CRITICAL AREAS REPORT

4006 E. Mercer Way – Shoreline Modification

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CRITICAL AREAS REPORT

4006 E. MERCER WAY

1 INTRODUCTION

This critical area study is prepared as part of a proposal to permit proposed internal remodel of single-family residence located at 4006 E. Mercer Way in Mercer Island, Washington (parcel 4131900005), a garage addition, and an expansion of outdoor patio areas.

The property is situated along the Lake Washington shoreline. There is one Category III, lake-fringe wetland on the property. This report is intended to satisfy the requirements of the Mercer Island City Code (MICC) and Shoreline Master Program (SMP). It provides a description of existing site conditions, proposed improvements, proposed buffer modification, shoreline enhancement, and mitigation sequencing to ensure no net loss of shoreline or buffer ecological functions.

2 METHODS

Field investigations for the delineation study were conducted on January 1, 2020, by The Watershed Company.

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. The wetland was 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 Lake Washington shoreline was delineated 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).

3 EXISTING CONDITIONS

3.1 Setting

The subject parcel (parcel # 4131900005) is located at 4006 E. Mercer Way in Mercer Island, Washington; in Section 17 of Township 24 North, Range 5 East of the Public Land Survey System (PLSS). The property is approximately 0.83 acres in size and situated in the Mercer Island sub-basin of the Cedar-Sammamish Watershed (Water Resource Inventory Area [WRIA] 8; Figure 1). The subject parcel is zoned residential (R-9.6).

The subject property currently includes an existing single-family residence with attached garage built in 1906, an elevated patio, a paved driveway and parking area, maintained lawn areas, scattered ornamental plantings, existing dock with covered boat slips, a concrete walkway approaching the Lake Washington shoreline at the east end of the property, and a non-structural wooden boat ramp adjacent the shoreline. The eastern portion of the property comprises the developed area, while the western portion is a moderately sloped forested area, portions of which are mapped as "protected slope areas" per the Mercer Island GIS Portal.

The property is surrounded to the north, south, and west by existing single-family residences, all zoned R-9.6. The parcel slopes approximately 95 feet over approximately 435 lineal feet down to Lake Washington.

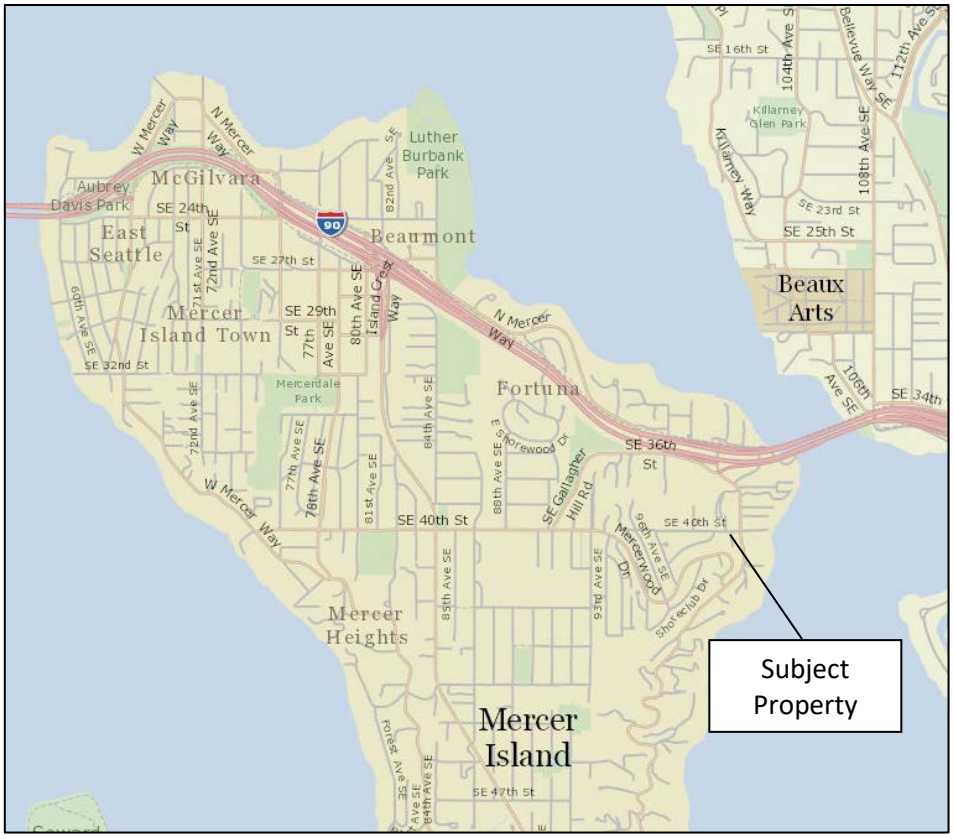


Figure 1. A vicinity map showing the location of the site (source: King County iMap).

Figure 2. Aerial photograph of subject property (source: King County iMap).

3.2 Lake Washington Shoreline

The existing shoreline area is composed of medium-sized gravel below the OHWM. A small rock bulkhead is present along the northwest shoreline. An existing wooden dock and covered boat slip extends westward from the shoreline, and a concrete path extends from the existing residence towards the shoreline. Landward of the OWHM, the shoreline is composed entirely almost entirely of mowed lawn areas. The existing residence is located approximately 100 feet west of the OHWM, with the elevated patio encroaching to within approximately 85 feet of the shoreline at its closest point.

Figure 3: Existing residence and lawn area, facing east from Lake Washington shoreline (6/01/20)

3.3 Wetland A

Wetland is a Category III, lake-fringe wetland that is contiguous with the Lake Washington shoreline, extending approximately 10-12 feet landward of the OHWM. The primary vegetation in Wetland A includes birds-foot trefoil (*Lotus corniculatus*), velvet grass (*Holcus lanatus*), and yellow-flag iris (*Iris pseudacorus*). The indicator soil in Wetland A is a very dark grey (10YR 3/1) sandy clay loam with redoximorphic features present. The soil satisfies the hydric soil criteria for Redox Dark Surface (F6). Hydrology for Wetland A is provided by a high water table associated with hyporheic flow from Lake Washington. Under the 2014 Rating System, Wetland A is a Category III wetland with three habitat points.

Figure 4. Wetland A and Lake Washington Shoreline with wooden boat ramp in background, facing south (6/01/20).

4 PROJECT PURPOSE AND APPROACH

The proposed development includes renovation of the existing residence, a new attached garage, and patio expansions. New impervious surfaces within the 200-foot shoreline jurisdiction will equal 1,292 square feet. The expanded patio, at its closest point, will be approximately 80 feet from the Lake Washington OHWM and approximately 70 feet from the edge of Wetland A. In order to allow the proposed development, the applicant proposes to apply the standard 60-foot buffer for Wetland A under MICC 19.07.190(C)1 by implementing the impact minimization measures under MICC 19.07.190(D)2. This will allow the proposed structure to remain outside of the wetland buffer and 10-ft BSBL. The project also proposes enhancing 1,251 square feet of the 1,668 square feet of shoreline within 20 feet of the lake OHWM (75 percent of the total area within 20 feet of the OHWM); this includes 481 square feet of Wetland A and 770 square feet of Wetland A buffer.

The project will include replacement of part of the existing stormwater system, which no longer functions correctly. Roof runoff will go to the standard tight line system and discharge into

Lake Washington. Driveway runoff will go into a trench drain that will have standard oil water separator and then to tight line to lake. The drainpipes will be constructed with trenchless installation through the wetland and buffer to avoid all disturbance impacts. See Civil Plans for details.

The project will result in the removal of two existing trees on-site, outside of the standard wetland buffer. Trees to be removed will be replaced in accordance with the tree standards under MICC 19.10 (See Tree Protection and Replacement Plan).

5 REGULATIONS

Projects located within 200 feet of shorelines of the state (Lake Washington) are regulated under the Mercer Island Shoreline Master Program (MICC 19.13) (SMP). The subject property is designated Urban Residential under the SMP. Single-family residences, including appurtenant features, in the Urban Residential shoreline designation are allowed as a Shoreline Exemption. All structures in the shoreline zone must be set back at least 25 feet from the OHWM. The maximum impervious surface coverage allowed is 10% between 0 and 25 feet from the OHWM and 30% between 25 and 50 feet from the OHWM (MICC 19.13.050[A], Table C).

Under MICC 19.13.050(K)4, new development of more than 1,000 square feet of additional impervious surfaces within shoreline jurisdiction shall be required to also provide native vegetation coverage over 75 percent of the 20-foot vegetation area immediately above the OHWM.

As a shoreline-associated wetland, Wetland A is also regulated under the SMP. Under the SMP (MICC 19.13.10[D]6), if the applicable minimizing measures listed in MICC 19.07.190(D)(3) are not implemented, the standard buffer for a Category III wetland with three habitat points is 100 feet. If the minimization measures are implemented, then the wetland buffers under MICC 19.07.190(C) may be applied. The standard buffer for a Category III wetland with three habitat points under MICC 19.07.190(C) is 60 feet. A 10-foot BSBL applies beyond all wetland buffers.

Compliance with the minimization measures is discussed in Table 1 below.

