

CRITICAL AREAS STUDY AND NO NET LOSS REPORT

Mercer Island Dock System Maintenance Project

**6830 96th Avenue SE
Mercer Island, WA 98040
Parcel #258070-0030**

Prepared by

LEON 
Environmental, LLC

January 2026

CRITICAL AREAS STUDY AND NO NET LOSS REPORT

Mercer Island Dock System Maintenance Project

January 2026

Prepared For:

KC Marine LLC
c/o Amber Cowan
Oregon City, OR 97045

Prepared By:

Kristi Rettmann, PWS (#3793), Senior Associate Biologist
Leon Environmental, LLC
Seattle, WA

Reviewed By:

Nicole Foster, Senior Scientist
Leon Environmental, LLC
Seattle, WA

Table of Contents

Chapter 1. Introduction	1
1.1 Project Summary	1
1.2 Statement of Accuracy and Qualifications	1
Chapter 2. Desktop Evaluation	3
2.1 Project Location	3
2.2 Background Data Review	3
2.3 Surrounding Land Use and Watershed Description	4
2.4 Soils	4
2.5 Mapped Critical Areas	4
Chapter 3. Field Investigation	9
3.1 Vegetation and Habitat Features	9
3.2 Wetlands and Streams	10
3.3 Watercourses	11
Chapter 4. Project Description	13
4.1 Purpose and Description	13
4.2 Construction Process and Schedule	15
4.3 Best Management Practices and Conservation Measures	15
Chapter 5. Impacts and Mitigation Sequencing	17
5.1 Overview of Potential Impacts to Critical Areas	17
5.2 Temporary Construction Impacts	17
5.3 Mitigation Sequencing	17
Chapter 6. Conclusions	19
Chapter 7. References	20

Tables

Table 1. USDA NCRS Mapped Soil Type Summary	4
Table 2. ESA-Listed Species Potentially in the Vicinity of the Proposed Project	8
Table 3. Overwater Coverage Summary	13
Table 4. Pile Summary	13

Figures

Figure 1. Site Vicinity Map	3
Figure 2. Mapped Geologic Hazard Areas (City 2025)	5
Figure 3. USFWS NWI Map (USFWS 2025a)	6
Figure 4. Mapped Streams (City 2025)	7
Figure 5. Project Shoreline Habitat	10
Figure 6. Vegetation Covered Brick Patio Immediately Landward of Shoreline	11
Figure 7. OHW Indicators	12
Figure 8. Existing Covered Dock System	14
Figure 9. Proposed Replacement Dock System	15

Appendices

Appendix A Existing and Proposed Site Plans

Abbreviations and Acronyms

BMP	Best Management Practices
City	City of Mercer Island
DPS	Distinct Population Segment
Ecology	Washington Department of Ecology
ESA	Endangered Species Act
FWHCA	Fish and Wildlife Habitat Conservations Areas
GIS	Geographic Information System
IPaC	Information for Planning and Consultation
L1UBH	Limnetic Sub-System; Unconsolidated Bottom Class, and Permanently Flooded Water Regime
L-E	Leon Environmental, LLC
LF	Linear Foot/Feet
LWM	Large Woody Material
MICC	Mercer Island City Code
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OHW	Ordinary High Water
PHS	Priority Habitats and Species
Project	Dock System Maintenance
PWS	Professional Wetland Scientist
SE	Southeast
SF	Square Foot/Feet
Site	6830 96 th Avenue SE, Mercer Island, Washington 98040
SPCC	Spill, Prevention, Control, and Countermeasure
TESC	Temporary Erosion and Sediment Control
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WNHP	Washington Natural Heritage Program
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

Chapter 1. Introduction

1.1 Project Summary

The proposed dock system maintenance (Project) is located at 6830 96th Avenue SE, Mercer Island, Washington (Site) in King County (Figure 1; Appendix A). This residential Project proposes to replace the existing, deteriorating, creosote-treated timber covered dock system with an ecologically-beneficial dock system that will provide safe and continued homeowner access to the waterway for the purpose of recreation. The Project is restricted to the shoreline with no other project elements proposed.

The existing creosote-treated timber covered dock system is significantly deteriorated with several boards missing and parts of the structure leaning, making access unsafe. To avoid further degradation and to remove harmful creosote from this freshwater aquatic environment (Lake Washington), the Project proposes replacing approximately 754 square feet (SF) of creosote-treated decking with an approximately 398 SF premanufactured system. This system will be comprised of fully grated fiberglass decking, aluminum framing, and steel pin piles. The replacement pier and float system will effectively reduce the overwater coverage by nearly 50 percent (approximately 356 SF). The existing 14- to 16-inch diameter creosote-treated piles will be replaced with 16 eight-inch steel pin piles. The new dock will attach to, and not extend upland of, the existing concrete bulkhead, consistent with the current configuration, and will be constructed entirely within the footprint of the existing covered dock along the Site's 29 linear feet (LF) of shoreline.

Leon Environmental, LLC (L-E) staff performed a Site assessment on October 9, 2025. Information gathered in this report is intended to assist Project design in avoiding and/or minimizing impacts to sensitive areas and species, and to provide information for regulatory reviewers. The report is anticipated to support review by staff at the City of Mercer Island (City).

1.2 Statement of Accuracy and Qualifications

Critical areas delineation, characterization, rating, and functional analyses were conducted/prepared by trained professionals at L-E and adhered to the protocols, guidelines, and generally accepted industry standards available at the time work was performed. Wetland delineations are based upon protocols defined in manuals and publications produced by federal, state and local agencies. The wetland delineation methodology used in this report is consistent with methods described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010) and the *Corps of Engineers Wetland Delineation Manual* (USACE 1987). Ordinary high-water (OHW) is used to establish the jurisdictional line for waterbodies (streams, rivers, and lakes) and some marine shorelines. In Washington, OHW is evaluated and delineated using methods established by the Washington Department of Ecology (Ecology) in *Determining the Ordinary High-Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et al. 2016).

The maps included in this report were generated from field measurements, publicly available GIS layers, and input and figures from the Project contractor.

The findings were based on conditions at the time of the Site visit. This report is provided for the use of the named recipient only and is not intended for use by other parties for any other purpose. The conclusions in this report are based on the results of analyses performed by L-E and represent our best professional judgment. To that extent, and within the limitations of Project

scope and budget, we believe the information provided herein is accurate and true to the best of our knowledge. L-E does not warrant any assumptions or conclusions not expressly made in this report, or based on information or analyses other than what is included herein.

Kristi Rettmann is a senior associate biologist and Professional Wetland Scientist (PWS) with 24 years of biological and field experience. Her main areas of expertise include critical areas, terrestrial ecology, riparian ecology, wetland and stream delineations, amphibian studies, mitigation planning, and environmental permitting. She has received training from Ecology with courses in Ecology's Wetland Rating System; How to Identify Grasses, Sedges and Rushes; Winter Tree and Shrub Identification; How to Determine OHW in Western Washington; Using Field Indicators for Hydric Soils; and Forage Fish Survey Methods. Additionally, Kristi has received U.S. Army Corps of Engineers (USACE) wetland delineation training from the Wetland Training Institute and biological assessment training with the Washington State Department of Transportation (WSDOT). She has completed numerous wetland and stream delineations, habitat assessments, critical areas studies, and biological assessments and evaluations for a variety of Western Washington and Oregon projects.

Chapter 2. Desktop Evaluation

2.1 Project Location

The Site is located at 6830 96th Avenue SE, Mercer Island, WA 98040 in King County, Washington (Tax Parcel 258070-0030). This narrow urban residential property is approximately 0.31 acres in size and has approximately 29 LF of shoreline along southeastern Lake Washington. The Site is situated in Township 25 North, Range 4 East (Figure 1). Figure 1 depicts the Project parcel outlined in yellow.

