopment for a single family residence will increase impervious surface within the 50-foot shoreline setback by 514 square feet. Site improvements comply with allowed impervious surface maximums in the inner and outer shoreline setback. Existing lot coverage is 7,185 SF and proposed lot coverage is 8,381 SF as calculated by Miller Hull on the *Mercer Island House: Cascade Land Use Submittal*, 11-5-21. This is a 1,196 SF increase in lot coverage. Therefore, 75 percent of the inner 20-foot setback from the lakeshore will be enhanced with native

vegetation as required by City Code. The mitigation will improve shoreline functions relative to the existing lawn. Driveway improvements will avoid direct wetland impacts. Wetland buffer impacts are limited to temporary clearing limits in areas dominated by herbaceous vegetation. Temporary buffer impacts will be restored in-place at a one-to-one ratio.

Upon completion of the project and related impact minimization and mitigation, the on-site critical areas and buffer functions will be substantially improved compared to the existing condition.

3 Code Compliance

3.1 Shoreline Jurisdiction

Below is the city code in italics followed by our response stating how the project is complying with city code.

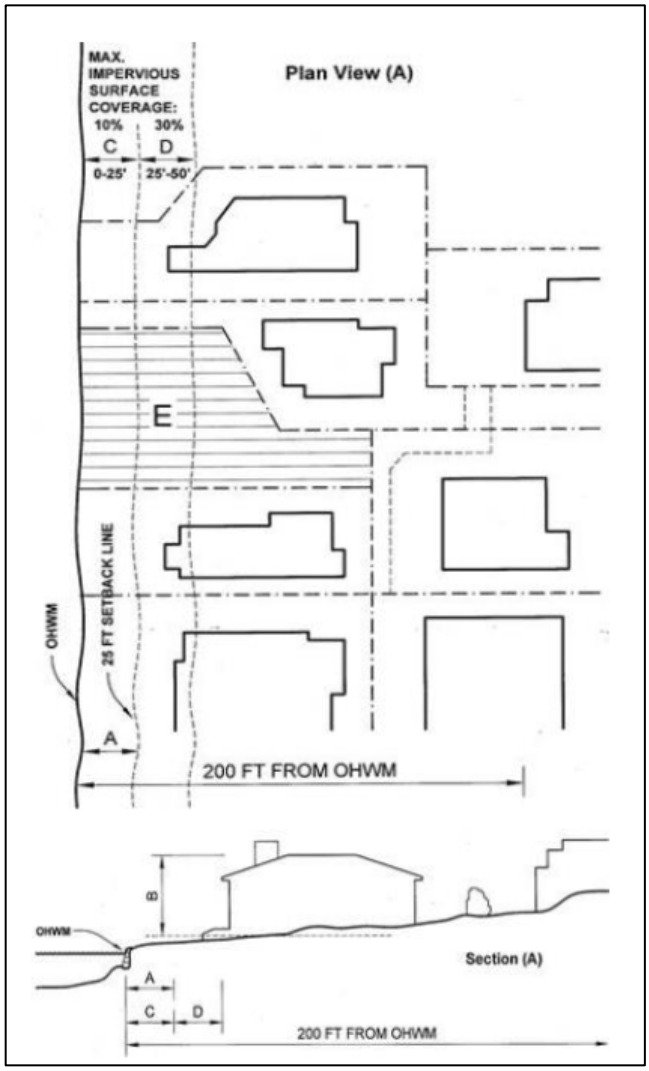
19.13.050 - Shoreland development standards.

All development within the shoreline jurisdiction shall be in compliance with all development requirements specified in this chapter.

A. *Standards landward of the OWHM. The standards in Table C shall apply to development located landward of the OHWM:*

Table C — Requirements for Development Located Landward from the OHWM		
Setbacks for All Structures (Including Fences over 48 Inches High) and Parking	*A**	*25 feet from the OHWM and all required setbacks of the development code, except (1) light rail transit facilities and (2) shore access structures less than 30 inches above the existing or finished grade, whichever is lower. If a wetland is adjacent to the shoreline, measure the shoreline setback from the wetland's boundary*
Height Limits for All Structures	*B*	*Shall be the same as height limits specified in the development code but shall not exceed a height of 35 feet above average building elevation, except light rail transit facilities*
Maximum Hardscape and Lot Coverage	*C* *D*	*10%: between 0 and 25 feet from OHWM* *30%: between 25 and 50 feet from OHWM*
Minimum Land Area Requirements	*E*	*All semi-private, commercial and noncommercial recreational tracts and areas shall have minimum land area: 200 square feet per family, but not*

Table C — Requirements for Development Located Landward from the OHWM		
		less than 600 square feet, exclusive of driveways or parking areas. Screening of the boundaries with abutting properties
Height Limits for Light Rail Transit Facilities within the Existing I-90 Corridor		*The trackway and overhead wires, support poles, and similar features necessary to operate light rail transit facilities may be erected upon and exceed the height of the existing I-90 bridges*
**The letters in this column refer to the Plan View (A) and Section (A) diagrams.*		



Response: Proposed hardscape/lot coverage (i.e., impervious area) between 0 and 25 feet from the ordinary highwater mark is calculated at 4.9 percent and does not exceed 10 maximum

impervious surface coverage. The proposed impervious area between 25 and 50-ft shoreline buffer zone is calculated at 29.9% and does not exceed the maximum 30 percent lot coverage. See shoreline impact calculations on mitigation plan sheet W3.

K. General requirements. The following requirements apply to the following types of activities that may be waterward and/or landward of the OHWM:

1. Critical areas within the shorelands are regulated by chapter 19.07 MICC, as adopted in the MICC on June 18, 2019, except: MICC 19.06.110(B), Variances; MICC 19.06.110(C), Setback deviations; and MICC 19.07.140, Reasonable use exception.

Response: The on-site wetland is more than 200-feet landward of the OHWM. It is outside shoreline jurisdiction.

2. Utilities.

i. Utilities shall be placed underground and in common rights-of-way wherever economically and technically practical.

ii. Shoreline public access shall be encouraged on publicly owned utility rights-of-way, when such access will not unduly interfere with utility operations or endanger public health and safety. Utility easements on private property will not be used for public access, unless otherwise provided for in such easement.

iii. Restoration of the site is required upon completion of utility installation.

Response: The project will avoid utility impacts to the extend feasible. Any temporary impacts within the shoreline will be restored upon completion of installation.

3. Archaeological and historic resources.

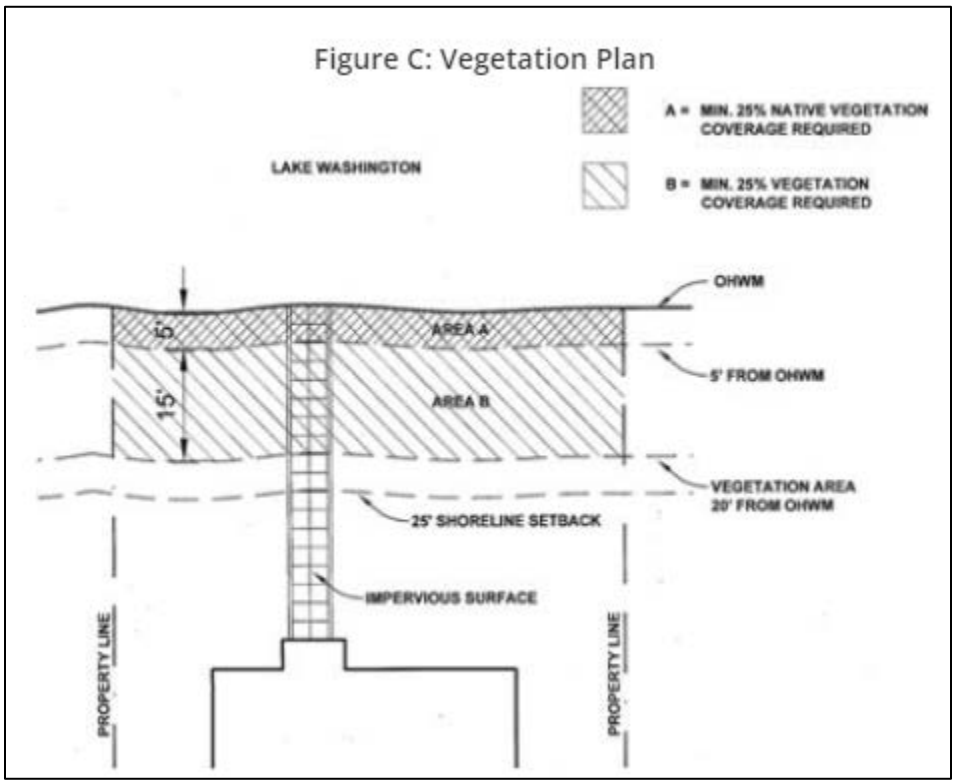
i. If archaeological resources are uncovered during excavation, the developer and property owner shall immediately stop work and notify the city, the office of archaeology and historic preservation, and affected Indian tribes.

ii. In areas documented to contain archaeological resources by the office of archaeology and historic preservation, a site inspection or evaluation is required by a professional archaeologist in coordination with affected Indian tribes.

Response: A culture resource study has not been required for project permitting to-date. If the contractor were to encounter any archaeological resources during site work, they would need to stop work and contact the Department of Archaeology and Historic Preservation (DAHP) for a site inspection.

4. New development totaling 500 square feet or more of any combination of additional gross floor area, lot coverage or hardscape, including the primary structures and appurtenances, shall be required to provide native vegetation coverage over 50 percent of the 20-foot vegetation area shown on Figure C. This total shall include all gross floor area, lot coverage, and hardscape added in the five years immediately prior to the development proposal.

i. New development totaling 1,000 square feet or more of any combination of additional gross floor area, lot coverage or hardscape, including the primary structures and appurtenances, shall be required to provide native vegetation coverage over 75 percent of the 20-foot vegetation area shown in Figure C.



Response: Existing lot coverage is 7,185 SF and proposed lot coverage is 8,381 SF as calculated by Miller Hull on the Mercer Island House: Cascade Land Use Submittal, 11-5-21. This is a 1,196 SF increase in lot coverage. Therefore, per the code above, 75 percent of the 20-foot vegetation area shown in Figure C needs to be planted with native vegetation. See mitigation plan sheet W5 for the proposed planting area.

ii. A shoreline vegetation plan shall be submitted to the city for approval.

Response: The provided mitigation plan and residential landscape architecture plan as referenced on sheet W5 provide the required shoreline vegetation planting details.

iii. The vegetation coverage shall consist of a variety of ground cover shrubs and trees indigenous to the central Puget Sound lowland ecoregion and suitable to the specific site conditions. Existing mature trees and shrubs, but excluding noxious weeds, may be included in the coverage requirement if located in the 20-foot vegetation area shown in Figure C.

Response: The plant species list is provided on mitigation plan sheet W5.

iv. No plants on the current King County noxious weed lists shall be planted within the shorelands.

Response: No noxious plants will be installed in the shoreline setback.

3.1.1 No Net Loss Analysis

The proposed total increase in lot coverage of slightly more than 1,000 square feet requires mitigation in the shoreline setback. Per MICC 19.13.050.K.4.i, 75 percent of the shoreline setback 0 to 20-feet landward of the OHWM must be planted with native trees, shrubs and groundcover plants. Ultimately, the mitigation must demonstrate no net loss of shoreline functions. Converting lawn in 75 percent of that 20-foot setback to native vegetation will achieve no net loss of shoreline functions. This will increase vegetative structure to filter and capture nutrients, sediments and pollutants that could impact water quality. The native trees, shrubs and groundcover will help attenuate surface runoff during storm events. The native plant stand will also support wildlife by providing shade, detritus, forage and perch opportunities. Overall, the mitigation will improve ecological functions relative to the existing lawn.

3.2 Wetland Buffer Regulations

Below is the city code in italics followed by our response stating how the project is complying with city code.

19.07.190 – Wetlands.

C. Development standards—Buffers.

2. Where a legally established and constructed street transects a wetland buffer, the department may approve a modification of the standard buffer width to the edge of the street if the isolated part of the buffer does not provide additional protection of the wetland and provides insignificant biological, geological or hydrological buffer functions relating to the wetland.

Response: The city expressly states, "*Driveways are not streets*." In the definition section of the code (MICC 19.16.010). Therefore, the code provision above cannot be applied to a driveway.

D. Development standards—additional criteria for specific activities.

1. 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:

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

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

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

iii. Are not part of a wetland mosaic;

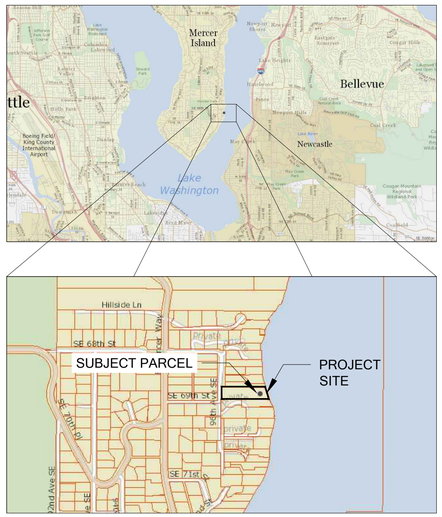
iv. Do not score five or more points for habitat function based on the 2014 update to the Washington State Wetland Rating System for Western Washington: 2014 Update (Ecology Publication No. 14-06-029, or as revised and approved by Ecology);

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.

Response: The on-site wetland is a Category IV wetland less than 4,000 square feet, but it does not meet all the criteria above. It scores five points for habitat functions. Through mitigation sequencing and redesign of the driveway the project can avoid direct wetland impacts.