Table 1: Measures to Minimize Potential Wetland Impacts

Disturbance	Potential Measures to Minimize Impacts	Project Application
Lights	Direct lights away from wetland.	Lights will be directed away from the wetland. Outdoor lighting will be directed towards the house or down.
Noise	Locate activity that generates noise away from wetland.	The primary noise-generating component will be the driveway and garage. These components

Disturbance	Potential Measures to Minimize Impacts	Project Application
	If warranted, enhance existing buffer with native vegetation plantings adjacent to noise source. For activities that generate relatively continuous, potentially disruptive noise, such as certain heavy industry or mining, establish an additional 10-foot heavily vegetated buffer strip immediately adjacent to the outer wetland buffer.	will be more than 100 feet from Wetland A. The garage will be constructed on the back side of the existing home, more than 150 feet from Wetland A. Portions of Wetland A and its buffer will be enhanced with native trees shrubs and groundcovers, providing additional noise buffering. The single-family residential development will not constitute continuous, disruptive noise.
Toxic runoff	Route all new, untreated runoff away from wetland while ensuring wetland is not dewatered Establish covenants requiring the use of integrated pest management techniques to limit the use of pesticides within 150 feet of wetland	Stormwater runoff will be directed away from the wetland and buffer. All roof and driveway runoff will be directed to the existing, repaired tightline system that discharges to Lake Washington. Driveway runoff will be directed through an oil/water separator prior to discharge. Wetland hydrology is provided by hyporheic flow from Lake Washington. The property development will not affect wetland hydrology. New runoff will be from non-pollutant generating surfaces (decks and garage roof). The garage is more than 150 feet from the wetland. The shoreline mitigation plan does not allow the use of pesticides.
Storm water runoff	Retrofit storm water detention and treatment for roads and existing adjacent development. Prevent channelized flow from lawns that directly enters the buffer. Use low impact development techniques.	The project will include replacement of part of the existing stormwater system, which no longer functions correctly. Roof runoff will go to the standard tight line system and discharge into Lake Washington. Driveway runoff will go into a trench drain that will have standard oil water separator and then to tight line to lake.
Changes in water regime	Infiltrate or treat, detain, and disperse into buffer new runoff from impervious surfaces and new lawns.	Runoff will be routed to the existing, stormwater system, which tightlines runoff to Lake Washington. Impervious surfaces within the Wetland A buffer will be removed.

Disturbance	Potential Measures to Minimize Impacts	Project Application
Pets and human disturbance	Protect wetlands and associated buffers with conservation or native growth protection easements.	As an existing, single-family residence, placing the wetland/buffer into a conservation easement is unwarranted. The wetland and buffer will be protected by the Mercer Island CAO and SMP in perpetuity.
Dust	Use best management practices to control dust.	Not applicable. The completed project will not generate elevated levels of dust.
Disruption of corridors or connections	Maintain connections to off-site areas that are undisturbed. Restore corridors or connections to off-site habitats by replanting.	Wetland A will have a vegetated corridor connecting to Lake Washington. The wetland/shoreline area and a portion of the buffer will be enhanced with native vegetation.

Under MICC 19.07.130.C, storm water retrofit facilities installed pursuant to the city's NPDES Phase II permit are exempt from the development standards of MICC 19.07. The new stormwater system will replace the existing non-functional system, and it will include an oil-water separator; this additional BMP will represent an overall improvement in reducing pollutant discharge. Since Wetland A and its buffer extend across the entire eastern portion of the property, there is no option to avoid crossing the features to reach the discharge point in the lake. By using a trenchless installation, construction will not disturb the vegetation in Wetland A or its buffer.

6 IMPACT ASSESSMENT

The proposal is for an interior remodel of existing single-family residence, the addition of an attached garage, and additional outdoor patio space, while enhancing the shoreline zone, Wetland A, and a portion of the Wetland A buffer. All of the proposed impervious surface additions are located outside of the applied 60-foot Wetland A buffer and 10-foot BSBL. The restoration and enhancement plantings will provide improved ability to trap and filter runoff as well as reduce surface water velocities entering the lake, as compared to the existing mowed lawn. These areas will also provide improved habitat functions for small mammals, songbirds, and pollinators, as compared to the existing condition, by improving forage and cover opportunities in the shoreline zone, Wetland A, and the buffer.

To further improve critical area functions, a 124-square-foot wooden boat ramp that is above grade and not structurally supported in Wetland A will be removed, as will 100 feet of concrete path within the wetland buffer.

Table 2 summarizes the area of proposed impacts and mitigation within the 25- and 50-foot shoreline setbacks and the wetland buffer. No impervious surfaces are proposed within the shoreline setbacks or the wetland buffer. The proposal will result in a net reduction of 224 SF square feet of impervious surface in wetland. A total of 1,251 square feet of the shoreline zone will be enhanced with native trees, shrubs, and groundcovers to improve wetland, shoreline, and wetland buffer functions. The shoreline enhancement also complies with the requirements of MICC 19.13.050(K)4.i. The 1,251 square-foot enhancement area equals 75 percent of the area within 20 feet of the lake OHWM. The remaining 25 percent will remain as mowed lawn to allow continued access to the existing dock and boat slip.

Table 2: Summary of impact/enhancement within 50-foot shoreline setback area.

Feature	Impervious Removed	New Impervious	Shoreline Setback Enhancement Area
50-ft Lake WA Shoreline Setback	124 SF*	0 SF	1,251 SF**

* Also located within Wetland A

**All located within 20 feet of the OHWM; includes 481 SF of Wetland A

6.1 No Net Loss

All proposed new development will occur outside of the 60-foot wetland buffer and the 10-foot BSBL. The proposed project will result in enhanced shoreline and wetland/wetland buffer ecological functions. The current condition of the shoreline buffer is degraded and provides little to no protective functions. The presence of the wooden boat ramp and paved path precludes infiltration of surface runoff entering the lake and Wetland A. The wooden boat ramp, paved path, and mowed lawn, provide no substantive wildlife habitat. By removing the boat ramp and paved path and revegetating the areas will improve the ability of the shoreline setback and wetland buffer to trap and filter stormwater runoff will be increased, helping to improve water quality in the lake. The infiltration capacity will also be improved, which will help maintain a more natural hydrograph. Finally, the establishment of a native tree, shrub, and groundcover community will provide greater forage and cover opportunities for wildlife than the existing condition.

7 MITIGATION AND RESTORATION PLAN

7.1 Overview

A comprehensive five-year maintenance and monitoring plan is included as part of the buffer enhancement. The plan specifies appropriate species for planting and planting techniques, describes proper maintenance activities, and sets forth performance standards to be met yearly

during monitoring. This will ensure that enhancement/restoration plantings will be maintained, monitored, and successfully established within the first five years following implementation.

Proposed restoration begins with removal of impervious surfaces and incorporating compost into the buffer enhancement area. No compost shall be applied in the wetland. This will be followed by installation of three native trees, seven native shrub species, and eight native groundcover species suitable to the site. The plan calls for new plantings within the inner 20-foot shoreline setback area, including within Wetland A, and the overlapping shoreline setback/Wetland A buffer. Native plantings are intended to increase native plant cover, improve native species diversity, increase vegetative structure, and provide food and other habitat resources for wildlife.

7.2 Goals

Enhance shoreline buffers.

a. Reduce the amount of impervious surface area within the wetland buffer and shoreline setback.

b. Establish dense and diverse native tree, shrub, and groundcover vegetation throughout the mitigation area.

7.2.1 Performance Standards

The standards listed below will be used to judge the success of the plan over time. If the standards are met at the end of the five-year monitoring period, the City shall issue release of the performance bond.

1. Survival:
    a. 100% survival of all installed trees and shrubs at the end of Year-1. This standard may be met through establishment of installed plants or by replanting as necessary to achieve the required numbers.
    b. 80% survival of all installed trees and shrubs at the end of Year 2. This standard may be met through establishment of installed plants or by replanting as necessary to achieve the required numbers.
2. Native vegetation cover in planted areas:
    a. Achieve at least 60% cover of native trees, shrubs, and groundcovers in planted areas by the end of Year 3. Volunteer species may count toward this standard.
    b. Achieve at least 80% cover of native trees, shrubs, and groundcovers in planted areas by the end of Year 5. Volunteer species may count toward this standard.
3. Diversity: A minimum of two tree species, five shrub species, and five emergent species will be present in the mitigation area in Years 3 – 5.

4. Invasive species standard: No more than 10% cover of invasive species in the planting area in any monitoring year. Invasive species are defined as any Class A, B, or C noxious weeds as listed by the King County Noxious Weed Control Board.

7.3 Monitoring Methods

This monitoring program is designed to track the success of the mitigation site over time by measuring the degree to which the performance standards listed above are being met. An as-built plan will be prepared within 30 days of substantially complete construction of the mitigation areas. The as-built plan will document conformance with these plans and will disclose any substitutions or other non-critical departures. The as-built plan will establish baseline plant installation quantities and photopoints that will be used throughout the monitoring period to visually document site changes over time.

Monitoring will occur annually for five years. The inspection will occur in late summer or fall and will record the following and be submitted in an annual report to the City:

1. Counts of surviving and dead/dying plants by species in the planting areas.
2. Estimates of native species cover using cover class method.
3. Estimates of invasive species cover using cover class method.
4. Photographic documentation at permanent photopoints.
5. Recommendations for maintenance in the mitigation areas.
6. Recommendations for replacement of all dead or dying plant material with same or like species and number as on the approved plan.

7.4 Construction Notes and Specifications

General Notes

The restoration specialist will oversee the following:

1. Clearing, soil decompaction, and compost incorporation;
2. Invasive weed clearing; and
3. Plant material inspection.
    a) Plant delivery inspection.
    b) 100% plant installation inspection.