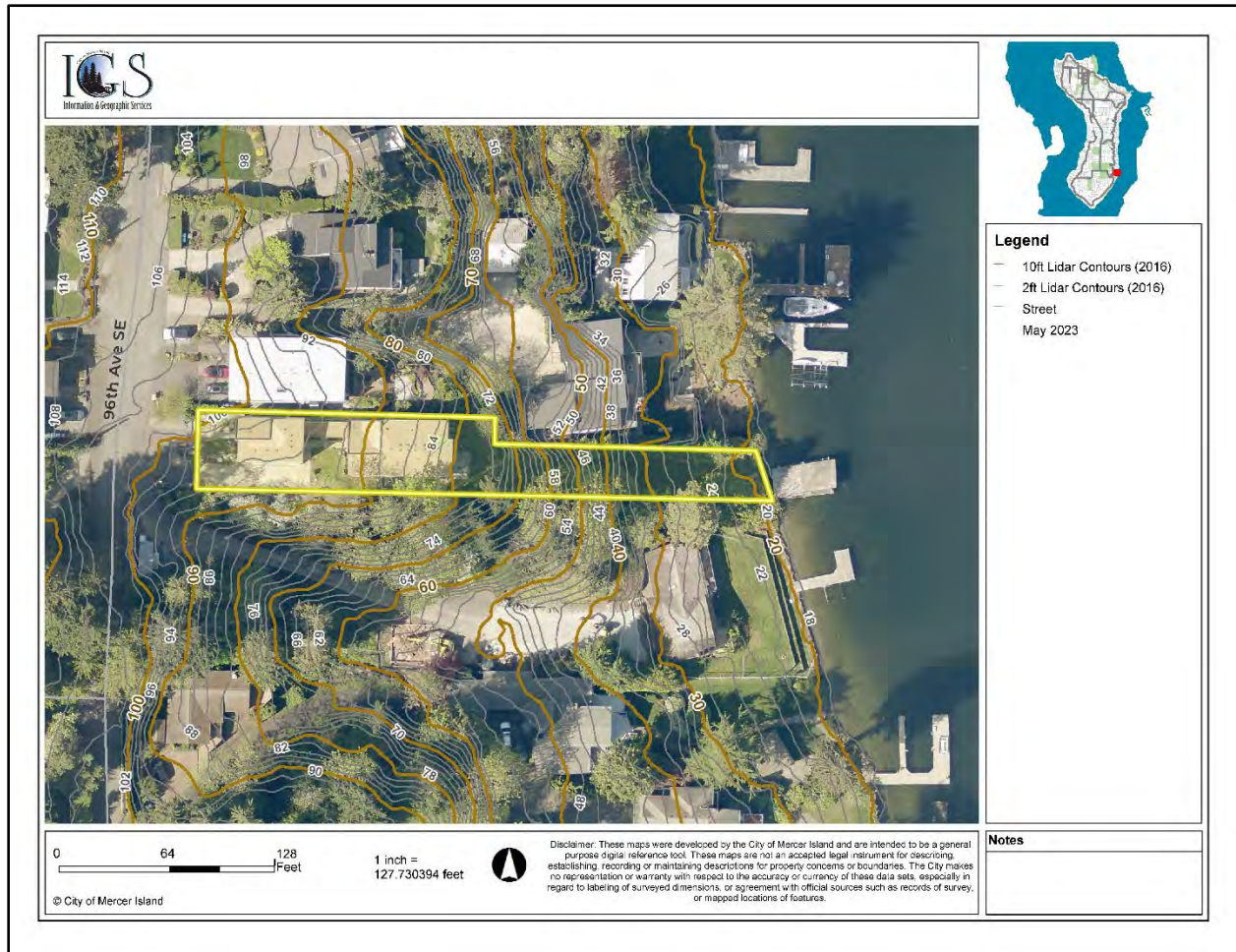


Figure 1. Site Vicinity Map

2.2 Background Data Review

The USACE and Ecology recommend preliminary data gathering and a synthesis of available background information followed by a field investigation. L-E conducted a desktop review to evaluate existing conditions and the potential extent of wetlands and waterways adjacent to the Project Site. Resulting desktop materials obtained and reviewed are available upon request. The following is a list of main resources reviewed for this Project:

- Aerial photograph and topographic map of the Site;
- City Geographic Information System (GIS) mapper (City 2025);

- King County GIS (King County 2025);
- Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) data (WDFW 2025);
- Washington Department of Natural Resources (WDNR) Washington Natural Heritage Program (WNHP) (WNHP 2025);
- USACE National Wetland Plant List, Washington State (USACE 2022);
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA NRCS 2025);
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Mapper (USFWS 2025a); and
- USFWS Information for Planning and Consultation (IPaC) (USFWS 2025b).

2.3 Surrounding Land Use and Watershed Description

The Site is located along a stretch of Lake Washington and is within Water Resource Inventory Area (WRIA) 8 (Cedar-Sammamish) and the Cedar River/Lake Washington watershed. The parcels to the immediate north, east, and south of the Site contain residential development with zoning ranging from R-4 to R8. The shoreline of the Site and neighboring shoreline parcels are developed each with shoreline armoring, landscaping, and dock systems.

2.4 Soils

The local soil survey identifies two soil types within and near the approximate boundaries of the Site as provided in Table 1. The soil types indicated are not rated as hydric.

Table 1. USDA NCRS Mapped Soil Type Summary

Map Unit	Map Unit Name	Hydric Soil	Typical Soil Profile	Soil Properties
KpC	Kitsap silt loam, 8 to 15 percent slopes	No	H1 – 0” to 5”: silt loam H2 – 5” to 24”: silt loam H3 – 24” to 60”: stratified silt to silty clay loam	Landform: Terraces. Parent material: Lacustrine deposits with a minor amount of volcanic ash. Ksat: 0.06 to 0.20 in/hr. About 18” to 36” depth to water table. Moderately well drained.
KpD	Kitsap silt loam, 15 to 30 percent slopes	No	H1 – 0” to 5”: silt loam H2 – 5” to 40”: silt loam H3 – 40” to 60”: stratified silt to silty clay loam	Landform: Terraces. Parent material: Lacustrine deposits with a minor amount of volcanic ash. Ksat: 0.06 to 0.20 in/hr. About 18” to 36” depth to water table. Moderately well drained.

Source: Custom Soil Resources Report, USDA, NRCS 2025.

2.5 Mapped Critical Areas

Consistent with Mercer Island City Code (MICC) 10.07.060 through 10.07.090, critical areas include the following:

- Geologic Hazard Areas;
- Watercourses;
- Wetlands; and
- Fish and Wildlife Habitat Conservations Areas (FWHCA).

2.5.1 Mapped Geologic Hazard Areas

According to the City GIS (2025), an erosion hazard is mapped for the entire parcel and a steep slope hazard is mapped across the center of the parcel. Additionally, the City GIS (2025) indicates

potential slide and seismic hazards mapped across the entire southeast side of Mercer Island. All elements of the proposed maintenance Project are outside of the steep slope hazard area. No soil erosion or disturbance to steep slopes, slide or seismic hazard areas will occur as no trees or vegetation will be removed as a result of the Project. Figure 2 depicts the project parcel with a yellow outline and red dot along the shoreline.