Appendix A

MITIGATION PLAN



VICINITY MAPS

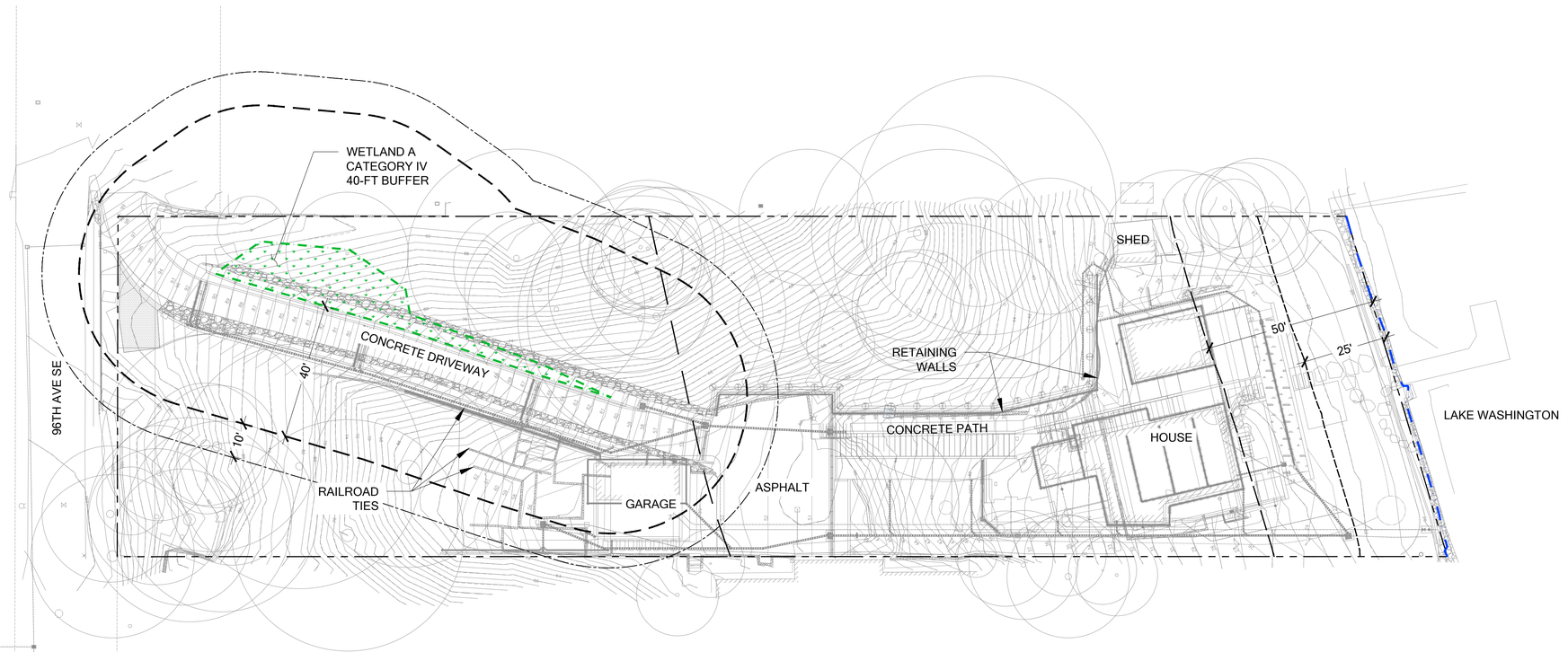
SHEET INDEX

LEGEND

- PROPERTY BOUNDARY
- WETLAND (DELINEATED)
- WETLAND BUFFER (40-FT)
- WETLAND BUFFER BSBL (10-FT)
- LAKE WASHINGTON OHWM (DELINEATED)
- 25' SHORELINE BUFFER
- 50' SHORELINE BUFFER
- SHORELINE JURISDICTION (200-FT)

NOTES

1. CRITICAL AREAS DELINEATED BY THE WATERSHED COMPANY ON JULY 23, 2021. SURVEY RECEIVED ON AUGUST 31, 2021 FROM MILLER HULL ARCHITECTS.



CRITICAL AREAS OVERVIEW

SCALE 1:20

0' 10' 20' 40' 80'

DRAFT - NOT FOR CONSTRUCTION

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Science & Design

BUTTENWIESER RESIDENCE

CONCEPTUAL MITIGATION PLAN
PREPARED FOR JANET BUTTENWIESER
PARCEL # 3024059010
6838 96TH AVE SE
MERCER ISLAND, WA

SUBMITTALS & REVISIONS

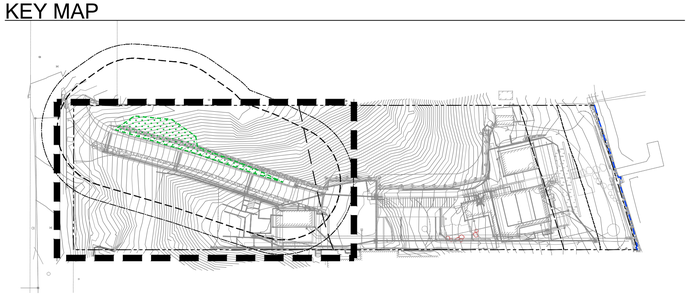
NO.	DATE	DESCRIPTION	BY
1	11/24/21	CONCEPTUAL MITIGATION PLAN	AK
2	04/27/22	DRAFT REVISED CONCEPT MITIGATION PLAN	GM

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: NL
DESIGNED: NL
DRAFTED: GM
CHECKED: NL
JOB NUMBER: 210441
SHEET NUMBER: W1 OF 6

FILENAME
PRINTED BY
DATE

KEY MAP

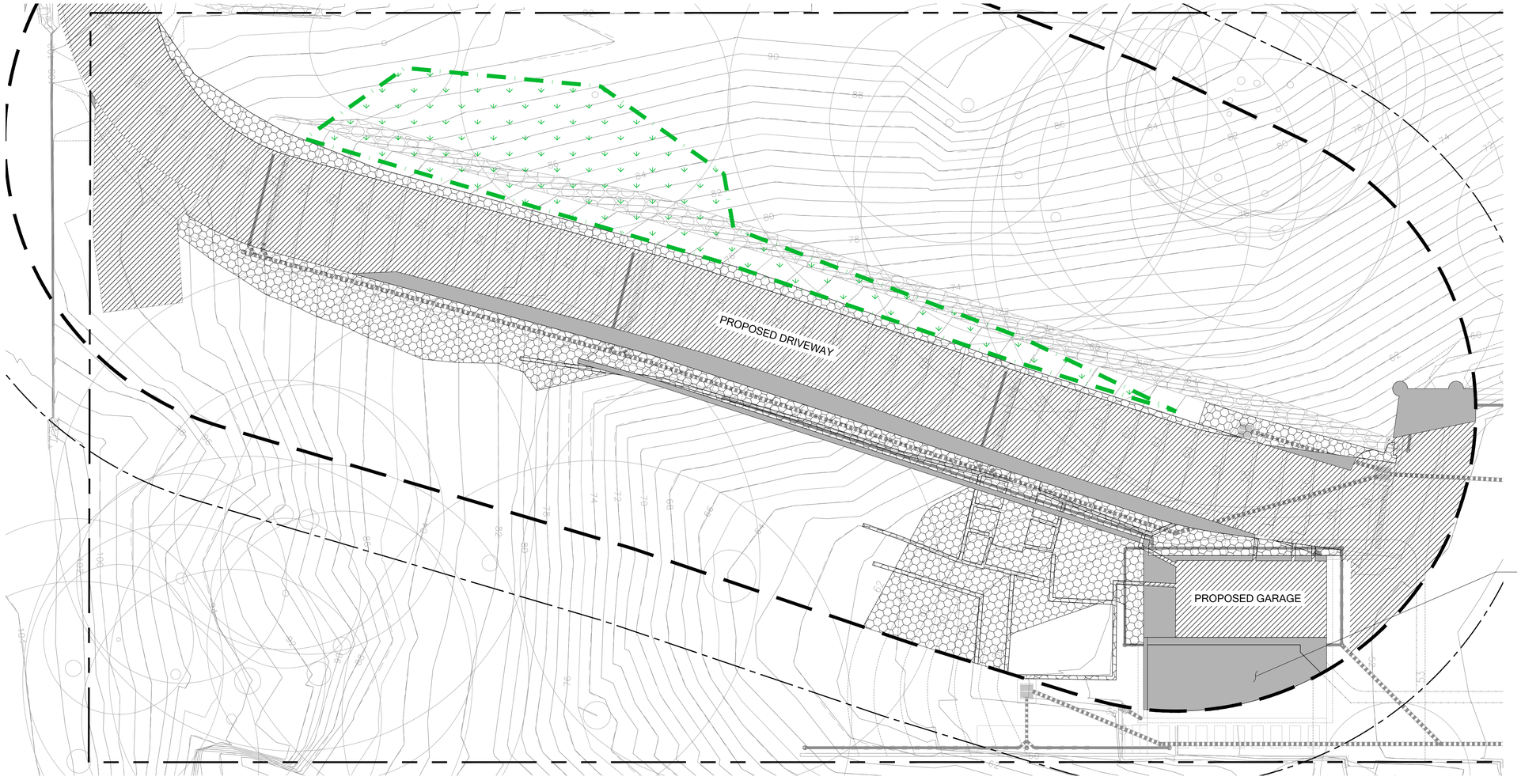


LEGEND

- WETLAND (DELINEATED)
- WETLAND BUFFER (40-FT)
- WETLAND BUFFER BSBL (10-FT)

BUFFER IMPACTS

- TEMPORARY IMPACTS (1,703 SF)
- EXISTING IMPACTS TO REMAIN (2,955 SF)
- PROPOSED NEW PERMANENT IMPACTS (637 SF)



WETLAND BUFFER IMPACTS ASSESSMENT

SCALE 1/8" = 1'

0' 4' 8' 16' 32'

DRAFT - NOT FOR CONSTRUCTION

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1	11/24/21	CONCEPTUAL MITIGATION PLAN	AK
2	04/27/22	DRAFT REVISED CONCEPT MITIGATION PLAN	GM

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: NL
DESIGNED: NL
DRAFTED: GM
CHECKED: NL
JOB NUMBER:
210441
SHEET NUMBER:
W2 OF 6

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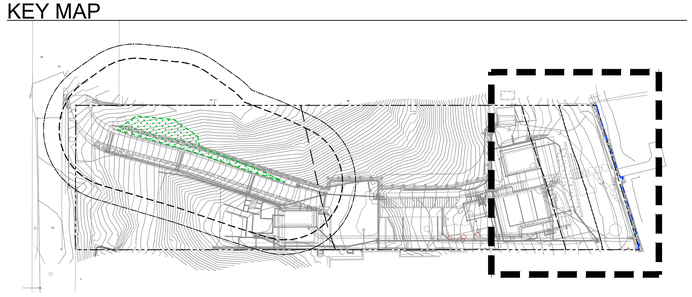
KEY MAP



LEGEND

LAKE WASHINGTON OHWM (DELINEATED)

25-FT SHORELINE BUFFER

50-FT SHORELINE BUFFER

0-25' SHORELINE BUFFER IMPACTS

PERVIOUS TO IMPERVIOUS (206 SF)

TEMPORARY IMPACTS (437 SF)

25'-50' SHORELINE BUFFER IMPACTS

PERVIOUS TO IMPERVIOUS (308 SF)

IMPERVIOUS REMAINING IMPERVIOUS (332 SF)

TEMPORARY IMPACTS (1,234 SF)

NOTES

1. IMPERVIOUS COVERAGE WITHIN 50' SHORELINE BUFFER INCREASED BY 514 SF.

IMPACTS CALCULATIONS TABLE

	0-25' SHORELINE BUFFER IMPACTS	25-50' SHORELINE BUFFER IMPACTS
PERVIOUS TO IMPERVIOUS	206 SF	308 SF
IMPERVIOUS REMAINING IMPERVIOUS	0 SF	332 SF
TOTAL IMERVIOUS	206 SF	640 SF
PERCENT IMPERVIOUS	7.9%	24.5%
MAXIMUM PERCENT IMPERVIOUS ALLOWED PER MICC 19.13.050(C)	10%	30%

SHORELINE SETBACK IMPACTS ASSESSMENT

SCALE 1/8" = 1'

0' 4' 8' 16' 32'

DRAFT - NOT FOR CONSTRUCTION

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242
www.watershedco.com
Science & Design

BUTTENWIESER RESIDENCE

CONCEPTUAL MITIGATION PLAN
PREPARED FOR JANET BUTTENWIESER
PARCEL # 3024059010
6838 96TH AVE SE
MERCER ISLAND, WA

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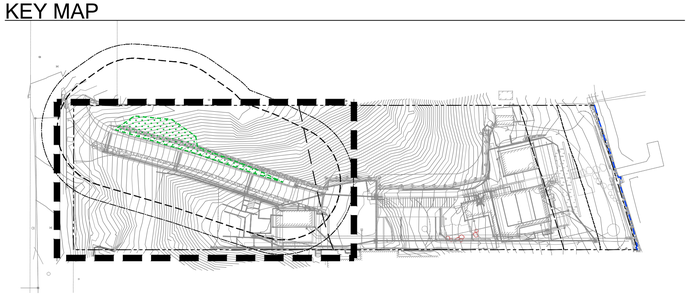