Work Sequence

1. Clear the planting area of all invasive species using hand tools.
2. Roto-till three inches of compost into the upper 9 inches of the soil in buffer areas only. Do not apply compost within the wetland area.

3. All plant installation will take place during the dormant season (October 15th to March 1st).
4. Layout vegetation to be installed per the planting plan and plant schedule.
5. Prepare a planting pit for each plant and install per the planting details.
6. Mulch each tree and shrub with a circular wood chip mulch ring, four inches thick and extending six inches from the base of the plant (12-inch diameter) in the buffer areas only. Do not apply mulch in wetland area. Alternatively, a blanket mulch application may be applied to the entire restoration area.

7.5 Maintenance

This site will be maintained for five years following completion of the plant installation.

1. Replace each plant found dead in the summer monitoring visit during the upcoming fall dormant season (October 15th to March 1st).
2. Invasive species maintenance plan: Himalayan blackberry, English ivy, English laurel, and other invasive woody vegetation will be grubbed out by hand on an ongoing basis, with care taken to grub out roots except where such work will jeopardize the roots of installed or volunteer native plants. Do not use herbicides in the planting areas.
3. At least twice yearly, remove by hand all competing weeds and weed roots from beneath each installed plant and any desirable volunteer vegetation to a distance of 12 inches from the main plant stem. Weeding should occur as needed during the spring and summer. Frequent weeding will result in lower mortality and lower plant replacement costs.
4. Do not weed the area near the plant bases with string trimmer (weed whacker). Native plants are easily damaged or killed, and weeds easily recover after trimming.
5. Do not use herbicides in the planting areas.
6. Mulch the weeded areas beneath each plant with wood chip mulch as necessary to maintain a minimum 4-inch-thick, 12-inch-diameter mulch ring.
7. The temporary irrigation system will be operated to ensure that plants receive a minimum of one inch of water per week from June 1st through September 30th for the first two years following installation. Irrigation beyond the second year may be needed based on site performance or significant replanting.

7.6 Contingency Plan

If all or part of the mitigation area fails to establish according to the goals and performance standards, a contingency plan shall be developed. Contingency measures may include, but are not limited to, plant species substitutions, soil amendments, herbivore exclusion fencing, modified irrigation schedule, and adaptive weed management.

7.7 Material Specifications and Definitions

1. Irrigation system: Automated system capable of delivering at least one inch of water per week from June 1 through September 30 for the first two years following installation.

2. Restoration professional: Watershed Company [(425) 822-5242)] personnel, or other persons qualified to evaluate environmental restoration projects.

3. Wood chip mulch: Arborist chips (chipped woody material) approximately 1 to 3 inches in maximum dimension (not sawdust or coarse hog fuel). Mulch must not contain appreciable quantities of garbage, plastic, metal, soil, and dimensional lumber or construction/demolition debris. Quantity required: 0.5 cubic yards.

4. Compost: Cedar Grove compost or equivalent "composted material" per Washington Admin. Code 173-350-220.

8 SUMMARY

The applicant proposes to renovate and existing single-family residence, add an attached driveway, and expand the outdoor patio areas, within the designated shoreline zone. In order to allow the proposed development, the applicant proposes to implement the standard 60-foot buffer for Wetland A under MICC 19.07.190(C)1 by implementing the impact minimization measures under MICC 19.07.190(D)2. All elements of the project comply with the Mercer Island SMP and Critical Areas Regulations; the applicant is not requesting a variance or reasonable use exception. In order to ensure no net loss of functions and to maintain compliance with MICC 19.13.050(K)4.i, the project will enhance 75 percent of the area within 20 feet of the OHWM with a mix of native trees, shrubs, and groundcovers. A 171 square-foot wooden boat ramp, which is located in the shoreline setback and Wetland A, will be removed; approximately 100 square feet of existing paved path in the wetland buffer will be removed; and 1,251 square feet of shoreline setback will be planted/restored. No new development ins proposed within 50 feet of the shoreline or within Wetland A or its buffer.

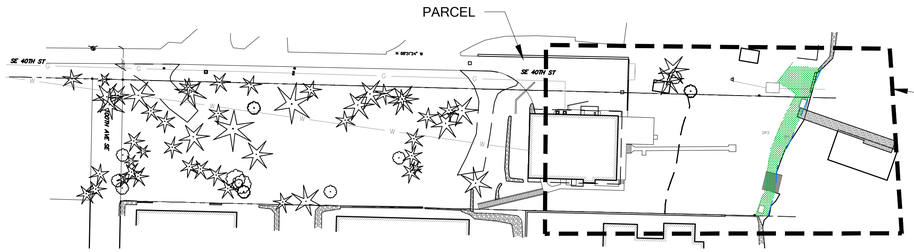
The reduction of impervious surfaces, installation of mitigation plantings, soil decompaction and amendment within the shoreline setback will improve water quality, hydrology, and habitat functions. The proposed planting plan incorporates a diversity of native plant species, including trees, shrubs, and groundcover plants. The proposed plan will provide better protection of the shoreline environment than exists under current conditions.

Finally, a comprehensive five-year maintenance and monitoring plan has been prepared. This plan will ensure that proposed enhancement plantings will be maintained, monitored, and successfully established within the first five years following implementation. Overall, a net improvement in on-site shoreline and buffer ecological functions is the expected result of the project.

APPENDIX A

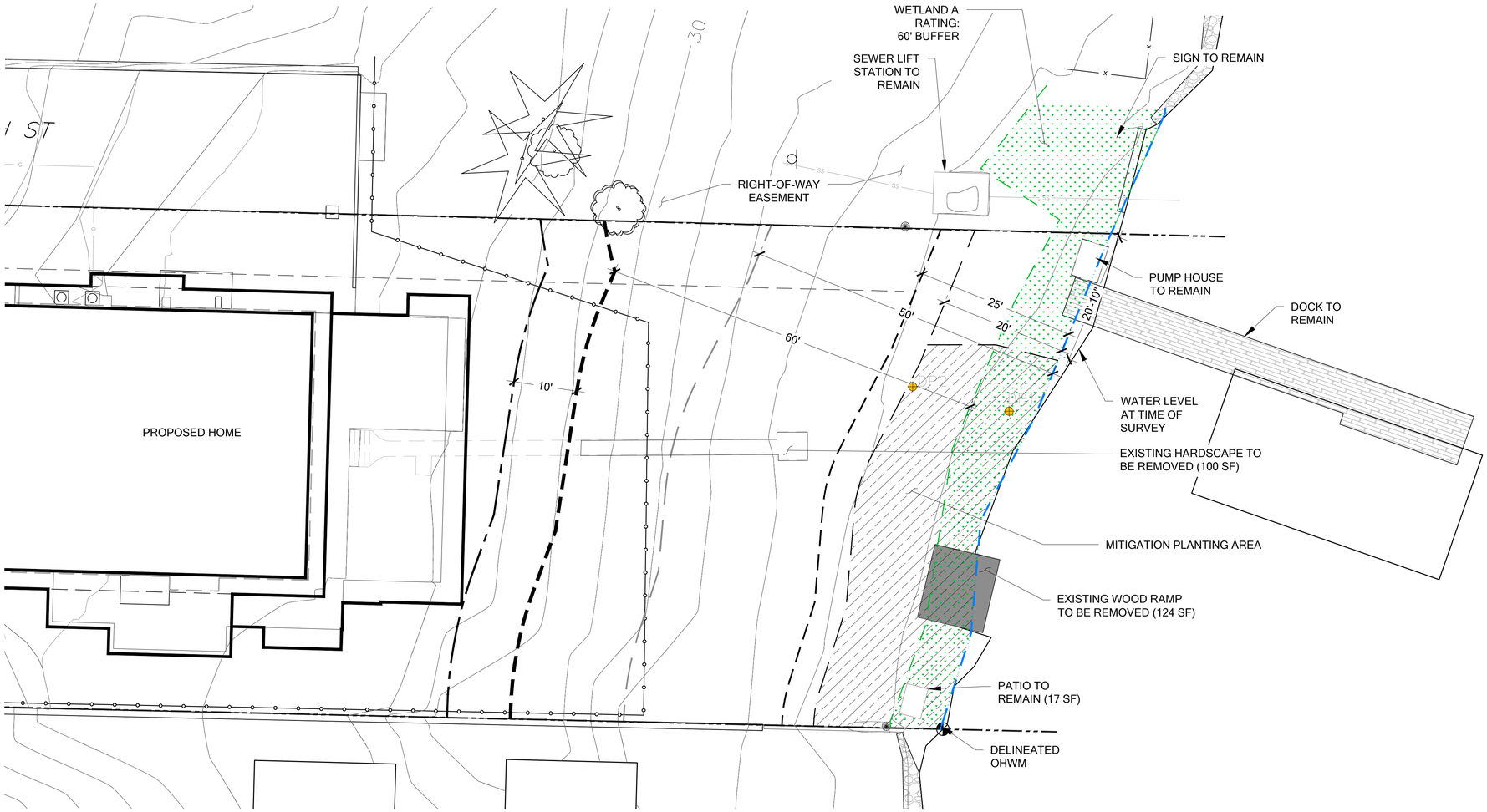
Shoreline Restoration Planting Plan

MOUNGER RESIDENCE



PARCEL OVERVIEW

SCALE 1"= 50'



