FACET

Shoreline Assessment and Critical Areas Study

BLACKBERRY BEACH
MERCER ISLAND, WA

April 2024

Prepared for:

City of Mercer Island
Community Planning and Development
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Title-page image: Existing shoreline conditions, facing east.

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

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1 Introduction

The study area includes the waterfront portion of six contiguous parcels located near 3820 East Mercer Way in the City of Mercer Island, Washington, (parcel nos. 0824059185, 0824059184, 0824059189, 0824059029, 0824059181, and 0824059240), collectively referred to as Blackberry Beach. The parcels are located along the western shoreline of Lake Washington on the east side of Mercer Island. The project proposes to repair the existing shoreline by replacing the failing timber bulkhead with rock and a beach cove area. Additional improvements include the addition of a small barbeque pad. The project area is within shoreline jurisdiction of Lake Washington, as well as the overlapping buffer of an on-site steep slope critical area. Additionally, the parcels contain a small wetland and are mapped as having protected slope area, landslide, seismic, and erosion hazard critical areas.

The purpose of this report is to document pre-construction ecological functions on-site and compliance with all applicable regulations of the Mercer Island City Code (MICC), as well as demonstrate that the proposed project will result in equivalent or improved shoreline ecological functions over existing conditions. Further, this report accompanies a planting plan that includes the installation of nine native trees and three shrubs between 0 and 50 feet of the OHWM. A five-year maintenance and monitoring plan is proposed to ensure that the plan meets performance standards and achieves no net loss of ecological function.

2 Assessment Methods

2.1 Existing Documentation Review

Publicly available sensitive areas and habitat documentation for the project area were reviewed for this report. Sources include aerial photographs of the site and surrounding area (Google Earth), the King County public GIS database (iMap), Mercer Island Information and Geographic Services GIS maps, and Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) online data.

2.2 Fieldwork

Facet staff visited the study area on April 27, 2023. Ecologist Grace Brennan and Environmental Planner and ISA Certified Arborist® Devin Melville visited the site to inventory significant trees, evaluate current ecological functions, and assess potential planting opportunities. Vegetative structure and composition, special habitat features, presence of wildlife species and signs, and

human disturbance were assessed. Details of these elements inform the discussion of habitat presented in this report. An Arborist Report detailing the results of the tree inventory has been prepared separately and will be submitted concurrently with this report.

During the site visit, the property was also screened for wetland and stream critical areas. One on-site wetland, Wetland A, was identified west of the project area, within the toe-of-slope. Wetland A is discussed below in Section 3.3.3. The presence or absence of wetland was determined on the basis of an examination of vegetation, soils, and hydrology according to 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 May 2010). The study area was evaluated for streams based on the presence or absence of an 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. No stream indicators were observed.

3 Subject Property

3.1 Location and Description

The study area is comprised of six contiguous parcels, parcel numbers 0824059185, 0824059184, 0824059189, 0824059029, 0824059181, and 0824059240, that are situated on the western shore of Lake Washington in the City of Mercer Island, (Figure 1). The waterfront portion of these parcels (study area) is rectangular in shape and approximately 8,100 square feet in size. The property is located in Section 8 of Township 24 North, Range 05 East of the Public Land Survey System. The site is situated in the South Lake Washington subbasin of the Cedar-Sammamish Watershed (WRIA 8). The eastern portion of these parcels is within shoreline jurisdiction of Lake Washington and has a shoreline environment designation of Urban Residential (UR).

The site was surveyed by Apex Engineering on February 10, 2023. Based on topography, an assumed geologically hazardous area (steep slope) is present approximately 50 feet west of the shoreline. According to the Natural Resources Conservation Service Web Soil Survey, the site is characterized by Urban land- Alderwood complex soils, with 12 to 35 percent slopes. Water is expected to move through the property from west to east.

Figure 1. Vicinity map and aerial photo of study area, waterfront portion of parcels outlined in yellow (King County iMap, 2021).

3.2 Use and Development

The subject parcels and neighboring parcels are zoned single-family residential (R-9.6). Each parcel contains a rectangular piece of land along the shoreline that collectively forms the community use area, Blackberry Beach. Landward, the parcels each contain single-family residences situated west of the steep slope. Access to the shoreline is provided by a wooden staircase and railing that begins south of the residence located at 3816 East Mercer Way and extends north across the slope before turning east down to the shoreline. Blackberry Beach consists primarily of grass, with several mature trees and patches of invasive species along the shoreline. Existing improvements include a storage shed and two docks. The northern dock comprises 890 square feet, including three fingers, five lifts, and one covered slip, and consists of grated decking. The southern dock consists of wood decking and is 350 feet square feet, including one boat lift. The immediate shoreline area is armored with a deteriorating timber bulkhead that is failing in several locations (see Photo 3).

3.3 Shoreline and Critical Areas

3.3.1 Shoreline Jurisdiction

The subject parcels are located on Mercer Island along the western shoreline of Lake Washington, a shoreline of the state. Lake Washington's shoreline jurisdiction extends 200 feet landward of the ordinary high water mark (OHWM), thereby encompassing the entire project area. The shoreline environment designation of the parcels is Urban Residential (UR). Shoreline regulations are found in MICC 19.13 (Shoreline Master Program). Per MICC 19.13.010.D, critical area regulations are incorporated as specific regulations of the Shoreline Master Program (SMP).

3.3.2 Geologically Hazardous Areas

The western portion of the study area contains a steep slope regulated as a geologically hazardous area, defined in the Washington Administrative Code (WAC) 365-190-130 as any area with a slope of 40 percent or steeper and with a vertical relief of 10 or more feet. Steep slopes are regulated under MICC 19.07.160. Per MICC 19.07.160.C.2.a, buffer widths shall be equal to the height of a steep slope, but not more than 75 feet, applied to the top and toe of such slopes. According to the Geotechnical Engineering Investigation by GEO Group Northwest, Inc., the minimum buffer is 25 feet from a shallow landslide hazard area. Additionally, the parcels are mapped as having protected slope area, landslide, seismic, and erosion hazard critical areas. These features are discussed in detail in the Geotechnical Engineering Investigation.

3.3.3 Wetlands

One on-site wetland, Wetland A, was identified and delineated by Facet ecologists during the site visit on April 27, 2023. Wetland A is located within the toe-of-slope near the center of the study area and is classified as a Category IV slope wetland with four habitat points. Wetland vegetation is dominated by reed canarygrass and giant horsetail. Wetlands are regulated under MICC 19.07.190. Wetland A is less than 200 square feet in size, is not associated with riparian areas or their buffers, is not associated with a shoreline of the state or associated buffer, is not part of a wetland mosaic, does not score more than five points for habitat function, and does not contain priority habitat for a priority species, federally listed species or their habitat, or species of local importance. As such, pursuant to MICC 19.07.190.D.1.b, Wetland A is exempt from buffer provisions. For additional information on Wetland A, refer to Appendix A - Blackberry Beach Wetland Rating Form and Figure.

3.3.4 Fish and Wildlife Habitat Conservation Areas

The City of Mercer Island designates areas where state or federally listed endangered, threatened, sensitive, or candidate species, or species of local importance have primary association, and priority habitats and areas associated with priority species, as a critical area (MICC 19.07.170.A). WDFW's PHS online data did not identify any species or habitats of local importance associated with the study area. However, adult and juvenile Chinook salmon and steelhead trout (both listed as Threatened under Endangered Species Act) are known to migrate through Lake Washington. Adults migrate upstream to reach spawning grounds in local tributaries; juveniles migrate downstream from their natal streams to reach the ocean. Lake Washington also contains coho salmon (Species of Concern under the Endangered Species Act), and potentially contains bull trout (a salmonid listed as Threatened under the Endangered Species Act). Thus, Lake Washington is designated as a fish and wildlife habitat conservation critical area.

Wildlife use on-site is expected to be limited to primarily urban species; although it is possible that some habitat could occasionally be used by species of local importance given the proximity to Lake Washington. Specifically, the study area could be utilized by bald eagles, who often feed around Lake Washington and perch in tall lakeside trees for foraging and resting. Eagle nests are commonly built near broken tops of tall trees, and in western Washington, nests in forks of large deciduous trees are also common. However, no known bald eagle nests are documented in the vicinity of the subject property. Further, no nests were observed during the site reconnaissance. Bald eagles were removed from the State's endangered species list in 2017 and WDFW no longer maps known bald eagle nests nor requires coordination on bald eagle plans for specific properties.

The City also designates watercourses and wetlands and their buffers as fish and wildlife habitat conservation areas (MICC 19.07.170.A.4.). The subject property contains one on-site wetland, Wetland A. Wetland A is discussed above in Section 3.3.3.

3.3.5 Regulated Trees

Trees within the study area were inventoried and assessed by Facet on April 27, 2023. The City of Mercer Island regulates tree activity under MICC 19.10 – Trees. In addition to the requirements of MICC 19.10, the removal or pruning of any tree located within a critical area, critical area buffer or shoreline jurisdiction shall comply with the requirements of MICC 19.07. Ten on-site trees and one off-site tree were inventoried and assessed within the study area. Of the on-site trees, six are located within the shoreline setback. Two of these trees are proposed for removal to accommodate creation of the beach cove. For additional information on existing regulated trees and replacement requirements, refer to the separately prepared arborist report (Blackberry Beach Arborist Report, Facet, April 2024).

3.4 Existing Conditions

3.4.1 Shoreline Ecological Functions and Values

The historic ecological functions and values of the subject property have been degraded by the development of the site and surrounding area. In many regards, the subject property is a fairly typical shoreline on Lake Washington; lawn or landscapes beds dominate the nearshore area, and the shoreline includes a bulkhead and docks. Site-specific shoreline functions related to hydrology, water quality, and habitat are discussed below. The following discussion draws from best available science regarding ecological processes.

3.4.1.1 *Habitat*

Natural, undisturbed shoreline areas have the potential to provide a variety of habitat functions for many wildlife species. However, urbanization has substantially altered the conditions of the Lake Washington shoreline. As a result, the remaining shoreline habitat is fragmented and tends to lack complexity. Many developed parcels, like the subject property, lack native riparian vegetation and natural gradients at the water's edge. In many cases, vegetation is replaced by lawns and gardens, and may contain nuisance or noxious weeds. The transition zone between land and water is often developed with an armored bank meant to prevent erosion. Overwater structures like docks and walkways also impair habitat functions by hindering LWD movement, changing normal light patterns, and creating altered habitat structure that can be detrimental to native wildlife species. Features that impair habitat function on the subject property include the armored shoreline; two overwater docks; man-made upland areas; and the prevalence of non-native, nuisance, or noxious weeds.

The habitat functions provided by the subject property are dependent upon existing shoreline vegetation and gradients. While the subject site contains some native mature trees, including Douglas-fir, black cottonwood, and big leaf maple, it lacks a complex, native understory. Most of the trees are heavily covered with English ivy. However, the aforementioned trees are primarily located adjacent to the water's edge, with several overhanging canopies that provide some shade and biological inputs for waterborne habitats. The remaining lakeshore environment consists of grass and invasive plant species. Further landward, slope vegetation is dominated by Himalayan blackberry and English ivy. Overall, the property provides low to moderate habitat functions, with habitat almost exclusively provided by the few mature trees present.

3.4.1.2 *Hydrology*

Typical hydrologic functions provided by lakeshore environments include reducing shoreline erosion, intercepting rain and surface water, and flood attenuation. The ability of a shoreline to reduce erosion is largely dependent upon woody vegetation and large woody debris (LWD) present at the water's edge as mechanisms to dissipate wave energy. The subject property's shoreline is heavily modified by two docks and a timber bulkhead; LWD is not present. While the armoring does function to protect the shoreline from erosion, it inhibits the growth of shoreline vegetation and the ability of shoreline vegetation to provide other functions related to water quality and habitat. Shorelines on Lake Washington no longer function to attenuate flood waters because the lake does not flood; lake levels are controlled by the Ballard Locks.

Under more natural conditions, shoreline environments provide water quality functions through water filtration and nutrient uptake, and by providing stability and shade. The quality and quantity of vegetation heavily influences a site's ability to perform hydrology functions well. Shoreline conditions at the subject site include a timber bulkhead and two docks, while the lakeshore area contains lawn, invasive species, and six regulated trees. The trees are expected to provide some water quality functions through the uptake of water and nutrients; however, grass lawns tend to impair hydrology and water quality functions by reducing infiltration rates and contributing excess nutrients like nitrogen from lawn clippings and the use of fertilizers. The lack of dense woody vegetation to trap and store sediment and pollutants limit the site's capacity to provide significant water quality functions. Further landward, slope vegetation consists primarily of a dense thicket of Himalayan blackberry, which provides low hydrologic functions. Overall, water quality functions provided by the subject property are low to moderate.

3.4.1.3 *Vegetation*

Vegetation on residential parcels has the opportunity to provide forage, resting, and nesting sites for urban wildlife species, primarily mobile species like birds that are relatively tolerant of human disturbance. Native vegetation provides more value than non-native species, and

noxious weeds and lawn may impair habitat functions. While the study area contains some native mature trees, including Douglas-fir, black cottonwood, and big leaf maple, it lacks a complex, native understory. Many of the trees have extensive English ivy along the trunks. In addition to a timber bulkhead, the nearshore environment consists of lawn and invasive species. However, the aforementioned trees are primarily located adjacent to the water's edge, with several overhanging canopies that provide some shade and biological inputs for waterborne habitats. Further landward, slope vegetation is dominated by Himalayan blackberry and English ivy, which provide little vegetative functions. Overall, the property provides low to moderate vegetative function.