LEGEND

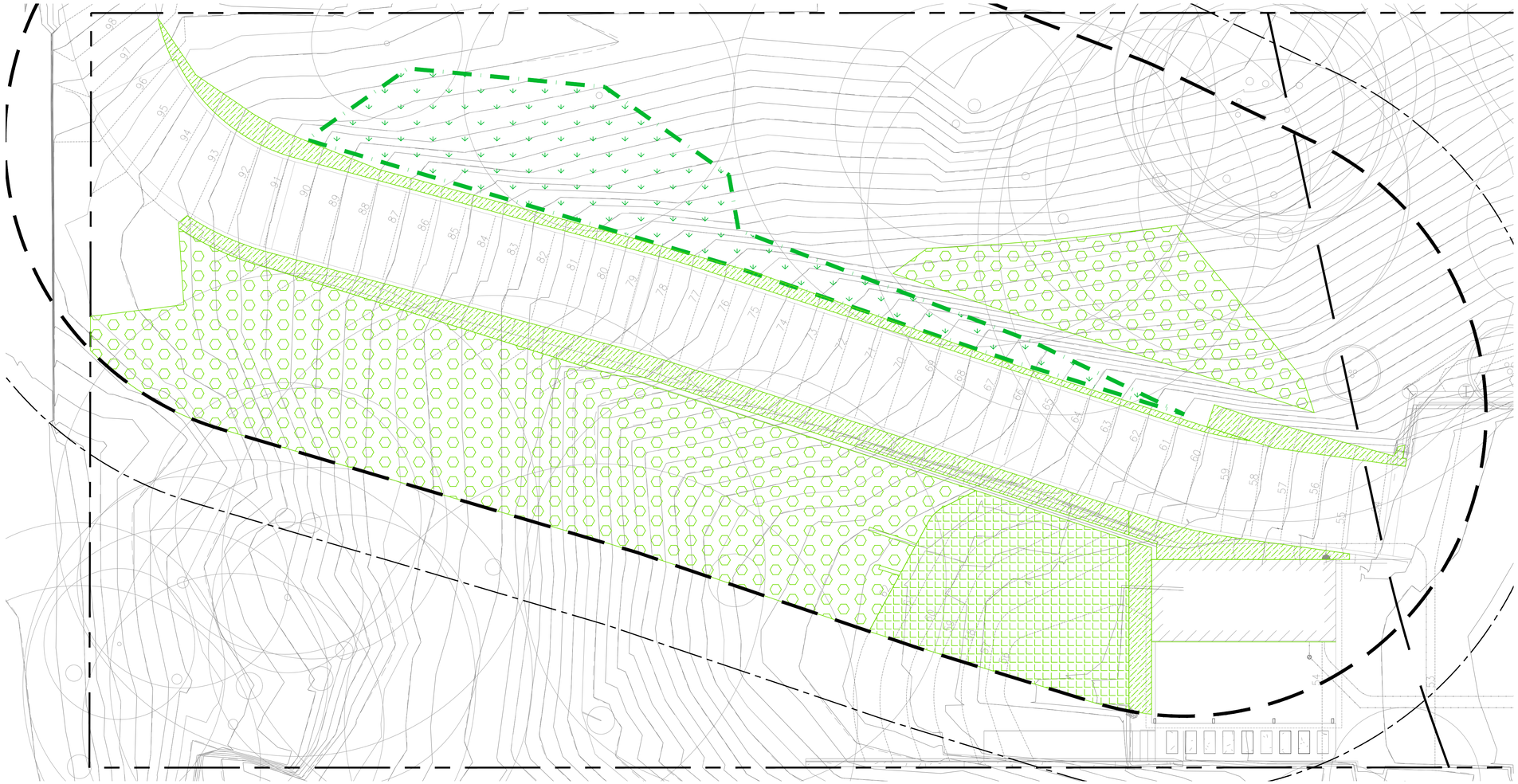
- WETLAND (DELINEATED)
- WETLAND BUFFER (40-FT)
- WETLAND BUFFER BSBL (10-FT)

PLANT LIST

NATIVE SEED MIX TO RESTORE
TEMPORARY IMPACTS (AREA = 1,011 SF)

NATIVE MITIGATION PLANTING (AREA = 663 SF. PLANTS: 8 TREES, 19 SHRUBS, 48 GROUNDCOVER = 75 TOTAL PLANTS),
CANDIDATE PLANT LIST:
TREES: WESTERN RED CEDAR, BIGLEAF MAPLE, CASCARA, CORNUS NUTALLII
SHRUBS: RED FLOWER CURRANT, CLUSTER ROSE, VINE MAPLE, TALL OREGON GRAPE, SNOWBERRY
GROUNDCOVERS: SWORD FERN, KINNIKINNICK, SALAL, REDTWIG DOGWOOD, SCOULER'S WILLOW, OCEANSPRAY.

NATIVE UNDERSTORY IN-FILL MITIGATION PLANTING (AREA = 2,929 SF. PLANTS: 41 SHRUBS, 106 GROUNDCOVER = 147 TOTAL PLANTS @ 50% DENSITY),
CANDIDATE PLANT LIST:
SAME AS ABOVE, EXCLUDING THE TREE SPECIES



WETLAND CONCEPTUAL MITIGATION PLAN

SCALE 1/8" = 1'

0' 4' 8' 16' 32'

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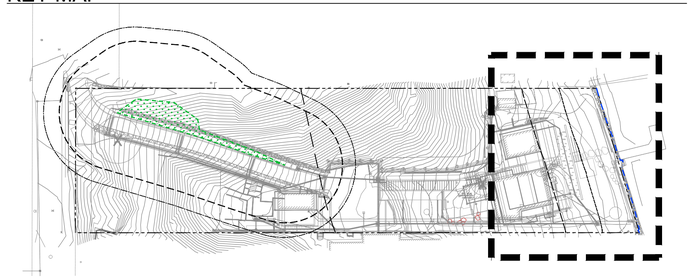

LEGEND

- 25-FT SHORELINE BUFFER
- 50-FT SHORELINE BUFFER
- 20-FT VEGETATION ZONE

NOTES

1. COMBINED SHORELINE MITIGATION PLANTING AREAS TOTAL 1,855 SF. MITIGATION PLANTING AREAS MUST MEET MINIMUM 75% OF 20-FT VEGETATION AREA PER MIMC 19.13.050.K.4; ON THIS SITE, 75% OF THE 20-FT VEGETATION AREA IS 1,573 SF.
2. SEE LANDSCAPE ARCHITECTURE PLANS FOR FULL SHORELINE PLANT SCHEDULE AND DETAILED SHORELINE PLANTING PLAN. ONLY REQUIRED MITIGATION AND TEMPORARY IMPACT RESTORATION SHOWN HERE.

PLANT LIST

MITIGATION PLANTING AREA 1 (1,465 SF) (SEE NOTES)

TREES (2)	QTY	SIZE	SPACING
ACER MACROPHYLLUM / BIGLEAF MAPLE	2	5 GAL.	
SHRUBS (57)			
ACER CIRCINATUM / VINE MAPLE	3	7-9' HT.	
GAULTHERIA SHALLON / SALAL	27	1 GAL.	
RIBES SANGUINEUM / RED FLOWERING CURRANT	6	3 GAL.	
SYMPHORICARPOS ALBUS / SNOWBERRY	10	3 GAL.	
VACCINIUM OVATUM / EVERYGREEN HUCKLEBERRY	11	1 GAL.	
GROUNDCOVERS (365)			
ARCTOSTAPHYLOS UVA-URSI / KINNIKINNICK	188	4" POT	18" O.C.
GROUNDCOVER MIX #1: 40% FRAGARIA CHILOENSIS 60% SEDUM OREGANUM	52	4" POT	18" O.C.
GROUNDCOVER MIX #2: 70% DESCHAMPSIA CESPITOSA 15% LUPINUS POLYPHYLLUS 15% AQUILEGIA FORMOSA	68	1 GAL.	18" O.C.
JUNCUS EFFESUS / COMMON RUSH	39	1 GAL.	24" O.C.
POLYSTICHUM MUNITUM / SWORDFERN	18	1 GAL.	PER LANDSCAPE PLAN

MITIGATION PLANTING AREA 2 (140 SF) (SEE NOTES)
NO MOW NATIVE GRASS MIX (PT 702 LET IT BEE - NO MOW)

MITIGATION PLANTING AREA 3 (250 SF) (SEE NOTES)
POLLINATOR SEED MIX (MEADOWSCAPES - NW PRAIRIE SEED MIX)

TEMPORARY IMPACTS (1,234 SF)
NATIVE/ADAPTED PLANT MIX, SEE LANDSCAPE ARCHITECTURE PLANS FOR PLANTING PLAN BEYOND MITIGATION AREA

SHORELINE CONCEPTUAL MITIGATION PLAN

SCALE 1/8" = 1'

0' 4' 8' 16' 32'

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MITIGATION PLAN NOTES

THE PROPOSED SITE REDEVELOPMENT FOR A SINGLE FAMILY RESIDENCE WILL INCREASE IMPERVIOUS SURFACE WITHIN THE 50-FOOT SHORELINE SETBACK BY 514 SQUARE FEET. SITE IMPROVEMENTS COMPLY WITH ALLOWED IMPERVIOUS SURFACE MAXIMUMS IN THE INNER AND OUTER SHORELINE SETBACK. EXISTING LOT COVERAGE IS 7,185 SF AND PROPOSED LOT COVERAGE IS 8,381 SF AS CALCULATED BY MILLER HULL ON THE *MERCER ISLAND HOUSE: CASCADE LAND USE SUBMITTAL*, 11-5-21. THIS IS A 1,196 SF INCREASE IN LOT COVERAGE. THEREFORE, 75% OF THE VEGETATION AREA (THE INNER 20-FT SETBACK FROM THE LAKESHORE) WILL BE ENHANCED WITH NATIVE VEGETATION AS REQUIRED BY CITY CODE. THE MITIGATION WILL IMPROVE SHORELINE FUNCTIONS RELATIVE TO THE EXISTING LAWN. DRIVEWAY IMPROVEMENTS WILL AVOID DIRECT WETLAND IMPACTS. WETLAND BUFFER IMPACTS ARE CALCULATED AS A CUMULATIVE TOTAL OF EXISTING IMPACT AREAS TO REMAIN PLUS PROPOSED NEW IMPACT AREAS. PERMANENT AND TEMPORARY BUFFER IMPACTS WILL BE RESTORED AT A ONE-TO-ONE RATIO.

UPON COMPLETION OF THE PROJECT AND RELATED IMPACT MINIMIZATION AND MITIGATION, THE ON-SITE CRITICAL AREAS AND BUFFER FUNCTIONS WILL BE SUBSTANTIALLY IMPROVED COMPARED TO THE EXISTING CONDITION.

MITIGATION SEQUENCING

THE PROJECT HAS BEEN DESIGNED TO AVOID, MINIMIZE AND COMPENSATE FOR TEMPORARY AND PERMANENT IMPACTS TO THE GREATEST EXTENT POSSIBLE GIVEN THE CONSTRAINTS OF THE SITE. THE FOLLOWING DESCRIBES HOW THE MITIGATION SEQUENCING REQUIREMENTS OF THE MICC 19.07.100 HAVE BEEN MET.

AVOID

THE PROJECT TEAM WORKED ON SEVERAL DESIGN ITERATIONS OF THE CONSTRUCTION STAGING AND DRIVEWAY DIMENSIONS TO AVOID ALL DIRECT WETLAND IMPACTS. ~~ADDITIONALLY, IMPERVIOUS SURFACE REMOVALS FROM THE WETLAND BUFFER EXTEND NEW PROPOSED IMPERVIOUS IN THE BUFFER. THEREFORE, NET PERMANENT WETLAND BUFFER IMPACTS ARE ALSO AVOIDED~~. GIVEN FIRE DEPARTMENT REQUIREMENTS FOR THE DRIVEWAY WIDTH, COMPLETE AVOIDANCE OF NEW BUFFER IMPACTS WERE UNAVOIDABLE.

WITH THE EXCEPTION ONE STEP TO THE SHORELINE, AND A 127 SF PAD, THE PROJECT WILL COMPLETELY AVOID PERMANENT IMPACTS TO THE 0-FOOT TO 25-FOOT SHORELINE AND SHORELINE SETBACK. IMPACTS IN THE 25-FT TO 50-FT SHORELINE SETBACK COULD NOT BE WHOLLY AVOIDED DUE TO SITE TOPOGRAPHY AND LOT CONSTRAINTS. THE PROJECT WILL RESULT IN A NET IMPERVIOUS INCREASE OF 514 SQUARE FEET IN THE 50-FT SHORELINE SETBACK.

MINIMIZE

IMPACTS ARE MINIMIZED BY UTILIZING THE EXISTING DEVELOPED FOOTPRINT AS FEASIBLE WITHIN ON-SITE CRITICAL AREA BUFFERS AND SETBACKS. THE DRIVEWAY DESIGN LARGELY OVERLAYS THE EXISTING FOOTPRINT AND SHIFTS THE ALIGNMENT FURTHER AWAY FROM THE ADJACENT WETLAND. SHORELINE REDEVELOPMENT LEAVES THE 0-25-FT SHORELINE SETBACK LARGELY INTACT AND INCORPORATES A BIORETENTION POND TO MANAGE SITE DRAINAGE. OPPORTUNITIES TO REMOVE EXISTING IMPERVIOUS WHERE NO LONGER NEEDED ARE ALSO CAPITALIZED UPON TO OFF-SET NEW IMPACTS. LASTLY, IMPACT AREAS ARE CHARACTERIZED BY LAWN AND WEEDY HERBACEOUS VEGETATION AND RELATIVELY LOW FUNCTIONING.

REDEVELOPMENT IN THE 50-FOOT SHORELINE SETBACK LIMITS IMPERVIOUS SURFACES BELOW THE ALLOWED MAXIMUMS. PROPOSED IMPERVIOUS IN THE INNER 0-25-FOOT BUFFER IS 7.9 PERCENT OF THE AREA, BELOW THE 10 PERCENT ALLOWED BY CODE. REDEVELOPMENT IN THE 25-50-FOOT SETBACK IS 24.5 PERCENT IMPERVIOUS, SHY OF THE 30 PERCENT ALLOWED.

MITIGATE

MITIGATION FOR THE ADDITION OF IMPERVIOUS SURFACES WITHIN SHORELINE JURISDICTION WILL BE ACCOMPLISHED BY LIMITING IMPERVIOUS SURFACES IN THE 50-FOOT SHORELINE SETBACK TO THE ALLOW MAXIMUMS. SINCE THE TOTAL CHANGE IN LOT COVERAGE EXCEEDS 1,000 SQUARE FEET, THE APPLICANT IS REQUIRED TO PLANT NATIVE VEGETATION IN 75 PERCENT OF THE FIRST 20-FT OF SHORELINE SETBACK. EXISTING LAWN WILL BE REPLACED WITH A MIX OF NATIVE TREES, SHRUBS, AND GROUND COVER, EXCLUDING NONNATIVE GRASSES AND PLANTS ON THE CURRENT KING COUNTY NOXIOUS WEED LIST, IN ACCORDANCE WITH THE MERCER ISLAND SHORELINE MASTER PROGRAM.

BY IMPROVING SHORELINE BUFFER FUNCTIONS CLOSE TO THE OWHM, THE PROJECT WILL ENSURE NO NET LOSS OF FUNCTIONS.

EXISTING AND PROPOSED PROJECT IMPACTS LOCATED WITHIN WETLAND BUFFER WILL BE MITIGATED THROUGH BUFFER ENHANCEMENT AT A ONE-TO-ONE RATIO. TEMPORARY IMPACTS WILL BE RESTORED IN-PLACE TO AN EQUIVALENT OR BETTER CONDITION AT A ONE-TO-ONE RATIO. IN THIS CASE, A NATIVE GRASS SEED MIX WILL BE APPLIED TO TEMPORARY IMPACT AREAS UNLESS OTHERWISE NOTED ON THE PLAN.

GOALS

1. MAINTAIN NO NET LOSS OF SHORELINE SETBACK FUNCTIONS.
2. RESTORE DISTURBANCE AREAS TO AN EQUIVALENT OR GREATER CONDITION.
3. INCREASE NATIVE PLANT COVER AND DIVERSITY IN THE SHORELINE AND WETLAND BUFFER.
4. MAINTAIN LOW INVASIVE PLANT COVER IN THE MITIGATION AREAS.

PERFORMANCE STANDARDS

THE PERFORMANCE OF THE MITIGATION AREA WILL BE GAUGED USING STANDARDS DESIGNED TO MEASURE ITS SUCCESS. IF PERFORMANCE STANDARDS ARE MET AT THE END OF YEAR 5, THE SITE WILL THEN BE DEEMED SUCCESSFUL. THE PERFORMANCE STANDARDS BELOW ONLY APPLY TO PLANTINGS WITHIN THE MITIGATION AREA.

SURVIVAL:

1. ACHIEVE 100% SURVIVAL OF INSTALLED TREES AND SHRUBS BY THE END OF YEAR 1. THIS STANDARD CAN BE MET THROUGH PLANT ESTABLISHMENT OR THROUGH REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.
2. A SURVIVAL STANDARD OF 80% OF NATIVE TREES, SHRUBS, AND GROUNDCOVER PLANTS BY YEAR 5 MAY APPLY IN LIEU OF STANDARD 4, BELOW, IN THE CASE THAT STANDARD 4 IS NOT ACHIEVED.

NATIVE VEGETATION COVER:

3. ACHIEVE 60% COVER OF TREES AND SHRUBS BY YEAR 3. IN AREAS PLANTED WITH GROUNDCOVER PLANTS, ACHIEVE 40% COVER BY THE END OF YEAR 3. NATIVE VOLUNTEER SPECIES MAY COUNT TOWARDS THIS COVER STANDARD.
4. ACHIEVE 80% COVER OF NATIVE TREES AND SHRUBS BY YEAR 5. IN AREAS PLANTED WITH GROUNDCOVER PLANTS, ACHIEVE 60% COVER BY THE END OF YEAR 5. NATIVE VOLUNTEER SPECIES MAY COUNT TOWARDS THIS COVER STANDARD.
5. IN AREAS PLANTED WITH NATIVE GRASS SEED MIX, ACHIEVE RELATIVELY UNIFORM AND DENSE COVERAGE OF NATIVE GRASSES. RE-SEED AS NECESSARY TO ACHIEVE 80% GROUNDCOVER IN THESE AREAS BY THE END OF YEAR 5. NATIVE GRASS IN THE SHORELINE MITIGATION AREA TO BE MAINTAINED IN A NO-MOW CONDITION.

INVASIVE VEGETATION COVER:

6. INVASIVE COVER: NO MORE THAN 10% COVER BY INVASIVE WEED SPECIES IN THE BUFFER MITIGATION AREA IN ANY MONITORING YEAR.

SPECIES DIVERSITY:

7. ESTABLISH AT LEAST ONE SPECIES OF NATIVE TREES, TWO SPECIES OF NATIVE SHRUBS, FOUR GROUNDCOVER PLANT SPECIES WITHIN THE MITIGATION AREA.

MAINTENANCE AND MONITORING

MONITORING PLAN

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME AND TO MEASURE THE DEGREE TO WHICH IT IS MEETING THE PERFORMANCE STANDARDS OUTLINED ELSEWHERE IN THIS DOCUMENT.

AN AS-BUILT PLAN WILL BE PREPARED BY THE RESTORATION SPECIALIST PRIOR TO THE BEGINNING OF THE MONITORING PERIOD. THE AS-BUILT PLAN WILL BE A MARK-UP OF THE PLANTING PLANS INCLUDED IN THIS PLAN SET. THE AS-BUILT PLAN WILL DOCUMENT ANY DEPARTURES IN PLANT PLACEMENT OR OTHER COMPONENTS FROM THE ACCEPTED MITIGATION PLAN.

MONITORING WILL TAKE PLACE TWICE ANNUALLY FOR FIVE YEARS. DURING EACH YEAR THERE WILL BE A SPRING AND A LATE SUMMER OR FALL VISIT. FIRST-YEAR MONITORING WILL BE PERFORMED IN THE FIRST SPRING SUBSEQUENT TO INSTALLATION. IN YEAR 1, A TOTAL PLANT COUNT WILL BE CONDUCTED. IN YEARS 2 AND 3, REPRESENTATIVE SAMPLES OF THE MITIGATION AREA WILL BE ASSESSED AND PROGRESS TOWARD THE PERFORMANCE STANDARDS MEASURED. VISUAL COVER CLASS ESTIMATES WILL BE USED TO EVALUATE NATIVE COVER. IF 80% COVER BY NATIVE TREES AND SHRUBS IS NOT ACHIEVED IN YEAR 5, A FULL PLANT COUNT WILL BE CONDUCTED TO MEASURE SURVIVAL (SEE PERFORMANCE STANDARD 2.). INVASIVE SPECIES COVER WILL BE VISUALLY ESTIMATED IN EACH YEAR.

THE SPRING MONITORING VISIT WILL RECORD MAINTENANCE ISSUES SUCH AS THE NEED FOR PLANT REPLACEMENT AND INVASIVE SPECIES REMOVAL. FOLLOWING THE SPRING VISIT, THE RESTORATION SPECIALIST WILL NOTIFY THE OWNER AND/OR MAINTENANCE CREWS OF NECESSARY EARLY GROWING SEASON MAINTENANCE NEEDS. THE LATE SUMMER/EARLY FALL MONITORING VISIT WILL INCLUDE PERFORMANCE STANDARD MEASUREMENTS AND A SUBSEQUENT ANNUAL REPORT SUBMITTED TO THE CITY OF MERCER ISLAND. THE REPORT WILL CONTAIN:

1. GENERAL SUMMARY OF THE SPRING VISIT.
2. FIRST-YEAR COUNTS OF PLANTS BY SPECIES IN THE PLANTED AREA.
3. COUNTS OF DEAD PLANTS WHERE MORTALITY IS SIGNIFICANT IN ANY MONITORING YEAR.
4. ESTIMATE OF NATIVE SAPLING TREE AND SHRUB COVER USING VISUAL COVER CLASS ESTIMATES.
5. ESTIMATE OF INVASIVE WEEDY COVER USING VISUAL COVER CLASS ESTIMATES.
6. PHOTOGRAPHIC DOCUMENTATION FROM FIXED REFERENCE POINTS.
7. RECOMMENDATIONS FOR MAINTENANCE OR REPAIR OF ANY PORTION OF THE MITIGATION AREA.

MAINTENANCE PLAN

THE SITE WILL BE MAINTAINED FOR THREE YEARS FOLLOWING COMPLETION OF THE CONSTRUCTION. NOTE: SPECIFICATIONS FOR ITEMS IN BOLD CAN BE FOUND ABOVE UNDER "MATERIAL SPECIFICATIONS AND DEFINITIONS."

1. REPLACE EACH PLANT FOUND DEAD IN THE SUMMER MONITORING VISITS DURING FROST-FREE PERIODS ONLY IN THE UPCOMING FALL DORMANT SEASON (OCTOBER 15 TO MARCH 1) FOR THE FIRST MONITORING YEAR. REPLACE PLANTS AS DIRECTED IN MONITORING REPORTS.
2. FOLLOW THE RECOMMENDATIONS NOTED IN THE SPRING MONITORING SITE VISIT.
3. GENERAL WEEDING FOR ALL PLANTED AREAS:
4. AT LEAST TWICE YEARLY, REMOVE ALL COMPETING GRASS AND WEEDS, INCLUDING ROOTS, FROM BENEATH EACH INSTALLED PLANT AND ANY DESIRABLE VOLUNTEER VEGETATION TO A DISTANCE OF 18 INCHES FROM THE MAIN PLANT STEM. WEEDING SHOULD OCCUR AT LEAST TWICE DURING THE SPRING AND SUMMER. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY AND LOWER PLANT REPLACEMENT COSTS.
5. MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLAN INSTALLATION.
6. DO NOT WEED THE AREA NEAR THE PLANT BASES WITH STRING TRIMMER (WEED WHACKER/WEED EATER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED, AND WEEDS EASILY RECOVER AFTER TRIMMING.
7. TO KEEP WEED COVERAGE THROUGHOUT THE PLANTING AREA BELOW THE 10% THRESHOLD.
8. APPLY SLOW RELEASE GRANULAR FERTILIZER TO EACH INSTALLED PLANT ANNUALLY IN THE SPRING (BY JUNE 1) OF YEARS 2 THROUGH 5.
9. MULCH THE WEEDED AREAS BENEATH EACH PLANT WITH WOOD CHIPS AS NECESSARY TO MAINTAIN A 4-INCH-THICK WOOD CHIP MULCH LAYER AND KEEP DOWN WEEDS.
10. THE APPLICANT SHALL ENSURE THAT WATER IS PROVIDED FOR THE ENTIRE PLANTED AREA WITH A MINIMUM OF 2 INCHES OF WATER PROVIDED PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR AT LEAST THE FIRST TWO YEARS FOLLOWING INSTALLATION.

MATERIAL SPECIFICATIONS AND DEFINITIONS

1. RESTORATION SPECIALIST: WATERSHED COMPANY [(425) 822-5242] PERSONNEL, OR OTHER PERSONS QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.
2. FERTILIZER: SLOW RELEASE, GRANULAR PHOSPHOROUS-FREE FERTILIZER. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR APPLICATION. KEEP FERTILIZER IN A WEATHER-TIGHT CONTAINER WHILE ON SITE. NOTE THAT FERTILIZER IS TO BE APPLIED ONLY IN YEARS 2, 3, 4 AND 5 AND NOT IN THE FIRST YEAR.
3. IRRIGATION SYSTEM: A SYSTEM CAPABLE OF DELIVERING AT LEAST TWO INCHES OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION.
4. WOOD CHIP MULCH: ARBORIST CHIPS (CHIPPED WOODY MATERIAL) APPROXIMATELY 1 TO 3 INCHES IN MAXIMUM DIMENSION (NOT SAWDUST OR COARSE HOG FUEL). THIS MATERIAL IS SOLD AS "ANIMAL FRIENDLY HOG FUEL" AT PACIFIC TOPSOILS [(800) 884-7645]. MULCH SHALL NOT CONTAIN APPRECIABLE QUANTITIES OF GARBAGE, PLASTIC, METAL, SOIL, AND DIMENSIONAL LUMBER OR CONSTRUCTION/DEMOLITION DEBRIS. QUANTITY REQUIRED: ## CUBIC YARDS.

MITIGATION PLAN NOTES

DRAFT - NOT FOR CONSTRUCTION

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Appendix B

WETLAND DELINEATION REPORT & ATTACHMENTS

June 3, 2021 (*Revised August 12, 2021*)

Janet Buttenwieser and Matthew Wiley
6838 96th Ave SE
Mercer Island, WA 98040
c/o April Ng, Miller Hull Architects
ang@MillerHull.com

Buttenwieser and Wiley Property, Wetland Delineation Report

The Watershed Company Reference Number: 210441

Summary

This report has been prepared to present the findings of a wetland delineation study located at the Buttenwieser and Wiley property, located at 6838 96th Ave SE in Mercer Island, Washington (parcel # 3024059010). In addition to the information and findings presented in this report, the following documents are enclosed:

- Site Photos
- Delineation Sketch
- Wetland Determination Data Forms
- Wetland Rating Forms and Figures

The subject property is situated along Lake Washington which is considered a shoreline of the state. Therefore, portions of the subject property are within the 200-foot shoreline jurisdiction area. Lake Washington has a shoreland setback of 25-feet and there are restrictions on impervious surfaces within 50-feet of the lake. One wetland (Wetland A) is located in the northwest corner of the subject property. It is a Category IV wetland with five habitat points (Table 1). It requires a standard 40-foot buffer.

Table 1. Summary of wetlands, lakes, and required buffers.

Feature Name	Category/Type	Habitat Score	Buffer (ft)
Wetland A	Category IV	5	40
Lake Washington	Type S	-	25

Study Area

The study area is defined as parcel 3024059010 and is approximately 0.95 acres in size (Figure 1). Adjacent public or private property within 200 feet was screened from the edge of parcel or nearest publicly accessible land; no private property was accessed without permission. It is situated within Section 30 of Township 24 North, Range 05 East of the Public Land Survey System.

Figure 1. Study area and vicinity map. Study area highlighted in purple.

Methods

Field investigations for the delineation study were conducted on May 19, 2021, by The Watershed Company ecologists: Grace Brennan and Sage Presster. An additional site visit was conducted on July 23, 2021 by Grace Brennan and Nell Lund to confirm findings, take additional data points, and make notes of disturbed conditions.

The study area was evaluated for wetlands using methodology from the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (U.S. Army Corps of Engineers 2010). Presence or absence of wetlands was determined on the basis of an examination of vegetation, soils and hydrology. These parameters were sampled at several locations along the wetland boundary to determine the approximate wetland edge. Wetlands were classified using the Department of Ecology's 2014 rating system (Hruby 2014).

Characterization of climatic conditions for precipitation in the Wetland Determination Data Forms were determined using the WETS table methodology (USDA, NRCS 2015). The "Seattle Tacoma Intl AP" station from 1991-2020 was used as a source for precipitation data (http://agacis.rcc-acis.org/). The WETS table methodology uses climate data from the three months prior to the site visit month to determine if normal conditions are present in the study area region.

The study area was evaluated for streams based on the presence or absence of an ordinary high water mark (OHWM) as defined by Section 404 of the Clean Water Act, the Washington Administrative Code (WAC) 220-660-030, and the Revised Code of Washington (RCW) 90.58.030 and guidance documents including *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson 2016) and *A Guide to Ordinate High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (Mersel 2016).

Public-domain information on the subject properties was reviewed for this delineation study. Resources and review findings are presented in Table 2 of the "Environmental Setting" section of this letter.

Environmental Setting

The study area is within in the Mercer Island sub-basin of the Cedar - Sammamish watershed (WRIA 8). It is located in southern Mercer Island, just east of Pioneer Park. The property is situated on the shore of Lake Washington. The site slopes down to the east towards Lake Washington, sloping steeply down in the upper portion of the property down to a gentler slope near the residence and along the Lake.

The subject property is approximately 0.95 acres in size and is developed with a single-family home, associated driveway, detached garage, dock, and yard. According to the King County

Assessor's page, the site was developed in 1939. The driveway steeply slopes down to the residence, where it widens out into a car pad and detached garage. A retaining wall runs along the northern edge of the driveway. The construction of the retaining wall and driveway are also accompanied by below ground utilities. Multiple drainage pipes that appear to have been installed in an effort to direct drainage along and under the driveway. Many of these pipes are now broken and do not convey water effectively. At the time of our July site visit, active seeps were observed draining onto the driveway surface and parallel to the north edge of the existing driveway. The driveway is cracked in several locations.

The northern portion of the property is vegetated with native trees and shrubs, including big leaf maple (*Acer macrophyllum*), beaked hazelnut (*Corylus cornuta*), and English ivy (*Hedera helix).* The southwest corner of the subject parcel is also vegetated by native vegetation, including western red cedar (*Thuja plicata*), red alder (*Alnus rubra*), Douglas-fir (*Pseudotsuga menziesii*), cherry laurel (*Prunus laurocerasus*), Oso berry (*Oemleria cerasiformis*), English ivy, and sword fern (*Polystichum munitum*). The southeastern portion of the subject parcel is occupied by the residence and its associated yard and lawn. This area is primarily dominated by lawn grasses and other ornamental plants.

Reviewed public-domain information for the site is summarized below (Table 2).

Table 2. Summary of online mapping and inventory resources.

Resource	Summary
USDA NRCS: Web Soil Survey	*Kitsap silt loam, 8-15 percent slopes in the western portion of the site and Kitsap silt loam, 15-30 percent slopes in the eastern portion of the site. Kitsap silt loam is a moderately well drained soil that has a typical depth to water table of about 18 to 36 inches.*
USFWS: NWI Wetland Mapper	*No wetlands mapped within or adjacent to the subject parcel. Lake Washington mapped as lacustrine deepwater habitat, unconsolidated bottom, permanently flooded, and diked/impounded.*
WDFW: PHS on the Web	*Mercer Island open space area mapped 750 feet west of subject parcel. Lake Washington mapped with sockeye, steelhead, coho, and Chinook salmon occurrence.*
WDFW: SalmonScape	*Lake Washington mapped with resident coastal cutthroat, kokanee, fall Chinook, winter steelhead, Dolly Varden / bull trout, sockeye and coho presence.*
WA-DNR: Forest Practices Activity Mapping Tool	*Lake Washington mapped as a Shoreline of the State.*
King County iMap	*None mapped onsite.*
City of Mercer Island maps	*None mapped onsite.*
WETS Climatic Condition	*Drier than normal.*

Findings

Wetlands

One wetland (Wetland A) was delineated and flagged in the study area. Wetlands A is summarized in Table 2, below.

Table 3. Wetland A assessment summary.

WETLAND A – Assessment Summary

Location:	Northwestern corner of the subject parcel, along northern edge of driveway.
WRIA / Sub-basin:	Cedar – Sammamish Watershed (WRIA 8) / Mercer Island Sub-basin

2014 Western WA Ecology Rating:	Category IV
Buffer Width and Buffer Setback:	40-foot buffer, 10-foot setback
Wetland Size:	Approx. 1,000 square feet
Cowardin Classification(s):	Palustrine emergent, palustrine scrub-shrub
HGM Classification(s):	Slope
Wetland Data Sheet(s):	DP-3
Upland Data Sheet (s):	DP-4
Flag Color:	Pink- and black-striped
Flag Numbers:	A-1 to A-9

Vegetation	Tree stratum:	N/A
	Shrub stratum:	Himalayan blackberry (*Rubus armeniacus*)
	Herb stratum:	Fringed willow herb (*Epilobium ciliatum*), American speedwell (*Veronica americanus),* giant horsetail (*Equisetum telmateia*)
Soils	Soil survey:	Kitsap silt loam 8-30 percent slopes
	Field data:	Loamy gleyed matrix (F2)
Hydrology	Source:	Groundwater seeps, runoff
	Field data:	Saturation (A3)

Wetland Functions

	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	M	**L**	H	M	**L**	H	M	**L**	
Landscape Potential	H	**M**	L	H	**M**	L	H	**M**	L	
Value	H	**M**	L	H	M	**L**	H	**M**	L	**TOTAL**
Score Based on Ratings	5			4			5			14

Description and Comments

Wetland A is a small slope wetland that originates in the northwestern corner of the subject property and runs along the driveway. A portion of the wetland was above the rockery retaining wall that runs along the driveway. This area is supported by a native high groundwater table and seep.

Lake Washington

The subject property is located along the Lake Washington shoreline. The shoreline is a rock bulkhead with gravel both above and below the rockery, which is approximately three to four feet high on average. There is only a small amount of riparian vegetation present on the north end of the subject parcel, which consists primarily of rhododendrons (*Rhododendron sp.)* and black locust (*Robinia pseudoacacia*).

Local Regulations

Shoreline Jurisdiction

Lake Washington is a shoreline of the state, and therefore all lands within 200 feet of the OHWM (lakeshore) are regulated by Mercer Island City Code (MICC) Chapter 19.13, Mercer Island Shoreline Master Program Regulations. A majority of the subject parcel appears to be within 200 feet of the Lake Washington OHWM.

The property is located with the Urban Residential shoreline environment. Development standards for the Urban Residential (UR) environment are outlined in MICC 19.13.030. A 25-foot setback from the OHWM is required. Single-family dwelling including accessory structures may be permitted via shoreline categorical exemption. The proposed improvements must comply with standards specified in MICC 19.13.050. This includes a maximum hardscape coverage of 10 percent within 25 feet of the OHWM and maximum lot coverage of 30 percent from 25 to 50 feet away from the OHWM.

Wetlands

Wetlands outside of shoreline jurisdiction in Mercer Island are regulated under Chapter 19.07 – Environment. Per MICC 19.07.190, wetlands are rated as one of four categories based on Ecology's 2014 Rating System. According to the Rating System, Wetland A is estimated to score five points for water quality functions, four points for hydrologic functions, and five points for habitat functions, for a total of 14 points (Table 1). This score qualifies Wetland A as a low functioning Category IV wetland. Wetland buffers are determined based on a combination of the wetland category and habitat score. All category IV wetlands require a standard 40-foot buffer under MICC 19.07.190.B. Wetland A will also require a 10-foot building setback which may be reduced to five feet depending on its size.

Wetland A is surveyed at more than 200-feet landward of the lakeshore. A summary of wetland rating and standard buffer width is shown below.

	Water Quality	Hydrologic	Habitat	Total	Category	Buffer Width
Wetland A	5	4	5	14	IV	40 feet

Allowed Uses

One provision in MICC 19.07.190 allows for wetland buffers to end at a legally constructed street where a street transects a wetland buffer, provided that the isolated buffer does not provide additional protection of the wetland and provides insignificant biological, geological, or hydrological buffer functions relating to the wetland. In this case, the existing driveway may qualify as a street. Additional study is required to determine if the naturally vegetated area south of the driveway provides function to the wetland.

Buffer averaging may be used to reduce the size of the buffer in one area and expand it in another area provided that the applicant follows mitigation sequencing outlined in MICC 19.17.100, that the proposed impacts will be mitigated and result in no net loss of ecological function, that the proposed buffer width is not less than 75 percent of the standard buffer at any point, and that the total area of the buffer is equal to the area required without averaging. Buffer averaging may be a feasible option for this property if the wetland is located outside of shoreline jurisdiction.

Buffer reduction is a secondary option to buffer averaging that may be allowed pursuant to 19.07.190.C(6). In order to utilize buffer reduction, the applicant must demonstrate that using buffer averaging would not feasibly allow for development, that mitigation sequencing to avoid, minimize, and then mitigate was followed, that proposed impacts have been mitigated and will result in no let loss of ecological function, the proposed buffer width is not less than 75 percent of the standard buffer at any point, and that the buffer reduction is not proposed in conjunction with buffer averaging.

State and Federal Regulations

Federal Agencies

Most wetlands and streams are regulated by the Corps under Section 404 of the Clean Water Act. Any proposed filling or other direct impacts to Waters of the U.S., including wetlands (except isolated wetlands), would require notification and permits from the Corps. Wetland A appears to be isolated; a Jurisdictional Determination from the Corps would be required to confirm the wetland's jurisdictional status. Unavoidable impacts to jurisdictional wetlands are

typically required to be compensated through implementation of an approved mitigation plan. If activities requiring a Corps permits are proposed, a Joint Aquatic Resource Permit Application (JARPA) could be submitted to obtain authorization.

Federally permitted actions that could affect endangered species may also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Compliance with the Endangered Species Act must be demonstrated for activities within jurisdictional wetlands and the 100-year floodplain. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology and a cultural resource study in accordance with Section 106 of the National Historic Preservation Act.

Washington Department of Ecology (Ecology)

Similar to the Corps, Ecology, under Section 401 of the Clean Water Act, is charged with reviewing, conditioning, and approving or denying certain federally permitted actions that result in discharges to state waters. However, Ecology review under the Clean Water Act would only become necessary if a Section 404 permit from the Corps was issued. However, Ecology also regulates wetlands, including isolated wetlands, under the Washington Pollution Prevention and Control Act, but only if direct wetland impacts are proposed. Therefore, if filling activities are avoided, authorization from Ecology would not be needed.

If filling is proposed, a JARPA may be also be submitted to Ecology in order to obtain a Section 401 Water Quality Certification and Coastal Zone Management Consistency Determination. Ecology permits are either issued concurrently with the Corps permit or within 90 days following the Corps permit. Ecology now requires a Pre-Filing Meeting Request for Clean Water Act Section 401 Water Quality Certification.

In general, neither the Corps nor Ecology regulates wetland and stream buffers, unless direct impacts are proposed. When direct impacts are proposed, mitigated wetlands and streams may be required to employ buffers based on Corps and Ecology joint regulatory guidance.

Washington Department of Fish and Wildlife (WDFW)

Chapter 77.55 of the RCW (the Hydraulic Code) gives WDFW the authority to review, condition, and approve or deny "any construction activity that will use, divert, obstruct, or change the bed or flow of state waters." This provision includes any in-water work, the crossing or bridging of any state waters and can sometimes include stormwater discharge to state waters. If a project meets regulatory requirements, WDFW will issue a Hydraulic Project Approval (HPA).

Through issuance of an HPA, WDFW can also restrict activities to a particular timeframe. Work is typically restricted to late summer and early fall. However, WDFW has in the past allowed crossings that don't involve in-stream work to occur at any time during the year.

Disclaimer

The information contained in this letter is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria referenced above. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state and federal regulatory authorities. No other warranty, expressed or implied, is made.

Please call if you have any questions or if we can provide you with any additional information.

Sincerely,

Grace Brennan
Ecologist

References

Anderson, P.S. et al. 2016. Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State. (Publication #16-06-029). Olympia, WA: Shorelands and Environmental Assistance Program, Washington Department of Ecology.

Department of Ecology (Ecology). 2018. July 2018 Modifications for Habitat Score Ranges. Modified from Wetland Guidance for CAO Updates, Western Washington Version. (Publication #16-06-001). Accessed 8/16/18: https://fortress.wa.gov/ecy/publications/parts/1606001part1.pdf.

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Site Photos

Photo 1. Non-wetland area north of driveway (photo taken 5/19/21).

Photo 2. Non-wetland area south of driveway (photo taken 5/19/21).

Photo 3. Developed residence and maintained lawn area upslope of the Lake (photo taken 5/19/21).

Photo 4. Wetland A looking downslope (photo taken 5/19/21).

Photo 5. Lake Washington shoreline (photo taken 5/19/21).

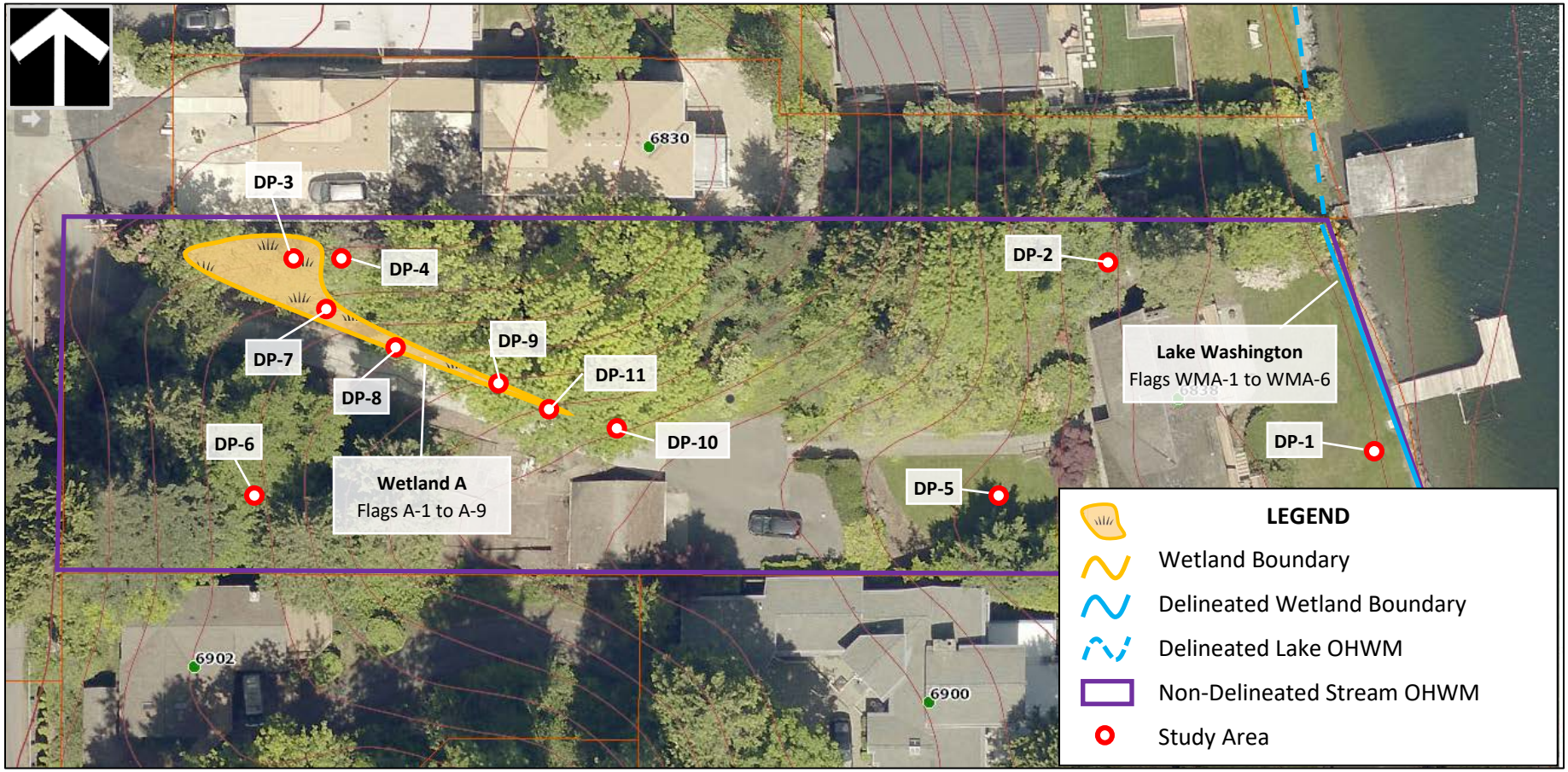
Photo 6. Surface seeps coming out of driveway adjacent to Wetland A (photo taken 7/23/21).

Photo 7. Seeps draining out of lower driveway adjacent to Wetland A (photo taken 7/23/21).

750 Sixth Street South | Kirkland | WA 98033
p 425.822.5242 f 425.827.8136

Wetland and Lake Washington Delineation Sketch – Buttenwieser and Wiley Property

Site Address:	6838 96th Ave SE, Mercer Island	Prepared for:	Janet Buttenwieser and Matthew Wiley
Parcel Number:	3024059010	TWC Ref. No.:	210441
Site Visit Dates:	5/19/2021, 7/23/2021		



Note: Field sketch only. Features depicted are approximate and not to scale. Wetland boundaries are marked with pink- and black-striped flags. Lake Washington boundary marked with blue- and white-striped flags. Data points are marked with yellow- and black-striped flags. All observations were made from within the study area; adjoining private properties were not entered.

THE WATERSHED COMPANY

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

DP - 1

Project/Site: Buttenwieser Property City/County: Mercer Island / King Sampling date: 5/19/2021

Applicant/Owner: J. Buttenwieser, M. Wiley State: WA Sampling Point: DP-1

Investigator(s): G. Brennan, S. Presster Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 5%

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Kitsap silt loam, 15-30% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Low point in grass along Lake Washington shoreline**
Drier than normal according to the WETS table methodology with data from the Seattle-Tacoma International Airport

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 1-m diameter)			
1. *Poa sp.*	50	Y	FAC*
2. *Lotus corniculatus*	50	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: *Presumed FAC

SOIL

Sampling Point: DP-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					Sandy loam	
8-16	2.5Y 4/1	100					Clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in):

Water Table Present? Yes ☐ No ☒ Depth (in):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (in):

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Dry to 16 inches

THE WATERSHED COMPANY

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

DP - 2

Project/Site: Buttenwieser Property | City/County: Mercer Island / King | Sampling date: 5/19/2021

Applicant/Owner: J. Buttenwieser, M. Wiley | State: WA | Sampling Point: DP-2

Investigator(s): G. Brennan, S. Presster | Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): None | Slope (%): 10-15%

Subregion (LRR): A | Lat: - | Long: - | Datum: -

Soil Map Unit Name: Kitsap silt loam, 15-30% slopes | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Slope above residence in Equisetum telmateia patch**
Drier than normal according to the WETS table methodology with data from the Seattle-Tacoma International Airport

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Corylus cornuta*	20	Y	FACU
2. *Acer macrophyllum*	2	N	FACU
3.			
4.			
	22	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Rhododendron macrophyllum*	35	Y	FACU
2. *Rhododendron occidentale*	10	Y	FACU
3.			
4.			
5.			
	45	= Total Cover	
Herb Stratum (Plot size: 1-m diameter)			
1. *Equisetum telmateia*	100	Y	FACW
2. *Rubus occidentalis*	10	N	FACU
3. *Hedera helix*	70	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	180	= Total Cover	
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

SOIL

Sampling Point: DP-2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					Sandy loam	
4-7	2.5Y 4/3	95	7.5YR 4/6	5	C	M	Sandy loam	
7-13	10YR 3/2	100					Sandy loam	
13-16	10YR 5/2	95	7.5YR 4/6	5	C	M	Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☐ No ☒

Remarks: Matrix is too bright to meet redox dark surface

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2) ***NO***
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5) ***NO***
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in):

Water Table Present? Yes ☐ No ☒ Depth (in):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (in):

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Dry to 16”

THE WATERSHED COMPANY

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

DP - 3

Project/Site: Buttenwieser Property City/County: Mercer Island / King Sampling date: 5/19/2021

Applicant/Owner: J. Buttenwieser, M. Wiley State: WA Sampling Point: DP-3

Investigator(s): G. Brennan, S. Presster Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Convex Slope (%): 20

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Kitsap silt loam, 8-15% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Wetland A in-pit; area is highly manipulated**
Drier than normal according to the WETS table methodology with data from the Seattle-Tacoma International Airport

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Malus pumila*	70	Y	FACU
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Rubus armeniacus*	100	Y	FAC
2.			
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: 1-m diameter)			
1. *Equisetum telmateia*	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

SOIL

Sampling Point: DP-3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Silt loam	
6-16	10Y 4/1	90	7.5YR 4/6	10	C	M	Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☒ No ☐

Remarks: Plastic cover on soil surface

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in):

Water Table Present? Yes ☐ No ☒ Depth (in):

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (in): **11”**

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Pockets of saturation starting at 9”

THE WATERSHED COMPANY

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

DP - 4

Project/Site: Buttenwieser Property | City/County: Mercer Island / King | Sampling date: 5/19/2021

Applicant/Owner: J. Buttenwieser, M. Wiley | State: WA | Sampling Point: DP-4

Investigator(s): G. Brennan, S. Presster | Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): None | Slope (%): 15%

Subregion (LRR): A | Lat: - | Long: - | Datum: -

Soil Map Unit Name: Kitsap silt loam, 8-15% slopes | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Wetland A out-pit**
Drier than normal according to the WETS table methodology with data from the Seattle-Tacoma International Airport

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Malus pumila*	100	Y	FACU
2.			
3.			
4.			
	100	= Total Cover	

Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Rubus armeniacus*	100	Y	FAC
2.			
3.			
4.			
5.			
	100	= Total Cover	

Herb Stratum (Plot size: 1-m diameter)			
1. *Hedera helix*	2	N	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	2	= Total Cover	

Woody Vine Stratum (Plot size: 3-m diameter)		
1.		
2.		
	0	= Total Cover

% Bare Ground in Herb Stratum: 98

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	100	x 3 =	300
FACU species	102	x 4 =	408
UPL species		x 5 =	
Column Totals:	202 (A)		708 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

SOIL

Sampling Point: DP-4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2YR 3/1	100					Silt loam	
7-16	2YR 3/1	100					Silt loam	90% gravel fill

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2) ***NO***
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5) ***NO***
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in):

Water Table Present? Yes ☐ No ☒ Depth (in):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (in):

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Dry to 16”

THE WATERSHED COMPANY

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

DP - 5

Project/Site: Buttenwieser Property City/County: Mercer Island / King Sampling date: 5/19/2021

Applicant/Owner: J. Buttenwieser, M. Wiley State: WA Sampling Point: DP-5

Investigator(s): G. Brennan, S. Presster Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Kitsap silt loam, 8-15% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Front lawn just upslope of residence**
Drier than normal according to the WETS table methodology with data from the Seattle-Tacoma International Airport

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 1-m diameter)			
1. *Ranunculus repens*	50	Y	FAC
2. *Poa sp.*	50	Y	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: *presumed FAC

SOIL

Sampling Point: DP-5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	100					Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in):

Water Table Present? Yes ☐ No ☒ Depth (in):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (in):

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Dry to 16”

THE WATERSHED COMPANY

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

DP - 6

Project/Site: Buttenwieser Property | City/County: Mercer Island / King | Sampling date: 5/19/2021

Applicant/Owner: J. Buttenwieser, M. Wiley | State: WA | Sampling Point: DP-6

Investigator(s): G. Brennan, S. Presster | Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 100

Subregion (LRR): A | Lat: - | Long: - | Datum: -

Soil Map Unit Name: Kitsap silt loam, 8-15% slopes | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **In ravine S of driveway**
Drier than normal according to the WETS table methodology with data from the Seattle-Tacoma International Airport

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	60	Y	FAC
2. *Alnus rubra*	30	Y	FAC
3.			
4.			
	90	= Total Cover	

Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Prunus laurocerasus*	40	Y	NL
2.			
3.			
4.			
5.			
	40	= Total Cover	

Herb Stratum (Plot size: 1-m diameter)			
1. *Hedera helix*	100	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	

Woody Vine Stratum (Plot size: 3-m diameter)		
1.		
2.		
	0	= Total Cover

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	90	x 3 =	270
FACU species	100	x 4 =	400
UPL species		x 5 =	
Column Totals:	190 (A)		870 (B)

Prevalence Index = B/A = 4.5

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

SOIL

Sampling Point: DP-6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Sandy loam	
6-16	10YR 4/3	100					Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in):

Water Table Present? Yes ☐ No ☒ Depth (in):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (in):

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

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

Remarks: Very dry to 16”

THE WATERSHED COMPANY

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

DP - 7

Project/Site: Buttenwieser Property City/County: Mercer Island / King Sampling date: 7/23/2021

Applicant/Owner: J. Buttenwieser, M. Wiley State: WA Sampling Point: 7

Investigator(s): N. Lund, G. Brennan Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Flat Slope (%): >10%

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Kitsap silt loam, 15-30% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Wetland A in-pit, in strip of soil between rock wall and driveway**

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5-m diameter)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. Shrubs present are rooted out			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1-m diameter)			
1. *Epilobium ciliatum*	50	Y	FACW
2. *Equisetum arvense*	20	Y	FAC
3. *Equisetum telmateia*	10	N	FACW
4. *Rubus bifrons*	10	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: DP-7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Silt loam	
5-9	10GY 4/1	90	10YR 4/6	10	C	M	Gravelly sandy loam	With cobbles
9-15	10GY 4/1	98	10YR 4/6	2	C	M	Gravelly sandy loam	With cobbles

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (in):		
Water Table Present?	Yes ☒	No ☐	Depth (in):	**6" BGS**	
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (in):	**0" BGS**	

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

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

Remarks: BGS = below ground surface

Ground water seeping onto driveway

THE WATERSHED COMPANY

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

DP - 8

Project/Site: Buttenwieser Property City/County: Mercer Island / King Sampling date: 7/23/2021

Applicant/Owner: J. Buttenwieser, M. Wiley State: WA Sampling Point: DP-8

Investigator(s): N. Lund, G. Brennan Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Flat Slope (%): >10%

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Kitsap silt loam, 15-30% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Wetland A in strip between rock wall and driveway**

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5-m diameter)			
1. All trees rooted out			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. All shrubs rooted out			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1-m diameter)			
1. *Epilobium ciliatum*	15	Y	FACW
2. *Equisetum arvense*	10	Y	FAC
3. *Geranium robertianum*	2	N	FACU
4. *Hedera helix*	5	N	FACU
5. *Rubus bifrons*	5	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	42 = Total Cover		
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum: 68

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	15	x 2 =	30
FAC species	15	x 3 =	45
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	35 (A)		95 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

SOIL

Sampling Point: DP-8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					Gravelly sandy loam	
12-16	5GY 4/1	95	10YR 5/6	5	C	M	Sandy clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (in):		
Water Table Present?	Yes ☒	No ☐	Depth (in):	**14" BGS**	
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (in):	**3" BGS**	

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: BGS = Below ground surface

THE WATERSHED COMPANY

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

DP - 9

Project/Site: Buttenwieser Property City/County: Mercer Island / King Sampling date: 7/23/2021

Applicant/Owner: J. Buttenwieser, M. Wiley State: WA Sampling Point: DP-9

Investigator(s): N. Lund, G. Brennan Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Flat Slope (%): >10%

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Kitsap silt loam, 15-30% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Edge of Wetland A – sparsely vegetated area between rock wall and driveway**

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5-m diameter)			
1. *Acer macrophyllum* (rooted out of pit)			
2. *Pseudotsuga menziesii* (rooted out of pit)			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1-m diameter)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover			
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum:			

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: Click here to enter text. (A)

Total Number of Dominant Species Across all Strata: Click here to enter text. (B)

Percent of Dominant Species that are OBL, FACW, or FAC: Click here to enter text. (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: Sparsely vegetated area between two larger patches of hydrophytic vegetation

SOIL

Sampling Point: DP-9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Gravelly sandy loam	80% gravel
5-16	10YR 2/1 2.5Y 5/1	10 60	10YR 4/6	30	C	M	Sandy clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in):

Water Table Present? Yes ☐ No ☒ Depth (in):

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (in): **2-5" BGS**

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

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

Remarks: BGS = Below ground surface

THE WATERSHED COMPANY

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

DP - 10

Project/Site: Buttenwieser Property City/County: Mercer Island / King Sampling date: 7/23/2021

Applicant/Owner: J. Buttenwieser, M. Wiley State: WA Sampling Point: DP-10

Investigator(s): N. Lund, G. Brennan Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Flat Slope (%): >10%

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Kitsap silt loam, 15-30% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Wetland A out-pit**
Between rock wall and driveway (upslope of previous location of A-6)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5-m diameter)			
1. *Acer macrophyllum* (rooted out of pit)			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Corylus cornuta* (rooted out of pit)			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1-m diameter)			
1. *Epilobium ciliatum*	3	Y	FACW
2. *Sonchus asper*	1	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	4 = Total Cover		
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum: 96

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	3	x 2 =	6
FAC species		x 3 =	
FACU species		x 4 =	
UPL species	1	x 5 =	5
Column Totals:	4 (A)		11 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

SOIL

Sampling Point: DP-10

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y 3/2	100					Gravelly sandy loam	
7-14	2.5Y 4/3 2.5Y 4/4	20 80					Loamy sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in): _____

Water Table Present? Yes ☐ No ☒ Depth (in): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (in): _____

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

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

Remarks: Dry throughout soils

THE WATERSHED COMPANY

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

DP - 11

Project/Site: Buttenwieser Property City/County: Mercer Island / King Sampling date: 7/23/2021

Applicant/Owner: J. Buttenwieser, M. Wiley State: WA Sampling Point: DP-11

Investigator(s): N. Lund, G. Brennan Section, Township, Range: S30 T24N R05E

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Concave Slope (%): 25%

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Kitsap silt loam, 15-30% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Wetland A in-pit, just below obvious surface saturation**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Rubus bifrons*	5	Y	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 1-m diameter)			
1. *Epilobium ciliatum*	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum: 95

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

SOIL

Sampling Point: DP-11

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/2	100					Gravelly sandy loam	
7-13	2.5Y 4/2 10YR 2/2	85 5	10YR 3/4	10	C	M	Loamy sand	Mixed matrix

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in): _____

Water Table Present? Yes ☐ No ☒ Depth (in): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (in): _____

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

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

Remarks: Dry to 13” below ground surface, groundwater seep on adjacent driveway

Wetland name or number: Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 5/19/2021

Rated by: G. Brennan, S. Presster Trained by Ecology? ☒Y ☐N Date of training: 10/2019, 3/2021

HGM Class used for rating: Slope Wetland has multiple HGM classes? ☐Y ☒N

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

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

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	Circle the appropriate ratings									
Site Potential	H	M	**L**	H	M	**L**	H	M	**L**	
Landscape Potential	H	**M**	L	H	**M**	L	H	**M**	L	
Value	H	**M**	L	H	M	**L**	H	**M**	L	**TOTAL**
Score Based on Ratings	5			4			5			14

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	3
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	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	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	6

HGM Classification of Wetlands in Western Washington

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

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

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

   ☒NO – go to 2 ☐**YES** – the wetland class is **Tidal Fringe** – go to 1.1

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

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

   ☒NO – go to 3 ☐**YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ☐The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ☐At least 30% of the open water area is deeper than 6.6 ft (2 m).

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

4. Does the entire wetland unit **meet all** of the following criteria?
   ☒The wetland is on a slope (*slope can be very gradual*),
   ☒The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ☒The water leaves the wetland **without being impounded**.

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

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

5. Does the entire wetland unit **meet all** of the following criteria?
   ☐The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ☐The overbank flooding occurs at least once every 2 years.

Wetland name or number: Wetland A

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

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

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

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

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

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

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

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

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

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

Wetland name or number: Wetland A

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 ☐ Slope is > 1%-2% points = 2 ☐ Slope is > 2%-5% points = 1 ☒ Slope is greater than 5% points = 0	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 ☒	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. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* ☐ Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 ☐ Dense, uncut, herbaceous plants > ½ of area points = 3 ☒ Dense, woody, plants > ½ of area points = 2 ☐ Dense, uncut, herbaceous plants > ¼ of area points = 1 ☐ Does not meet any of the criteria above for plants points = 0	2
Total for S 1 Add the points in the boxes above	2

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	1

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? *At least one aquatic resource in the basin is on the 303(d) list*. ☒Yes = 1 ☐ No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* ☐Yes = 2 ☒ No = 0	0
Total for S 3 Add the points in the boxes above	1

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

Wetland name or number: Wetland A

SLOPE WETLANDS

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

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually >1/8 in), or dense enough, to remain erect during surface flows.* ☐ Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 ☒ All other conditions points = 0	0

Rating of Site Potential If score is: ☐**1 = M** ☒**0 = L** *Record the rating on the first page*

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

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

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

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number: Wetland A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

☐ Aquatic bed	4 structures or more: points = 4
☒ Emergent	3 structures: points = 2
☒ Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
☐ Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

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

☐ Permanently flooded or inundated	4 or more types present: points = 3
☐ Seasonally flooded or inundated	3 types present: points = 2
☐ Occasionally flooded or inundated	2 types present: points = 1
☒ Saturated only	1 type present: points = 0
☐ Permanently flowing stream or river in, or adjacent to, the wetland	
☐ Seasonally flowing stream in, or adjacent to, the wetland	
☐ **Lake Fringe wetland**	**2 points**
☐ **Freshwater tidal wetland**	**2 points**

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

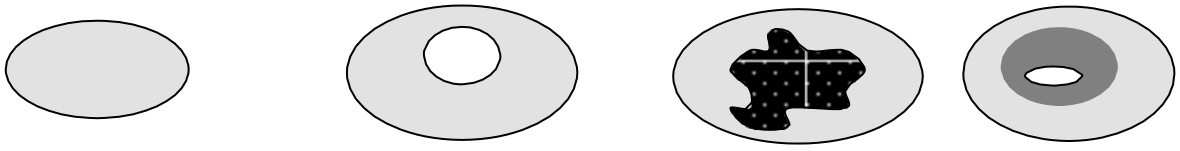
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

1

H 1.4. Interspersion of habitats

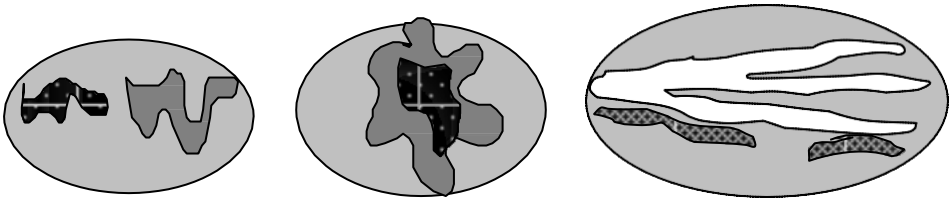
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



☐ **None** = 0 points ☒ **Low** = 1 point ☐ **Moderate** = 2 points

All three diagrams in this row are

☐ **HIGH** = 3points



1

Wetland name or number: Wetland A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ☐ Standing snags (dbh > 4 in) within the wetland. ☐ Undercut banks are present for at least 6.6 ft (2 m) **AND/OR** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m). ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR** signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed).* ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians).* ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*).	03
Total for H 1 Add the points in the boxes above	3

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2] = **0% + (0%/2) = 0%** If total accessible habitat is: ☐ > 1/3 (33.3%) of 1 km Polygon points = 3 ☐ 20-33% of 1 km Polygon points = 2 ☐ 10-19% of 1 km Polygon points = 1 ☒ < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2 **= 0% + (65.3%/2) = 32.7%** ☐ Undisturbed habitat > 50% of Polygon points = 3 ☒ Undisturbed habitat 10-50% and in 1-3 patches points = 2 ☐ Undisturbed habitat 10-50% and > 3 patches points = 1 ☐ Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3. Land use intensity in 1 km Polygon: If ☐ > 50% of 1 km Polygon is high intensity land use points = (- 2) ☒ ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	2

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

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

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

Wetland name or number: Wetland A

WDFW Priority Habitats

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wetland name or number: Wetland A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐Yes –Go to **SC 1.1** ☒No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐Yes = **Category I** ☐No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐Yes = **Category I** ☐No= **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☒Yes – Go to **SC 2.2** ☐No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? http://www.dnr.wa.gov/NHPwetlandviewer ☐Yes = **Category** I ☒No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf ☐Yes **– Contact WNHP/WDNR and go to SC 2.4** ☐No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐Yes = **Category I** ☐No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐Yes – Go to **SC 3.3** ☒No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐Yes – Go to **SC 3.3** ☒No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐Yes = **Is a Category I bog** ☐No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐Yes = **Is a Category I bog** ☐No = **Is not a bog**	**Cat. I**

Wetland name or number: Wetland A

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). ☐Yes **= Category I** ☒No **= Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ☐Yes – Go to **SC 5.1** ☒No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. ☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2) ☐Yes = **Category I** ☐No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: ☐ Long Beach Peninsula: Lands west of SR 103 ☐ Grayland-Westport: Lands west of SR 105 ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 ☐Yes – Go to **SC 6.1** ☒No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ☐Yes = **Category I** ☐No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? ☐Yes = **Category II** ☐No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? ☐Yes = **Category III** ☐No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

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2014 Ecology Wetland Rating Form Figures

BUTTENWIESER PROPERTY

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WETLAND A (SLOPE)

Figure 1. Cowardin plant classes – H1.1, H1.4

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

Figure 2. Hydroperiods and 150-foot area – H1.2, S2.1, S5.1

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

Figure 3. Plant cover of dense and rigid trees, shrubs, and herbaceous plants – S1.3, S4.1