MITIGATION PLAN

SCALE 1:10

0' 5' 10' 20' 40'

LEGEND

- PARCEL BOUNDARY
- DELINEATED OHWM
- DP# DATA POINT
- WLA# WETLAND FLAGS
- DELINEATED WETLAND BOUNDARY
- SHORELINE SETBACK (50 FT)
- SHORELINE BUFFER (25 FT)
- WETLAND BUFFER (60 FT)
- WETLAND BUFFER BSBL

MITIGATION LEGEND

- PRE-EXISTING IMPACT IN WETLAND
- 20' SHORELINE ENHANCEMENT (770 SF)
- SHORELINE ENHANCEMENT OVER WETLAND (481 SF)

MITIGATION AREA NOTES

1. TOTAL AREA WITHIN 20 FT OF THE OHWM = 1,668 SF
2. TOTAL PLANTED SHORELINE AREA = 75% = 1,251 SF
3. TOTAL ACCESS AREA = 25% = 417 SF

SHEET INDEX

NOTES

1. WETLAND AND OHWM DELINEATED BY THE WATERSHED COMPANY ON MAY 19, 2020
2. SITE PLAN PROVIDED BY STURMAN ARCHITECTS; 103RD AVENUE NE, SUITE 203, BELLEVUE, WA 98004 (425) 451-7003

PERMIT SET

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NOT FOR CONSTRUCTION

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Science & Design

MOUNGER RESIDENCE
SHORELINE MITIGATION PLAN
PREPARED FOR: BRAD STURMAN

4006 EAST MERCER WAY
MERCER ISLAND, WA 98040

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	08-20-2020	MITIGATION PLANTING PLAN	AS/MF
2	06-07-2021	MITIGATION PLANTING PLAN REVISED	AF

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

PROJECT MANAGER: RK
DESIGNED: RK/MF
DRAFTED: AS/MF/AF
CHECKED: RK
JOB NUMBER:
200509
SHEET NUMBER:
W1 OF 3

FILENAME
PRINTED BY
DATE

PLANT SCHEDULE

TREES	COMMON / BOTANICAL NAME	SIZE	QTY
	PAPER BIRCH / BETULA PAPYRIFERA	1.5" CAL	1
	OREGON ASH / FRAXINUS LATIFOLIA	5 GAL.	1
	SHORE PINE / PINUS CONTORTA	6 FT B&B	1

SHRUBS	COMMON / BOTANICAL NAME	SIZE	QTY
	VINE MAPLE / ACER CIRCINATUM	5 GAL.	1
	CORNUS SERICEA 'KELSEYI' / RED-TWIG DOGWOOD	1 GAL.	15
	PACIFIC BAYBERRY / MORELLA CALIFORNICA	5 GAL.	2
	MOCK ORANGE / PHILADELPHUS LEWISII	1 GAL.	6
	CLUSTERED WILD ROSE / ROSA PISOCARPA	1 GAL.	7
	ROSE SPIREA / SPIRAEA DENSIFLORA	1 GAL.	6
	VACCINIUM OVATUM / EVERGREEN HUCKLEBERRY	2 GAL.	3

GROUNDCOVER	COMMON / BOTANICAL NAME	SIZE	SPACING	QTY	REMARKS
	GOATSBEARD / ARUNCUS SYLVESTER	1 GAL.	24" O.C.	25	PLANT IN SAME-SPECIES GROUPINGS OF 3-9 PLANTS
	CAMAS / CAMASSIA QUAMASH	1 GAL.	24" O.C.	25	
	TUFTED HAIRGRASS / DESCHAMPSIA CESPITOSA	1 GAL.	24" O.C.	25	
	SMALL-FRUITED BULRUSH / SCIRPUS MICROCARPUS	4" POT/PLUG	24" O.C.	25	
	WESTERN COLUMBINE / AQUILEGIA FORMOSA	1 GAL.	24" O.C.	12	PLANT IN SAME SPECIES GROUPINGS 5-9 PLANTS IN CLUSTERS THROUGHOUT PLANTING BED
	SWORD FERN / POLYSTICHUM MUNITUM	1 GAL.	24" O.C.	24	
	OREGON STONECROP / SEDUM OREGONUM	4" POT	15" O.C.	32	
	TOUGH-LEAF IRIS / IRIS TENAX	1 GAL.	24" O.C.	12	

PLANT INSTALLATION SPECIFICATIONS

GENERAL NOTES

QUALITY ASSURANCE
1. PLANTS SHALL MEET OR EXCEED THE SPECIFICATIONS OF FEDERAL, STATE, AND LOCAL LAWS REQUIRING INSPECTION FOR PLANT DISEASE AND INSECT CONTROL.
2. PLANTS SHALL BE HEALTHY, VIGOROUS, AND WELL-FORMED, WITH WELL DEVELOPED, FIBROUS ROOT SYSTEMS, FREE FROM DEAD BRANCHES OR ROOTS. PLANTS SHALL BE FREE FROM DAMAGE CAUSED BY TEMPERATURE EXTREMES, LACK OR EXCESS OF MOISTURE, INSECTS, DISEASE, AND MECHANICAL INJURY. PLANTS IN LEAF SHALL BE WELL FOLIATED AND OF GOOD COLOR. PLANTS SHALL BE HABITUATED TO THE OUTDOOR ENVIRONMENTAL CONDITIONS INTO WHICH THEY WILL BE PLANTED (HARDENED-OFF).
3. TREES WITH DAMAGED, CROOKED, MULTIPLE OR BROKEN LEADERS WILL BE REJECTED. WOODY PLANTS WITH ABRASIONS OF THE BARK OR SUN SCALD WILL BE REJECTED.
4. NOMENCLATURE: PLANT NAMES SHALL CONFORM TO FLORA OF THE PACIFIC NORTHWEST BY HITCHCOCK AND CRONQUIST, UNIVERSITY OF WASHINGTON PRESS, 1973 AND/OR TO A FIELD GUIDE TO THE COMMON WETLAND PLANTS OF WESTERN WASHINGTON & NORTHWESTERN OREGON, ED. SARAH SPEAR COOKE, SEATTLE AUDUBON SOCIETY, 1997.

DEFINITIONS
1. PLANTS/PLANT MATERIALS. PLANTS AND PLANT MATERIALS SHALL INCLUDE ANY LIVE PLANT MATERIAL USED ON THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CONTAINER GROWN, B&B OR BAREROOT PLANTS; LIVE STAKES AND FASCINES (WATTLES); TUBERS, CORMS, BULBS, ETC..; SPRIGS, PLUGS, AND LINERS.
2. CONTAINER GROWN. CONTAINER GROWN PLANTS ARE THOSE WHOSE ROOTBALLS ARE ENCLOSED IN A POT OR BAG IN WHICH THAT PLANT GREW.

SUBSTITUTIONS
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SPECIFIED MATERIALS IN ADVANCE IF SPECIAL GROWING, MARKETING OR OTHER ARRANGEMENTS MUST BE MADE IN ORDER TO SUPPLY SPECIFIED MATERIALS.
2. SUBSTITUTION OF PLANT MATERIALS NOT ON THE PROJECT LIST WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE RESTORATION CONSULTANT.
3. IF PROOF IS SUBMITTED THAT ANY PLANT MATERIAL SPECIFIED IS NOT OBTAINABLE, A PROPOSAL WILL BE CONSIDERED FOR USE OF THE NEAREST EQUIVALENT SIZE OR ALTERNATIVE SPECIES, WITH CORRESPONDING ADJUSTMENT OF CONTRACT PRICE.
4. SUCH PROOF WILL BE SUBSTANTIATED AND SUBMITTED IN WRITING TO THE CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION.

INSPECTION
1. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE RESTORATION CONSULTANT FOR CONFORMANCE TO SPECIFICATIONS, EITHER AT TIME OF DELIVERY ON-SITE OR AT THE GROWER'S NURSERY. APPROVAL OF PLANT MATERIALS AT ANY TIME SHALL NOT IMPAIR THE SUBSEQUENT RIGHT OF INSPECTION AND REJECTION DURING PROGRESS OF THE WORK.
2. PLANTS INSPECTED ON SITE AND REJECTED FOR NOT MEETING SPECIFICATIONS MUST BE REMOVED IMMEDIATELY FROM SITE OR RED-TAGGED AND REMOVED AS SOON AS POSSIBLE.
3. THE RESTORATION CONSULTANT MAY ELECT TO INSPECT PLANT MATERIALS AT THE PLACE OF GROWTH. AFTER INSPECTION AND ACCEPTANCE, THE RESTORATION CONSULTANT MAY REQUIRE THE INSPECTED PLANTS BE LABELED AND RESERVED FOR PROJECT. SUBSTITUTION OF THESE PLANTS WITH OTHER INDIVIDUALS, EVEN OF THE SAME SPECIES AND SIZE, IS UNACCEPTABLE.

MEASUREMENT OF PLANTS
1. PLANTS SHALL CONFORM TO SIZES SPECIFIED UNLESS SUBSTITUTIONS ARE MADE AS OUTLINED IN THIS CONTRACT.
2. HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO MAIN BODY OF PLANT AND NOT BRANCH OR ROOT TIP TO TIP. PLANT DIMENSIONS SHALL BE MEASURED WHEN THEIR BRANCHES OR ROOTS ARE IN THEIR NORMAL POSITION.
3. WHERE A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE LESS THAN THE MINIMUM SIZE AND AT LEAST 50% OF THE PLANTS SHALL BE AS LARGE AS THE MEDIAN OF THE SIZE RANGE. (EXAMPLE: IF THE SIZE RANGE IS 12" TO 18", AT LEAST 50% OF PLANTS MUST BE 15" TALL.).