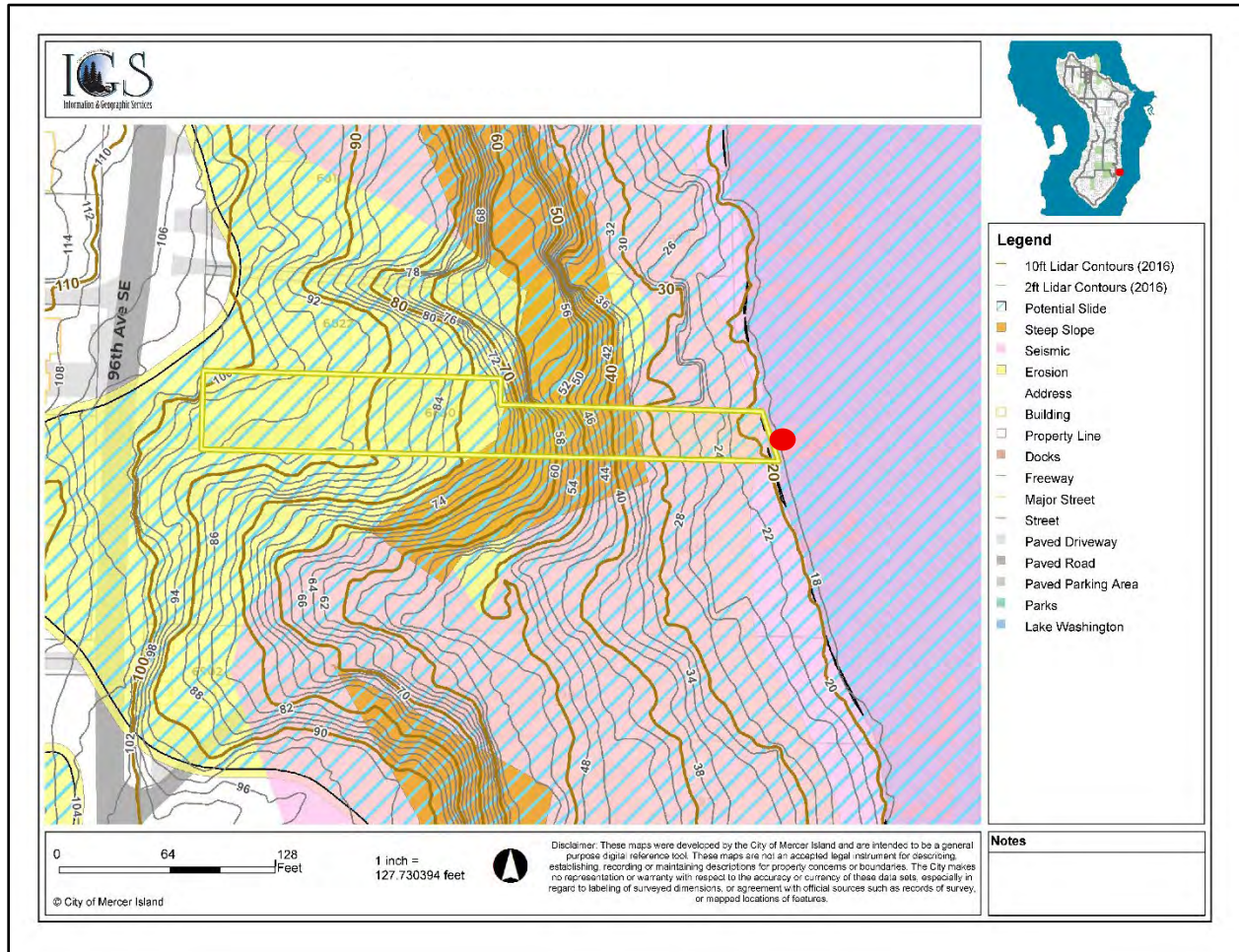


Figure 2. Mapped Geologic Hazard Areas (City 2025)

2.5.2 Mapped Wetlands and Streams

The NWI online mapper and City GIS (2025) did not identify any streams, wetlands, ponds or drainages on or immediately adjacent to the Site (USFWS 2025a; Figure 3). City GIS (2025) indicates that the nearest stream is mapped as a Type Ns and is located approximately 400 feet north of the Site (Figure 4). Figure 3 depicts the Site with a red dot and with a yellow outline in Figure 4. No Project work will occur within any streams, wetlands, ponds, or drainages, or their respective buffers; therefore, the proposed maintenance Project will not result in any impacts to these critical areas, and no further evaluation of streams, wetlands, ponds or drainages is provided in this report.

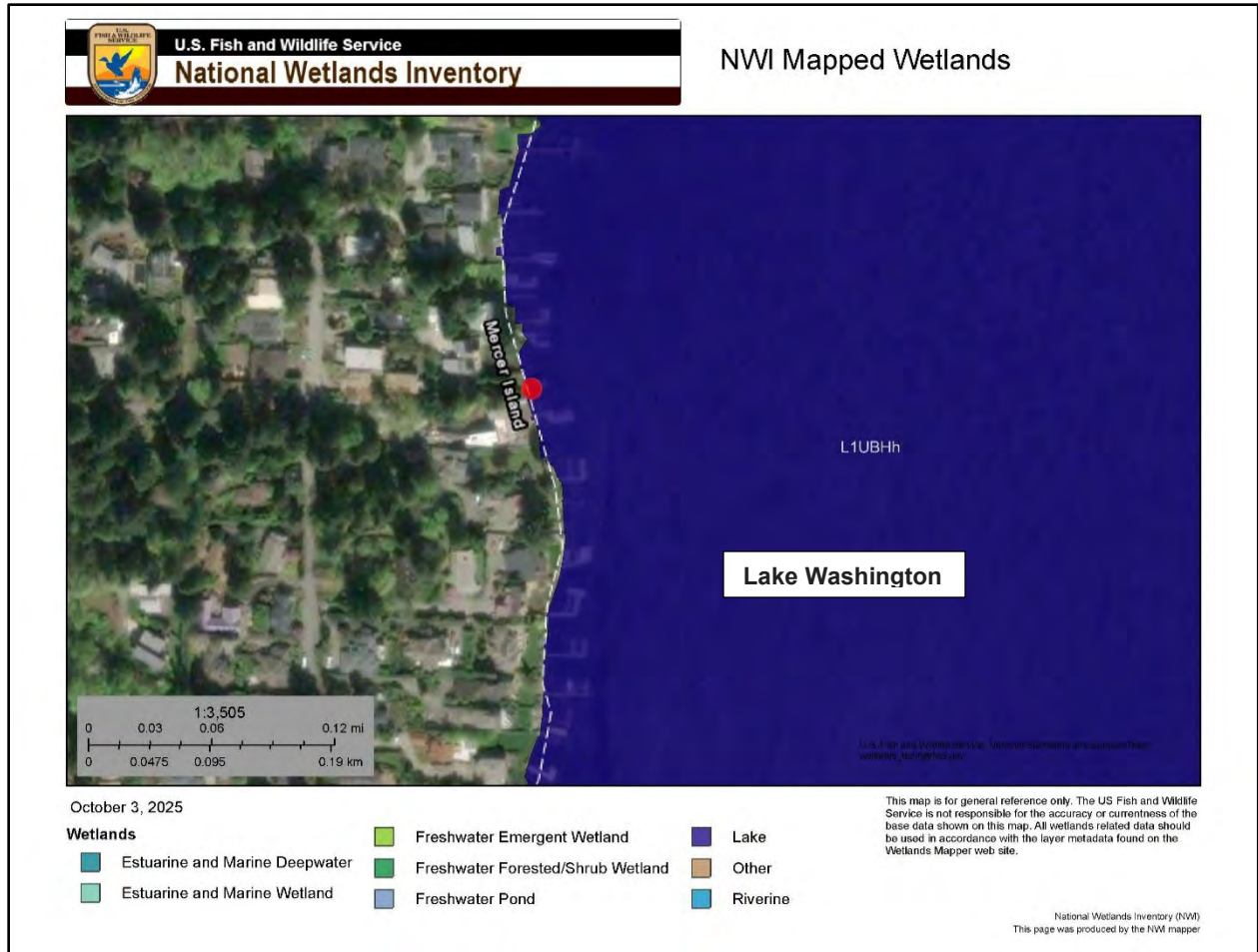


Figure 3. USFWS NWI Map (USFWS 2025a)