Photo 1. Existing shoreline conditions, taken from southern dock facing west.

Photo 2. Himalayan blackberry and English ivy along northern portion of shoreline, facing north.

Photo 3. Damaged timber bulkhead and southern shoreline conditions, facing south.

Photo 4. Wetland A and steep slope, facing west.

Photo 5. Existing shed and Tree #4150, facing northwest.

4 Project Description

The applicant proposes to improve the existing shoreline, including replacing shoreline stabilization and improving functionality and lake access. Specifically, the failing timber bulkhead will be removed and replaced with new rock and a beach cove. Other project elements include a 120 square foot barbeque area. Implementation of the project will result in a slight increase in impervious surface coverage on-site and the removal of two regulated trees. No impacts will occur to the steep slope or Wetland A. Ancillary improvements include the installation of nine trees and three shrubs between 0 and 50 feet of the OHWM. The proposed project will result in equivalent or improved ecological functions when compared to existing shoreline conditions through the removal of a timber bulkhead, softening of the shoreline, and the planting of native vegetation.

4.1 Applicable Regulations

4.1.1 Shoreline

The study area is located within shoreline jurisdiction of Lake Washington. As such, the proposal is subject to the requirements of the MICC 19.13 – Shoreline Master Program. Additionally, the site contains a geologically hazardous area and an on-site wetland, Wetland A. Per MICC 19.13.010.D, critical areas provisions are incorporated as specific regulations in the SMP. In the event of conflicts, Chapter 19.13 shall govern. The shoreline environment designation of the parcels is Urban Residential (UR). Per MICC 19.13.050.A Table C, a 25-foot setback from the OHWM is required for all structures and a maximum of 30 percent impervious surface coverage is allowed between 25 feet and 50 feet of the OHWM. The only structure proposed, a 120 square foot barbeque area, is located 25 feet from the OHWM and is well below the 30 percent impervious surface maximum. Further, all development within the shoreline must demonstrate mitigation sequencing and result in no net loss of ecological functions in the shorelands (MICC 19.13.020.C).

4.1.2 Steep Slopes

The western portion of the study area contains a steep slope regulated as a geologically hazardous area. MICC 19.07.160 defers to the definition found in WAC 365-190-130 and defines a steep slope as any area with a slope of 40 percent or steeper and with a vertical relief of 10 or more feet. Per MICC 19.07.160.C.2.a, buffer widths shall be equal to the height of a steep slope,

but not more than 75 feet, applied to the top and toe of such slopes. According to the project Geotechnical Engineer, GEO Group Northwest, Inc., the minimum steep slope buffer is 25 feet. The proposed barbeque pad is located 27 feet from the toe-of-slope and is an acceptable distance from the toe-of-slope per GEO Group Northwest, Inc. Additionally, the parcels are mapped as having protected slope area, landslide, seismic, and erosion hazard critical areas. The proposed project will not disturb the steep slope or potential landslide areas. For additional details regarding geotechnical hazards and critical areas, refer to the separately prepared Geotechnical Engineering Investigation report.

4.1.3 Wetlands

One on-site wetland, Wetland A, was identified and delineated by Facet ecologists during the site visit on April 27, 2023. Wetland A is located within the toe-of-slope near the center of the study area and is classified as a Category IV slope wetland with four habitat points. Wetlands are regulated under MICC 19.07.190. Wetland A is less than 200 square feet in size, is not associated with riparian areas or their buffers, is not associated with a shoreline of the state or associated buffer, is not part of a wetland mosaic, does not score more than five points for habitat function, and does not contain priority habitat for a priority species, federally listed species or their habitat, or species of local importance. Therefore, as allowed under MICC 19.07.190.D.1.b, Wetland A is exempt from buffer provisions. No direct impacts are proposed within Wetland A and proposed construction activities are located away from the wetland.

4.1.4 Trees

The City of Mercer Island regulates tree activity under MICC 19.10 – Trees. Per the definition in MICC 19.16.010, a regulated tree is any tree with a diameter of 10 inches or more and any tree that meets the definition of an exceptional tree. In addition to the requirements of MICC 19.10, the removal or pruning of any tree located within a critical area, critical area buffer or shoreline jurisdiction shall comply with the requirements of MICC 19.07. Ten on-site trees and one off-site tree were inventoried and assessed by Facet on April 27, 2023. Of the on-site trees, six are located within the shoreline setback; two of which are proposed for removal. The two trees will be replaced in accordance with the ratios provided in MICC 19.07.070, for a total of nine replacement trees. For additional information on existing regulated trees and compliance with MICC 19.10, refer to the separately prepared arborist report (Blackberry Beach Arborist Report, Facet, April 2024).

4.2 Mitigation Sequencing

Pursuant to MICC 19.13.020 and MICC 19.07.100, efforts to avoid and minimize impacts to shoreline ecological functions and environmentally critical areas and buffers have been taken. Further, the proposal will ensure no net loss of ecological function in the shorelands.

Avoid: The study area is located within shoreline jurisdiction of Lake Washington. The site is further constrained by the presence of an on-site wetland, steep slope critical area, and associated toe of slope buffer that encumbers a portion of the project area. The project proposes to replace the failing timber bulkhead with rock and a beach cove to prevent further erosion and improve shoreline access. As such, complete avoidance of impacts within shoreline jurisdiction is not possible. However, the project avoids direct impacts to both the steep slope and Wetland A. Further, the only structure proposed (a barbeque pad) is located outside of the 25-foot shoreline setback and steep slope toe-of-slope buffer.

Minimize: Minimization techniques have been utilized during the design process in order to limit impacts associated with the proposed project. Minimization measures include reducing the lineal feet of hardened shoreline stabilization by creating a beach cove and limiting new impervious surfaces to one barbeque area. Standard best management practices (BMPs) will be utilized to minimize project impacts including installation of temporary erosion and sediment control (TESC) measures and tree protection fencing during construction.

Rectify: Shoreline impacts will be rectified by removing the timber bulkhead, softening the shoreline, installing native plantings for stabilization, and creating a more natural gradient compared to existing conditions. All temporary impacts will be restored in place. Additionally, nine trees and three shrubs will be installed between 0 and 50 feet of the OHWM.

Reduce: The project will result in an overall ecological lift when compared to existing shoreline conditions. Plantings will be preserved and maintained to ensure successful establishment.

Compensate: The project seeks to improve shoreline conditions by removing the existing timber bulkhead and replacing it with softer shoreline stabilization and a natural beach gradient. Ancillary improvements include installation of nine trees, three shrubs, and groundcover plantings between 0 and 50 feet of the OHWM. Overall, the project will result in substantially improved shoreline functions relative to existing conditions.

Monitor: A five-year maintenance and monitoring program is proposed to ensure successful plant establishment. Performance standards will be used to assess the project success over time and ensure successful establishment of the planting area**.**

4.3 Impact Assessment and Functional Lift Analysis

The proposed project will result in a reduction of hard shoreline stabilization through the removal of a timber bulkhead and creation of a beach cove, a slight increase in impervious surface area, and the removal of two trees within shoreline jurisdiction (Table 1). No impacts will occur to Wetland A or the steep slope itself. Ancillary improvements include the installation of native groundcover plantings for stabilization and nine trees and three shrubs between 0 and 50 feet of the OHWM. Overall, implementation of the project will improve shoreline functions compared to existing conditions.

Table 1. Table of impacts within shoreline jurisdiction and anticipated function changes.

		Existing Condition	Proposed Condition	Net Change	Function Change[1]			
					Hydrology	Water Quality	Habitat	Slope Stability
Site Element	Total impervious surfaces within 0-25 feet of the OHWM	0 SF	0 SF	0 SF	Maintained	Maintained	Maintained	Maintained
	Total impervious impacts within 25-50 feet of the OHWM	0 SF	118.6 SF	+ 118.6 SF	Reduced	Reduced	Reduced	Maintained
	Linear shoreline stabilization	146 LF	113 LF	- 33 LF	Improved	Improved	Improved	Improved
	Regulated trees within shoreline setback	6 trees	13 trees	+ 9 trees	Improved	Improved	Improved	Improved
	Direct impacts to critical areas (steep slope and Wetland A)	0 SF	0 SF	0 SF	Maintained	Maintained	Maintained	Maintained
	Steep slope buffer impacts	0 SF	0 SF	0 SF	Maintained	Maintained	Maintained	Maintained

1. Detailed in Table 1 and discussed in text in Section 4.3.1.

The effect of proposed impacts on shoreline and critical area ecological functions at the subject property is discussed below, followed by an analysis of how shoreline and critical area functions will be maintained or improved with the proposed shoreline softening and native plantings.

4.3.1 Habitat

Existing Conditions: The majority of habitat on-site is provided by six regulated trees located within the shoreline setback, with several overhanging canopies that provide shade and biological inputs for waterborne habitats. These trees currently provide the only sources of organic inputs to the lake, as the study area lacks a native understory and contains grass and patches of invasive vegetation. Features that impair habitat function within the project area include the armored shoreline, two overwater docks, lack of native understory, and the prevalence of non-native, nuisance, or noxious weeds.

Proposed Conditions: The project proposes to remove the existing timber bulkhead and replace it with boulders and a beach cove area. Additional project components include construction of a 120 square foot barbeque pad and the removal of two regulated trees. Ancillary improvements include the installation of native groundcover plantings for stabilization and nine trees and three shrubs between 0 and 50 feet of the OHWM. While the proposal will result in a slight increase in impervious surface coverage and the removal of two trees within shoreline jurisdiction, the overall quality of habitat on-site will be substantially improved through softening of the shoreline and installation of native plantings.

Net Result: Removal of the existing timber bulkhead and installation of the new boulders and a beach cove will soften the shoreline and create a more natural gradient that will attenuate wave activity and reduce erosion. Proposed native plantings will improve the quality and quantity of habitat within the study area. Installation of native overhanging vegetation within the nearshore area will increase potential input of fine woody debris to the lake.

4.3.2 Hydrology

Existing Conditions: Vegetation within the nearshore consists of six regulated trees, grass, and invasive species like English ivy and Himalayan blackberry. While the trees currently intercept and filter some stormwater, the majority of the study area is comprised of grass, which can impair both hydrologic shoreline functions and water quality functions by contributing excess nutrients to aquatic systems from use of fertilizers. The presence of the existing timber bulkhead further inhibits water quality of lake environment.

Proposed Conditions: The project proposes to remove the existing timber bulkhead and replace it with a boulders and a beach cove area. Additional project components include construction of a small barbeque pad and the installation of native groundcover plantings for stabilization and nine trees and three shrubs between 0 and 50 feet of the OHWM. Current design standards for impervious surfaces and associated stormwater detention/drainage are intended to mimic existing conditions of the site. The project will comply with the City of Mercer

Island's stormwater requirements (MICC 15.09) which requires that water quality and stormwater quantity discharges result in no net loss of shoreline ecological functions. Therefore, the proposed new boulders, beach cove, and new impervious surface should not significantly alter the site's stormwater filtering, detention, and infiltration functions.

Net Result: Although the proposal will slightly increase impervious surfaces within shoreline jurisdiction, water quality and hydrologic functions of the site are expected to be maintained or improved through shoreline enhancements, including removal of the timber bulkhead, creation of a more natural beach gradient, and installation of native plantings. The addition of native trees and shrubs will increase interception and infiltration rates, particularly within the nearshore area.

4.3.3 Vegetation

Existing Conditions: Vegetative functions on-site are primarily provided by six regulated trees within the shoreline setback, with several overhanging canopies that provide some shade and biological inputs for waterborne habitats. These trees currently provide the only sources of organic inputs to the lake, as the study area lacks a native understory and contains patches of invasive vegetation. Features that impair vegetative functions at the subject property include the armored shoreline, two overwater docks, lack of native understory, and the prevalence of non-native, nuisance, or noxious weeds.

Proposed Conditions: The project proposes to remove the existing timber bulkhead and replace it with a boulders and a beach cove area. Additional project components include construction of a 120 square foot barbeque pad and the removal of two regulated trees. Ancillary improvements include the installation of native groundcover plantings for stabilization and nine trees and three shrubs between 0 and 50 feet of the OHWM. While the proposal will result in a slight increase in impervious surface coverage and the removal of two trees within shoreline jurisdiction, the overall quantity and quality of vegetation on-site will be substantially improved through the installation of native plantings.

Net Result: Removal of the existing timber bulkhead and installation of new boulders and a beach cove will soften the shoreline and create a more natural gradient that will attenuate wave activity and reduce erosion potential. Proposed native plantings will improve the quality and quantity of vegetation within the study area. Installation of native overhanging vegetation within the nearshore area will increase potential input of fine woody debris to the lake.

5 Code Compliance

Compliance with specific provisions of Mercer Island's SMP, (MICC 19.13), are demonstrated below, as well as applicable critical area regulations from MICC 19.07. For compliance with steep slope related provisions, (MICC 19.07.160), refer to the Geotechnical Engineering Investigation report by GEO Group Northwest, Inc. Additionally, an Arborist Report detailing compliance with tree regulations, (MICC 19.10), has been separately prepared by Facet.

5.1 General Regulations (MICC 19.13.020)

C. No net loss standard and mitigation sequencing. No development shall be approved unless the applicant demonstrates to the code official's satisfaction that the shoreline development will not create a net loss of ecological function in the shorelands.