SUBMITTALS

PROPOSED PLANT SOURCES
1. WITHIN 45 DAYS AFTER AWARD OF THE CONTRACT, SUBMIT A COMPLETE LIST OF PLANT MATERIALS PROPOSED TO BE PROVIDED DEMONSTRATING CONFORMANCE WITH THE REQUIREMENTS SPECIFIED. INCLUDE THE NAMES AND ADDRESSES OF ALL GROWERS AND NURSERIES.

PRODUCT CERTIFICATES
1. PLANT MATERIALS LIST - SUBMIT DOCUMENTATION TO CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION THAT PLANT MATERIALS HAVE BEEN ORDERED. ARRANGE PROCEDURE FOR INSPECTION OF PLANT MATERIAL WITH CONSULTANT AT TIME OF SUBMISSION.
2. HAVE COPIES OF VENDOR'S OR GROWERS' INVOICES OR PACKING SLIPS FOR ALL PLANTS ON SITE DURING INSTALLATION. INVOICE OR PACKING SLIP SHOULD LIST SPECIES BY SCIENTIFIC NAME, QUANTITY, AND DATE DELIVERED (AND GENETIC ORIGIN IF THAT INFORMATION WAS PREVIOUSLY REQUESTED).

DELIVERY, HANDLING, & STORAGE

NOTIFICATION
CONTRACTOR MUST NOTIFY CONSULTANT 48 HOURS OR MORE IN ADVANCE OF DELIVERIES SO THAT CONSULTANT MAY ARRANGE FOR INSPECTION.

PLANT MATERIALS
1. TRANSPORTATION - DURING SHIPPING, PLANTS SHALL BE PACKED TO PROVIDE PROTECTION AGAINST CLIMATE EXTREMES, BREAKAGE AND DRYING. PROPER VENTILATION AND PREVENTION OF DAMAGE TO BARK, BRANCHES, AND ROOT SYSTEMS MUST BE ENSURED.
2. SCHEDULING AND STORAGE - PLANTS SHALL BE DELIVERED AS CLOSE TO PLANTING AS POSSIBLE. PLANTS IN STORAGE MUST BE PROTECTED AGAINST ANY CONDITION THAT IS DETRIMENTAL TO THEIR CONTINUED HEALTH AND VIGOR.
3. HANDLING - PLANT MATERIALS SHALL NOT BE HANDLED BY THE TRUNK, LIMBS, OR FOLIAGE BUT ONLY BY THE CONTAINER, BALL, BOX, OR OTHER PROTECTIVE STRUCTURE, EXCEPT BAREROOT PLANTS SHALL BE KEPT IN BUNDLES UNTIL PLANTING AND THEN HANDLED CAREFULLY BY THE TRUNK OR STEM.
4. LABELS - PLANTS SHALL HAVE DURABLE, LEGIBLE LABELS STATING CORRECT SCIENTIFIC NAME AND SIZE. TEN PERCENT OF CONTAINER GROWN PLANTS IN INDIVIDUAL POTS SHALL BE LABELED. PLANTS SUPPLIED IN FLATS, RACKS, BOXES, BAGS, OR BUNDLES SHALL HAVE ONE LABEL PER GROUP.

WARRANTY

PLANT WARRANTY
PLANTS MUST BE GUARANTEED TO BE TRUE TO SCIENTIFIC NAME AND SPECIFIED SIZE, AND TO BE HEALTHY AND CAPABLE OF VIGOROUS GROWTH.

REPLACEMENT
1. PLANTS NOT FOUND MEETING ALL OF THE REQUIRED CONDITIONS AT THE CONSULTANT'S DISCRETION MUST BE REMOVED FROM SITE AND REPLACED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
2. PLANTS NOT SURVIVING AFTER ONE YEAR TO BE REPLACED AT THE CONTRACTOR'S EXPENSE.

PLANT MATERIAL

GENERAL
1. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO OR MORE SEVERE THAN THOSE OF THE PROJECT SITE.
2. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY OR SUBSPECIES. NO CULTIVARS OR NAMED VARIETIES SHALL BE USED UNLESS SPECIFIED AS SUCH.

QUANTITIES
SEE PLANT LIST ON ACCOMPANYING PLANS AND PLANT SCHEDULES.

ROOT TREATMENT
1. CONTAINER GROWN PLANTS (INCLUDES PLUGS): PLANT ROOT BALLS MUST HOLD TOGETHER WHEN THE PLANT IS REMOVED FROM THE POT, EXCEPT THAT A SMALL AMOUNT OF LOOSE SOIL MAY BE ON THE TOP OF THE ROOTBALL.
2. PLANTS MUST NOT BE ROOT-BOUND; THERE MUST BE NO CIRCLING ROOTS PRESENT IN ANY PLANT INSPECTED.
3. ROOTBALLS THAT HAVE CRACKED OR BROKEN WHEN REMOVED FROM THE CONTAINER SHALL BE REJECTED.

PLANTING PLAN AND SCHEDULE

SCALE 1:10

0' 5' 10' 20' 40'

NOTES
1. SEE SHEET W3 FOR SITE PREPARATION AND PLANTING DETAILS.

PERMIT SET

-

NOT FOR CONSTRUCTION

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

MOUNGER RESIDENCE
SHORELINE MITIGATION PLAN
PREPARED FOR: BRAD STURMAN

4006 EAST MERCER WAY
MERCER ISLAND, WA 98040

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	08-20-2020	MITIGATION PLANTING PLAN	AS/MF
2	06-07-2021	MITIGATION PLANTING PLAN REVISED	AF

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

PROJECT MANAGER: RK
DESIGNED: RK/MF
DRAFTED: AS/MF/AF
CHECKED: RK
JOB NUMBER: 200509

SHEET NUMBER: W2 OF 3

FILENAME
PRINTED BY
DATE

MITIGATION SPECIFICATIONS

OVERVIEW

A COMPREHENSIVE FIVE-YEAR MAINTENANCE AND MONITORING PLAN IS INCLUDED AS PART OF THE SHORELINE AND WETLAND/WETLAND BUFFER ENHANCEMENT. THE PLAN SPECIFIES APPROPRIATE SPECIES FOR PLANTING AND PLANTING TECHNIQUES, DESCRIBES PROPER MAINTENANCE ACTIVITIES, AND SETS FORTH PERFORMANCE STANDARDS TO BE MET YEARLY DURING MONITORING. THIS WILL ENSURE THAT ENHANCEMENT/RESTORATION PLANTINGS WILL BE MAINTAINED, MONITORED, AND SUCCESSFULLY ESTABLISHED WITHIN THE FIRST FIVE YEARS FOLLOWING IMPLEMENTATION.

PROPOSED RESTORATION BEGINS WITH INCORPORATING COMPOST INTO THE BUFFER ENHANCEMENT AREA. NO COMPOST SHALL BE APPLIED IN THE WETLAND. THIS WILL BE FOLLOWED BY INSTALLATION OF THREE NATIVE TREE SPECIES, SEVEN NATIVE SHRUB SPECIES, AND EIGHT NATIVE GROUNDCOVER SPECIES SUITABLE TO THE SITE. THE PLAN CALLS FOR NEW PLANTINGS WITHIN THE INNER 20-FOOT SHORELINE SETBACK AREA, INCLUDING WITHIN WETLAND A AND THE OVERLAPPING SHORELINE SETBACK/WETLAND A BUFFER. NATIVE PLANTINGS ARE INTENDED TO INCREASE NATIVE PLANT COVER, IMPROVE NATIVE SPECIES DIVERSITY, IMPROVE VEGETATIVE SCREENING, INCREASE VEGETATIVE STRUCTURE, AND PROVIDE FOOD AND OTHER HABITAT RESOURCES FOR WILDLIFE.

GOALS

ENHANCE SHORELINE BUFFERS.

a. REDUCE THE AMOUNT OF IMPERVIOUS SURFACE AREA WITHIN THE WETLAND BUFFER AND SHORELINE SETBACK.

b. ESTABLISH DENSE AND DIVERSE NATIVE TREE, SHRUB, AND GROUNDCOVER VEGETATION THROUGHOUT THE MITIGATION AREA.

PERFORMANCE STANDARDS

THE STANDARDS LISTED BELOW WILL BE USED TO JUDGE THE SUCCESS OF THE PLAN OVER TIME. IF THE STANDARDS ARE MET AT THE END OF THE FIVE-YEAR MONITORING PERIOD, THE CITY SHALL ISSUE RELEASE OF THE PERFORMANCE BOND.

1. SURVIVAL:

a. 100% SURVIVAL OF ALL INSTALLED TREES AND SHRUBS AT THE END OF YEAR-1. THIS STANDARD MAY BE MET THROUGH ESTABLISHMENT OF INSTALLED PLANTS OR BY REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.

b. 80% SURVIVAL OF ALL INSTALLED TREES AND SHRUBS AT THE END OF YEAR 2. THIS STANDARD MAY BE MET THROUGH ESTABLISHMENT OF INSTALLED PLANTS OR BY REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.