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

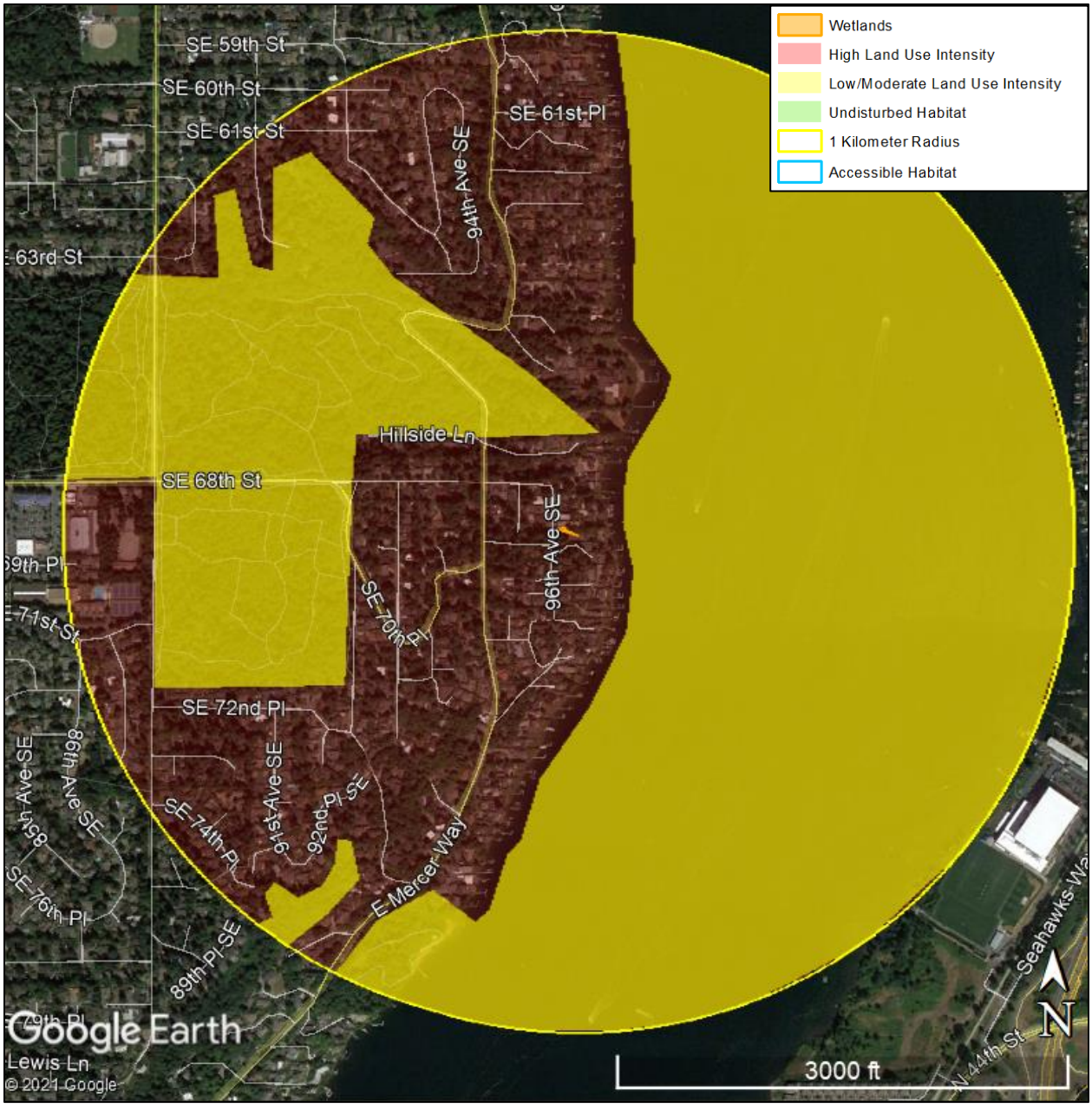

Figure 4. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

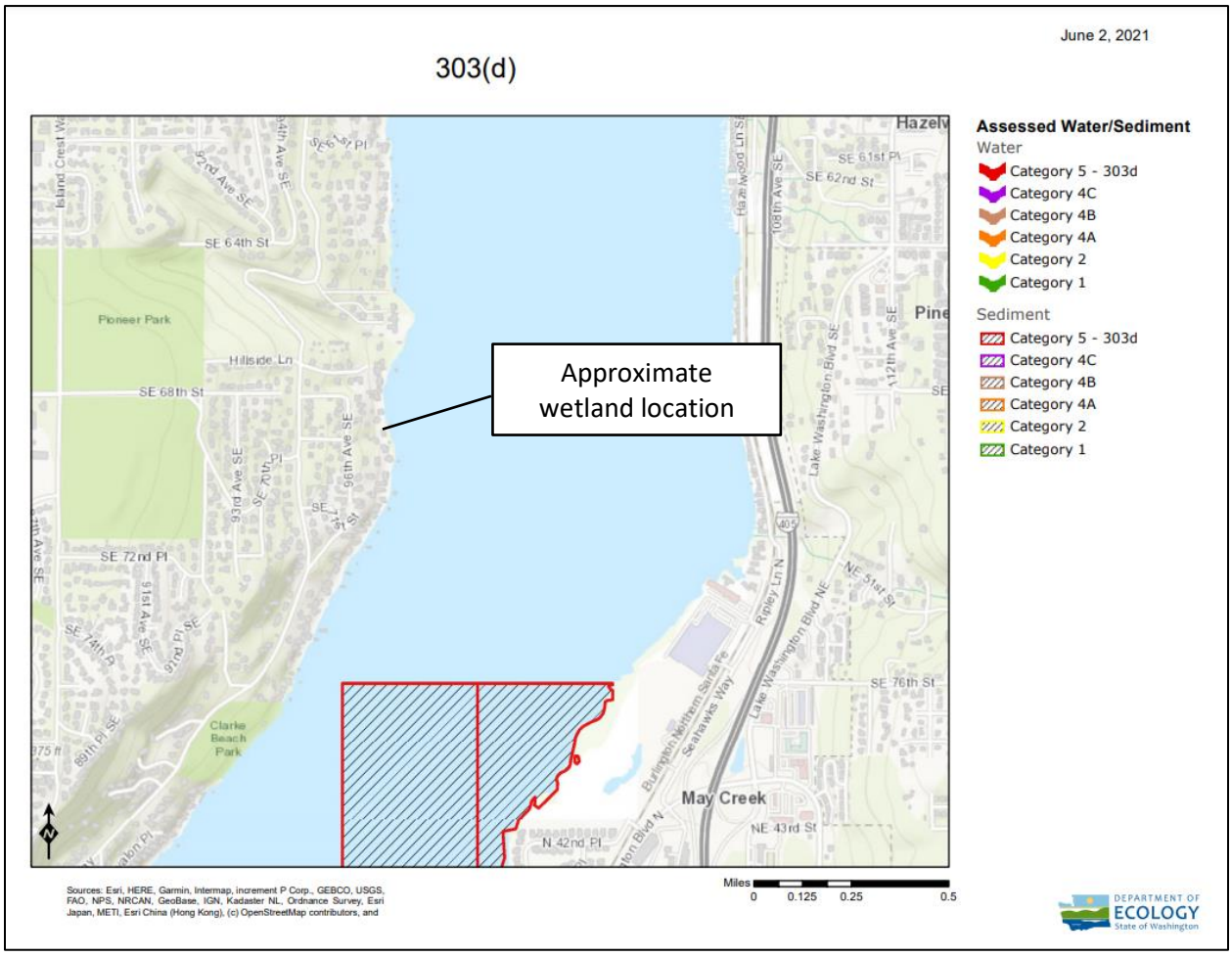

Figure 5. Screen-capture of 303(d) listed waters in basin – S3.1, S3.2

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

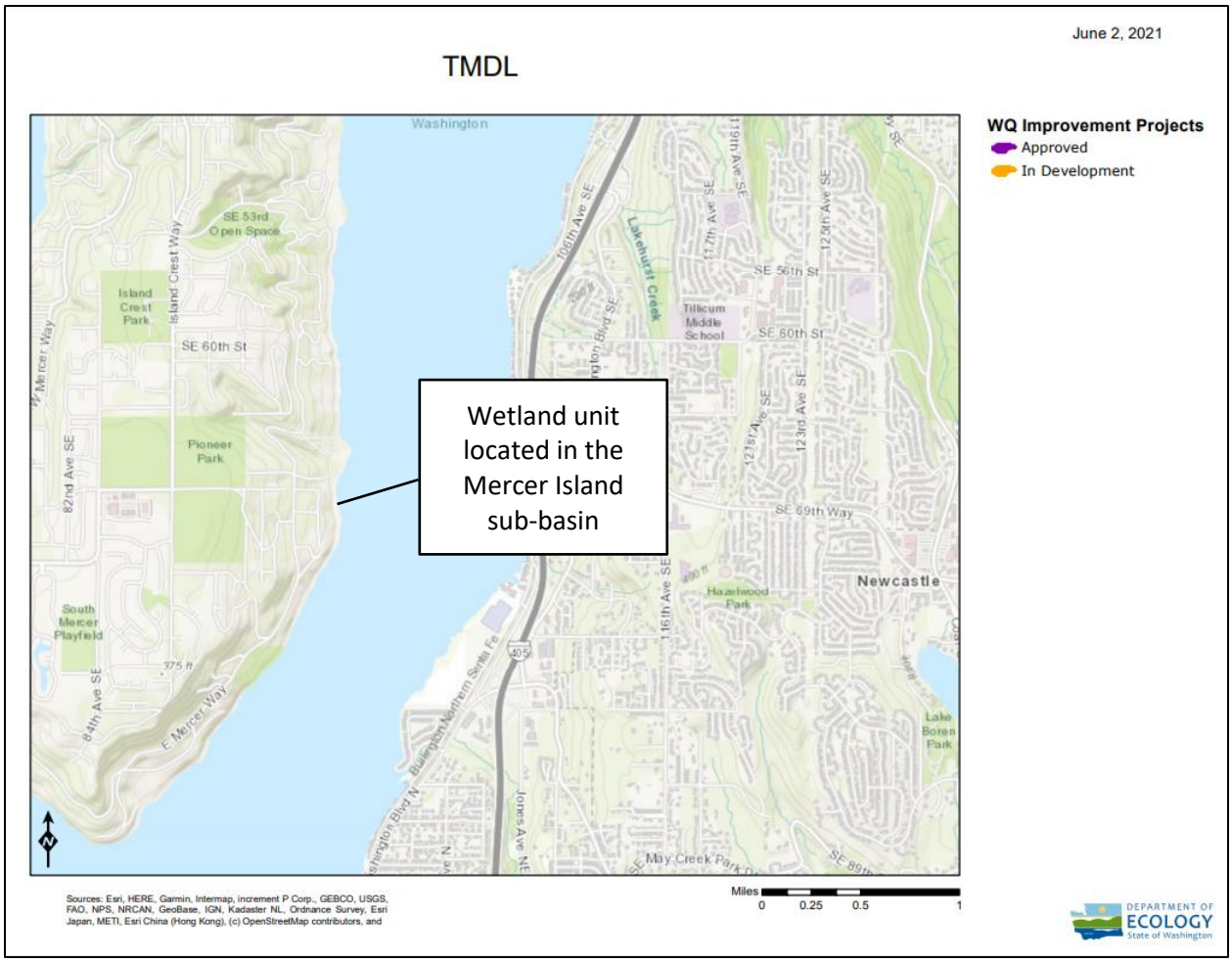

Figure 6. Screen-capture of TMDL list for WRIA in which unit is found – S3.3

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

Appendix C

BOND QUANTITY WORKSHEET

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King County

Department of Permitting and
Environmental Review
35030 SE Douglas Str, Suite 210
Snoqualmie, WA 98065-9266
206-296-6600 TTY Relay: 711

Critical Areas Mitigation
Bond Quantity Worksheet

C24 09/09/2015
ls-wks-sensareaBQ.xls
ls-wks-sensareaBQ.pdf

Project Name: Mercer Island Buttenwieser & Wiley **Date:** 11/23/21 **Prepared by:** The Watershed Co., Nell Lund

Project Number: 210441 **Project Description:** Single Family home remodel

Location: 6838 96th Ave SE, Mercer Island, WA **Applicant:** Buttenwieser & Wiley **Phone:** 425-822-5242

PLANT MATERIALS (includes labor cost for plant installation)

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	$5.00	Each	27.00		$ 135.00
PLANTS: Container, 1 gallon, medium soil	$11.50	Each	67.00		$ 770.50
PLANTS: Container, 2 gallon, medium soil	$20.00	Each			$ -
PLANTS: Container, 5 gallon, medium soil	$36.00	Each	25.00	22 of these are 3 gal. per plan	$ 900.00
PLANTS: Seeding, by hand	$0.50	SY	194.00		$ 97.00
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			$ -
				TOTAL	**$ 1,902.50**

INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)

Type	Unit Price	Unit			Cost
Compost, vegetable, delivered and spread	$37.88	CY	18.00		$ 681.84
Decompacting till/hardpan, medium, to 6" depth	$1.57	CY	53.00		$ 83.21
Decompacting till/hardpan, medium, to 12" depth	$1.57	CY			$ -
Hydroseeding	$0.51	SY	194.00		$ 98.94
Labor, general (landscaping other than plant installation)	$40.00	HR	32.00		$ 1,280.00
Labor, general (construction)	$40.00	HR	16.00		$ 640.00
Labor: Consultant, supervising	$55.00	HR	4.00		$ 220.00
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	3.00		$ 21.00
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	0.07		$ 210.00
Irrigation - buried	$4,500.00	Acre			$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	$1.02	SY			$ -
				TOTAL	**$ 3,234.99**

HABITAT STRUCTURES*

ITEMS	Unit Cost	Unit			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				*TOTAL*	**$ -**

EROSION CONTROL

ITEMS	Unit Cost	Unit			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			$ -
Fence, silt	$1.60	LF	300.00	see civil plans, estimated	$ 480.00
Jute Mesh	$1.26	SY			$ -
Mulch, by hand, straw, 2" deep	$1.27	SY			$ -
Mulch, by hand, wood chips, 2" deep	$3.25	SY	126.00		$ 409.50
Mulch, by machine, straw, 1" deep	$0.32	SY			$ -
Piping, temporary, CPP, 6"	$9.30	LF			$ -
Piping, temporary, CPP, 8"	$14.00	LF			$ -
Piping, temporary, CPP, 12"	$18.00	LF			$ -
Plastic covering, 6mm thick, sandbagged	$2.00	SY			$ -
Rip Rap, machine placed, slopes	$33.98	CY			$ -
Rock Constr. Entrance 100'x15'x1'	$3,000.00	Each			$ -
Rock Constr. Entrance 50'x15'x1'	$1,500.00	Each			$ -
Sediment pond riser assembly	$1,695.11	Each			$ -
Sediment trap, 5' high berm	$15.57	LF			$ -
Sediment trap, 5' high berm w/spillway incl. riprap	$59.60	LF			$ -
Sodding, 1" deep, level ground	$5.24	SY			$ -
Sodding, 1" deep, sloped ground	$6.48	SY			$ -
Straw bales, place and remove	$600.00	TON			$ -
Hauling and disposal	$20.00	CY			$ -
Topsoil, delivered and spread	$35.73	CY			$ -
				TOTAL	**$ 889.50**

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			$ -
				TOTAL	**$ -**

OTHER

				(Construction Cost Subtotal)	**$ 6,026.99**
ITEMS	Percentage of Construction Cost	Unit			Cost
Mobilization	10%	1			$ 602.70
Contingency	30%	1			$ 1,808.10
				TOTAL	**$ 2,410.80**

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 maintance ranges may be assessed anywhere from 5 to 10 years.

Maintenance, annual (by owner or consultant)					
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	10.00	(4hr @$45/hr)	$ 1,800.00
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		(8 hrs @ 45/hr)	$ -
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 (by owner or consultant)					
Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation	$ 720.00	EACH	11.00	(8 hrs @ 90/hr)	$ 7,920.00
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts	$ 900.00	EACH		(10 hrs @ $90/hr)	$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	$ 1,440.00	DAY		(16 hrs @ $90/hr)	$ -
Larger than5 acres - buffer and / or wetland or aquatic area impacts	$ 2,160.00	DAY		(24 hrs @ $90/hr)	$ -
				TOTAL	**$ 9,720.00**

Total	**$18,157.79**