2. No net loss plan. Whenever an applicant seeks a variance or conditional use permit or an applicable development standard explicitly requires a determination of no net loss of ecological function, the applicant shall provide the city with a plan that demonstrates the proposed project will not create a net loss in ecological function to the shorelands. The plan shall accomplish no net loss of ecological function by avoiding adverse ecological impacts that are not reasonably necessary to complete the project, minimizing adverse ecological impacts that are reasonably necessary to complete the project, and mitigating or offsetting an adverse impacts to ecological functions or ecosystem-wide processes caused by the project.

Compliance: The proposed project has been designed to ensure no net loss of ecological functions. Mitigation sequencing is demonstrated in Section 4.2. Creation of a beach cove will provide for a more natural gradient, dissipate wave energy along the shoreline, and prevent further erosion. Additionally, nine trees, three shrubs, and 472 SF of groundcover plantings will be planted between 0 and 50 feet of the OHWM. A planting plan has been prepared and is included as part of the Shoreline Improvements plan set, (Appendix B).

5.2 Shoreland Development Standards (MICC 19.13.050)

A. Standards landward of the OHWM (Table C)

- *25-foot setback from the OHWM for all structures*
- *Height limits for all structures shall be the same heights specified in the development code but shall not exceed a height of 35 feet.*

- *Maximum hardscape and lot coverage shall not exceed 10% between 0 and 25 feet from the OHWM; 30 percent between 25 and 50 feet from the OHWM.*

Compliance: The proposed barbeque pad is located outside of the 25-foot shoreline setback and will not exceed 35 feet in height. No hardscape is proposed between 0 and 25 feet from the OHWM. The proposed barbeque pad comprises 120 square feet, of which 118.6 SF is situated between 25 and 50 feet of the OHWM, for a total of 14 percent hardscape coverage on parcel #0824059029.

B. Bulkheads and shoreline stabilization structures.

1. An existing shoreline stabilization structure may be replaced with a similar structure if there is a demonstrated need to protect principal uses or structures from erosion caused by currents or waves, and the following conditions shall apply:

i. The replacement structure should be designed, located, sized, and constructed to assure no net loss of ecological functions.

ii. Replacement walls or bulkheads shall not encroach waterward of the ordinary high water mark or existing structure unless the primary structure was occupied prior to January 1, 1992, and there are overriding safety or environmental concerns.

iii. For purposes of this section standards on shoreline stabilization measures, "replacement" means the construction of a new structure to perform a shoreline stabilization function of an existing structure which can no longer adequately serve its purpose. Additions to or increases in size of existing shoreline stabilization measures shall be considered new structures.

iv. Construction and maintenance of normal protective bulkhead common to single-family dwellings requires only a shoreline exemption permit, unless a report is required by the code official to ensure compliance with the above conditions.

Compliance: The existing timber bulkhead is failing in several locations and replacement is necessary to prevent further erosion of the shoreline and maintain safe access. As such, the feature can no longer adequately serve its purpose. The replacement rock and beach cove have been designed to assure no net loss of ecological functions and will not encroach waterward of the OHWM. The OHWM will be restored to pre-existing conditions in the location of the failed bulkhead, set back further landward in the vicinity of the cove, and maintained elsewhere. The project incorporates more natural shoreline stabilization measures by proposing to replace the existing timber bulkhead with rock (boulder) and a beach cove and limiting linear stabilization

measures where necessary. The proposed beach cove will enhance fish habitat through the addition of shoreline gravel, which provides spawning substrate. Native trees, shrubs, and groundcovers proposed near the shoreline will provide for an improvement in water quality, hydrology, and habitat functions. The aforementioned project elements will ensure no net loss of ecological functions.

5.3 Mitigation Sequencing (MICC 19.07.100)

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

- *A. Avoiding the impact altogether by not taking a certain action or parts of an action;*
- *B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, using a setback deviation pursuant to section 19.06.110(C), using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;*
- *C. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;*
- *D. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;*
- *E. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or*
- *F. Monitoring the impact and taking appropriate corrective measures to maintain the integrity of compensating measures.*

Compliance: Mitigation sequencing has been followed in the order specified above and is described in Section 4.2.

5.4 Critical Area Study (MICC 19.07.110)

B. The critical area study shall be in the form of a written report supported by graphic information prepared by a qualified professional using guidance based on the best available science consistent with the standards in WAC Chapter 365-195 and shall contain the following items, as applicable to adequately evaluate the proposal, proposed alterations, and mitigation:

1. *Disclosure of the presence of critical areas, including a delineation and type or category of critical area, on the development proposal site and any mapped or*

identifiable critical areas on or off site within the distance equal to the largest potential required buffer applicable to the development proposal area on the applicant's property;

Compliance: Existing critical areas are discussed in Section 3.3.

2. *A topographic and boundary survey;*

Compliance: A survey was conducted on February 10, 2023 by Apex Engineering and is included as part of this submittal. A second survey was completed in April 2024 by Apex Engineering to document all hardscapes on parcel no. 0824059029 and ensure compliance with the development standards of MICC 19.02.020.F.3.

3. *A statement specifying the accuracy of the report and all assumptions made and relied upon;*

Compliance: Page two of this report contains a disclosure statement that includes all assumptions made and relied upon.

4. *A description of the methodologies used to conduct the critical area study, including references;*

Compliance: Section 2 Assessment Methods contains a description of the methodologies and a list of references are included at the end of this report.

5. *A scale map of the development proposal site;*

Compliance: Sheet L001 of the Shoreline Improvements Plan contains a scaled map of existing conditions (Appendix B).

6. *Photographic records of the site before the proposed alteration occurs;*

Compliance: Photos of the site are included in Section 3.4 Existing Conditions.

7. *An assessment of the probable effects to critical areas and associated buffers, including impacts caused by the development proposal and associated alterations to the subject property and impacts to other properties and any critical areas or buffers located on them resulting from the development of the site and the proposed development;*

Compliance: Section 4.3 includes an impact assessment and functional lift analysis.

8. *A description of mitigation sequencing implementation described in section 19.007.100 including steps taken to avoid and minimize critical areas impacts to the greatest extent feasible;*

Compliance: Mitigation sequencing is demonstrated in Section 4.2.

9. *Detailed studies, as required by this chapter, for individual critical area types in order to ensure critical area protection;*

Compliance: Appendix A includes rating forms and figures for Wetland A. The Geotechnical Engineering Investigation report prepared by Geo Group Northwest, Inc addresses steep slope, landslide, and erosion hazard critical areas.

10. *Assessment of potential impacts that may occur on adjacent sites, such as sedimentation or erosion, where applicable; and*

Compliance: No impacts are expected to occur on adjacent sites. The proposed boulders will tie into the existing adjacent bulkheads at the north and south property lines. Given that the current timber bulkhead is failing, replacement of the bulkhead will prevent further erosion at the subject site and neighboring properties.

11. *A post-design memorandum prepared by a qualified professional confirming that the proposed improvements comply with the design recommendations.*

Compliance: As-built documentation will be prepared after construction activities are complete.

5.5 Wetlands (MICC 19.07.190)

A. *Designation and Typing. Wetlands shall be identified and their boundaries delineated in accordance with the approved federal delineation manual and applicable regional supplements described in WAC 173-22-035. Wetlands shall be rated according to the Washington State Rating System for Western Washington: 2014 Update (Hruby, 2014), or most current update.*

Compliance: Wetland A has been delineated and rated according to the most recently published guidance (see Appendix A). Wetland A is identified on the plans and is classified as a Category IV slope wetland with four habitat points.

B. *General review requirements.*
   1. *In addition to the critical area study requirements listed in section 19.07.110, critical area study, critical area studies on wetlands shall also include:*
      a. *Wetland rating forms and datasheets;*
      b. *Discussion of landscape setting;*
      c. *A functional analysis of the project demonstrating that there will be no net loss of ecological function; and*
      d. *A mitigation plan.*

Compliance: A qualified professional from Facet delineated and rated Wetland A. Rating forms and data sheets are included in Appendix A. Discussion of landscape setting can be found in Section 3.4 of this report. A functional lift analysis of the project is provided in Section 4.3. A planting plan is included as part of the Shoreline Improvements Plan (Appendix B).

D. Development standards- additional criteria for specific activities.

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

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

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

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

iii. Are not part of a wetland mosaic;

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

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

b. Wetlands less than 1,000 square feet that meet the above criteria and do not contain federally listed species or their critical habitat are exempt from the buffer provisions contained in this chapter.

Compliance: No direct impacts to Wetland A will occur as a result of this proposal. Wetland A is less than 200 square feet in size, is not associated with riparian areas or their buffers, is not associated with a shoreline of the state or associated buffer, is not part of a wetland mosaic, does not score more than five points for habitat function, and does not contain priority habitat for a priority species, federally listed species or their habitat, or species of local importance. As such, pursuant to MICC 19.07.190.D.1.b, Wetland A is exempt from buffer provisions.

6 Conclusion

The project proposes to replace the existing failing timber bulkhead with new rock and a beach cove area. Additional project components include construction of a 120 square foot barbeque

pad and the removal of two regulated trees. No direct impacts to the on-site steep slope and wetland will occur. Implementation of the project will improve shoreline accessibility, functionality, prevent further erosion, and create a more natural shoreline gradient by reducing linear shoreline armoring. Ancillary improvements include the installation of nine native trees, three shrubs, and groundcovers between 0 and 50 feet of the OHWM. Installation of the native plantings will enhance on-site habitat and provide vegetative structural diversity that upon maturity, will aid in improving water quality functions and shoreline stability. Overall, no net loss of critical area and shoreline ecological functions will result from the proposed project.

References

Blackberry Beach Arborist Report, April 2024. Facet.

Blackberry Beach Shoreline Improvements Plan. April 2024. Facet.

Blackberry Beach Wetland Rating Form and Figure. March 2024. Facet.

Geotechnical Engineering Investigation Report. February 7, 2024. Geo Group Northwest, Inc.

King County iMap. 2021. Accessed January 2024.

Shoreline Characterization Report. January 2010. City of Seattle, Department of Planning and Development (Seattle DPD).

Site Map Survey. April 2024. Apex Engineering.

Topographic Survey. February 10, 2023. Apex Engineering.

Appendix A

BLACKBERRY BEACH WETLAND RATING FORM AND FIGURE

Wetland name or number: A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 4/27/2023

Rated by: G. Brennan Trained by Ecology? ☒Y ☐N Date of training: 10/2019

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

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map: WATOR Tool, DOE Water Quality Atlas

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

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	Circle the appropriate ratings									
Site Potential	H	M	**L**	H	M	**L**	H	M	**L**	
Landscape Potential	H	**M**	L	H	**M**	L	H	**M**	L	
Value	H	**M**	L	H	M	**L**	**H**	M	L	**TOTAL**
Score Based on Ratings	5			4			6			15

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

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

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: A

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	3
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	6

Wetland name or number: Wetland A

HGM Classification of Wetlands in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wetland name or number: Wetland A

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

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

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

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

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

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

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

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

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

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

Wetland name or number: Wetland A

SLOPE WETLANDS

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

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

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

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

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

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

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

Wetland name or number: Wetland A

SLOPE WETLANDS

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

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

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

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

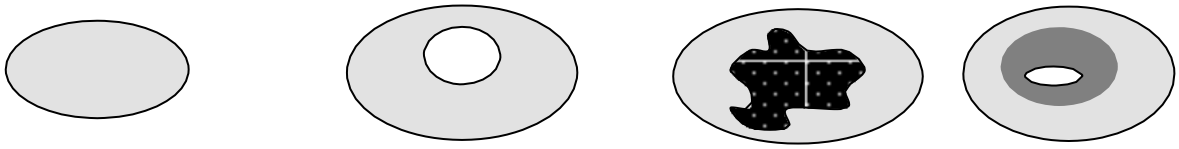
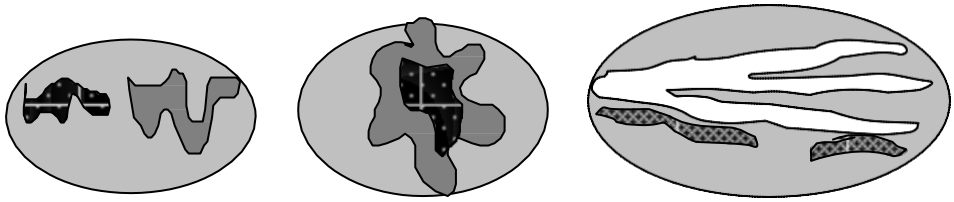
Rating of Landscape Potential If score is: ☒ **1 = M** ☐ **0 = L** *Record the rating on the first page*

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

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number: Wetland A

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☒ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	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	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  ☒ **None** = 0 points ☐ **Low** = 1 point ☐ **Moderate** = 2 points  All three diagrams in this row are ☐ **HIGH** = 3points	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).* ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*).	0
Total for H 1 Add the points in the boxes above	1

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% + (47.8%/2) = 23.9%** If total accessible habitat is: ☐ > 1/3 (33.3%) of 1 km Polygon points = 3 ☒ 20-33% of 1 km Polygon points = 2 ☐ 10-19% of 1 km Polygon points = 1 ☐ < 10% of 1 km Polygon points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2 **= 0% + (47.8%/2) = 23.9%** ☐ 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	2

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

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

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

Wetland name or number: Wetland A

WDFW Priority Habitats

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☒ **Deep Freshwater**.

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

Wetland name or number: Wetland A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland name or number: Wetland A

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

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A

Wetland name or number: B

Figure 1 – Cowardin classes

2014 Ecology Wetland Rating Form Figures

BLACKBERRY BEACH

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WETLAND A (SLOPE)

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

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

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

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

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

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

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

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

-

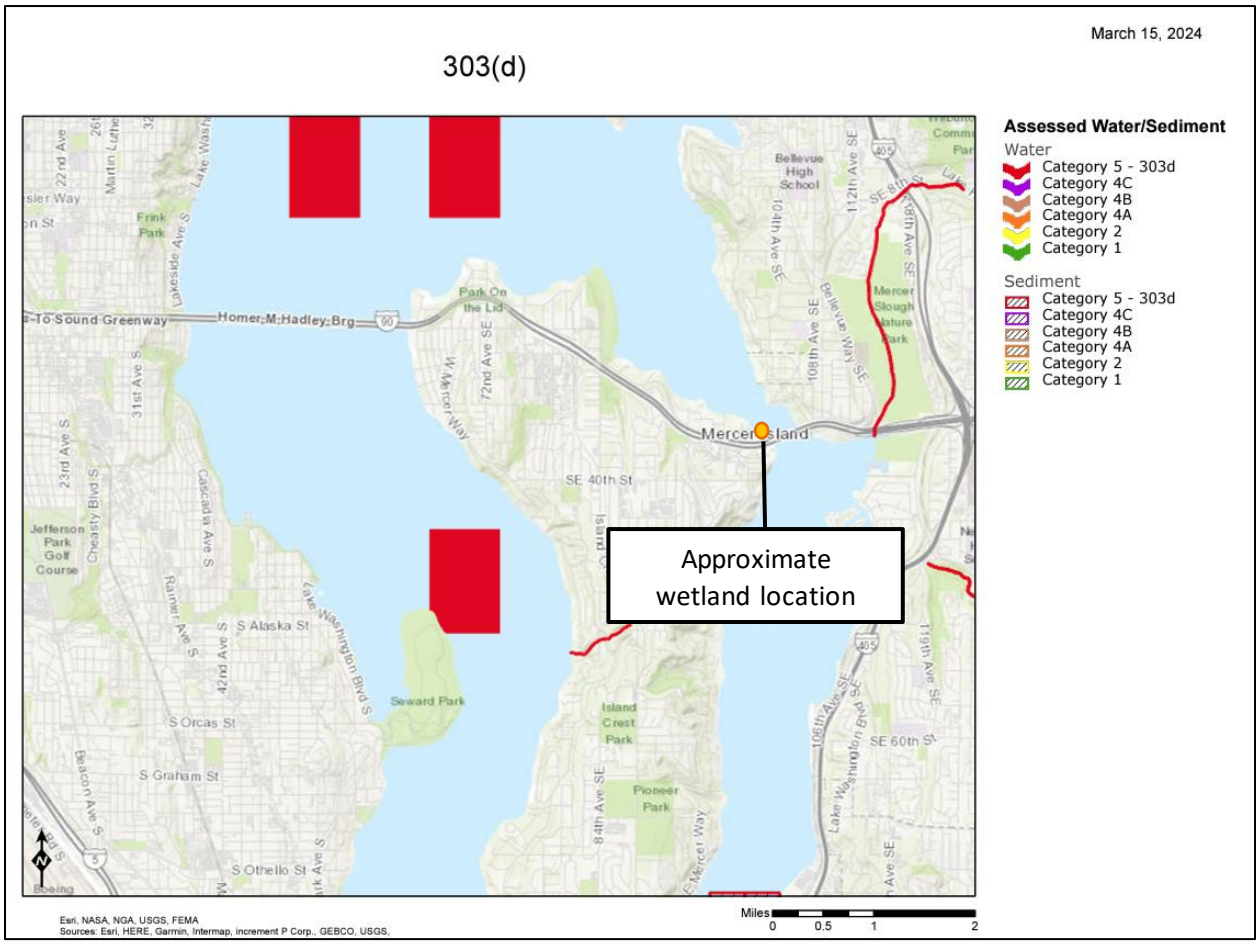


Figure 5. Screen-capture of 303(d) listed waters in basin – S3.1, S3.2

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

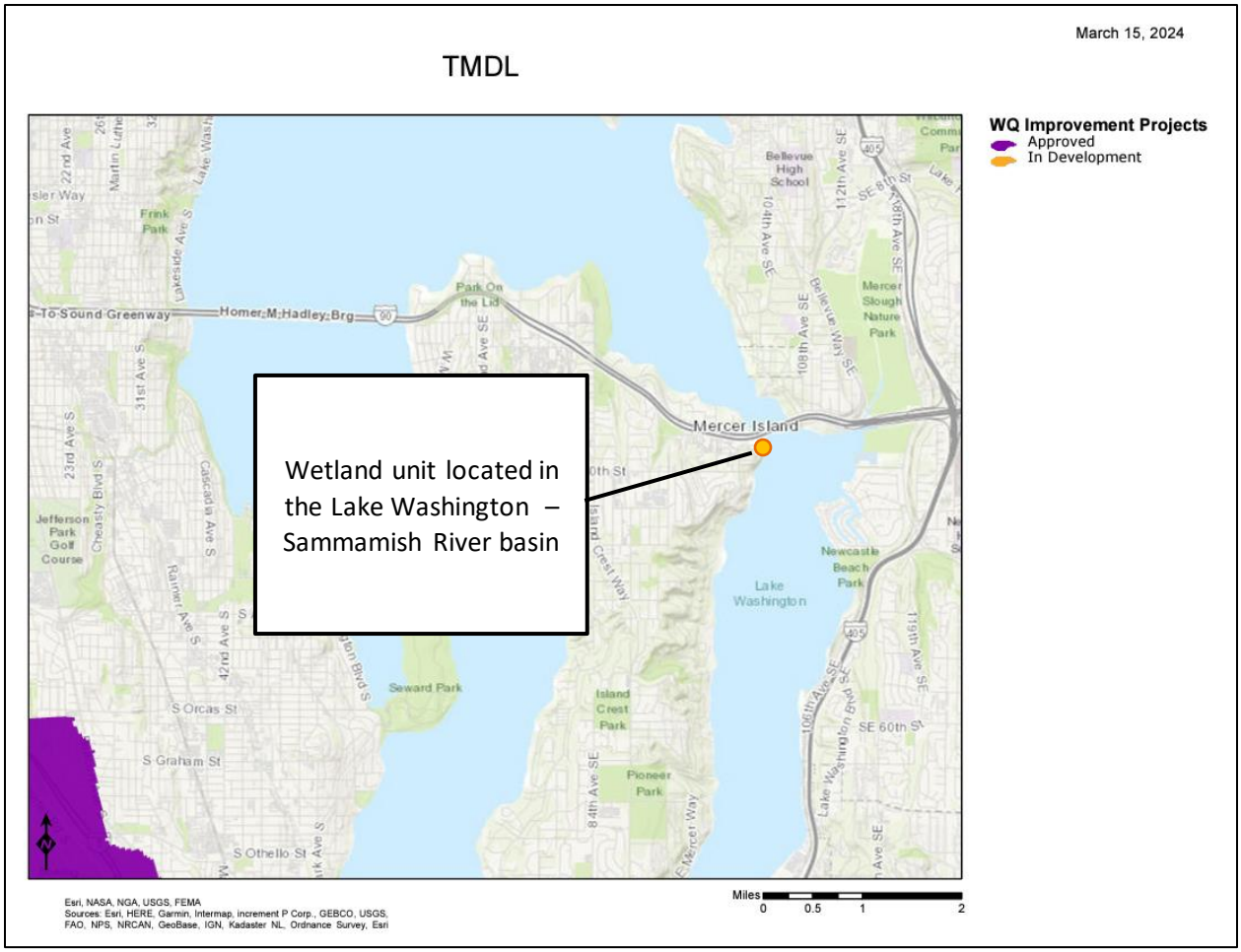


Figure 6. Map of TMDL for WRIA in which unit is found – S3.3

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

Appendix B

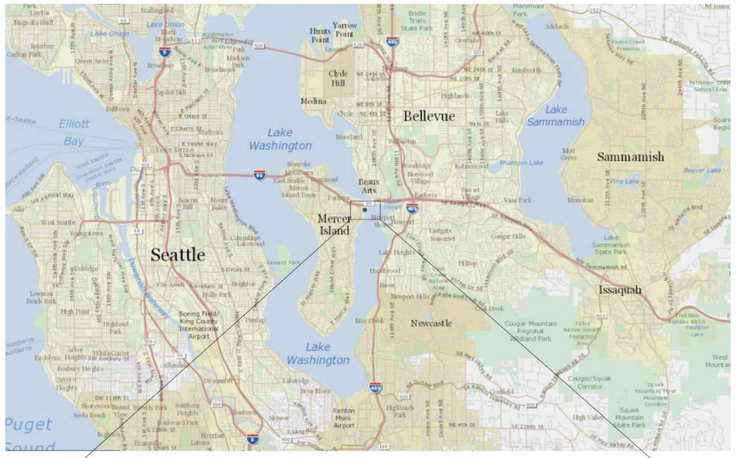
BLACKBERRY BEACH SHORELINE IMPROVEMENTS PLAN

BLACKBERRY BEACH

SHORELINE IMPROVEMENTS

3820 EAST MERCER WAY

MERCER ISLAND, WASHINGTON 98040



PROJECT INFORMATION

SITE ADDRESS:

3820 EAST MERCER WAY
MERCER ISLAND, WA 98040
PARCEL NUMBERS: 0824059185, 0824059184, 0824059189, 0824059029, 0824059181, AND 0824059240
ZONING: RSA 6

VERTICAL DATUM
NAVD88

SITE LEGAL DESCRIPTION
JUANITA POINT A RESIDENCE PARK NELY 54.605 FT OF SWLY 109.21 FT MEAS ALG NLY LN TGW UND INT IN COMMUNITY BEACH FOR ASSESSMENT PURPOSES ONLY.

PROJECT DESCRIPTION
FAILING TIMBER BULKHEAD WILL BE REMOVED FROM THE SHORELINE OF THE PROPERTY, AND REPLACED WITH A 2-4 MAN ROCK NATURAL STONE BULKHEAD CREATING COVE BEACH. TWO TREES WILL BE REMOVED AND REPLACED WITH 9 NATIVE TREES. NATIVE GROUND COVERS WILL ALSO BE PLACED ADJACENT TO THE NEW BULKHEAD TO PROVIDE STABILIZATION.

PROJECT DIRECTORY

APPLICANT
KEN LUSTIG

PERMITTING & LANDSCAPE ARCHITECT
DEVIN MELVILLE
AMANDA SANELLI, PLA
FACET
750 SIXTH STREET SOUTH
KIRKLAND, WA 98033
(425) 822-5242

SURVEY
APEX ENGINEERING LLC.
2601 S 35TH ST #200,
TACOMA, WA 98409
(253) 473-4494

SHEET INDEX

NO.	DATE	BY	REVISION

BASE MAP/TOPOGRAPHY PROVIDED BY OTHERS. DCG/WATERSHED CANNOT BE HELD LIABLE FOR ACCURACY. CONTRACTOR SHALL FIELD VERIFY GRADES, UTILITIES, AND ALL OTHER EXISTING FEATURES AND CONDITIONS. IF CONDITIONS ARE NOT AS SHOWN AND/OR PLANS CANNOT BE CONSTRUCTED AS SHOWN, CONTACT DCG/WATERSHED PRIOR TO CONSTRUCTION.

FACET

CALL 811
2 BUSINESS DAYS BEFORE YOU DIG
(UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

BLACKBERRY BEACH
3820 EAST MERCER WAY
MERCER ISLAND, WA 98040
210930

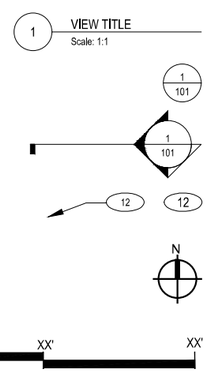
DESIGN DEVELOPMENT

COVERSHEET

DATE: 04/24/2024
PLAN NUMBER:
G001
SHEET 1 OF 8

PRINCIPAL: JKB PROJECT MANAGER: DM DESIGNED BY: AS, MF DRAWN BY: AS CHECKED BY: MF, DM

COMMONLY USED SYMBOLS AND ABBREVIATIONS



DETAIL TITLE BLOCK. NUMBER KEYS TO *DETAIL BUG* OR *SECTION CUT VIEW* NUMBER .

DETAIL BUG. NUMBER KEYS TO *DETAIL TITLE BLOCK*.

SECTION CUT VIEW KEY. NUMBER KEYS TO *DETAIL TITLE BLOCK*.

NUMBER KEY CALLOUTS. NUMBER IN SHEET LEGEND KEYS TO NUMBER ON CALL OUT. NUMBER KEY ONLY APPLIES TO ONE SHEET.

NORTH ARROW

SCALE BAR (FEET)

GENERAL CONDITION NOTES

CONTRACTOR SHALL:

1. PERFORM ALL WORK ACCORDING TO THE MOST-RECENT PLANS AND SPECIFICATIONS.
2. HOLD A PRE-CONSTRUCTION MEETING WITH PROJECT RESTORATION CONSULTANT AND OWNERS REPRESENTATIVE BEFORE BEGINNING SHORELINE CONSTRUCTION WORK.
3. ENSURE COPIES OF ALL PERMITS AND CONDITIONS FROM LOCAL, STATE AND FEDERAL AGENCIES ARE PRESENT ON-SITE FOR THE DURATION OF THE WORK.
4. LOCATE ALL EXISTING UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION. NO EXCAVATION SHALL BEGIN UNTIL ALL KNOWN UTILITIES IN THE VICINITY OF THE EXCAVATION AREA HAVE BEEN LOCATED AND MARKED. LOCATION OF EXISTING UTILITIES AS SHOWN ON THE PLANS MAY VARY IN RELATION TO ON-SITE LOCATION, AND ADDITIONAL UTILITIES MAY EXIST THAT ARE NOT SHOWN ON THE DRAWINGS. FIELD VERIFY UTILITY LOCATIONS SHOWN. ANY DAMAGE TO UTILITIES, EVEN IF NOT IDENTIFIED ON PLAN, SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
5. INSTALL ANY CONSTRUCTION ENTRANCE(S), SILT FENCING, CATCH BASIN INSERTS, AND ALL OTHER TEMPORARY EROSION CONTROL MEASURES, GENERAL AND SITE-SPECIFIC, AS NOTED ON THE PLANS AND SUPPORTING DOCUMENTS OR AS REQUIRED BY VARIOUS PERMITS AND AUTHORIZATIONS. MAINTAIN AS NECESSARY FOR THE DURATION OF THE PROJECT. SUPPLEMENTAL TESC MEASURES, WHICH MAY BE REQUIRED, ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. EQUIPMENT USED ON THIS PROJECT MUST BE IN EXCELLENT WORKING CONDITION, WELL MAINTAINED, AND COMPLETELY FREE OF FLUID LEAKS OF ANY KIND.

CONSTRUCTION SEQUENCE

1. ESTABLISH THE BOUNDARIES OF THE CONSTRUCTION AREA IN FIELD. IDENTIFY AND PROTECT ALL UTILITIES THAT MAY EXIST IN THE CONSTRUCTION AREA. ANY DAMAGE TO UTILITIES, EVEN IF NOT IDENTIFIED ON PLAN, SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
2. DEPLOY FLOATING SEDIMENT CURTAIN AND WATTLE AS SHOWN ON TESC AND DEMOLITION PLAN.
3. EXCAVATE AND REMOVE BULKHEAD PER THE DESIGN DRAWINGS. APPROXIMATELY 146 LINEAR FEET OF THE TIMBER BULKHEAD WILL BE REMOVED. EXCAVATE LANDWARD OF REMOVED BULKHEAD FOR BEACH COVE CREATION.
4. PLACE BOULDERS ACCORDING TO THE SHORELINE PLAN. BOULDERS ARE TO BE OF MIXED SIZES, TYPICALLY 2-4 MAN. PUSH ALL ROCKS INTO PLACE UNTIL STABLE AND POSITION IN A TIERED FASHION IF MORE THAN ONE ROCK IS NECESSARY FOR VERTICAL STABILITY, SLOPING LANDWARD ACCORDING TO DESIGN PLACEMENT.
5. ADD SHORELINE GRAVEL ACROSS THE SHORELINE. THE SHORELINE GRAVEL IS TO BE WASHED, ROUNDED ROCK OF MIXED SIZES. APPROXIMATELY 56 CUBIC YARDS OF SHORELINE GRAVEL AND 28 CUBIC YARDS OF COARSE COBBLE WILL BE PLACED BELOW THE OHWM AND 33 CUBIC YARDS OF SHORELINE GRAVEL AND 16.5 CUBIC YARDS OF COARSE COBBLE WILL BE PLACED ABOVE THE OHWM.
6. COMPLETE GRADING ABOVE THE OHWM.
7. ADD COARSE SAND OVERLAY PER PLAN WITH BASE LAYER OF SHORELINE GRAVEL (SEE SECTION ON SHEET L200), APPROXIMATELY 11 CUBIC YARDS OF SHORELINE GRAVEL (IN ADDITION TO THE QUANTITIES NOTED ABOVE IN STEP 5) AND 11 CUBIC YARDS OF COARSE SAND WILL BE PLACED ABOVE THE OHWM FOR THE BEACH CREATION.
8. INSTALL SHORELINE LOGS, AS INDICATED ON PLANS.
9. INSTALL PLANTS PER THE PLANTING PLAN. PLANT THE AREAS INDICATED ON THE PLANTING PLAN DURING THE FIRST DORMANT SEASON (NOVEMBER THROUGH MARCH). USE SIZING AND CONDITION INFORMATION PROVIDED IN THE PLANTING LEGEND. IF PLANTS ARE INSTALLED OUTSIDE OF THE DORMANT SEASON, THEN A WATER DELIVERY SYSTEM MUST BE IN PLACE THAT IS CAPABLE OF PROVIDING A MINIMUM OF 1 INCH OF WATER PER WEEK TO ALL PLANTING AREAS.
10. REMOVE CONTAINMENT BOOM AND SEDIMENT CURTAIN AFTER WATER IS CLEAR OF DEBRIS AND TURBIDITY.

ANNUAL SHORELINE MAINTENANCE

FOR THE DURATION OF THE PERMIT (OR AS OTHERWISE SPECIFIED BY PERMIT APPROVALS), THE SHORELINE WILL BE ANNUALLY INSPECTED, SPECIFICALLY NOTING AREAS WHERE PROJECT MATERIAL (I.E. GRAVELS) MAY HAVE WASHED AWAY AND WHERE SHORELINE ELEMENTS (I.E. ROCKS) HAVE BECOME UNSTABLE AS A RESULT OF WAVE ACTION. UP TO 25 CUBIC YARDS OF SHORELINE GRAVEL MAY BE INSTALLED ANNUALLY TO RE-NOURISH THE SHORELINE. SHORELINE ELEMENTS MAY BE ADJUSTED AND RE-SECURED AS NEEDED TO MAINTAIN THE SHORELINE STRUCTURE AS IDENTIFIED ON THE APPROVED PLANS. ALL IN-WATER WORK WILL COMPLY WITH APPROVED IN-WATER WORK WINDOWS.

PLANT MAINTENANCE

THE SITE SHALL BE MAINTAINED FOR FIVE YEARS FOLLOWING SUCCESSFUL INSTALLATION

1) REPLACE EACH PLANT FOUND DEAD IN THE MONITORING VISITS IN THE FOLLOWING DORMANT SEASON (OCTOBER 15 - MARCH 1). REPLACEMENT SHALL BE OF THE SAME SPECIES AND SIZE PER PLAN UNLESS OTHERWISE APPROVED BY THE RESTORATION SPECIALIST.
2) GENERAL WEEDING FOR ALL PLANTED AREAS:
   a. AT LEAST TWICE ANNUALLY, REMOVE COMPETING GRASSES AND WEEDS FROM AROUND THE BASE OF EACH INSTALLED PLANT TO A RADIUS OF 12 INCHES. WEEDING SHOULD OCCUR AT LEAST ONCE IN THE SPRING AND ONCE IN THE SUMMER. THOROUGH WEEDING WILL RESULT IN LOWER PLANT MORTALITY AND ASSOCIATED PLANT REPLACEMENT COSTS.
   b. MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLANT INSTALLATION.
   c. NOXIOUS WEEDS MUST BE REMOVED FROM THE ENTIRE MITIGATION AREA, AT LEAST TWICE ANNUALLY.
   d. DO NOT USE STRING TRIMMERS IN THE VICINITY OF INSTALLED PLANTS, AS THEY MAY DAMAGE OR KILL THE PLANTS.
3) MAINTAIN A A 18-INCH WOODCHIP MULCH RING ACROSS THE ENTIRE PLANTING AREA. MULCH SHOULD BE PULLED BACK TWO INCHES FROM THE PLANT STEMS.
4) INSPECT AND REPAIR THE WATER DELIVERY SYSTEM AS NECESSARY EACH SPRING. DURING AT LEAST THE FIRST TWO GROWING SEASONS, MAKE SURE THAT THE ENTIRE PLANTING AREA RECEIVES A MINIMUM OF ONE INCH OF WATER PER WEEK FROM JUNE 1ST THROUGH SEPTEMBER 30TH.

PERFORMANCE STANDARDS

THE FOLLOWING PERFORMANCE STANDARDS WILL BE USED TO GAUGE THE SUCCESS OF PROJECT OVER TIME. IF ALL PERFORMANCE STANDARDS HAVE BEEN SATISFIED BY THE END OF YEAR FIVE, THE PROJECT SHALL BE CONSIDERED COMPLETE.

1. SURVIVAL
   A. ACHIEVE 100% SURVIVAL OF ALL INSTALLED TREES AND SHRUBS THROUGHOUT THE 5 YEAR MONITORING PERIOD THIS STANDARD CAN BE MET THROUGH PLANT ESTABLISHMENT OR THROUGH REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.
2. COVER
   A. NO MORE THAN 10% COVER BY INVASIVE SPECIES LISTED AS CLASS A, B, OR C BY THE KING COUNTY NOXIOUS WEED CONTROL BOARD IN ANY MONITORING YEAR.

MONITORING REQUIREMENTS

PRIOR TO THE COMMENCEMENT OF THE MONITORING PHASE, AN AS-BUILT PLAN DOCUMENTING THE SUCCESSFUL INSTALLATION OF THE PROJECT WILL BE SUBMITTED TO THE CITY. IF NECESSARY, THE AS-BUILT REPORT MAY INCLUDE A MARK-UP OF THE ORIGINAL PLAN THAT NOTES ANY SIGNIFICANT CHANGES OR SUBSTITUTIONS THAT OCCURRED. DURING THE AS-BUILT INSPECTION, THE RESTORATION SPECIALIST WILL ESTABLISH AT LEAST FOUR PERMANENT PHOTO-POINTS.

THE SITE WILL BE MONITORED ANNUALLY FOR FIVE YEARS BEGINNING WITH APPROVAL OF THE AS-BUILT REPORT. THE FORMAL LATE-SEASON MONITORING INSPECTION WILL TAKE PLACE ONCE ANNUALLY DURING LATE SUMMER OR EARLY FALL. DURING EACH LATE-SEASON MONITORING INSPECTION, THE FOLLOWING DATA WILL BE COLLECTED:

1) PERCENT SURVIVAL OF ALL INSTALLED PLANTINGS, INCLUDING SPECIES SPECIFIC COUNTS OF INSTALLED TREE AND SHRUB PLANTINGS
2) NATIVE WOODY COVER AS DETERMINED USING VISUAL COVER CLASS ESTIMATES.
3) THE GENERAL HEALTH AND VIGOR OF THE INSTALLED VEGETATION.
4) PHOTOGRAPHS FROM FIXED PHOTO-POINTS ESTABLISHED DURING THE AS-BUILT INSPECTION.
5) ANY EVIDENCE OF WILDLIFE USAGE IN THE MITIGATION AREA.
6) MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY TO THE US ARMY CORPS OF ENGINEERS. REPORTS SHALL DOCUMENT THE CONDITIONS OF THE SITE; INCLUDING QUANTITATIVE DATA COLLECTED DURING THE MONITORING INSPECTION, AND SHALL PROVIDE MAINTENANCE RECOMMENDATIONS THAT MAY BE NECESSARY TO HELP THE SITE ACHIEVE THE STATED PERFORMANCE STANDARDS.

CONTINGENCY PLAN

IF ANY MONITORING REPORT REVEALS THAT THE RESTORATION PLAN HAS FAILED IN WHOLE OR IN PART, AND SHOULD THAT FAILURE BE BEYOND THE SCOPE OF ROUTINE MAINTENANCE, THE APPLICANT WILL SUBMIT A CONTINGENCY PLAN TO THE US ARMY CORPS OF ENGINEERS FOR APPROVAL. THIS PLAN MAY INCLUDE REPLANTING, SOIL AMENDMENTS OR TOPDRESSING, SUBSTITUTIONS FOR SPECIES SELECTED IN THE ORIGINAL PLAN, AND ADAPTIVE WEED CONTROL METHODS.

MATERIAL SPECIFICATIONS

1	SHORELINE GRAVEL: SHORELINE GRAVEL MIX SHALL BE WELL-GRADED AND CONFORM CLOSELY TO THE FOLLOWING SIZE GRADATIONS: SIEVE SIZE (INCHES) — PERCENT PASSING 4" SQUARE — 100 3" SQUARE — 80 - 95 2" SQUARE — 50 - 80 1 ½" SQUARE — 30 - 50 ¾" SQUARE — 0 - 5 GRAVEL SHALL BE NATURALLY OCCURRING WATER ROUNDED AGGREGATES.
2	COURSE COBBLE LAYER: SHALL BE 4" D50 ROCK. MIX SHALL BE WELL-GRADED AND CONFORM CLOSELY TO THE FOLLOWING SIZE GRADATIONS: SIEVE SIZE (INCHES) — PERCENT PASSING 8" SQUARE — 100 6" SQUARE — 80 - 95 3" SQUARE — 50 - 80 3" SQUARE — 30 - 50 2" SQUARE — 0 - 5
3	COARSE SAND OVERLAY - SAND SHALL BE CLEAN, SCREENED, AND FREE FROM WOOD, BARK, OR OTHER EXTRANEOUS MATERIAL.
4	MODIFICATION OF EXISTING PLANTING SOIL: MIXING OF EXISTING SOIL, COARSE SAND, AND/OR ORGANIC AMENDMENT TO MAKE A NEW SOIL THAT MEETS THE PROJECT GOALS FOR THE INDICATED PLANTING AREA, AND RESULTS IN LONG-TERM SUCCESS OF EXISTING AND INSTALLED VEGETATION. ACTUAL QUANTITY WILL VARY BASED ON CONSTRUCTION DISTURBANCE. TEST EXISTING PLANTING SOIL AS NECESSARY TO DETERMINE TYPE AND QUANTITY OF MIX COMPONENT NEEDED TO ACHIEVE DESIRED SOIL PROFILE. PLANTING SOIL SHALL BE MODERATELY SLOW DRAINING SOIL FOR TREES AND SHRUB BEDS. THE APPROXIMATE MIX RATIO SHALL BE: MIX COMPONENT — PERCENT BY MOIST VOLUME EXISTING TOPSOIL UNSCREENED — 45 - 50% COARSE SAND — 40 - 45% ORGANIC AMENDMENT — 10%
5	SOIL: PLANTING MEDIA SHALL CONSIST OF EXISTING TOPSOIL OR IMPORT TOPSOIL THAT COMPLIES WITH THE FOLLOWING: A) WHERE USED, EXISTING TOPSOIL SHALL BE MODIFIED AS NECESSARY TO ACHIEVE SOIL PROFILE DESCRIBED IN MODIFICATION OF EXISTING PLANTING SOIL SECTION ABOVE. INCORPORATE 2" OF ORGANIC AMENDMENT TO AN 8-INCH DEPTH BY AMENDING WITH TEETH OF BACK HOE OR LOADER BUCKET, TILLER, OR OTHER SUITABLE DEVICE. B) WHERE USED, IMPORT TOPSOIL SHALL BE UNSCREENED "3-WAY TOPSOIL" BY CEDAR GROVE
6	LANDSCAPE MULCH: MULCH SHALL BE "LANDSCAPE MULCH" BY CEDAR GROVE.
7	COMPOST: CEDAR GROVE COMPOST OR EQUIVALENT "COMPOSTED MATERIAL" PER WASHINGTON ADMIN. CODE 173-350-220.
8	BULKHEAD: BOULDERS TO BE SELECTED BY LANDSCAPE ARCHITECT. PRIOR TO INSTALLATION, CONTRACTOR SHALL COORDINATE ONSITE WITH OWNER TO MARK PLACEMENT OF BOULDERS IN THE FIELD. BOULDERS SHALL BE WELL GRADED, BETWEEN 2-4 MAN BOULDER SIZE.

NO. | DATE | BY | REVISION

FACET

CALL 811
2 BUSINESS DAYS
BEFORE YOU DIG
(UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

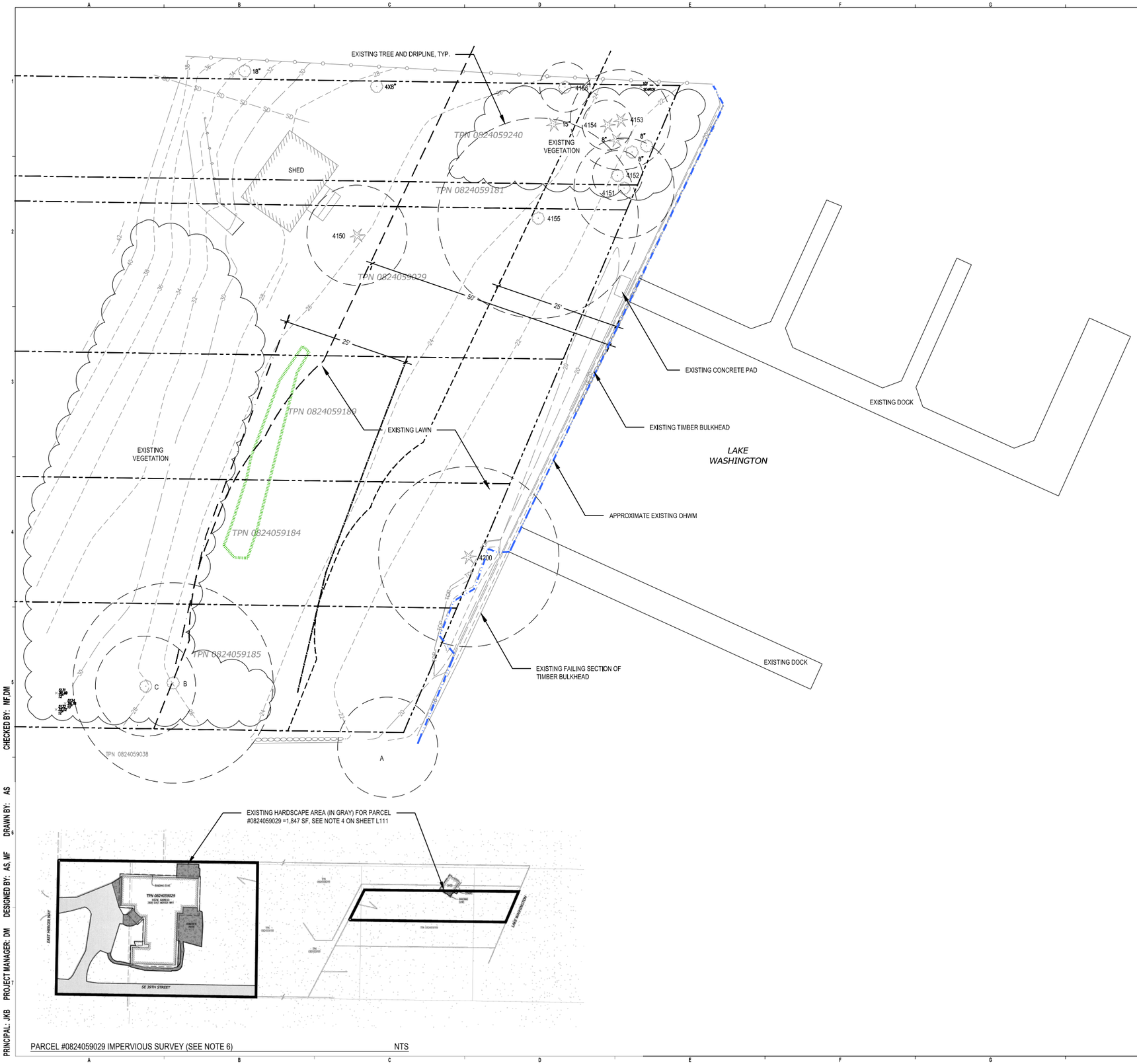
BLACKBERRY BEACH
3820 EAST MERCER WAY
MERCER ISLAND, WA 98040
210930

DESIGN DEVELOPMENT

PROJECT SPECIFICATIONS

DATE: 04/24/2024
PLAN NUMBER:
G002
SHEET 1 OF 8

PRINCIPAL: JKB | PROJECT MANAGER: DM | DESIGNED BY: AS, MF | DRAWN BY: AS | CHECKED BY: MF.DM



LEGEND

EXISTING

- PARCEL BOUNDARY
- APPROXIMATE ORDINARY HIGH WATER MARK (OHWM)
- APPROXIMATE WETLAND BOUNDARY- WETLAND A (175 SF APPROX.)
- SHORELINE SETBACK (25')
- 50' FROM OHWM
- TOE OF SLOPE
- TOE OF SLOPE SETBACK (25')
- 2' CONTOUR

NOTES

1. SURVEY COMPLETED BY APEX ENGINEERING LLC, DATED 02-10-2023.
2. REFER TO ARBORIST REPORT FOR TREE INFORMATION.
3. OHWM WAS APPROXIMATED USING ELEVATIONS INCLUDED IN SURVEY.
4. WETLAND WAS DELINEATED BY FACET ON 4/27/2023 BUT NOT SURVEYED. WETLAND LOCATION ON PLANS ARE APPROXIMATED VIA FIELD SKETCH.
5. PER MICC 19.07.190.D.1.B, WETLAND A IS EXEMPT FROM BUFFER PROVISIONS.
6. PARCEL #0824059029 SURVEY COMPLETED BY APEX ENGINEERING LLC, DATED 04-12-2024.

PARCEL #0824059029 IMPERVIOUS SURVEY (SEE NOTE 6) NTS

SCALE 1" = 10'

NO.	DATE	BY	REVISION

BASE MAP/TOPOGRAPHY PROVIDED BY OTHERS. DCG/WATERSHED CANNOT BE HELD LIABLE FOR ACCURACY. CONTRACTOR SHALL FIELD VERIFY GRADES, UTILITIES, AND ALL OTHER EXISTING FEATURES AND CONDITIONS. IF CONDITIONS ARE NOT AS SHOWN AND/OR PLANS CANNOT BE CONSTRUCTED AS SHOWN, CONTACT DCG/WATERSHED PRIOR TO CONSTRUCTION.

FACET

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BLACKBERRY BEACH

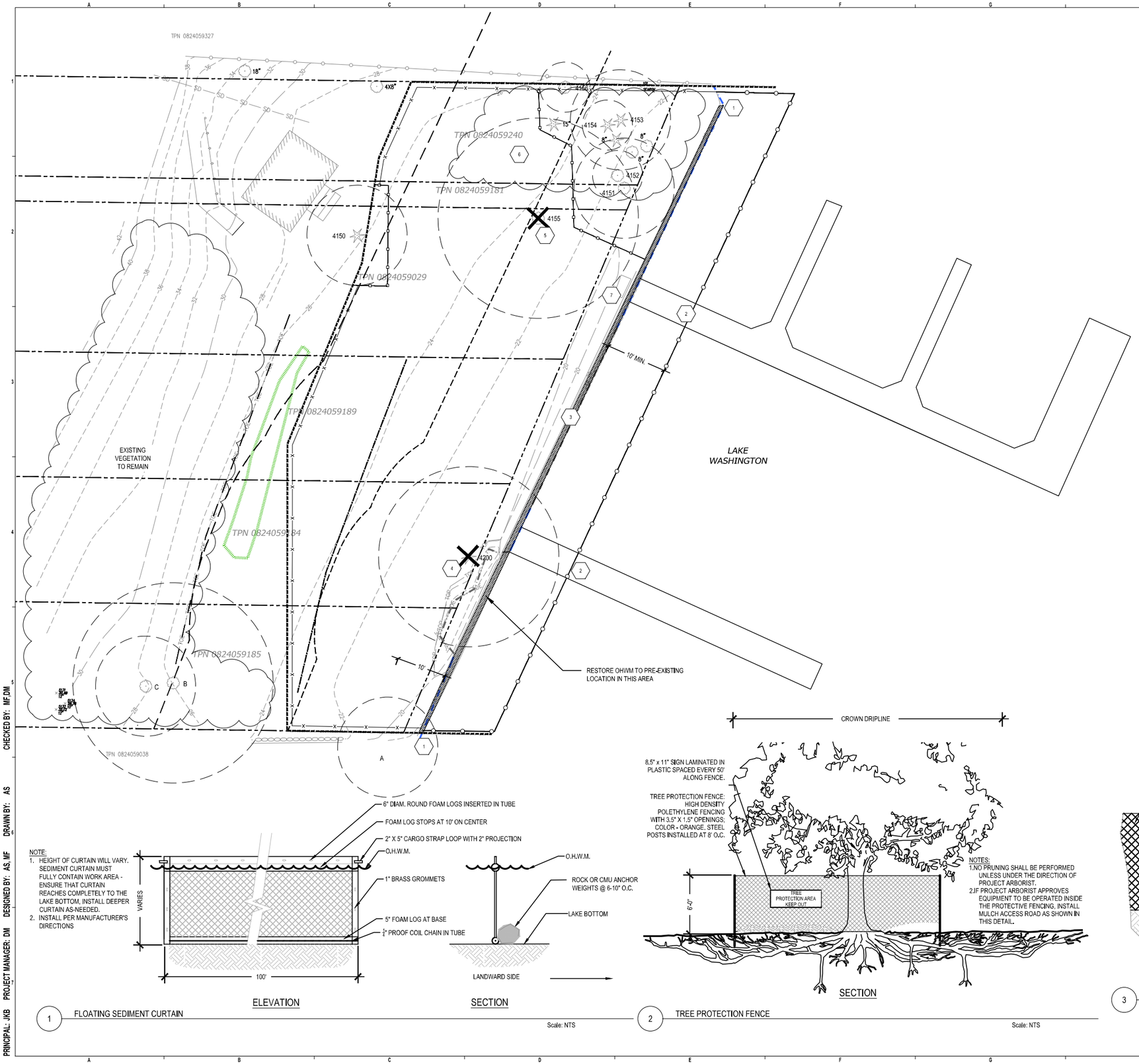
3820 EAST MERCER WAY
MERCER ISLAND, WA 98040
210930

DESIGN DEVELOPMENT

EXISTING CRITICAL AREA CONDITIONS

DATE: 04/24/2024
PLAN NUMBER: L001
SHEET 3 OF 8

PRINCIPAL: JKB
PROJECT MANAGER: DM
DESIGNED BY: AS, MF
DRAWN BY: AS
CHECKED BY: MF.DM



SITE PREPARATION AND DEMOLITION NOTES

1. PROTECT ADJACENT BULKHEAD TO REMAIN.
2. PROTECT EXISTING DOCKS.
3. REMOVE TIMBER BULKHEAD AND FOOTINGS.
4. REMOVE FIR TREE AND REUSE FOR SHORELINE LOGS.
5. REMOVE COTTONWOOD AND DISPOSE.
6. PROTECT EXISTING NATIVE VEGETATION
7. CONCRETE PAD TO REMAIN

LEGEND

EXISTING

- PARCEL BOUNDARY
- APPROXIMATE ORDINARY HIGH WATER MARK (OHWM)
- APPROXIMATE WETLAND BOUNDARY (WETLAND A)
- SHORELINE SETBACK (25')
- 50' FROM OHWM
- TOE OF SLOPE
- TOE OF SLOPE SETBACK (25')
- 2' CONTOUR

PROPOSED

- LIMIT OF WORK BOUNDARY
- FLOATING SEDIMENT CURTAIN (1 / L101)
- LOG BULKHEAD TO BE REMOVED (140 LF)
- TREE PROTECTION FENCE (2 / L101)
- HIGH VISIBILITY FENCE (242 LF) (3 / L101)
- TREE TO BE REMOVED, TYP.

NOTES

1. INSTALL ALL TEMPORARY EROSION CONTROL MEASURES BOTH GENERAL AND SITE-SPECIFIC, AS NOTED ON THE PLANS AND SUPPORTING DOCUMENTS OR AS REQUIRED BY VARIOUS PERMITS AND AUTHORIZATIONS
2. BEFORE BEGINNING CONSTRUCTION WORK, ESTABLISH AND MARK CLEARING LIMITS AND DEFINE THE WORK AND STAGING AREA(S).
3. INSTALL ANY CONSTRUCTION ENTRANCE(S), SILT FENCING, CATCH BASIN INSERTS, AND ALL OTHER TEMPORARY EROSION CONTROL MEASURES, GENERAL AND SITE-SPECIFIC, AS NOTED ON THE PLANS AND SUPPORTING DOCUMENTS OR AS REQUIRED BY VARIOUS PERMITS AND AUTHORIZATIONS. MAINTAIN AS NECESSARY FOR THE DURATION OF THE PROJECT.
4. IDENTIFY ANY STRUCTURES OR MATERIALS WITHIN THE PROJECT AREA SLATED FOR RELOCATION OR REMOVAL PRIOR TO PROJECT IMPLEMENTATION (E.G. CONCRETE SOILS, TREES) AND VERIFY THEIR REMOVAL OR RELOCATION WITH OWNER'S REPRESENTATIVE.
5. ALL MATERIALS REMOVED FROM THE SITE WILL BE STORED ON THE BARGE AND TAKEN TO AN APPROVED UPLAND FACILITY WHEN AS IS NECESSARY TO MAINTAIN ADEQUATE SPACE ON THE BARGE AND PREVENT MATERIALS FROM ENTERING LAKE WASHINGTON.
6. SHOULD BELOW GRADE OBJECTS NOT ON THE PLANS OR SPECIFICATIONS BE ENCOUNTERED, NOTIFY LANDSCAPE ARCHITECT.
7. PLAN SEQUENCE OF WORK SO AS NOT TO LEAVE AREAS OF BARE SOILS EXPOSED FOR LONGER THAN 7 DAYS, OR LESS DEPENDING ON WEATHER. PLAN AND IMPLEMENT TESC ACCORDINGLY TO PREVENT EROSION AND PROTECT SOIL QUALITY.

NOTE:
1. HEIGHT OF CURTAIN WILL VARY. SEDIMENT CURTAIN MUST FULLY CONTAIN WORK AREA - ENSURE THAT CURTAIN REACHES COMPLETELY TO THE LAKE BOTTOM, INSTALL DEEPER CURTAIN AS-NEEDED.
2. INSTALL PER MANUFACTURER'S DIRECTIONS

ELEVATION

SECTION

1 FLOATING SEDIMENT CURTAIN

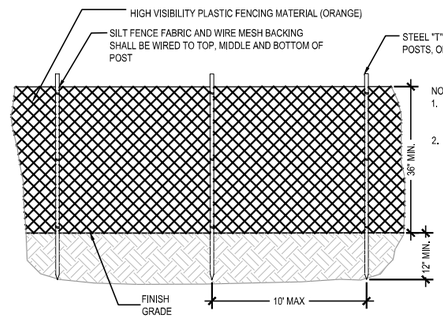
Scale: NTS

NOTES:
1. NO PRUNING SHALL BE PERFORMED UNLESS UNDER THE DIRECTION OF PROJECT ARBORIST.
2. IF PROJECT ARBORIST APPROVES EQUIPMENT TO BE OPERATED INSIDE THE PROTECTIVE FENCING, INSTALL MULCH ACCESS ROAD AS SHOWN IN THIS DETAIL.

SECTION

2 TREE PROTECTION FENCE

Scale: NTS



NOTES:
1. DO NOT NAIL OR STAPLE FENCE TO EXISTING TREES OR UTILITY POLES.
2. ANY DAMAGE TO THE FENCE SHALL BE REPAIRED IMMEDIATELY.

3 HIGH VISIBILITY FENCE

Scale: NTS

20' 10' 0 20' 40'

SCALE 1" = 10'

NO.	DATE	BY	REVISION

FACET

CALL 811
2 BUSINESS DAYS
BEFORE YOU DIG
(UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

BLACKBERRY BEACH
3820 EAST MERCER WAY
MERCER ISLAND, WA 98040
210930

DESIGN DEVELOPMENT

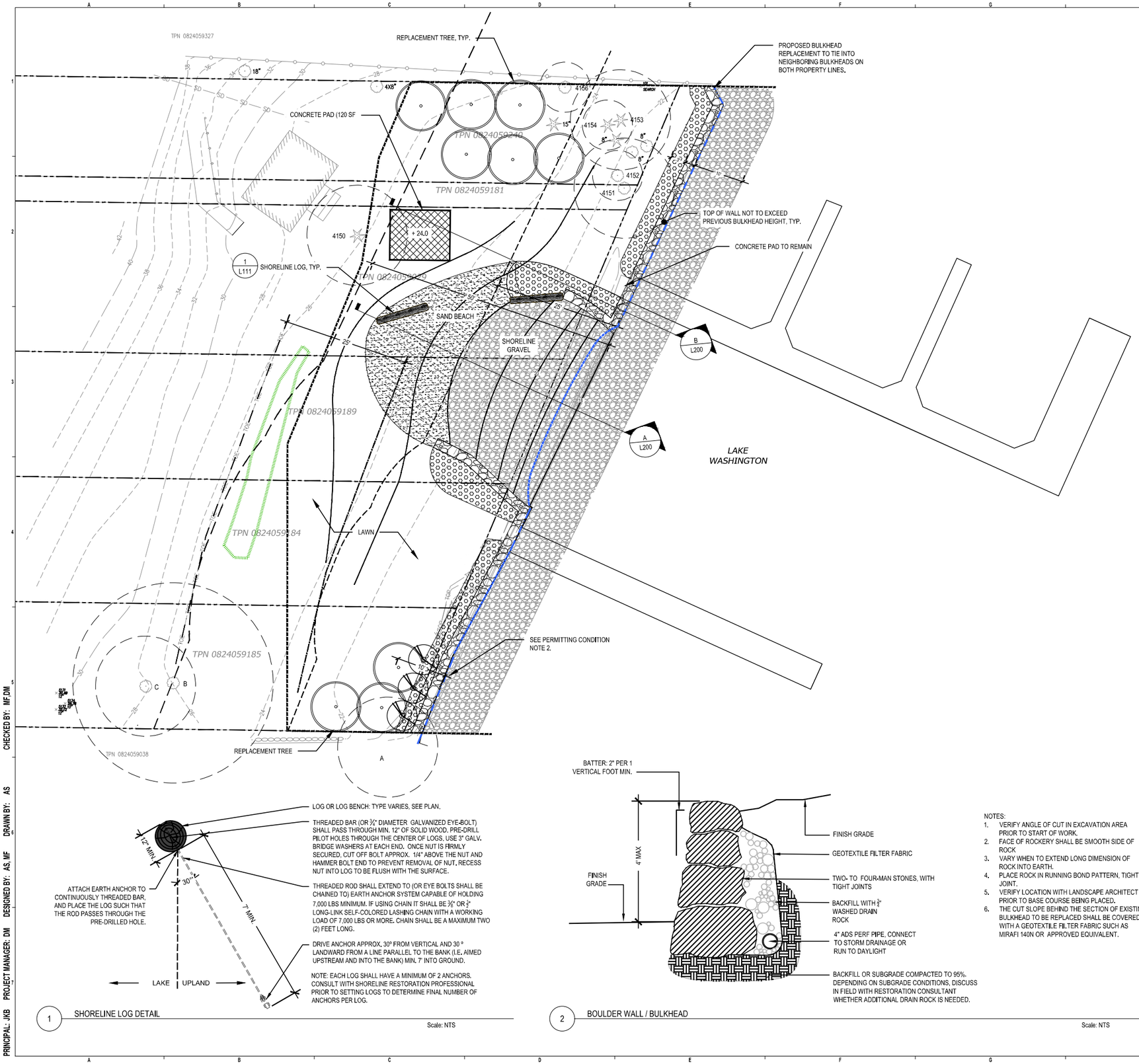
SITE PREPARATION AND DEMOLITION PLAN

DATE: 04/24/2024

PLAN NUMBER: L101

SHEET 4 OF 8

CHECKED BY: MF,DM
DRAWN BY: AS
DESIGNED BY: AS, MF
PROJECT MANAGER: DM
PRINCIPAL: JKB



LEGEND

EXISTING

- PARCEL BOUNDARY
- APPROXIMATE ORDINARY HIGH WATER MARK (OHWM)
- APPROXIMATE WETLAND BOUNDARY (WETLAND A)
- SHORELINE SETBACK (25')
- 50' FROM OHWM
- TOE OF SLOPE
- TOE OF SLOPE SETBACK (25')
- 2' CONTOUR

PROPOSED

- ORDINARY HIGH WATER MARK (OHWM)
- 1' CONTOUR
- SHORELINE GRAVEL
- SAND
- BOULDER WALL (NATURAL STONE BOULDERS 2-4 MAN SIZE) — 2 L111
- SHORELINE STABILIZATION PLANTING
- IMPERVIOUS CONCRETE PAD (120 SF)

PERMITTING CONDTIONS SUMMARY NOTES

1 PER MICC 19.10.070, THE REMOVAL OF TREE #4200 (33.2" DIAMETER) REQUIRES A TOTAL OF THREE (3) REPLACEMENT TREES AND THE REMOVAL OF TREE #4155 (55" DIAMETER) REQUIRES A TOTAL OF SIX (6) REPLACEMENT TREES. AS SUCH, A TOTAL OF NINE (9) REPLACEMENT TREES ARE PROPOSED HEREIN.

2 PER THE RESTORATION AND PERMITTING PROGRAM FOR LAKE WASHINGTON, MODIFICATION TO THE SHORELINE REQUIRES A TOTAL OF 2 NATIVE TREES AND THREE NATIVE SHRUBS TO BE PLANTED WITHIN 10' OF THE OHWM.

3 MICC 19.13.050 - MAXIMUM HARDSCAPE: THE ANALYSIS BELOW IS FOR PARCEL #0824059029 AS IT IS THE ONLY PARCEL TO PROPOSE HARDSCAPE ELEMENTS WITHIN 50' OF THE OHWM.

0-25' OF OHWM (AREA = 828 SF)
TOTAL HARDSCAPE ALLOWED WITHIN 0-25' OF OHWM = **10%** X 828 SF = 82.8 SF
TOTAL HARDSCAPE EXISTING/PROPOSED WITHIN 0-25' OF OHWM = 0 SF

25-50' OF OHWM (AREA = 826 SF)
TOTAL HARDSCAPE ALLOWED WITHIN 25-50' OF OHWM = **30%** X 826 SF = 247.8 SF
TOTAL HARDSCAPE EXISTING/PROPOSED WITHIN 25-50' OF OHWM = 118.6 SF

4 MICC 19.02.020.F.3.b - HARDSCAPE: THE ANALYSIS BELOW IS FOR PARCEL #0824059029 AS IT IS THE ONLY PARCEL TO PROPOSE HARDSCAPE ELEMENTS.

TOTAL LOT AREA = 29,736 SF

TOTAL EXISTING HARDSCAPE= 1,847 SF (SEE SHEET L001)
TOTAL PROPOSED HARDSCAPE= 120 SF
1,967 SF

TOTAL HARDSCAPE % EXISTING AND PROPOSED = 6.6%
TOTAL HARDSCAPE % ALLOWED= 9%

1 SHORELINE LOG DETAIL

Scale: NTS

2 BOULDER WALL / BULKHEAD

Scale: NTS

NOTES:
1. VERIFY ANGLE OF CUT IN EXCAVATION AREA PRIOR TO START OF WORK.
2. FACE OF ROCKERY SHALL BE SMOOTH SIDE OF ROCK
3. VARY WHEN TO EXTEND LONG DIMENSION OF ROCK INTO EARTH.
4. PLACE ROCK IN RUNNING BOND PATTERN, TIGHT JOINT.
5. VERIFY LOCATION WITH LANDSCAPE ARCHITECT PRIOR TO BASE COURSE BEING PLACED.
6. THE CUT SLOPE BEHIND THE SECTION OF EXISTING BULKHEAD TO BE REPLACED SHALL BE COVERED WITH A GEOTEXTILE FILTER FABRIC SUCH AS MIRAFI 140N OR APPROVED EQUIVALENT.

20' 10' 0 20' 40'
SCALE 1" = 10'

NO.	DATE	BY	REVISION

FACET

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2 BUSINESS DAYS
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BLACKBERRY BEACH

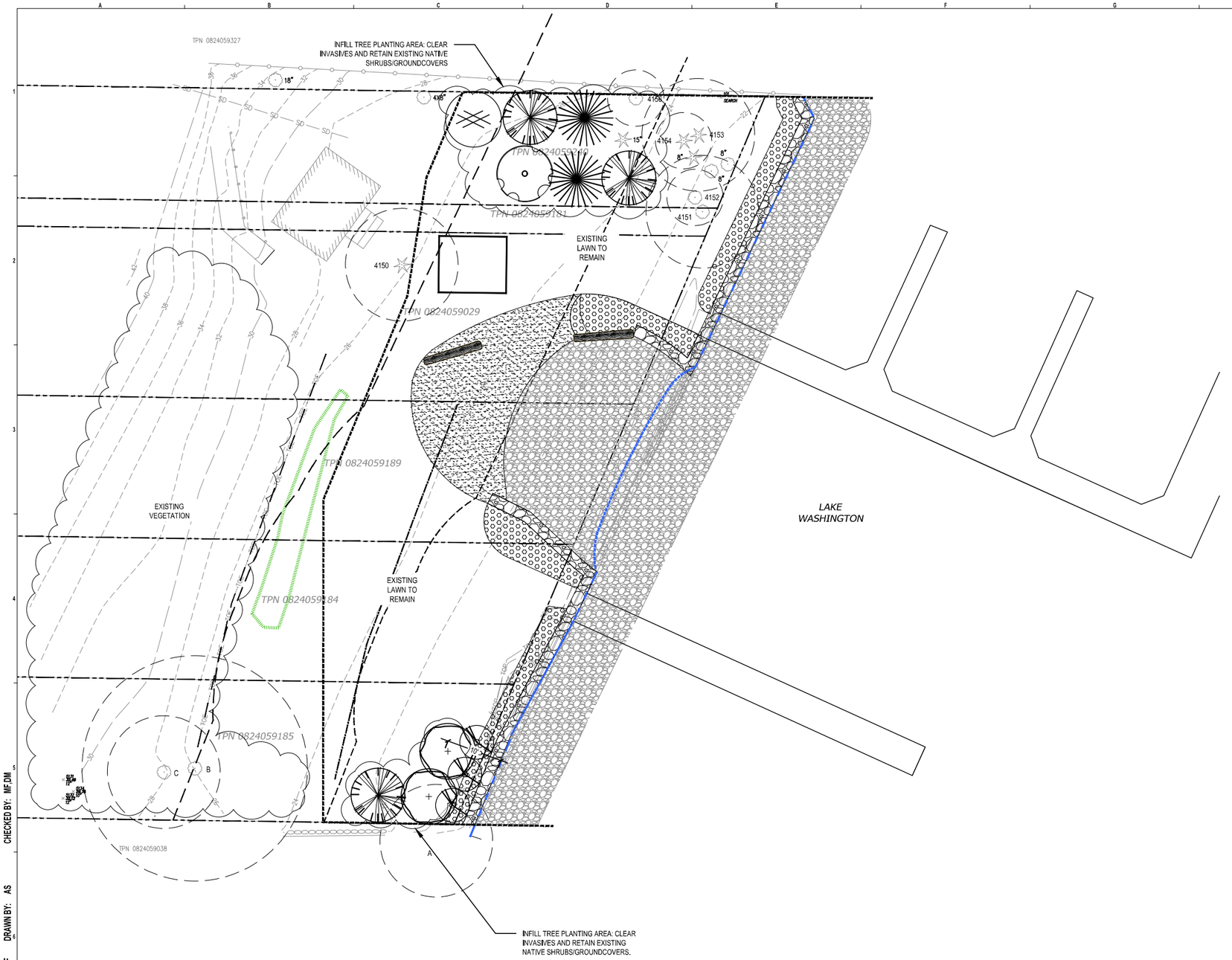
3820 EAST MERCER WAY
MERCER ISLAND, WA 98040
210930

DESIGN DEVELOPMENT

SHORELINE PLAN

DATE: 04/24/2024
PLAN NUMBER: L111
SHEET 5 OF 8

PRINCIPAL: JKB
PROJECT MANAGER: DM
DESIGNED BY: AS, MF
DRAWN BY: AS
CHECKED BY: MF,DM



PLANT SCHEDULE BLACKBERRY BEACH

SYMBOL	BOTANICAL / COMMON NAME	SIZE	QTY
NATIVE TREES			
	BETULA PAPYRIFERA / PAPER BIRCH	2 GALLON	1
	FRANGULA PURSHIANA / CASCARA	2 GALLON	1
	PINUS CONTORTA / SHORE PINE	2 GALLON	3
	PSEUDOTSUGA MENZIESII / DOUGLAS-FIR	2 GALLON	2
	SALIX LASIANDRA / PACIFIC WILLOW	2 GALLON	2
NATIVE SHRUBS			
	HOLODISCUS DISCOLOR / OCEAN-SPRAY	1 GALLON	3

SYMBOL	BOTANICAL / COMMON NAME	SIZE	SPACING	QTY
GROUND COVERS				
	SHORELINE STABILIZATION MIX			472 SF
	ARCTOSTAPHYLOS UVA-URSI / KINNIKINNICK	1 GALLON	30% @ 24" o.c.	37
	ARMERIA MARITIMA / SEA THRIFT	1 GALLON	10% @ 12" o.c.	49
	DESCHAMPSIA CESPITOSA / TUFTED HAIR GRASS	1 GALLON	50% @ 24" o.c.	61
	IRIS TENAX / OREGON IRIS	1 GALLON	10% @ 18" o.c.	22

PLANTING NOTES

1. GROUP GROUNDCOVERS BY SPECIES AND PLANT IN GROUPS OF 5-12.
2. SEE PLANT INSTALLATION, SPECIFICATIONS, AND DETAILS ON SHEET L311.

SCALE 1" = 10'

NO.	DATE	BY	REVISION

FACET

CALL 811
2 BUSINESS DAYS
BEFORE YOU DIG
(UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

BLACKBERRY BEACH

3820 EAST MERCER WAY
MERCER ISLAND, WA 98040
210930

DESIGN DEVELOPMENT

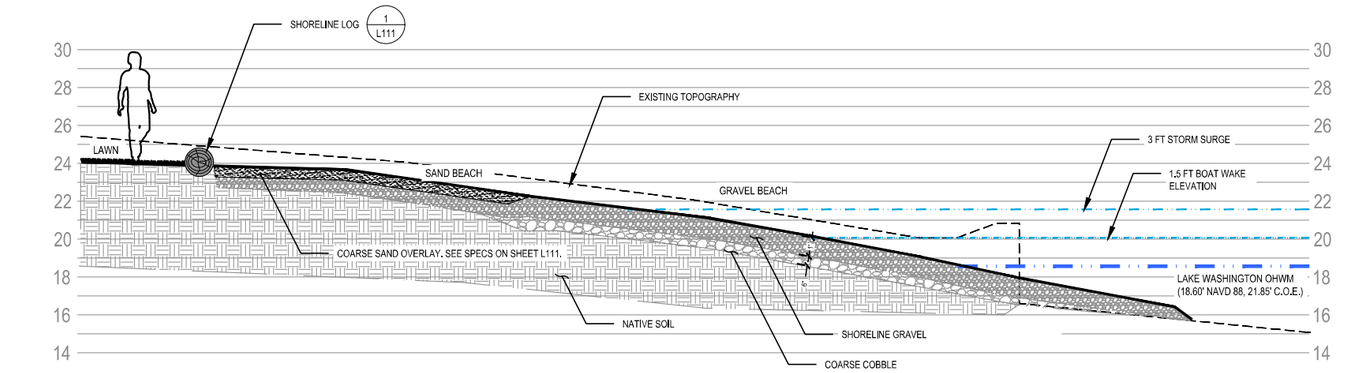
PLANTING PLAN AND SCHEDULE

DATE: 04/24/2024

PLAN NUMBER: L161

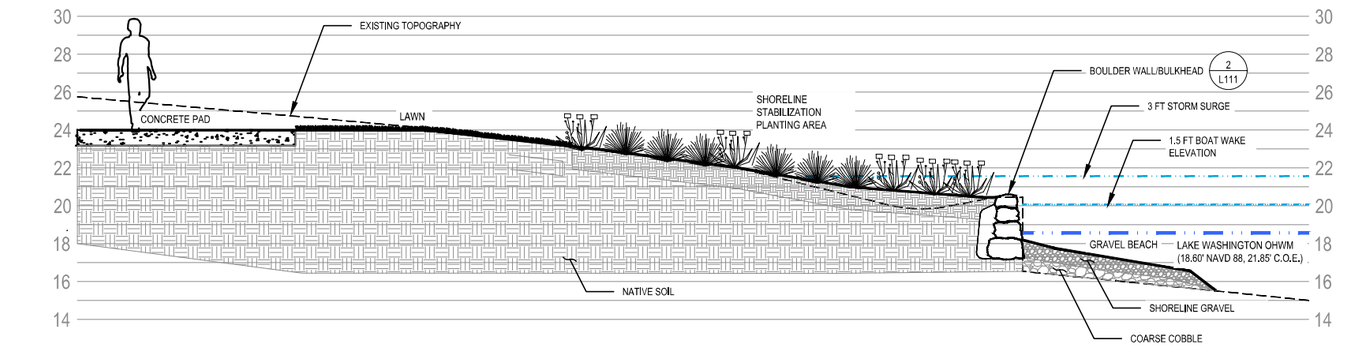
SHEET 6 OF 8

PRINCIPAL: JKB
PROJECT MANAGER: DM
DESIGNED BY: AS, MF
DRAWN BY: AS
CHECKED BY: MF.DM



A SECTION A

Scale: NTS



B SECTION B

Scale: NTS

PRINCIPAL: JKB PROJECT MANAGER: DM DESIGNED BY: AS, MF DRAWN BY: AS CHECKED BY: MF,DM

NO.	DATE	BY	REVISION

FACET

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2 BUSINESS DAYS
BEFORE YOU DIG
(UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

BLACKBERRY BEACH

3820 EAST MERCER WAY
MERCER ISLAND, WA 98040
210930

DESIGN DEVELOPMENT

SHORELINE SECTIONS

DATE: 04/24/2024

PLAN NUMBER:
L200

SHEET 7 OF 8

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, 2018 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.
5. SUBSTITUTION OF PLANT MATERIALS NOT ON THE PROJECT LIST WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE UNITED STATES ARMY CORPS OF ENGINEERS AND THE NATIONAL MARINE FISHERIES SERVICE. ANY SUBSTITUTIONS MUST BE RAP COMPLIANT.

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

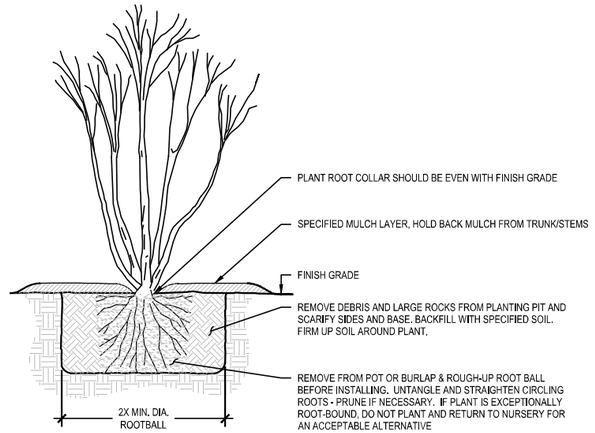
PROPOSED PLANT SOURCES
1. WITHIN 45 DAYS AFTER AWARD OF THE CONTRACT, SUBMIT A COMPLETE LIST OF PLANT MATERIALS PROPOSED TO BE PROVIDED DEMONSTRATING CONFORMANCE WITH THE REQUIREMENTS SPECIFIED. INCLUDE THE NAMES AND ADDRESSES OF ALL GROWERS AND NURSERIES.

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

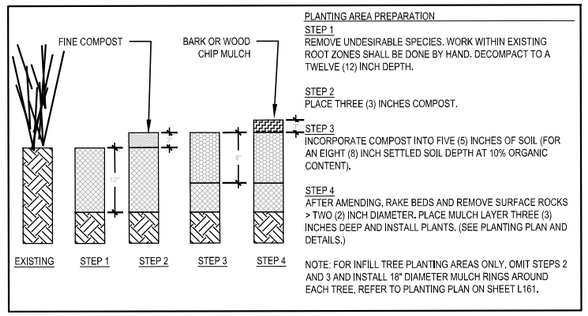
NOTIFICATION
CONTRACTOR MUST NOTIFY CONSULTANT 48 HOURS OR MORE IN ADVANCE OF DELIVERIES SO THAT CONSULTANT MAY ARRANGE FOR INSPECTION.

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.



1 CONTAINER PLANTING DETAIL

Scale: NTS



2 SOIL PREPARATION DETAIL

Scale: NTS

PRINCIPAL: JKB | PROJECT MANAGER: DM | DESIGNED BY: AS, MF | DRAWN BY: AS | CHECKED BY: MF,DM

NO.	DATE	BY	REVISION

FACET

CALL 811
2 BUSINESS DAYS
BEFORE YOU DIG
(UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

BLACKBERRY BEACH
3820 EAST MERCER WAY
MERCER ISLAND, WA 98040
210930

DESIGN DEVELOPMENT

PLANT INSTALLATION NOTES AND DETAILS

DATE: 04/24/2024

PLAN NUMBER:
L311

SHEET 8 OF 8