2. NATIVE VEGETATION COVER IN PLANTED AREAS:

a. ACHIEVE AT LEAST 60% COVER OF NATIVE TREES, SHRUBS, AND GROUNDCOVERS IN PLANTED AREAS BY THE END OF YEAR 3. VOLUNTEER SPECIES MAY COUNT TOWARD THIS STANDARD.

b. ACHIEVE AT LEAST 80% COVER OF NATIVE TREES, SHRUBS, AND GROUNDCOVERS IN PLANTED AREAS BY THE END OF YEAR 5. VOLUNTEER SPECIES MAY COUNT TOWARD THIS STANDARD.

3. DIVERSITY: A MINIMUM OF TWO TREE SPECIES, FIVE SHRUB SPECIES, AND FIVE EMERGENT SPECIES WILL BE PRESENT IN THE MITIGATION AREA IN YEARS 3 - 5.

4. INVASIVE SPECIES STANDARD: NO MORE THAN 10% COVER OF INVASIVE SPECIES IN THE PLANTING AREA IN ANY MONITORING YEAR. INVASIVE SPECIES ARE DEFINED AS ANY CLASS A, B, OR C NOXIOUS WEEDS AS LISTED BY THE KING COUNTY NOXIOUS WEED CONTROL BOARD.

MONITORING METHODS

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME BY MEASURING THE DEGREE TO WHICH THE PERFORMANCE STANDARDS LISTED ABOVE ARE BEING MET. AN AS-BUILT PLAN WILL BE PREPARED WITHIN 30 DAYS OF SUBSTANTIALLY COMPLETE CONSTRUCTION OF THE MITIGATION AREAS. THE AS-BUILT PLAN WILL DOCUMENT CONFORMANCE WITH THESE PLANS AND WILL DISCLOSE ANY SUBSTITUTIONS OR OTHER NON-CRITICAL DEPARTURES. THE AS-BUILT PLAN WILL ESTABLISH BASELINE PLANT INSTALLATION QUANTITIES AND PHOTOPOINTS THAT WILL BE USED THROUGHOUT THE MONITORING PERIOD TO VISUALLY DOCUMENT SITE CHANGES OVER TIME.

MONITORING WILL OCCUR ANNUALLY FOR FIVE YEARS. THE INSPECTION WILL OCCUR IN LATE SUMMER OR FALL AND WILL RECORD THE FOLLOWING AND BE SUBMITTED IN AN ANNUAL REPORT TO THE CITY:

1. COUNTS OF SURVIVING AND DEAD/DYING PLANTS BY SPECIES IN THE PLANTING AREAS.
2. ESTIMATES OF NATIVE SPECIES COVER USING COVER CLASS METHOD.
3. ESTIMATES OF INVASIVE SPECIES COVER USING COVER CLASS METHOD.
4. PHOTOGRAPHIC DOCUMENTATION AT PERMANENT PHOTOPOINTS.
5. RECOMMENDATIONS FOR MAINTENANCE IN THE MITIGATION AREAS.
6. RECOMMENDATIONS FOR REPLACEMENT OF ALL DEAD OR DYING PLANT MATERIAL WITH SAME OR LIKE SPECIES AND NUMBER AS ON THE APPROVED PLAN.

CONSTRUCTION NOTES AND SPECIFICATIONS

GENERAL NOTES

THE RESTORATION SPECIALIST WILL OVERSEE THE FOLLOWING:

1. CLEARING, SOIL DECOMPACTION, AND COMPOST INCORPORATION;
2. INVASIVE WEED CLEARING; AND
3. PLANT MATERIAL INSPECTION.
   a) PLANT DELIVERY INSPECTION.
   b) 100% PLANT INSTALLATION INSPECTION.

WORK SEQUENCE

1. CLEAR THE PLANTING AREA OF ALL INVASIVE SPECIES USING HAND TOOLS.
2. ROTO-TILL THREE INCHES OF COMPOST INTO THE UPPER 9 INCHES OF THE SOIL IN BUFFER AREAS ONLY. DO NOT APPLY COMPOST WITHIN THE WETLAND AREA.
3. ALL PLANT INSTALLATION WILL TAKE PLACE DURING THE DORMANT SEASON (OCTOBER 15TH TO MARCH 1ST).
4. LAYOUT VEGETATION TO BE INSTALLED PER THE PLANTING PLAN AND PLANT SCHEDULE.
5. PREPARE A PLANTING PIT FOR EACH PLANT AND INSTALL PER THE PLANTING DETAILS.
6. MULCH EACH TREE AND SHRUB WITH A CIRCULAR WOOD CHIP MULCH RING, FOUR INCHES THICK AND EXTENDING SIX INCHES FROM THE BASE OF THE PLANT (12-INCH DIAMETER) IN THE BUFFER AREAS ONLY. DO NOT APPLY MULCH IN WETLAND AREA. ALTERNATIVELY, A BLANKET MULCH APPLICATION MAY BE APPLIED TO THE ENTIRE RESTORATION AREA.

MAINTENANCE

THIS SITE WILL BE MAINTAINED FOR FIVE YEARS FOLLOWING COMPLETION OF THE PLANT INSTALLATION.

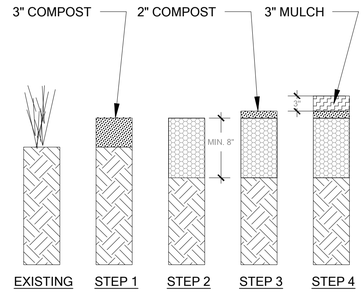
1. REPLACE EACH PLANT FOUND DEAD IN THE SUMMER MONITORING VISIT DURING THE UPCOMING FALL DORMANT SEASON (OCTOBER 15TH TO MARCH 1ST).
2. INVASIVE SPECIES MAINTENANCE PLAN: HIMALAYAN BLACKBERRY, ENGLISH IVY, ENGLISH LAUREL, AND OTHER INVASIVE WOODY VEGETATION WILL BE GRUBBED OUT BY HAND ON AN ONGOING BASIS, WITH CARE TAKEN TO GRUB OUT ROOTS EXCEPT WHERE SUCH WORK WILL JEOPARDIZE THE ROOTS OF INSTALLED OR VOLUNTEER NATIVE PLANTS. DO NOT USE HERBICIDES IN THE PLANTING AREA.
3. AT LEAST TWICE YEARLY, REMOVE BY HAND ALL COMPETING WEEDS AND WEED ROOTS FROM BENEATH EACH INSTALLED PLANT AND ANY DESIRABLE VOLUNTEER VEGETATION TO A DISTANCE OF 12 INCHES FROM THE MAIN PLANT STEM. WEEDING SHOULD OCCUR AS NEEDED DURING THE SPRING AND SUMMER. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY AND LOWER PLANT REPLACEMENT COSTS.
4. DO NOT WEED THE AREA NEAR THE PLANT BASES WITH STRING TRIMMER (WEED WHACKER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED, AND WEEDS EASILY RECOVER AFTER TRIMMING.
5. MULCH THE WEEDED AREAS BENEATH EACH PLANT WITH WOOD CHIP MULCH AS NECESSARY TO MAINTAIN A MINIMUM 4-INCH-THICK, 12-INCH-DIAMETER MULCH RING.
6. THE TEMPORARY IRRIGATION SYSTEM WILL BE OPERATED TO ENSURE THAT PLANTS RECEIVE A MINIMUM OF ONE INCH OF WATER PER WEEK FROM JUNE 1ST THROUGH SEPTEMBER 30TH FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION. IRRIGATION BEYOND THE SECOND YEAR MAY BE NEEDED BASED ON SITE PERFORMANCE OR SIGNIFICANT REPLANTING.

CONTINGENCY PLAN

IF ALL OR PART OF THE MITIGATION AREA FAILS TO ESTABLISH ACCORDING TO THE GOALS AND PERFORMANCE STANDARDS, A CONTINGENCY PLAN SHALL BE DEVELOPED. CONTINGENCY MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO, PLANT SPECIES SUBSTITUTIONS, SOIL AMENDMENTS, HERBIVORE EXCLUSION FENCING, MODIFIED IRRIGATION SCHEDULE, AND ADAPTIVE WEED MANAGEMENT.

MATERIAL SPECIFICATIONS AND DEFINITIONS

1. IRRIGATION SYSTEM: AUTOMATED SYSTEM CAPABLE OF DELIVERING AT LEAST ONE INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION.
2. RESTORATION PROFESSIONAL: WATERSHED COMPANY [(425) 822-5242)] PERSONNEL, OR OTHER PERSONS QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.
3. 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 COMMONLY AVAILABLE IN LARGE QUANTITIES FROM ARBORISTS OR TREE-PRUNING COMPANIES. THIS MATERIAL IS SOLD AS "ANIMAL FRIENDLY HOG FUEL" AT PACIFIC TOPSOILS [(800) 884-7645]. MULCH MUST NOT CONTAIN APPRECIABLE QUANTITIES OF GARBAGE, PLASTIC, METAL, SOIL, AND DIMENSIONAL LUMBER OR CONSTRUCTION/DEMOLITION DEBRIS. QUANTITY REQUIRED: 17 CUBIC YARDS.
4. COMPOST: CEDAR GROVE COMPOST OR EQUIVALENT "COMPOSTED MATERIAL" PER WASHINGTON ADMIN. CODE 173-350-220.



PLANTING AREA PREPARATION

STEP 1
IF LAWN REMOVE LAWN AND UNDESIRABLE SPECIES.
IF PATIO REMOVE PATIO AND ANY GRAVEL DRAINAGE LAYER. WORK WITHIN EXISTING ROOT ZONES SHALL BE DONE BY HAND.