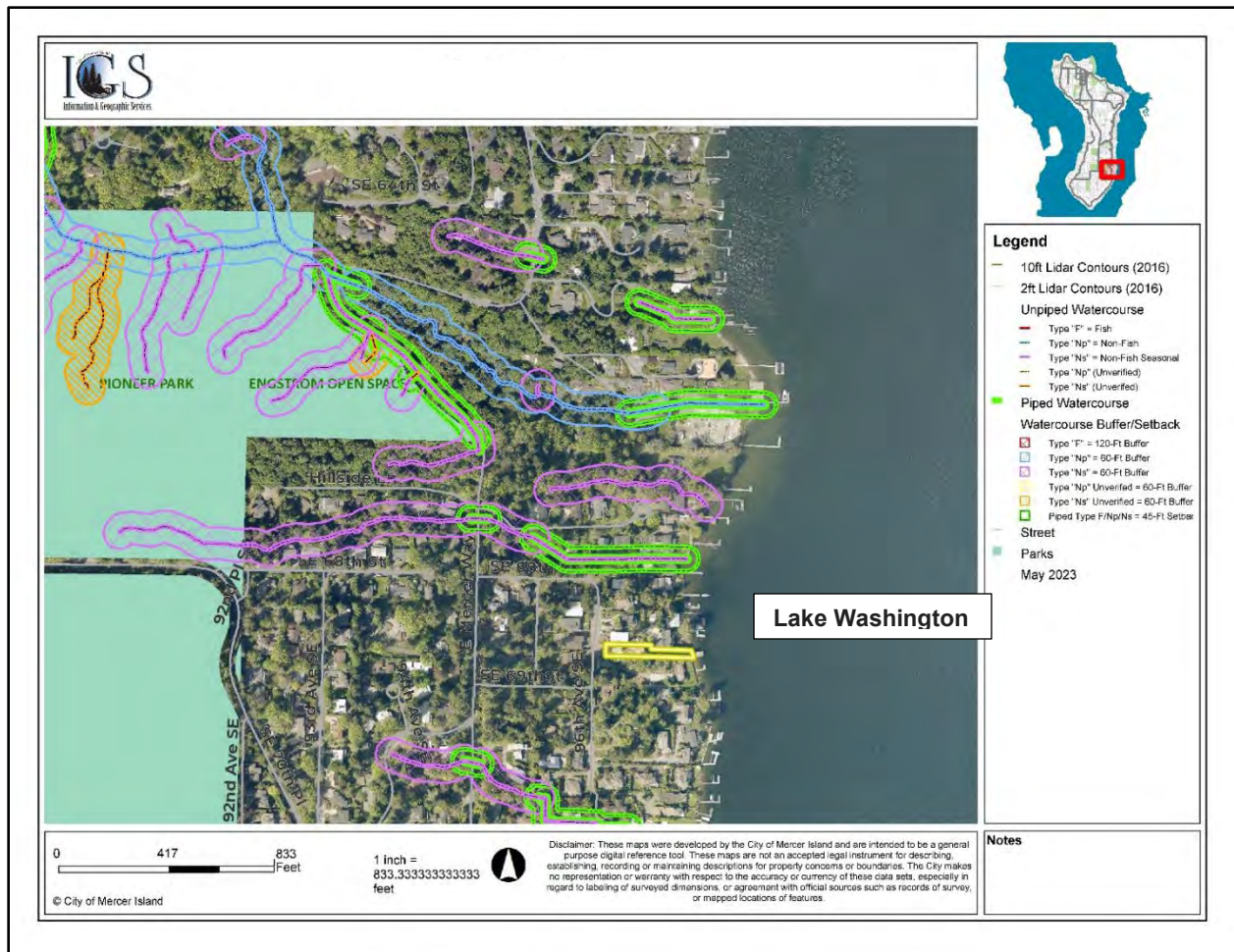


Figure 4. Mapped Streams (City 2025)

2.5.3 Mapped Watercourses

The Site is located immediately along Lake Washington (Figure 4). Under Washington Administrative Code (WAC) 173-20-370, Lake Washington is designated as a lake of statewide significance. The NWI maps Lake Washington as a lacustrine system with a limnetic sub-system; unconsolidated bottom class, and permanently flooded water regime (L1UBH [USFWS 2025a]). There are no records of rare plants, high quality wetlands or ecosystems within the study area (WNHP 2025).

The Shoreline of Lake Washington is regulated under the MICC Chapter 19.13 Shoreline Master Program and is considered a Type-S Watercourse. The buffer width shoreline jurisdiction for this lake is 200 feet from the OHW.

2.5.4 Mapped Fish and Wildlife Habitat Conservations Areas

Per MICC 19.07170, FWHCA include the following:

1. Areas where state or federally listed endangered, threatened, sensitive, or candidate species, or species of local importance, have primary association;
2. Priority habitats and areas associated with priority species identified by the WDFW;
3. Areas used by bald eagles for foraging, nesting, and roosting, or within 660 feet of a bald eagle nest;

4. Watercourses and wetlands and their buffers; and
5. Biodiversity areas.

Existing sources of information on Endangered Species Act (ESA)-listed species within the vicinity of Site were examined. Table 2 summarizes ESA-listed species identified by the USFWS IPaC maps and by the National Marine Fisheries Service (NMFS) as having the potential to be in and near the Site (USFWS 2025b; NMFS 2025). No ESA-listed species will be affected by the Project. With the exception of Bull Trout, no designated critical habitat for ESA-listed species is located in the vicinity of the Project.

Table 2. ESA-Listed Species Potentially in the Vicinity of the Proposed Project

Common Name	Scientific Name	ESA Status	Jurisdiction
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	Threatened	USFWS
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Threatened	USFWS
Bull Trout	<i>Salvelinus confluentus</i>	Threatened	USFWS
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	Threatened	NMFS
Coho salmon	<i>Oncorhynchus kisutch</i>	Threatened	NMFS
Steelhead, Puget Sound DPS	<i>Oncorhynchus mykiss</i>	Threatened	NMFS
Monarch Butterfly	<i>Danaus plexippus</i>	Proposed Threatened	USFWS
Suckley's Cuckoo Bumble Bee	<i>Bombus suckleyi</i>	Proposed Endangered	USFWS

Source: USFWS 2025b, NMFS 2025
DPS: Distinct Population Segment

No priority habitats or species were identified by the WDFW as having the potential to be within the Site (WDFW 2025). Additionally, no known bald eagle nests were identified by WDFW on or within 660 feet of the Site. Therefore, no PHS will be affected by the Project.

Of the FWHCA mentioned above, only #1 and #4 are located in the vicinity of the Site, and have the potential to be affected by the Project.

The proposed maintenance Project will reduce the overwater coverage by nearly half, be confined to the shoreline and within the footprint of the existing pier and dock system, and will be replaced with a premanufactured float, deck, and pier system, avoiding and minimizing construction at the actual Site.

Chapter 3. Field Investigation

L-E staff performed a Site visit on October 9, 2025, starting at 10:00 AM. Conditions were partly cloudy with minimal to no wind. Given the narrow width of the parcel, the property was able to be observed entirely by walking from the upland (street level) down the steep slope along a paved and landscaped switchback path, to the lower, unpaved portion of the Site, and finally down to the shoreline. The overall condition of the Site and shoreline were examined, including general soil and vegetation characterization, and presence of potential critical habitats and species of concern were investigated.

3.1 Vegetation and Habitat Features

The upper, western portion of the Site is almost entirely covered by impervious surfaces associated with the single-family residence, including driveways, sidewalks, and patios. The southern property boundary supports well-established bigleaf maple (*Acer macrophyllum*) and Douglas-fir (*Pseudotsuga menziesii*), with smaller Western redcedar (*Thuja plicata*) and ornamental trees. A paved concrete switchback path provides the transition from the flat upland area to the eastern side of the parcel and is bordered by lawn and a mix of native and ornamental shrubs and forbs. From approximately mid-parcel to the lower bench area, the northern property boundary is lined with Western redcedar of varying sizes.

The eastern half of the parcel is largely undeveloped, apart from a small shed, and a brick patio located within 16 feet of the concrete bulkhead. This area is primarily lawn, with several areas of exposed soil resulting from repeated foot traffic to and from the shoreline. Several pieces of large woody material (LWM) and a notable quantity of anthropogenic debris were observed along the shoreline. Vegetation along the shoreline, and within approximately 20 feet upland of the bulkhead, includes English ivy (*Hedera helix*), horsetail (*Equisetum arvense*), white clover (*Trifolium repens*), creeping buttercup (*Ranunculus repens*), Himalayan blackberry (*Rubus bifrons*), common plantain (*Plantago major*), herb Robert (*Geranium robertianum*), kinnikinnick (*Arctostaphylos uva-ursi*), morning glory (*Ipomoea lacunose*), and lawn (Figure 5).

L-E staff surveyed trees within the parcel and those observable from the immediately adjacent properties; no nests were observed. No work is proposed within the upland; therefore, the Project will not result in impacts to the upland vegetation or associated habitat.



Figure 5. Project Shoreline Habitat
Photograph facing west towards the upland.

3.2 Wetlands and Streams

As described in Section 1.2, wetland reconnaissance was conducted across the Site to identify potential wetland vegetation, hydric soils, and wetland hydrology in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps 2010) and the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987). This methodology requires evidence that at least one primary or two secondary wetland indicators be found for each of three parameters (vegetation, soils, and hydrology) to make a positive wetland determination. An area is not considered a regulatory wetland if indicators for any one of these three parameters are not observed under normal

environmental conditions. If present, upland/wetland boundaries would have been delineated at the point where soil, vegetation, or hydrology indicators no longer meet wetland criteria.

Although none of the soils on Site are mapped by NRCS as hydric, the area within 25 feet landward of the concrete bulkhead (lowest elevation on Site), contained the highest probability for any wetland indicators to be present. Within this area, the L-E biologist did observe marginal wetland vegetation species (e.g., *Ranunculus repens* and *Equisetum arvense*). However, there were multiple facultative upland species¹ resulting in a conclusion that the wetland species present were incidental. Most importantly, the soils in this area were unable to be investigated due to the presence of an old brick patio beneath the existing vegetation (Figure 6) and immediately upland of the bulkhead. Wetland hydrology and hydric soil indicators were not observed during the Site visit. No streams (ephemeral or perennial) were observed during the Site visit. Therefore, no wetlands or streams were identified on or immediately adjacent to the Site.



Figure 6. Vegetation Covered Brick Patio Immediately Landward of Shoreline

3.3 Watercourses

The Site immediately abuts the shoreline of Lake Washington. The OHW of Lake Washington is hydraulically controlled by the USACE at the Hiram M. Chittenden Ballard Locks, resulting in fluctuating seasonal lake elevations between 20 and 22 feet above sea level (USACE 2025). During the October 2025 Site visit, a distinct wrack line was observed ranging one to four feet waterward of the existing concrete bulkhead, along with additional OHW indicators including water staining on LWM and a boulder near the northern property boundary, and a clear transition from

¹ Facultative upland species are intolerant of the sustained soil saturation that is necessary to produce hydric soils.

unvegetated shoreline waterward the bulkhead to established upland vegetation landward of it (Figure 7). Given the controlled, non-tidal water level fluctuations and the presence of well-established upland vegetation immediately landward of the bulkhead, OHW is assumed to be no higher than the face of the bulkhead for this Project.



Figure 7. OHW Indicators

OHW indicators include the wrack line and discoloration.

Chapter 4. Project Description

4.1 Purpose and Description

The existing creosote treated wood covered dock system has significantly deteriorated making access unsafe. To avoid further degradation and to remove harmful creosote from the freshwater aquatic environment, this maintenance Project proposes to replace the existing 754-SF creosote-treated decking with a 398-SF fully grated, premanufactured system. The existing 14- to 16-inch diameter creosote timber piles will be replaced with steel pin piles, and the proposed replacement dock system will be attached to the existing concrete bulkhead in a similar manner to its current attachment (Tables 3 and 4; Figures 8 and 9; Appendix A). The proposed maintenance Project will occur entirely within the footprint of existing covered dock system. No shoreline, riparian or upland vegetation will be impacted or removed, and no upland soil disturbance will occur as a result of the Project. In Figure 9, the Project parcel is outlined in yellow and proposed replacement dock system is highlighted in red.

The proposed maintenance Project will result in approximately 356 SF of less overwater coverage than existing conditions, and will consist of a fully grated decking system that will return light penetration to this nearshore freshwater aquatic environment. The Project will permanently remove approximately 754 SF of creosote-treated timber material from Lake Washington.

Table 3. Overwater Coverage Summary

Structure	Area (SF)	Net Change (SF)
Existing Pier (solid treated wood decking)	160	-160
Existing Floats (solid treated wood decking)	594	-594
Proposed Pier (grated fiberglass decking)	238	+238
Proposed Floats (grated fiberglass decking)	160	+160
Total		-356

Table 4. Pile Summary

Structure	Quantity	Net Change (Quantity)	Average Pile Coverage Area (SF)	Net Change (SF)
Existing 14- to 16-inch Creosote-Treated Timber Piles	8	-8	9.84	-9.84
Proposed 8-inch Steel Pin Piles	16	+16	5.6	+5.6
Total		+8	n/a	-4.24



Figure 8. Existing Covered Dock System

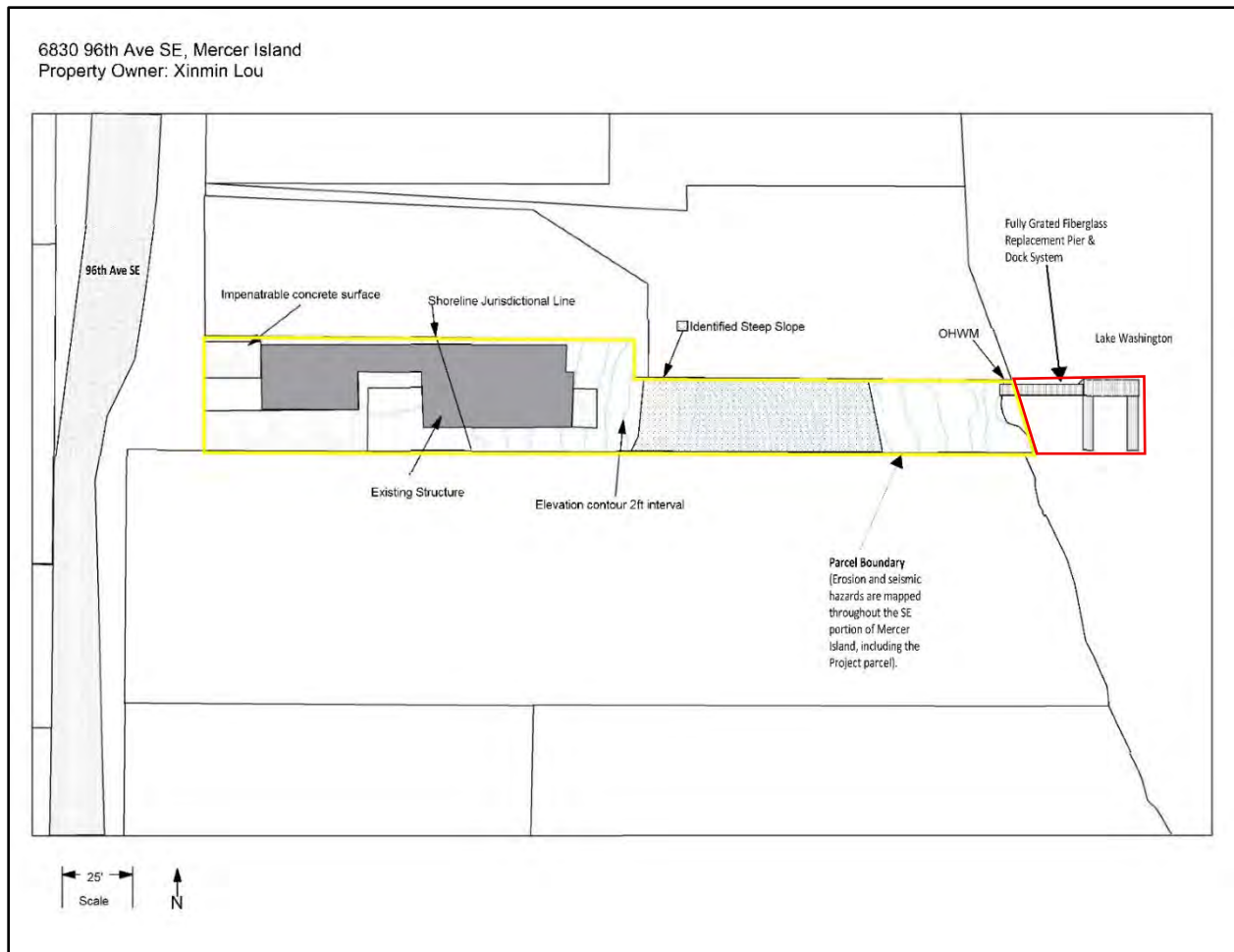


Figure 9. Proposed Replacement Dock System

4.2 Construction Process and Schedule

The proposed maintenance Project will begin with disassembly of the existing creosote-treated timber dock system using hand tools, will be broken into sections, and loaded onto a work barge for immediate removal from the aquatic environment. The piles will be removed and installed using a vibratory hammer. The premanufactured replacement dock system will be floated into place via barge and connected to the existing bulkhead with hand tools. The selection of a premanufactured replacement dock system avoids extended onsite construction time and significantly minimizes installation time. All construction activities will occur during regular business hours.

4.3 Best Management Practices and Conservation Measures

Construction best management practices (BMP) are appropriate and practical measures used by the contractor to minimize Project and construction impacts. The BMPs and conservation measures below are meant to reduce potential impacts to listed salmonids and other aquatic species, protect water quality, and protect aquatic and shoreline habitats (WSDOT 2018; Ecology 2019). The following protection and conservation measures will be followed by the contractor:

- All applicable permits for the Project will be obtained prior to construction, and all work will be performed according to the requirements and conditions of these permits.

- The contractor will inspect fuel hoses, oil or fuel transfer valves, and fittings on a regular basis for drips or leaks in order to prevent spills or runoff of petroleum-based products in stormwater.
- The contractor will conduct all refueling at least 150 feet from all lakes, wetlands, and/or streams.
- All waste material such as construction debris, creosote, treated timbers, and existing metal overwater supports will be stored only on the barge and taken to an approved upland disposal facility appropriate for each type of material.
- Project activities will be conducted to avoid and minimize siltation of waters of the State.
- In-water work will occur during the approved regulatory work window for Lake Washington (anticipated to be July 16 to March 15 of any year).
- No upland work or disturbance of upland soils or vegetation will occur, thereby preventing any erosion and/or sediment-laden runoff entering Lake Washington.
- A Temporary Erosion and Sediment Control (TESC) Plan may include, but is not limited to, a temporary floating debris boom around the work area and a filter fence along the shoreline demarcating Project boundary, as needed.
- Project activities will be conducted to avoid and minimize siltation of the beach area and aquatic bed.
- Creosote-treated timber piles will be removed, to the maximum extent practicable, using industry-standard methods and BMPs, such as those detailed in WDNR's *Derelict Creosote Piling Removal: Best Management Practices for Pile Removal and Disposal* (WDNR 2017).
- For vibratory pile removal and installation, to the maximum extent practicable, appropriate industry-standard sound-attenuation devices will be used.
- Construction activities will occur only during approved City daytime construction hours and days listed in the current version of MICC 8.24.020.
- Barge and tug boat will be operated in such a way as to avoid grounding out.
- Extreme care will be taken to ensure that no petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into waters of the State.
- The contractor will be responsible for the preparation of a Spill, Prevention, Control, and Countermeasure (SPCC) Plan to be used for the duration of the Project. A copy of the SPCC Plan, and any updates, will be maintained at the work Site by the contractor.
- The construction contractor will be required to have a spill kit onsite at all times.
- Exterior lights will be directed away from all watercourses and/or wetlands, as applicable.

Chapter 5. Impacts and Mitigation Sequencing

5.1 Overview of Potential Impacts to Critical Areas

As discussed previously, the only critical areas identified on or in the immediate vicinity of the Site, with the potential to be impacted by the proposed maintenance Project, are FWHCA (i.e., Lake Washington shoreline and incidental salmonid species) and the buffers of geologically hazardous areas (i.e., steep slopes, slide and seismic hazards). No soil erosion or disturbance to steep slopes, slide or seismic hazard areas will occur as no trees or vegetation will be removed as a result of the Project.

No long-term adverse impacts are anticipated as a result of the Project. The proposed maintenance Project will implement substantial ecological improvements through removal of approximately 754 SF of creosote-treated timber from the freshwater aquatic environment, significantly increasing the light penetration to the water by installing fully-grated decking, and through nearly a 50 percent reduction in overwater coverage as compared to existing conditions.

5.2 Temporary Construction Impacts

The primary impacts to FWHCAs will occur as temporary increases in noise and turbidity during construction. All potential disturbances will be confined to the footprint of the existing dock system.

Pile removal and installation will result in a temporary and minor increase in turbidity within the immediate vicinity of the Site; however, this short-lived and localized impact will be managed through use of appropriate construction measures and BMPs described in Section 4.3. Construction activities will be performed from a floating barge to minimize shoreline disturbance. The replacement float, deck, and pier system will be premanufactured and floated into place, avoiding any construction of the actual replacement structure at the Site. The barge will remain away from the shoreline to the extent practicable, avoiding and minimizing impacts to the nearshore environment and will not ground out. Temporary minor increases in turbidity are anticipated to return back to ambient levels relatively quickly upon completion of the work.

The use of a barge along the shoreline has the potential to release petroleum products into the water if a leak or accidental spill occurs. These potential impacts will be avoided and minimized through the use of BMPs described in Section 4.3.

Construction noise (both in-air and in-water) will be limited to pile removal and installation activities. Any fish potentially in the area will be unrestricted from movement, allowing them to freely leave the construction area to avoid the temporary increase in turbidity and noise. In-water work will be restricted to the approved in-water work window to avoid and minimize impacts on any potential salmonid species in the area. Project noise impacts are expected to be temporary and noise levels will return back to ambient background levels immediately after the piles are replaced.

5.3 Mitigation Sequencing

Per MICC 19.07.100, the following mitigation sequencing is proposed, in order of preference, to avoid, minimize, and mitigate impacts to environmentally critical areas and associated buffers:

- A. Avoiding the impact altogether by not taking a certain action or parts of an action.**

As designed, the Project includes the minimum necessary to perform maintenance in support of the current use and need and avoids several potential impacts. Leaving the existing dock system in place (no action) is not viable as it would lead to continued leaching of creosote chemicals into the environment. To avoid future or continued harmful creosote leaching into the aquatic environment, all creosote-treated timber is being removed and replaced with more ecologically-suitable structures. The Project will avoid impacts to geologically hazardous areas by not disturbing any vegetation on steep slopes or within mapped slide areas. By utilizing a premanufactured replacement dock system, that will be floated into place, the Project entirely avoids any nearshore environmental impacts that would happen if the structure had been constructed from the shoreline.

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

As designed, the Project will minimize impacts to the nearshore environment by replacing the existing dock system with a premanufactured system containing fully-grated decking. Construction activities will be performed from a floating barge to minimize shoreline disturbance. Industry standard BMPs such as, but not limited to, those listed in Section 4.2 will be followed by the contractor.

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

The Project will address existing and historical aquatic impacts by replacing creosote-treated timber piles and solid decking with inert steel piles and grated fiberglass decking. This will eliminate a source of toxic chemicals (primarily polycyclic aromatic hydrocarbons) from the aquatic environment, reducing ongoing water and sediment contamination. In total, approximately 754 SF of creosote-treated material will be permanently removed from Lake Washington. The Project will also reduce overwater coverage by approximately 356 SF and restore light penetration to the aquatic bed through grated decking. Collectively, these improvements will provide a net ecological benefit and result in **No Net Loss** of fish and wildlife habitat functions within the Project area.

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

Replacing the piles with steel and the decking with fiberglass will significantly reduce future maintenance needs.

E. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments.

The proposed maintenance Project will result in approximately 356 SF of less overwater coverage compared to existing conditions, and will consist of a fully grated decking that will increase light penetration the aquatic environment.

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

No monitoring is proposed.

Chapter 6. Conclusions

This critical area assessment report for the proposed maintenance Project evaluates the potential critical areas located within the vicinity of and at 6830 96th Avenue SE, Mercer Island, Washington. The Site abuts approximately 29 LF of Lake Washington shoreline. Critical areas identified on or in the immediate vicinity of the Site with the potential to be impacted by the Project include:

- FWHCAs (i.e., Lake Washington shoreline and incidental salmonid species); and
- Buffers of geologically hazardous areas (i.e., steep slopes, slide and seismic hazards). No soil erosion or disturbance to steep slopes, slide or seismic hazard areas will occur as no trees or vegetation will be removed.

No long-term adverse impacts are anticipated as a result of the Project. The Project will implement substantial ecological improvements through:

- The removal of creosote-treated timber from the freshwater aquatic environment;
- Significantly increasing the light penetration to the lakebed by installing grated decking; and
- Reducing overwater coverage by 50 percent.

Given that the Project will utilize appropriate construction BMPs and proposes mitigation sequencing, there will be no permanent impacts to wetlands, watercourses, geologic hazards, FWHCA, or their associated buffers. As designed, this maintenance Project will improve aquatic habitat, thereby providing substantial ecological uplift and **No Net Loss** of ecological functions through:

- Completing all work within the footprint of the existing dock system;
- Avoiding tree removal and vegetation disturbance;
- Minimizing in-water construction by replacing the existing system with a premanufactured, grated system that can be floated into place;
- Increasing light penetration to the lakebed through grated fiberglass decking;
- Permanently removing approximately 754 SF of creosote-treated wood from the aquatic environment; and
- Reducing overwater coverage by nearly 50 percent compared to existing conditions.

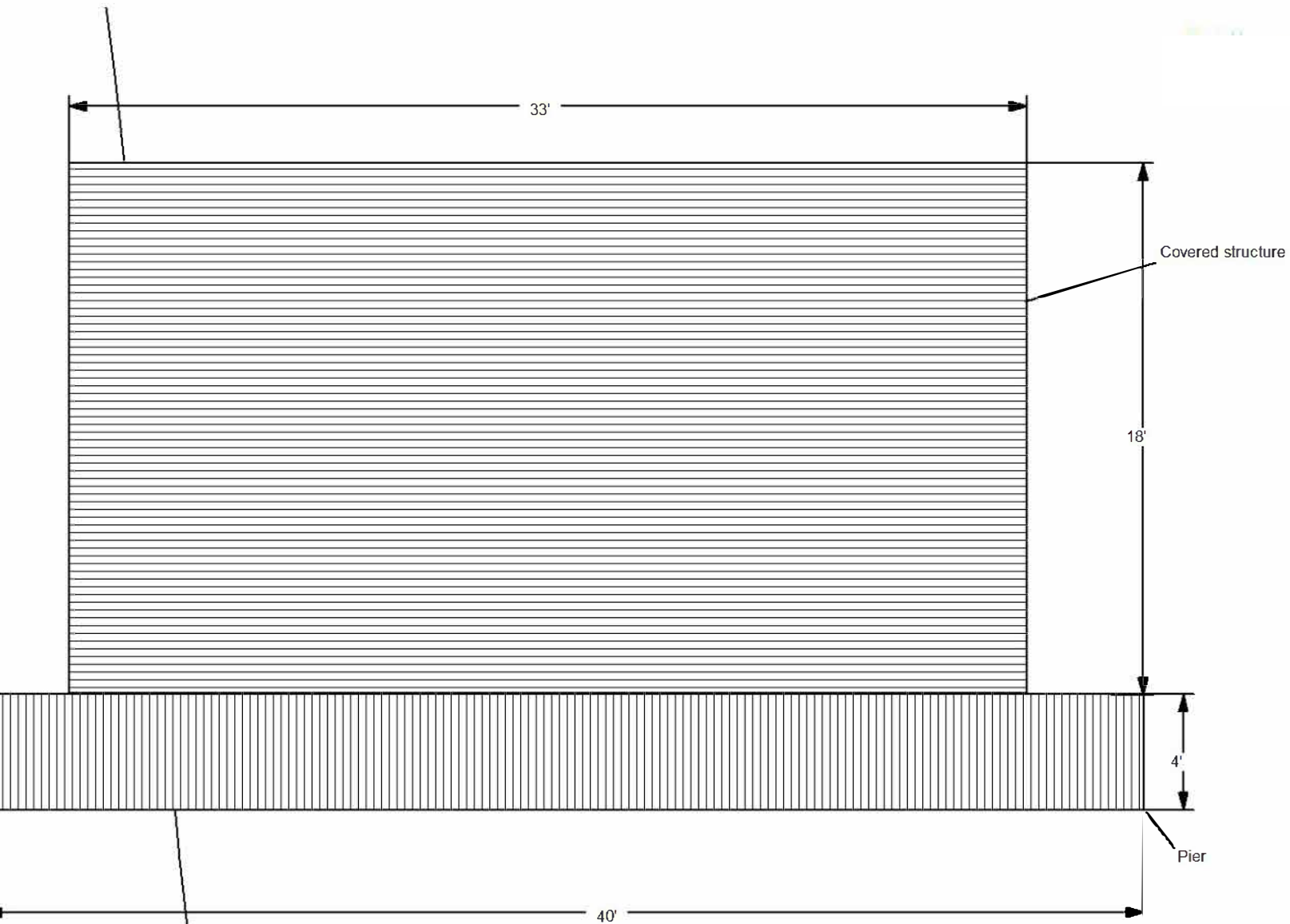
Chapter 7. References

- Anderson, Paul S., Olson, P., and E. Stockdale. 2010, revised 2016. *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State*. Publication No. 16-06-029. Washington State Department of Ecology. Olympia, Washington.
- Ecology. 2019. Stormwater Management Manual for Western Washington. Publication Number 19-10-021. Accessed online at: fortress.wa.gov/ecy/ezshare/wq/Permits/Flare/2019SWMMWW/Content/Resources/DocsForDownload/2019SWMMWW.pdf
- NMFS (National Marine Fisheries Service). 2025. NOAA Fisheries. ESA Threatened and Endangered Species Directory. Available at: https://www.fisheries.noaa.gov/species-directory/threatened-endangered?oq=&field_species_categories_vocab=All&field_species_details_status=All&field_region_vocab=1000001126&items_per_page=25
- USACE (US Army Corps of Engineers), Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y- 87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Miss.
- USACE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valley, and Coast Region (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: US Army Engineer Research and Development Center.
- USACE. 2022. National Wetland Plant List, version 3.6 (<https://wetland-plants.sec.usace.army.mil/><https://wetland-plants.sec.usace.army.mil/>).
- USACE. 2025. *Lake Washington Ship Canal and Hiram M. Chittenden Locks*. Accessed online at: <https://www.nws.usace.army.mil/Missions/Civil-Works/Locks-and-Dams/Chittenden-Locks/>
- USDA (US Department of Agriculture), Natural Resource Conservation Service (NRCS). 2025. Soil survey of Study area, Washington. US Department of Agriculture, Natural Resource Conservation Service. Accessed online at: <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
- USFWS (US Fish and Wildlife Service). 2025b. IPaC Information for Planning and Consultation. Accessed online on at: <https://ecos.fws.gov/ipac/>.
- USFWS. 2025a. US Fish and Wildlife Service, National Wetlands Inventory. NWI – National wetlands inventory in Washington State. Accessed online at: <http://www.fws.gov/wetlands/Data/Mapper.html>.
- WAC (Washington Administrative Code). Accessed online on at: <https://app.leg.wa.gov/wac/>
- WDFW (Washington Department of Fish and Wildlife). 2025. Washington Department of Fish and Wildlife Priority Habitat and Species Report for site. Accessed online at: <https://geodataservices.wdfw.wa.gov/hp/phs/>
- WDNR. 2017. *Derelict Creosote Piling Removal Best Management Practices for Pile Removal & Disposal*. Accessed at: https://www.dnr.wa.gov/publications/aqr_rest_pi1eremova1_bmp_2017.pdf.

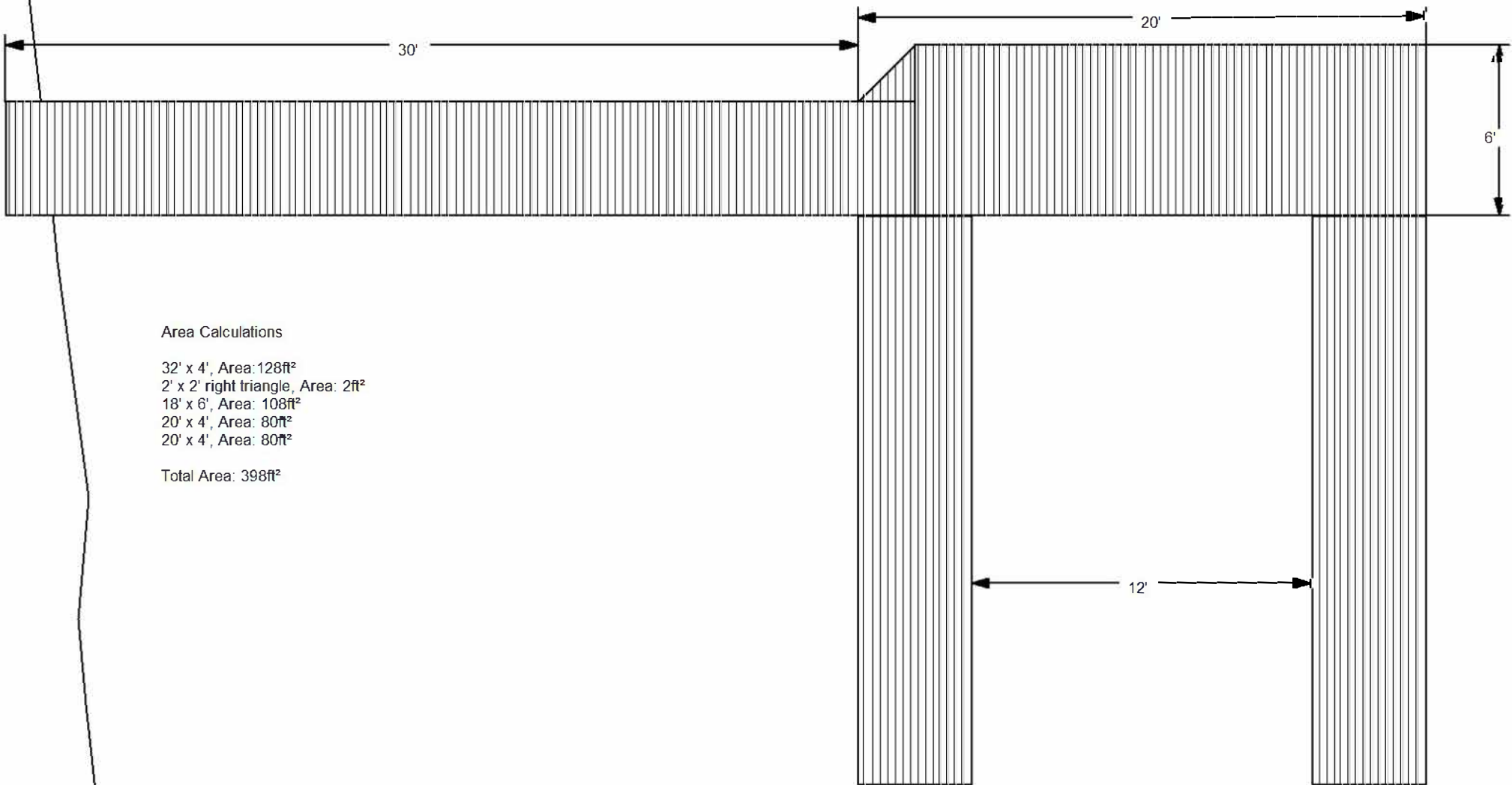
WNHP (Washington Natural Heritage Program). 2025. Washington State Department of Natural Resource GIS Open Data – WNHP sensitive, state- or ESA-listed plant species database. Access online at:
<https://experience.arcgis.com/experience/174566100f2a47bebe56db3f0f78b5d9/page/Rare-Plant-and-Ecosystem-Locations/>

WSDOT (Washington Department of Transportation). 2018. Best Management Practices Field Guide for ESA 4(d) Habitat Protection. March 2018. Maintenance and Operations Division.

Appendix A – Site Plans



Existing Creosote Dock System
Min Luo
6830 96th Ave SE, Mercer Island



Area Calculations

- 32' x 4', Area: 128ft²
- 2' x 2' right triangle, Area: 2ft²
- 18' x 6', Area: 108ft²
- 20' x 4', Area: 80ft²
- 20' x 4', Area: 80ft²

Total Area: 398ft²

Proposed Premanufactured Grated Fiberglass Dock System
Min Luo
6830 96th Ave SE, Mercer Island