IF LAWN PLACE THREE (3) INCHES COMPOST.
IF IN PATIO REMOVAL AREA, FIRST BRING GRADE UP TO MATCH ADJACENT GRADE USING IMPORT TOPSOIL PRIOR TO PLACING COMPOST.

STEP 2
INCORPORATE COMPOST TO AN EIGHT (8) INCH DEPTH.

STEP 3
PLACE TWO (2) INCH LAYER OF COMPOST.

STEP 4
INSTALL MULCH LAYER THREE (3) INCHES DEEP AND INSTALL PLANTS. (SEE PLANTING **DETAIL.)**

A BUFFER MITIGATION AREA SITE PREPARATION

SEE SHEET W1

Scale: NTS

PLANTING AREA PREPARATION

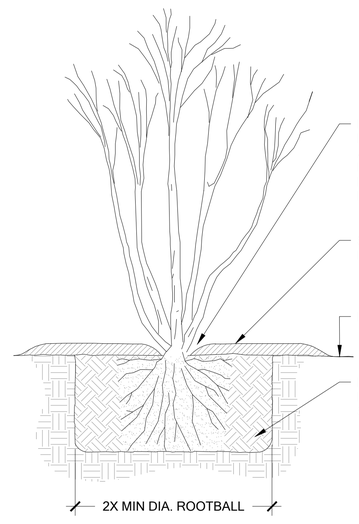
STEP 1
CUT OR MOW ABOVE GROUND INVASIVE PLANT MATERIAL. REMOVE CLIPPINGS OFFSITE.

STEP 2
INSTALL PLANTS. (SEE PLANTING DETAIL.)

B WETLAND MITIGATION AREA SITE PREPARATION

SEE SHEET W1

Scale: NTS



NOTES:
1. PLANTING PIT SHALL NOT BE LESS THAN (2) TIMES THE WIDTH OF THE ROOT BALL DIA.
2. LOOSEN SIDES AND BOTTOMS OF PLANTING PIT
3. SOAK PLANTING PIT AFTER PLANTING

REMOVE FROM POT OR BURLAP & ROUGH-UP ROOT BALL BEFORE INSTALLING. UNTANGLE AND STRAIGHTEN CIRCLING ROOTS - PRUNE IF NECESSARY. IF PLANT IS EXCEPTIONALLY ROOT-BOUND, DO NOT PLANT AND RETURN TO NURSERY FOR AN ACCEPTABLE ALTERNATIVE

SPECIFIED MULCH LAYER, HOLD BACK MULCH FROM TRUNK/STEMS

FINISH GRADE

REMOVE DEBRIS AND LARGE ROCKS FROM PLANTING PIT AND SCARIFY SIDES AND BASE. BACKFILL WITH SPECIFIED SOIL. FIRM UP SOIL AROUND PLANT.

C CONTAINER PLANTING DETAIL

Scale: NTS

PERMIT SET

-

NOT FOR CONSTRUCTION

MITIGATION DETAILS AND NOTES

THE WATERSHED COMPANY
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PREPARED FOR: BRAD STURMAN

4006 EAST MERCER WAY
MERCER ISLAND, WA 98040

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	08-20-2020	MITIGATION PLANTING PLAN	AS/MF
2	06-07-2021	MITIGATION PLANTING PLAN REVISED	AF

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

PROJECT MANAGER: RK
DESIGNED: RK/MF
DRAFTED: AS/MF/AF
CHECKED: RK
JOB NUMBER:
200509
SHEET NUMBER:
W3 OF 3

FILENAME
PRINTED BY
DATE

APPENDIX B

Bond Quantity Worksheet

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
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Project Name: **Mercer Island Mounger** **Date:** **8-Jun-21** **Prepared by:** **Kahlo, R.**

Project Number: **Project Description: Buffer Reduction and Shoreline Enhancement**

Location: 4006 E. Mercer Way, Mercer Island, WA **Applicant: Mitch and Wendy Mounge** **Phone:**

PLANT MATERIALS (includes labor cost for plant installation)

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	$5.00	Each	57.00		$ 285.00
PLANTS: Container, 1 gallon, medium soil	$11.50	Each	157.00		$ 1,805.50
PLANTS: Container, 2 gallon, medium soil	$20.00	Each	3.00		$ 60.00
PLANTS: Container, 5 gallon, medium soil	$36.00	Each	6.00		$ 216.00
PLANTS: Seeding, by hand	$0.50	SY			$ -
PLANTS: Slips (willow, red-osier)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Flats/plugs	$2.00	Each			$ -
				TOTAL	**$ 2,366.50**

INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)

Type	Unit Price	Unit			Cost
Compost, vegetable, delivered and spread	$37.88	CY	6.00		$ 227.28
Decompacting till/hardpan, medium, to 6" depth	$1.57	CY	6.00		$ 9.42
Decompacting till/hardpan, medium, to 12" depth	$1.57	CY			$ -
Hydroseeding	$0.51	SY			$ -
Labor, general (landscaping other than plant installation)	$40.00	HR	16.00		$ 640.00
Labor, general (construction)	$40.00	HR			$ -
Labor: Consultant, supervising	$55.00	HR			$ -
Labor: Consultant, on-site re-design	$95.00	HR			$ -
Rental of decompacting machinery & operator	$70.00	HR	4.00		$ 280.00
Sand, coarse builder's, delivered and spread	$42.00	CY			$ -
Staking material (set per tree)	$7.00	Each			$ -
Surveying, line & grade	$250.00	HR			$ -
Surveying, topographical	$250.00	HR			$ -
Watering, 1" of water, 50' soaker hose	$3.62	MSF			$ -
Irrigation - temporary	$3,000.00	Acre	0.03		$ 90.00
Irrigation - buried	$4,500.00	Acre			$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	$1.02	SY			$ -
				TOTAL	**$ 1,246.70**

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			$ -
Jute Mesh	$1.26	SY			$ -
Mulch, by hand, straw, 2" deep	$1.27	SY			$ -
Mulch, by hand, wood chips, 2" deep	$3.25	SY	48.00		$ 156.00
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	**$ 156.00**

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)	**$**	**3,769.20**

ITEMS	Percentage of Construction Cost	Unit			Cost
Mobilization	10%	1			$ 376.92
Contingency	30%	1			$ 1,130.76
				TOTAL	**$ 1,507.68**

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	5.00	(4hr @$45/hr)	$ 900.00
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	6.00	(8 hrs @ 90/hr)	$ 4,320.00
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	**$ 5,220.00**

Total	**$10,496.88**

APPENDIX C

Wetland Rating Forms and Figures

Wetland name or number: Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 6/1/2020

Rated by: Kahlo, R. Trained by Ecology? ☒Y ☐N Date of training: 09/2014

HGM Class used for rating: Lake-fringe 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, WA Coastal Atlas

OVERALL WETLAND CATEGORY (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	8			6			4			18

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	☒

Wetland name or number: Wetland A

Maps and figures required to answer questions correctly for Western Washington

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	1
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	3

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

LAKE FRINGE WETLANDS

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

L 1.0. Does the site have the potential to improve water quality?	
L 1.1. Average width of plants along the lakeshore *(use polygons of Cowardin classes)*: ☐ Plants are more than 33 ft (10 m) wide — points = 6 ☐ Plants are more than 16 ft (5 m) wide and <33 ft — points = 3 ☒ Plants are more than 6 ft (2 m) wide and <16 ft — points = 1 ☐ Plants are less than 6 ft wide — points = 0	1
L 1.2. Characteristics of the plants in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. *These are not Cowardin classes. Area of cover is total cover in the unit, but it can be in patches. Herbaceous does not include aquatic bed.* ☒ Cover of herbaceous plants is > 90% of the vegetated area — points = 6 ☐ Cover of herbaceous plants is > 2/3 of the vegetated area — points = 4 ☐ Cover of herbaceous plants is > 1/3 of the vegetated area — points = 3 ☐ Other plants that are not aquatic bed > 2/3 unit — points = 3 ☐ Other plants that are not aquatic bed in > 1/3 vegetated area — points = 1 ☐ Aquatic bed plants and open water cover > 2/3 of the unit — points = 0	6
Total for L 1 — Add the points in the boxes above	7

Rating of Site Potential If score is: ☐**8-12 = H** ☒**4-7 = M** ☐**0-3 = L** *Record the rating on the first page*

L 2.0. Does the landscape have the potential to support the water quality function of the site?	
L 2.1. Is the lake used by power boats? ☒Yes = 1 ☐ No = 0	1
L 2.2. Is > 10% of the area within 150 ft of wetland unit on the upland side in land uses that generate pollutants? ☒Yes = 1 ☐ No = 0	1
L 2.3. Does the lake have problems with algal blooms or excessive plant growth such as milfoil? ☒Yes = 1 ☐ No = 0	1
Total for L 2 — Add the points in the boxes above	3

Rating of Landscape Potential: If score is: ☒**2 or 3 = H** ☐**1 = M** ☐**0 = L** *Record the rating on the first page*

L 3.0. Is the water quality improvement provided by the site valuable to society?	
L 3.1. Is the lake on the 303(d) list of degraded aquatic resources? ☒Yes = 1 ☐ No = 0	1
L 3.2. Is the lake in a 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
L 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 lake or basin in which the unit is found.* ☐Yes = 2 ☒ No = 0	0
Total for L 3 — Add the points in the boxes above	2

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

LAKE FRINGE WETLANDS

Hydrologic Functions - Indicators that the wetland unit functions to reduce shoreline erosion

L 4.0. Does the site have the potential to reduce shoreline erosion?	
L 4.1. Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include Aquatic bed): *Choose the highest scoring description that matches conditions in the wetland.* ☐ > ¾ of distance is Scrub-shrub or Forested at least 33 ft (10 m) wide — points = 6 ☐ > ¾ of distance is Scrub-shrub or Forested at least 6 ft (2 m) wide — points = 4 ☐ > ¼ distance is Scrub-shrub or Forested at least 33 ft (10 m) wide — points = 4 ☒ Plants are at least 6 ft (2 m) wide (any type except Aquatic bed) — points = 2 ☐ Plants are less than 6 ft (2 m) wide (any type except Aquatic bed) — points = 0	2

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

L 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
L 5.1. Is the lake used by power boats with more than 10 hp?	☒Yes = 1 ☐ No = 0	1
L 5.2. Is the fetch on the lake side of the unit at least 1 mile in distance?	☐Yes = 1 ☒ No = 0	0
Total for L 5	Add the points in the boxes above	1

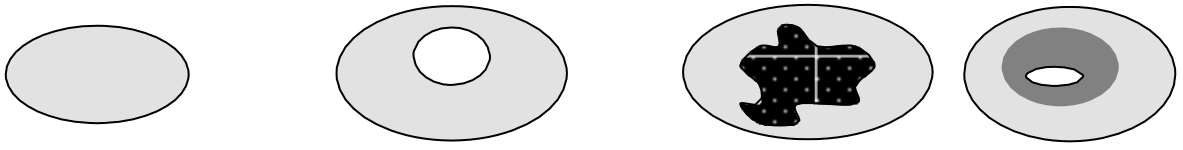
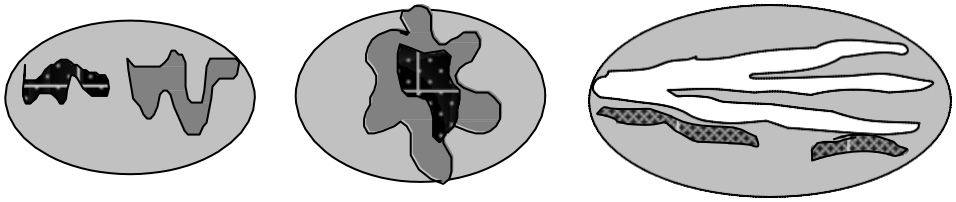
Rating of Landscape Potential If score is: ☐**2 = H** ☒**1 = M** ☐**0 = L** *Record the rating on the first page*

L 6.0. Are the hydrologic functions provided by the site valuable to society?	
L 6.1. Are there resources along the shore that can be impacted by erosion? If more than one resource is present, choose the one with the highest score. ☒ There are human structures or old growth/mature forests within 25 ft of OHWM of the shore in the unit. — points = 2 ☐ There are nature trails or other paths and recreational activities within 25 ft of OHWM — points = 1 ☐ Other resources that could be impacted by erosion — points = 1 ☐ There are no resources that can be impacted by erosion along the shores of the unit — points = 0	2

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number: Wetland A

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	0
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	0
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	0

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).*	0
Total for H 1 — Add the points in the boxes above	0

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) = 18%** 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 **No accessible habitat; Wetland surrounded by high-intensity land use** — 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 **= xx% + (42%/2) = 21%** ☐ 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	-2
Total for H 2 — Add the points in the boxes above	0

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) **Included deep water** ☐ 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*

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	Click here to enter text.

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Figure 1: L1.1., L 4.1, H1.1, H1.4, L1.2, L2.2

Wetland A, PEM, Saturated only

150-foot radius

Figure 2: H2.1, H2.2, H2.3

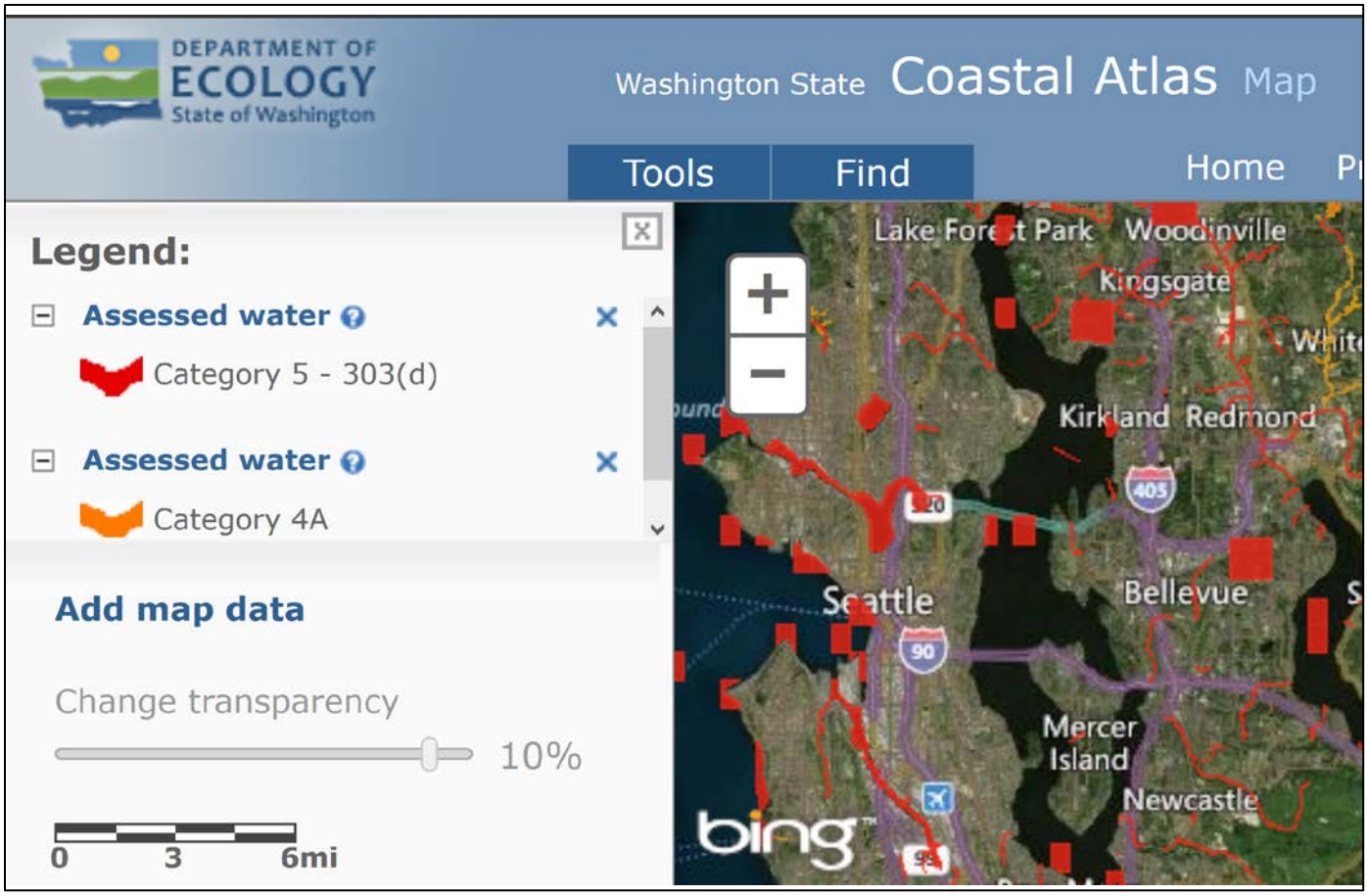

Figure 3: L3.1, L3.2, L3.3

APPENDIX D

Wetland Data Forms

THE WATERSHED COMPANY

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

DP - 1

Project/Site: Mounger Residence | City/County: Mercer Island / King | Sampling date: 6/1/20

Applicant/Owner: Mounger | State: WA | Sampling Point: 1

Investigator(s): Kahlo, R. | Section, Township, Range: S17, T24N, R5E

Landform (hillslope, terrace, etc): Lakeshore | 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: **Wetland A inpit**

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5-m diameter)			
1.			
2.			
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. *Holcus lanatus*	70	Yes	FAC
2. *Lotus corniculatus*	40	Yes	FAC
3. *Iris pseudacorus*	15	No	OBL
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: 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-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
0-5	10YR 2/2	100					Clay loam	
5-12	2.5Y 3/1	98	10YR 3/4	2	C	PL	Sandy clay loam	
12-16	10YR 3/1	90	5BG 4/1	10	D	M	Gravelly 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): **6**

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (in): **0**

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

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

Remarks:

THE WATERSHED COMPANY

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

DP - 1

Project/Site: Mounger Residence City/County: Mercer Island / King Sampling date: 6/1/20

Applicant/Owner: Mounger State: WA Sampling Point: 2

Investigator(s): Kahlo, R. Section, Township, Range: S17, T24N, R5E

Landform (hillslope, terrace, etc): Lakeshore Local relief (concave, convex, none): None 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 outpit**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
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. *Holcus lanatus*	100	Yes	FAC
2. *Lotus corniculatus*	15	No	FAC
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: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (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-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
0-5	10YR 2/2	100					Sandy clay loam	
5-10	10YR 2/2	100					Gravelly sandy loam	
10-14	10YR 2/2	90	10YR 4/6	10	C	M	Gravelly 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: