

# **Ecological No Net Loss Assessment Report**

Prepared for

**Saltwater LLC**  
**4421 Forest Ave SE**  
**Mercer Island, WA 98040**

Prepared by



**Northwest Environmental Consulting, LLC**  
**600 North 36<sup>th</sup> Street, Suite 423**  
**Seattle, WA 98103**  
**206-234-2520**

**October 2021**

## **Purpose**

The purpose of this report is to fulfill the requirements of City of Mercer Island Municipal Code (MICC) 19.07.110 Shoreline Master Program by assessing overall project impacts and proposed mitigation to determine if the project meets the “No Net Loss” General Regulation of the Shoreline Master Program.

No Net Loss is defined as “An ecological concept whereby conservation losses in one geographic or otherwise defined area are equaled by conservation gains in function in another area.”

## **Location**

The subject property is located at 4421 Forest Ave SE (King County parcel number 548270-0185) in the City of Mercer Island, Washington (Sheet A1.0). The parcel is on the waterfront of Lake Washington, a shoreline of the state, that contains several endangered fish species listed under the Endangered Species Act and Washington State designated priority fish species. Permits are being applied for, for repair and modification of a residential moorage structure.

## **Project Description**

The proposed project includes repair of 6 wood piles and installation of a new dual personal watercraft lift and boat lift. A wood mooring pile will be removed and existing personal watercraft lift removed. See Sheet A2.0 to A9.0

During construction, a floating boom will surround the work barge, pier, and lifts.

A shoreline vegetation plan is proposed, adding native trees and shrubs. These shoreline plantings will provide shade and allow leafy material to enter the lake along the shoreline (Sheet A7.0).

Project drawings are included in Attachment A.

## **Approach**

Northwest Environmental Consulting LLC (NVEC) biologist Brad Thiele conducted a site visit on October 19, 2021, to evaluate conditions on site and adjacent to the site. NVEC also consulted the following sources for information on potential critical fish and wildlife habitat along this shoreline:

- Washington Department of Fish and Wildlife (WDFW): Priority Habitats and Species online database (<http://apps.wdfw.wa.gov/phsontheweb/>)
- WDFW SalmonScape online database of fish distribution and ESA listing units (<https://apps.wdfw.wa.gov/salmonscape/>)

- Mercer Island GIS online database (<https://chgis1.mercergov.org/Html5Viewer/Index.html?viewer=PubMaps&viewer=PubMaps>)

## Site Description

The subject property is in a waterfront residential neighborhood. It has shoreline on its western boundary and single-family homes on all other sides.

The only existing structures on the property are the house, the existing dock. The shoreline is armored with a rock bulkhead with lawn and ornamental landscaping along the shoreline. A cove has been created in the bulkhead with steps down to the water. Vegetation includes laurel hedges and mature paper birch. Shrubs and ground covers include rhododendron and English ivy growing along and over the bulkhead.

The substrate of the lake is sand and cobble and appears to be a moderate to high wave energy area and aquatic vegetation is not present. The dock is decked with thruflow decking and is configured in a tee. A boatlift and personal watercraft lift are present.

Adjacent properties are similar with armored shorelines, docks and landscaping.

## Species Use

WDFW's PHS mapping and SalmonScape mapping tools show the following salmonid species using Lake Washington for migration and/or rearing: residential coastal cutthroat (*Oncorhynchus clarkii*), winter steelhead (*O. mykiss*), Dolly Varden/bull trout (*Salvelinus malma*), sockeye salmon (*O. nerka*), fall Chinook (*O. tshawytscha*), coho salmon (*O. kisutch*), and kokanee (*O. nerka*). The SalmonScape database maps the site as accessible to threatened Ecologically Significant Units (ESUs) of Chinook and steelhead. Juveniles may rear in the waters near the project when traveling from spawning sites on other lake tributaries to the lake's outlet at the Locks. The project site is accessible to any fish migrating or rearing in the lake. Sockeye spawning is not mapped at the site, but is close by to the north and south.

The closest priority habitats are biodiversity corridors mapped approximately 3,000 feet to north but no other priority habitats are directly associated with the project site for terrestrial species.

## Project Impacts and Conservation Measurements

### **Direct Impacts:**

**Sediments:** Sediment disturbance may occur below the OHWM and along the shoreline of Lake Washington during pile repair and lift installation and removal. Additionally, the tug and barge propwash may disturb sediments temporarily when making trips to and from the site.

Pile stub repair using steel sleeves is minimally disturbing to bottom sediments. The piles will need to be cut off at the point where they lose integrity; that may be at or below the mudline. If the pile needs to be accessed below the mudline, the area surrounding the pile will be cleared by hand, not using a water jet. The chain saw designed for underwater use may generate fine wood debris (sawdust) in the water.

A floating boom with silt curtain will be used to surround the work area to contain floating debris.

The two new lifts will be placed in water over 8 feet deep so operationally, sediment disturbance from moored water craft at the site will be negligible.

**Shoreline:** Planting native vegetation will provide a lift to ecological functions of the shoreline by creating shade and vertical structure along the shoreline. These plants will provide overhanging cover for fish, structural diversity for birds and wildlife, detritus for aquatic invertebrates and long-term recruitment of woody material and other allochthonous food sources. The proposed planting plan is included (Sheet A7.0).

**Lakebed:** The water craft lift will enable partial shading of a small area of lakebed that is currently uncovered. Jet skis in the lift will not completely occlude the bottom; they will cast a shadow that will move throughout the day. The new personal watercraft lifts will be placed in the deepest water possible.

**Noise:** Construction equipment will create noise audible to neighbors and in-water. Noise disturbance will be short-term and should have negligible effects on fish and wildlife in the area. The loudest equipment will be the underwater chain saw, which will not reach the behavioral disturbance threshold for salmonids. Work will be completed during the in-water work window when juvenile fish are not expected to be present. Removal of the mooring pile may require use of a vibratory hammer, the noise will be short in duration and not expected to cause harm to fish.

**Potential spills:** Short-term risks include the potential for petroleum spills that can occur with any equipment operation. The level of impact to the aquatic environment is expected to be minor because of the small amount of petroleum products available for spillage during typical construction activities, and because of spill containment measures that will be employed should a spill occur.

***Indirect Impacts:***

**Shading:** The moorage lifts will not fully shade the bottom; when water craft are parked in the lift, they will cast a shadow that moves throughout the day, but they will not fully block light from reaching the lake bottom and cover a small surface area.

**Recreational Boating:** The project supports continued recreational boating, which has been identified as a limiting factor for salmonid populations in Lake Washington. The project will not introduce additional boating to Lake Washington, as the owners could still access the lake from a public boat launch or private moorage facility.

***Other Conservation measures:***

**Work window:** The work will be completed during the prescribed in-water work window for this area of Lake Washington (July 16 to April 30). Operating within this time frame helps protect Chinook salmon, steelhead, bull trout and other salmonid fish species by doing work when juvenile fish are not expected to be present.

**Best Management Practices:** Applicable BMPs will be used, such as a floating boom around the in-water work area, to contain any floating debris that may escape during construction. The barge will have a perimeter containment sock to absorb oil and grease that might inadvertently wash from the barge during construction.

Hazardous material containment materials such as spill absorbent pads and trained personnel will be required onsite during any phase of construction where machinery is in operation near surface waters.

## Conclusion

Juvenile Chinook salmon, and other salmonids, rear and migrate along the Lake Washington shoreline.

There will be impacts from noise and disturbed sediments during pile repair activities, but these impacts will be temporary and negligible, and not reach the behavioral disturbance threshold for salmonids. The pier's overwater coverage will not be increased. The water craft lifts will add some bottom shading, but not fully occlude sunlight from reaching the bottom.

A shoreline planting plan will be implemented that adds a western red cedars and shorepine, one Nootka rose, and two mock oranges along the shoreline (Sheet A7.0). Planting native vegetation, especially trees, will improve the shoreline conditions in the long term by adding overhanging vegetation and be a source of woody recruitment into the lake.

The project will minimize construction effects on the aquatic environment by following the prescribed fish window and using applicable BMPs to prevent construction spills and debris from entering Lake Washington and allow for quick clean up if debris enters the lake or a spill occurs.

This project has been designed to meet current residential dock standards and will use Best Management Practices to reduce project impacts. The conservation measures are designed to improve ecological functions or prevent further degradation of habitat **and will result in No Net Loss of ecological functions** at the site.

## Document Preparers

Brad Thiele                      Biologist (Reviewer)    27 years of experience    NWEC

NWEC followed standard acceptable field methods and protocols at the time work was performed. These standards include delineation of wetland and stream boundaries, characterization, rating, functional analyses, impact assessments and mitigation of impacts. The conclusions and findings in this report are based on field observations and measurements and represent our best professional judgment and to some extent rely on other professional service firms and available site information. Within the limitations of project scope, budget, and seasonal variations, we believe the information provided herein is accurate and true to the best of our knowledge. Northwest Environmental Consulting 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.

## REFERENCES

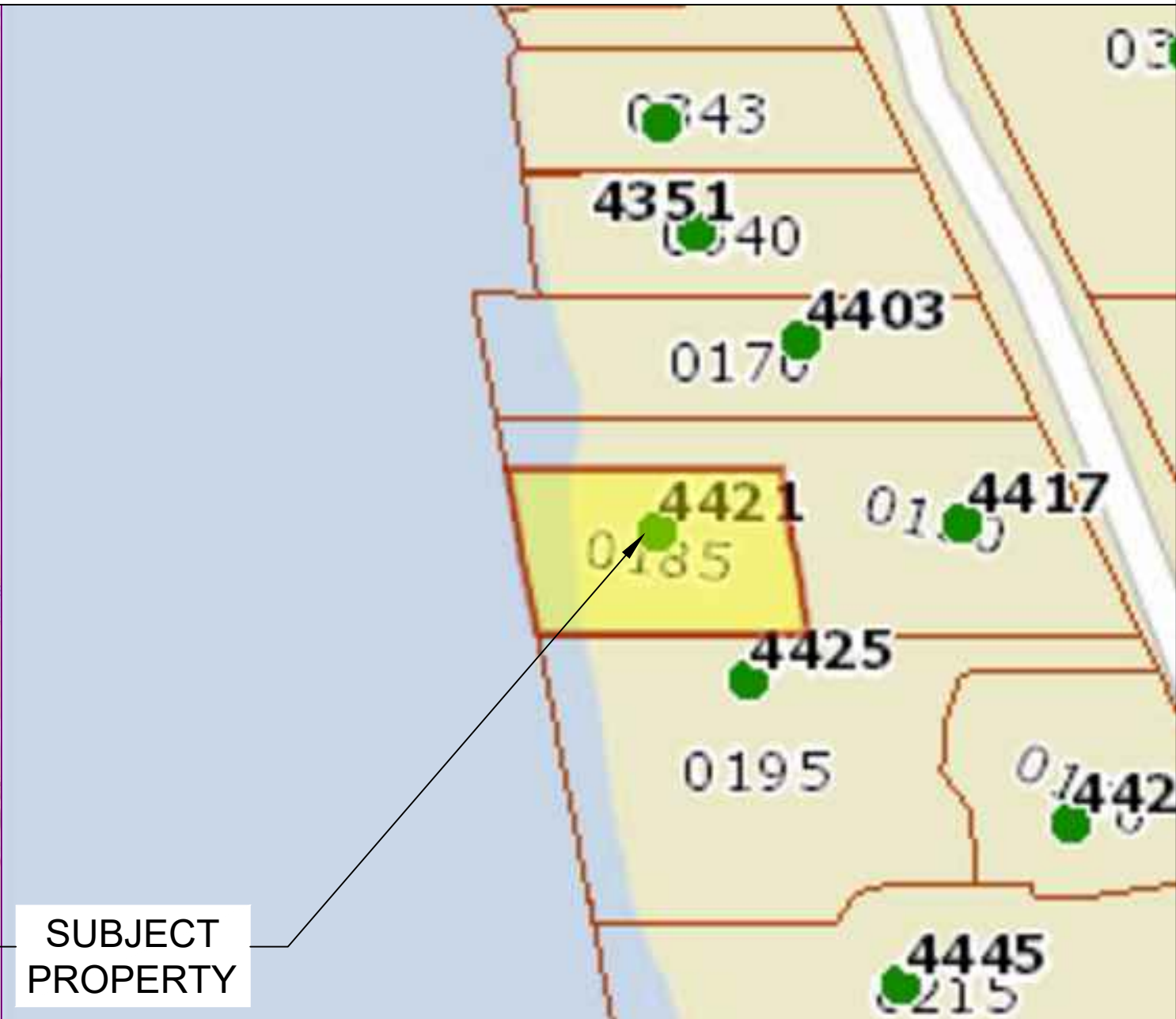
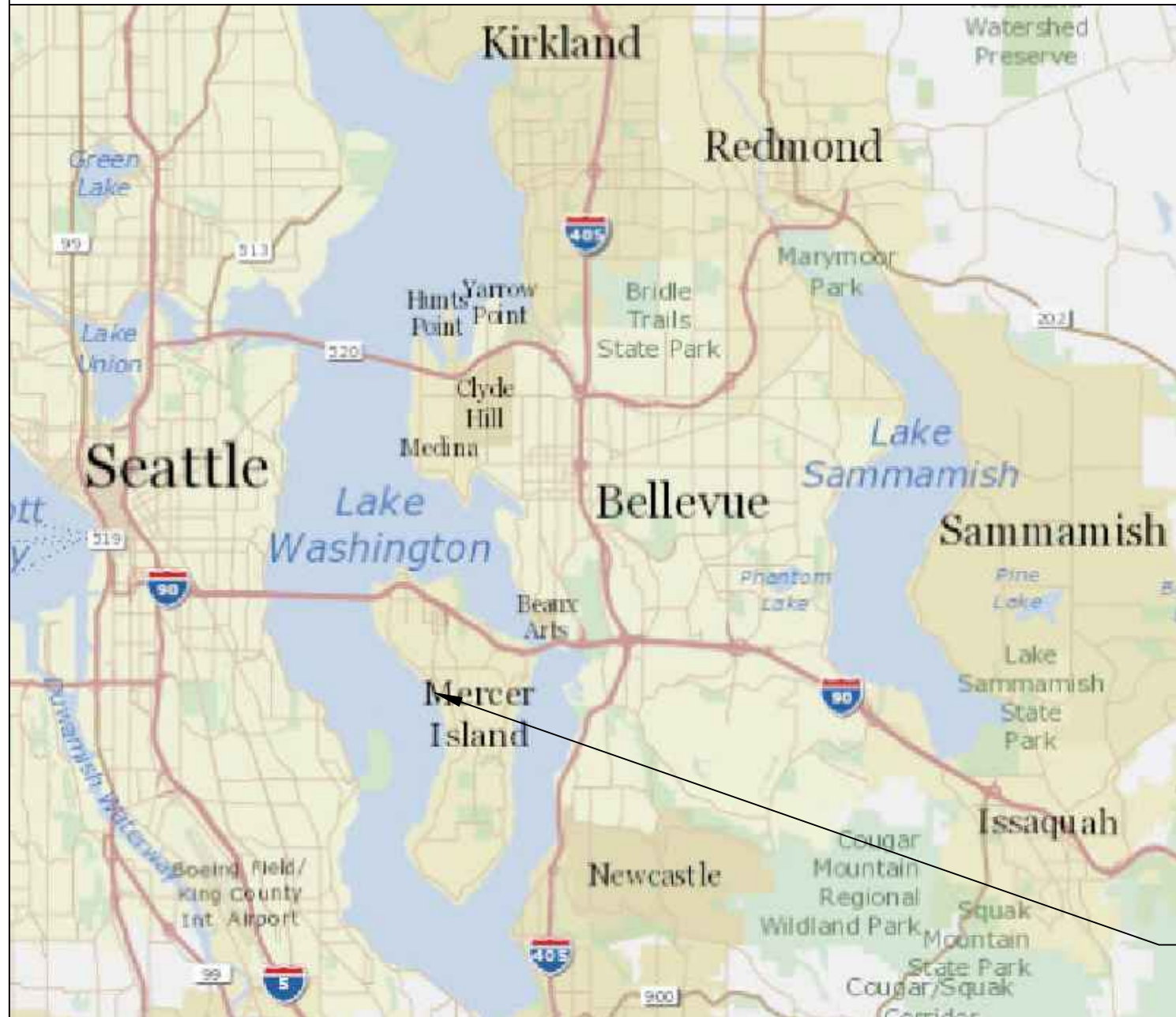
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- City of Mercer Island. 2021. Mercer Island GIS. Online database. Accessed July 2021 at <https://chgis1.mercergov.org/Html5Viewer/Index.html?viewer=PubMaps&viewer=PubMaps>
- Washington Department of Fish and Wildlife (WDFW). 2021. Priority Habitats and Species. Online database. Accessed July 2021 at <http://apps.wdfw.wa.gov/phsontheweb/>
- WDFW. 2021. SalmonScape. Online database. Accessed July 2021 at <http://apps.wdfw.wa.gov/salmonscape/>

# **Attachment A: Project Drawings**

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# SITE PLAN

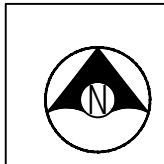


Pin: 548270-0185

Legal Description: MERRIMOUNT ADD POR W OF LN OF 38 DIST 171.81 FT W FR NE COR SD 38 & BRG S 08-14 E TO S LN OF 39 & SH LDS ADJ

Plat Block:  
Plat Lot: 38-39

LAT: 47.56694      LONG: -122.23289



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1080 W Ewing St  
Seattle, WA 98119

Office: 206-236-1700 ext. 3  
www.seabornpiledriving.com

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Location: Lake Washington

Applicant: Saltwater LLC  
4421 Forest Ave SE  
Mercer Island, WA 98040

Datum: CORPS OF ENGINEERS 1919  
SE Quarter Of Section 13, Township 24, Range 04

Adjacent Owners:  
4425 FOREST LLC  
4425 FOREST AVE SE 98040

**SHEET**  
**A1.0**

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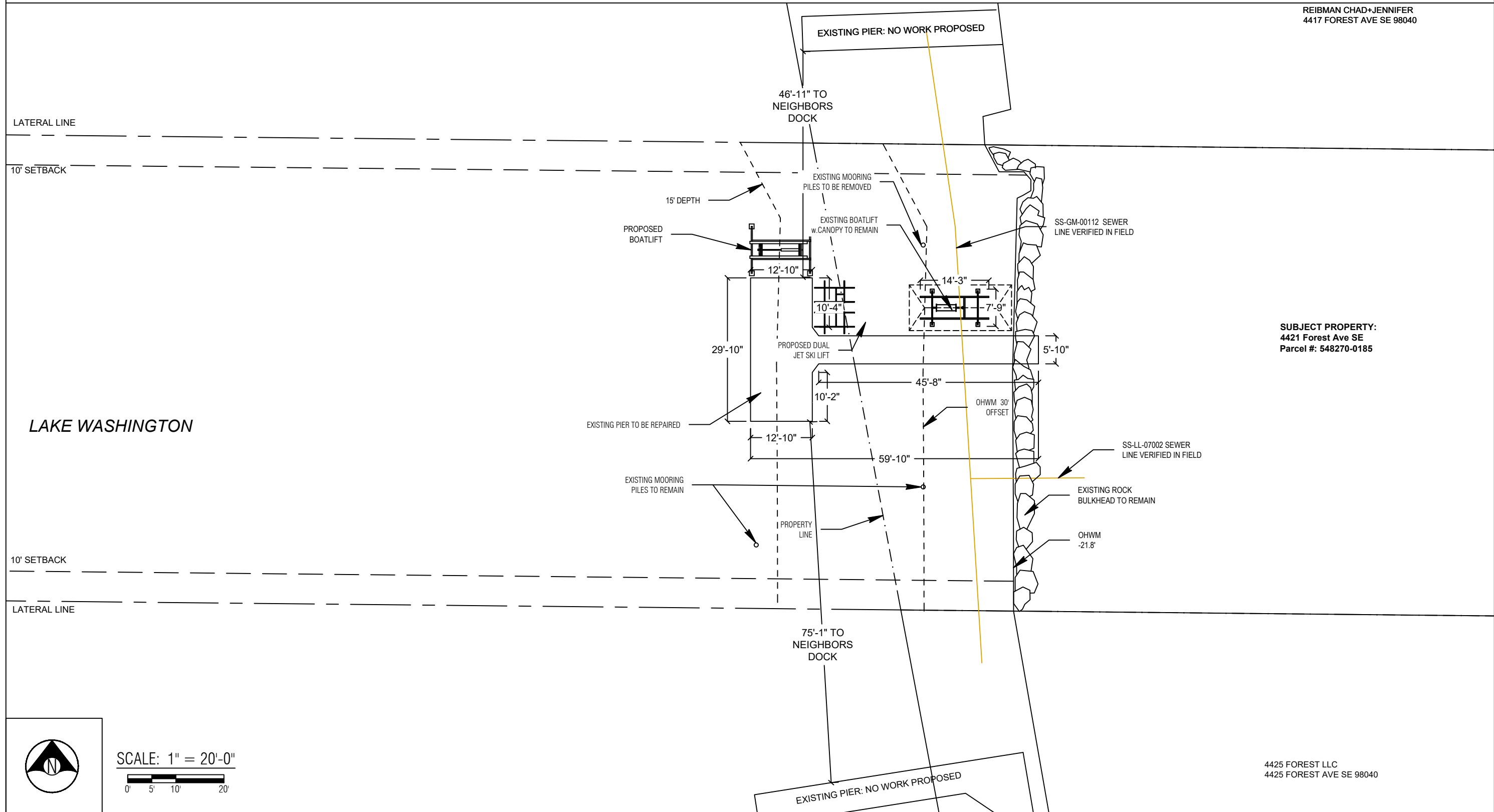
REBMAN CHAD+JENNIFER  
4417 FOREST AVE SE 98040





# PROPOSED CONDITIONS

**\*\*CLEAN UP LAKE AROUND PROJECT\*\***



REIBMAN CHAD+JENNIFER  
4417 FOREST AVE SE 98040

SUBJECT PROPERTY:  
4421 Forest Ave SE  
Parcel #: 548270-0185

4425 FOREST LLC  
4425 FOREST AVE SE 98040

LATERAL LINE

10' SETBACK

10' SETBACK

LATERAL LINE



SCALE: 1" = 20'-0"  
0 5 10 20'



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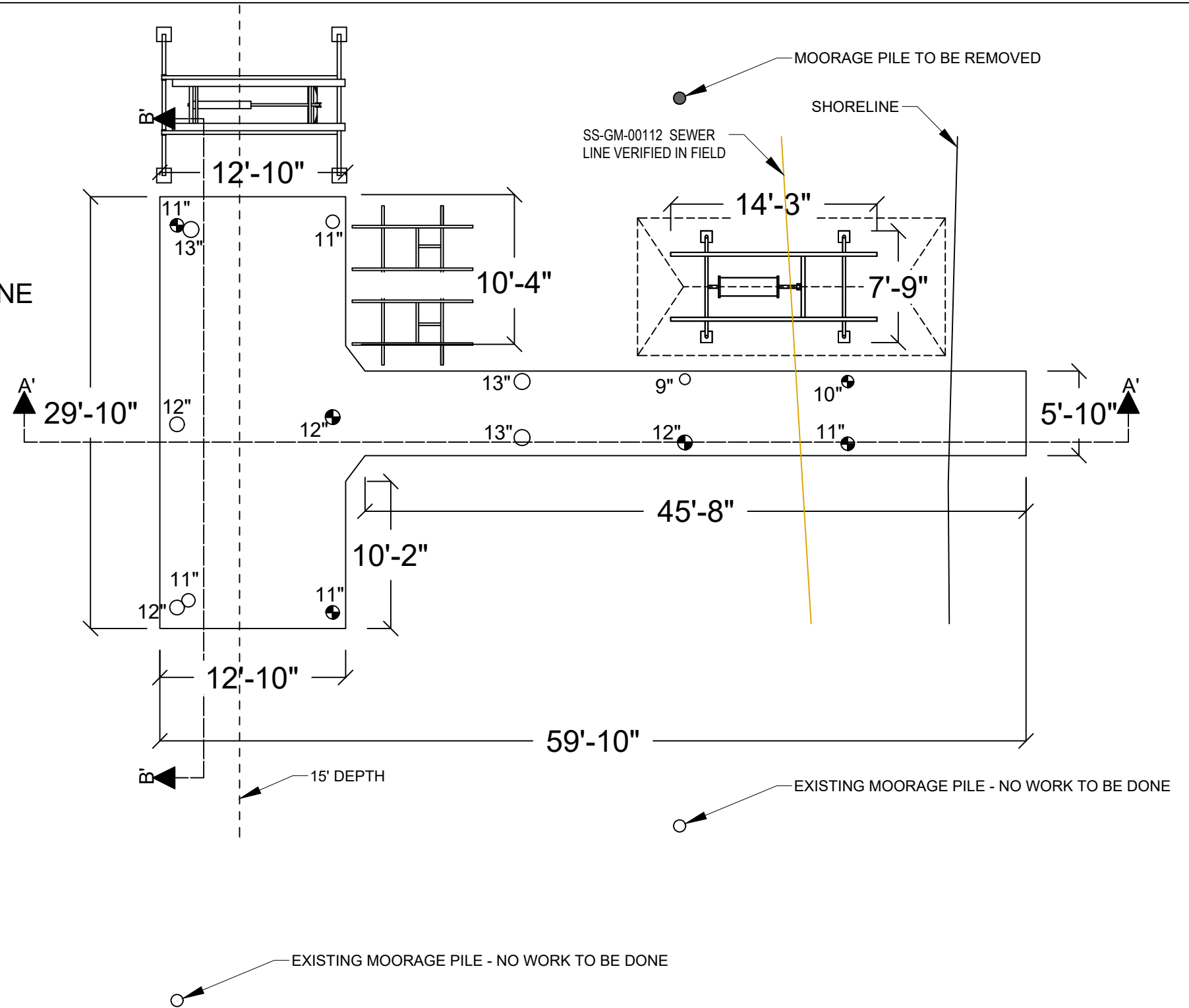
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# PIER DETAILS - EXISTING/PROPOSED

## LEGEND

- (6) EXISTING PILES - TO BE REPAIRED
- (8) EXISTING PILES - NO WORK TO BE DONE
- (1) EXISTING MOORING PILE - TO BE REMOVED
- (2) EXISTING MOORING PILE - NO WORK TO BE DONE

Area: 650 sqft (total - no work to be done)



PLAN VIEW



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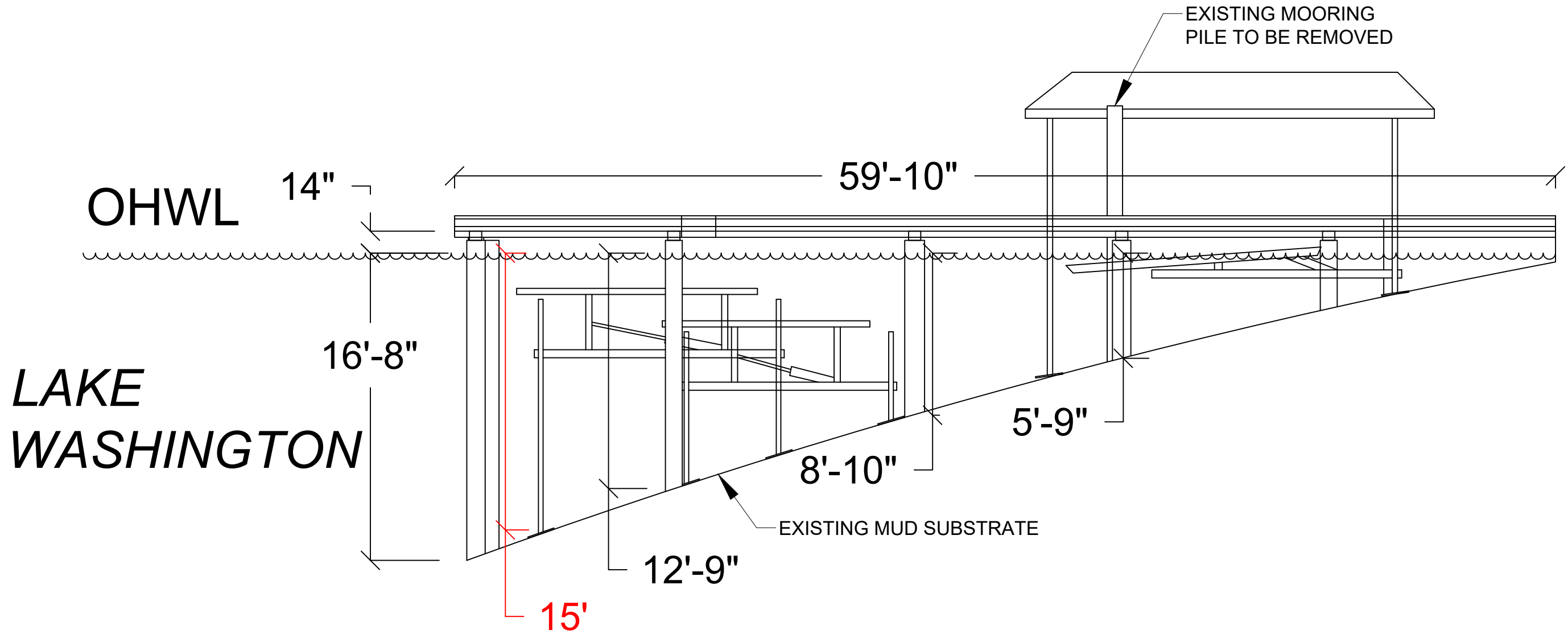
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# PIER DETAILS EXISTING/PROPOSED



SECTION VIEW: A'-A'



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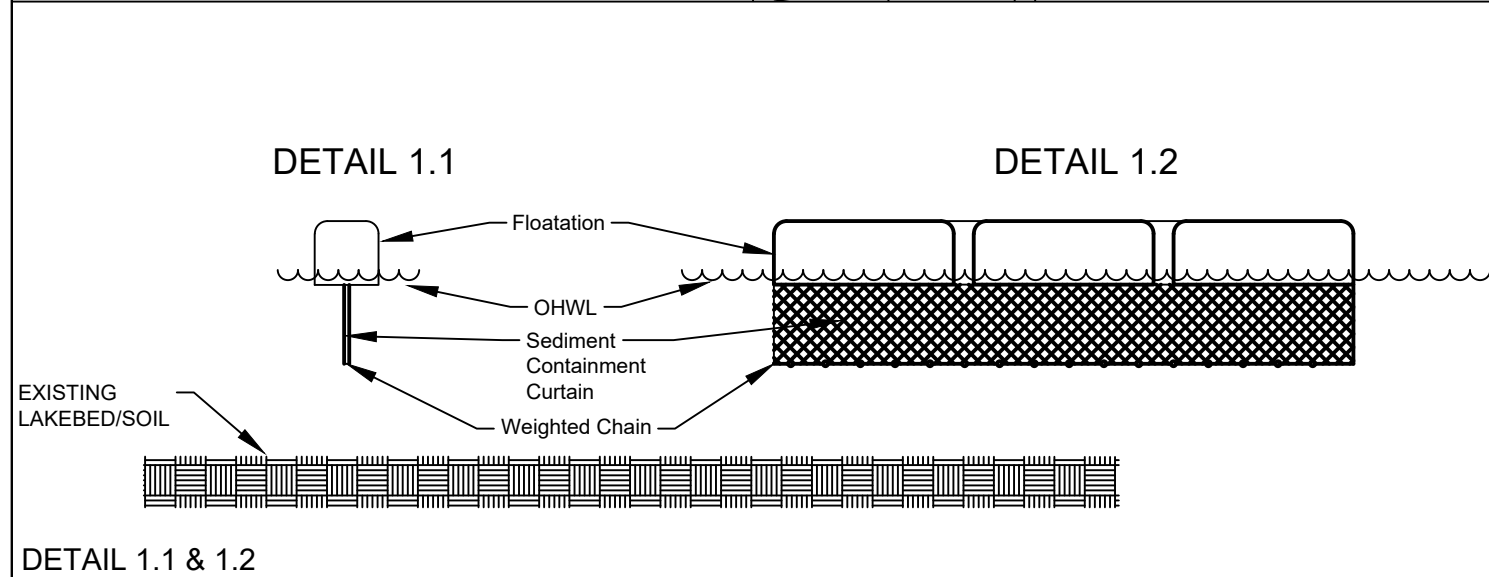
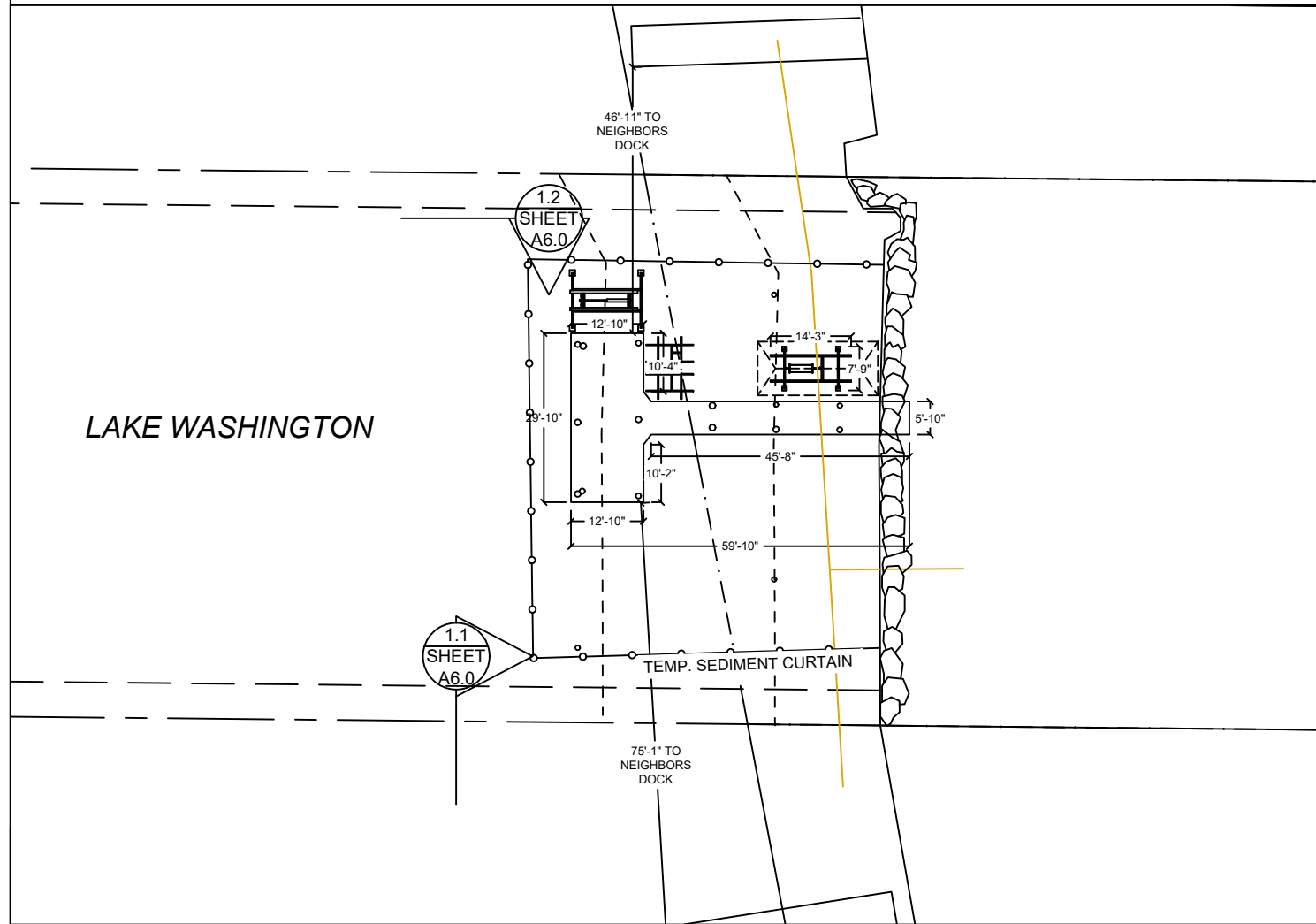
Adjacent Owners:  
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# BMP INFORMATION



## BMP NOTES:

- A. Constant vigilance shall be kept for the presence of protected fish species during all aspects of the proposed action, particularly during in-water activities such as vessel movement, deployment of anchors & spuds, pile driving, dredging, and placement of gravels and other fill.
  1. The project manager shall designate an appropriate number of competent observers to survey the project site and adjacent areas for protected species, including the presence of fish as conditions allow.
  2. Visual surveys shall be made prior to the start of work each day, and prior to resumption of work following any break of more than an hour. Periodic additional visual surveys throughout the work day are strongly recommended.
  3. All in-water work shall be done during the in-water work window for the waterbody. Where there is a difference between the USCOE and WDFW work windows, the overlap of the two shall apply.
  4. All pile driving and extraction shall be postponed or halted when obvious aggregations or schooling of fish are observed within 50 yards of that work, and shall only begin/resume after the animals have voluntarily departed the area.
  5. When piloting vessels, vessel operators shall operate at speeds and power settings to avoid grounding vessels, and minimize substrate scour and mobilization of bottom sediments.
- B. No contamination of the marine environment shall result from project-related activities.
  1. Appropriate materials to contain and clean potential spills shall be stored and readily available at the work site and/or aboard project-related vessels.
  2. The project manager and heavy equipment operators shall perform daily pre-work equipment inspections for cleanliness and leaks. All heavy equipment operations shall be postponed or halted should a leak be detected, and shall not proceed until the leak is repaired and the equipment is cleaned.
  3. To the greatest extent practicable, utilize biodegradable oils for equipment that would be operated in or near water.
  4. Fueling of land-based vehicles and equipment shall take place at least 50 feet away from the water, preferably over an impervious surface. Fueling of vessels shall be done at approved fueling facilities.
  5. Turbidity and siltation from project-related work shall be minimized and contained through the appropriate use of erosion control practices, effective silt containment devices, and the curtailment of work during adverse weather and tidal/flow conditions.
  6. All wastes shall be collected and contained for proper disposal at approved upland disposal sites appropriate for the material(s).
  7. When removing piles and other similarly treated wood, containment booms must fully enclose the work area. Wood debris, oils, and any other materials released into lake waters must be collected, removed, and properly disposed of at approved disposal sites.
  8. All in- and over-water wood cutting would be limited to the minimum required to remove the subject wood component, and all cutting work should be enclosed within floating containment booms.
  9. When removing piles, no actions shall be taken that would cause adhering sediments to return to lake waters.
  10. Above-water containment shall be installed around removed piles to prevent sediment laden waters from returning to lake waters.
  11. Construction staging (including stocking of materials, etc.) will occur on the supply barge.
  12. All Exposed wood to be used on the project will be treated with a cheminite treatment.



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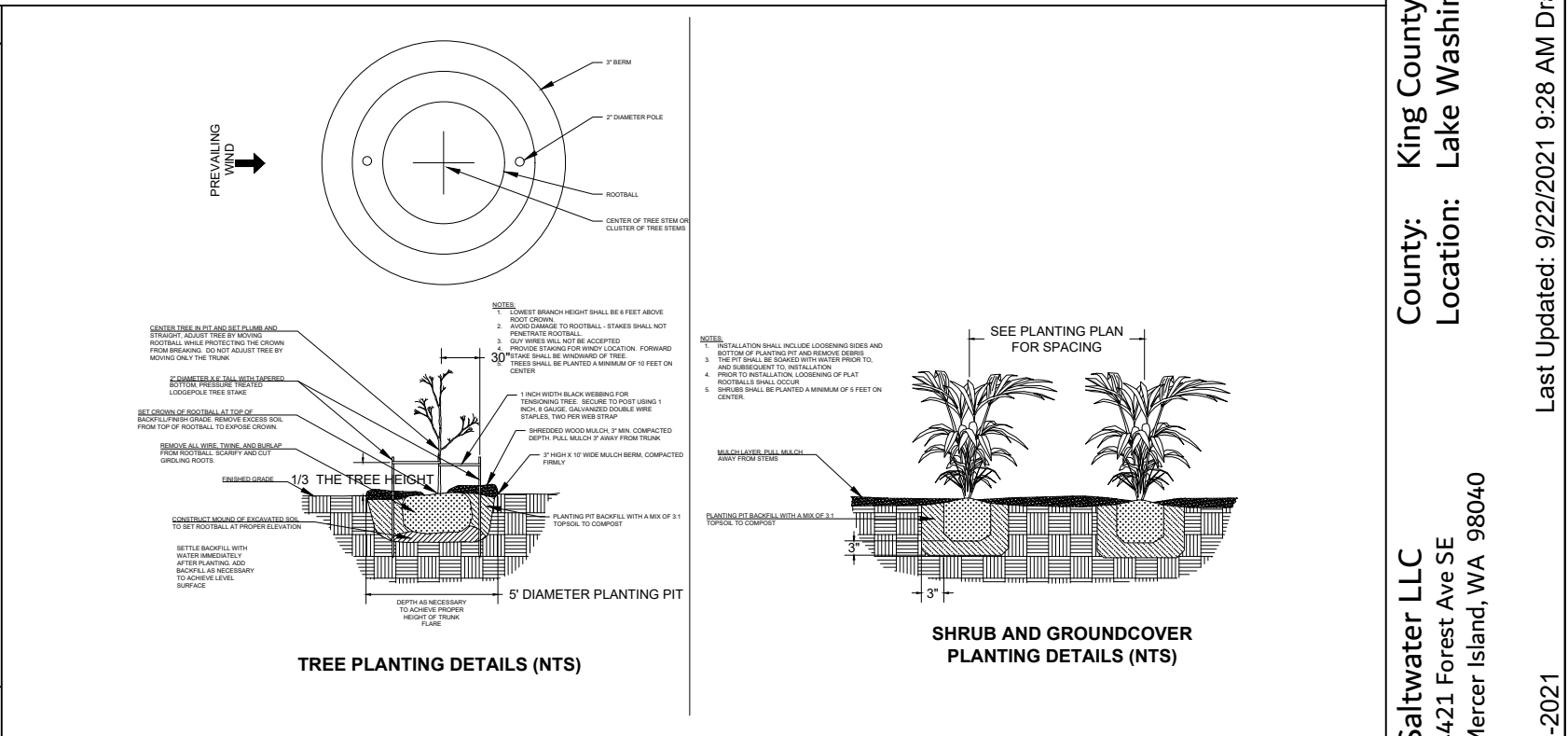
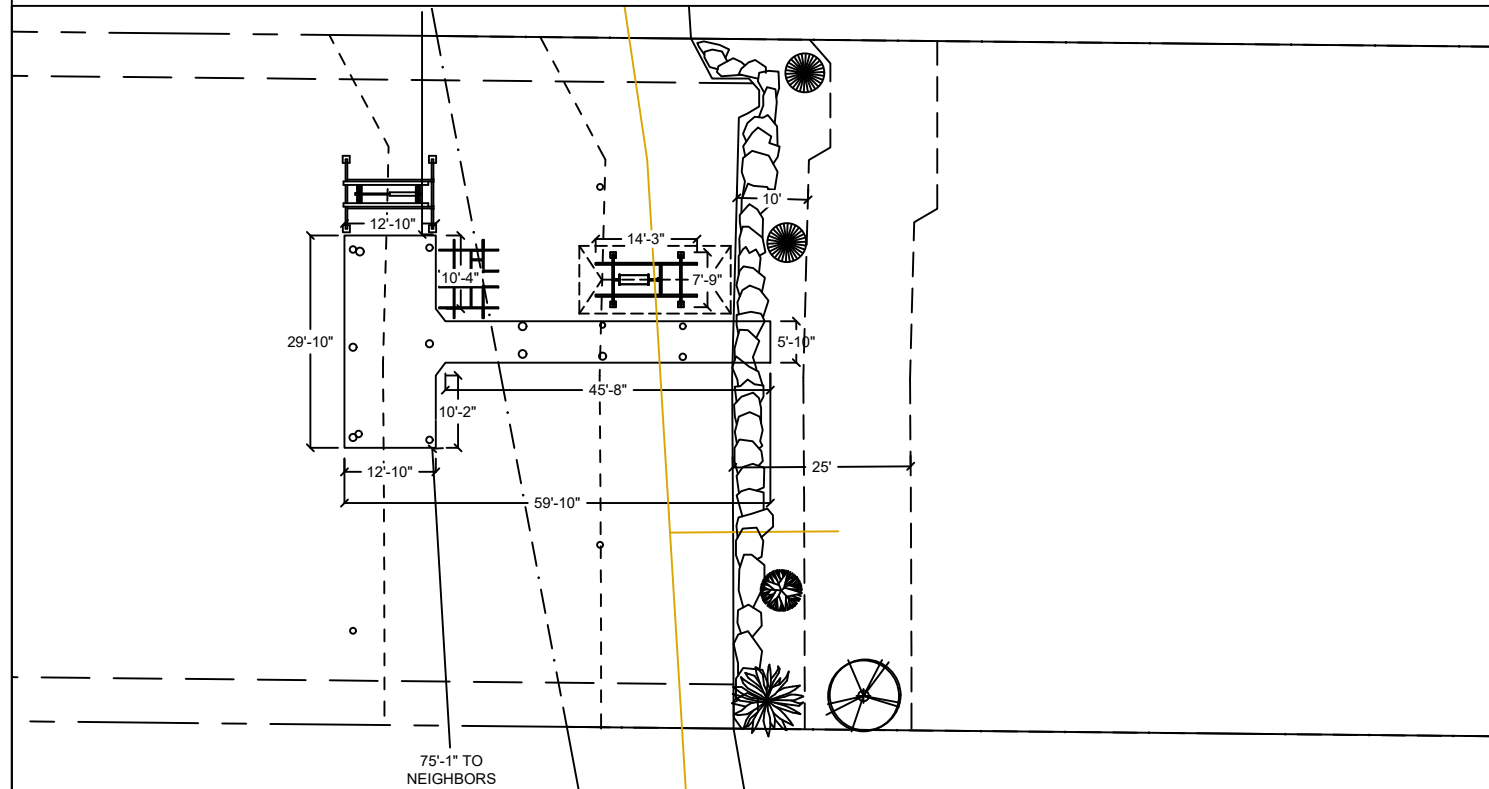
**Adjacent Owners:**  
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# MITIGATION PLAN



- Notes:**
1. Shrubs are show, and shall be planted, at least five feet on center. Trees are show, and shall be planted, at least ten feet to center.
  2. The property owner will implement and abide by the shoreline planting plan. The plants shall be installed before or concurrent with the work authorized by this permit. A report, as-built drawing and photographs demonstrating the plants have been installed or a report on the status of project construction will be submitted to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch, within 12 months from the date of permit issuance. This reporting requirement may be met by completing and submitting a U.S. Army Corps of Engineers approved Report for Mitigation Work Completion form.
  3. The property owner will maintain and monitor the survival of installed shoreline plantings for five years after the U.S. Army Corps of Engineers accepts the as-built report. Installed plants shall achieve 100% survival during monitoring Years 1 and 2. Installed plants shall achieve at least 80% survival during monitoring Years 3, 4 and 5. Percent survival is based on the total number of plants installed in accordance with the approved riparian planting plan. Individual plants that die will be replaced with native riparian species in order to meet the survival performance standards.
  4. The property owner will provide annual monitoring reports for five years (Monitoring Years 1-5). Each annual monitoring report will include written and photographic documentation on plant mortality and replanting efforts and will document whether the performance standards are being met. Photos will be taken from established points and used repeatedly for each monitoring year. In addition to photos at designated points, photo documentation will include a panoramic view of the entire planting area. Submitted photos will be formatted on standard 8 1/2 x 11" paper, dated with the date the photo was taken, and clearly labeled with the direction from which the photo was taken. The photo location points will be identified on an appropriate drawing. Annual shoreline planting monitoring reports will be submitted to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch, by November 31 of each monitoring year. This reporting requirement may be met by completing and submitting a U.S. Army Corps of Engineers approved Mitigation Planting Monitoring Report form.

## PROPOSED PLANTING SPECIES/QUANTITIES

SYMBOL	LATIN NAME	COMMON NAME	QTY	SIZE
	Thuja picatta	Western Redcedar	1	3 ft
	Pinus contorta v contorta	Shore pine	1	3 ft
	Rosa nutkana	Nootka Rose	1	1 Gallon
	Philadelphus lewisii	Mock Orange	2	1 Gallon

**PLANTS:** Shrubs to be installed 5ft on center and trees to be installed 10ft on center.

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**SHEET**  
**A7.0**

# GENERAL NOTES:

## MATERIALS SPEC LIST:

### Boat Lifts:

- \* SL10014ARW - 159" x 93"
- \* SL2008AR2D2 - 104" x 132" (dual jet sk

### Sunwalk Decking Material: FRPP - Fiberglass reinforced polypropylene

Light permeable percentage:

- \* Surface - 43%
- \* 18" Dock Height - 61%

### PILES:

- \* All new piles are epoxy coated piles \*size varies, see plan set

### SEWER:

- \* All sewer is field verified by probing the lake bed manually during the allowed work windows for the area.

## CODE REFERENCES: Mercer Island

We are applying for the permit to be reviewed under the:

**“Alternative Development Standards” per MIMC 19.13050(F)(3).**

The code official shall approve moorage facilities not in compliance with the development standards in subsection (F)(1) or (F)(2) of this section subject to both U.S. Army Corps of Engineers and Washington Department of Fish and Wildlife approval to an alternate project design. The following requirements and all other applicable provisions in this chapter shall be met:

i. The dock must be no larger than authorized through state and federal approval; Ch. 19.13 Shoreline Master Program | Mercer Island City Code Page 30 of 34 The Mercer Island City Code is current through Ordinance 20C-13, passed June 16, 2020.

*- Project in review*

ii. The maximum width must comply with the width of moorage facilities standards specified in standards specified in subsection D of this section (Table D);

*- Dock construction falls under (F)(2), (F)(3) only deals with the boat lift and there is no walkway associated with that.*

iii. The minimum water depth must be no shallower than authorized through state and federal approval;

*- Project in review*

iv. The applicant must demonstrate to the code official's satisfaction that the proposed project will not create a net loss in ecological function of the shorelands; and

*- NNL report included with the submittal*

v. The applicant must provide the city with documentation of approval of the moorage facilities by both the U.S. Army Corps of Engineers and the Washington Department of Fish and Wildlife.

*- Project in review*

Mitigation" Disturbance of bank vegetation shall be limited to the minimum amount necessary to accomplish the project. Disturbed bank vegetation shall be replaced with native, locally adapted herbaceous and/or woody vegetation. Herbaceous plantings shall occur within 48 hours of the completion of construction. Woody vegetation components shall be planted in the fall or early winter, whichever occurs first. The applicant shall take appropriate measures to ensure revegetation success;

Last permit issued for property: 1112-086

Dock established/constructed: 12/15/2011



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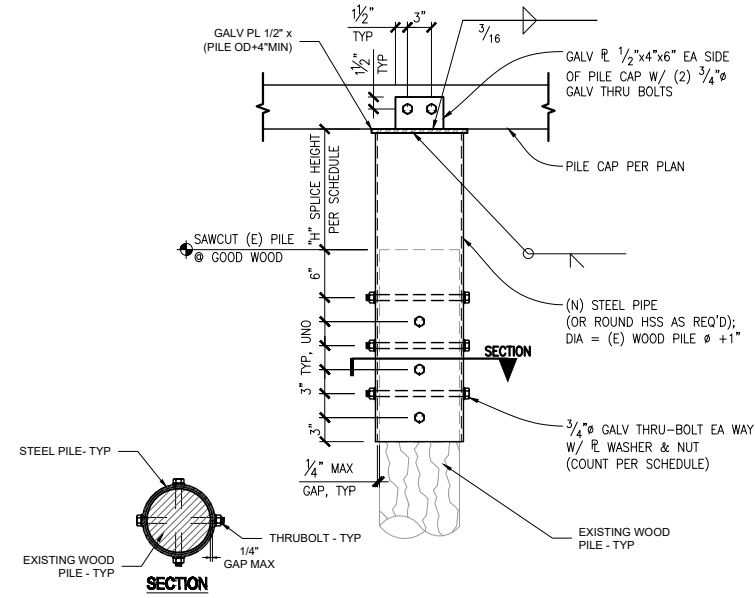
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**SHEET  
A8.0**

# DETAILS - REPAIR



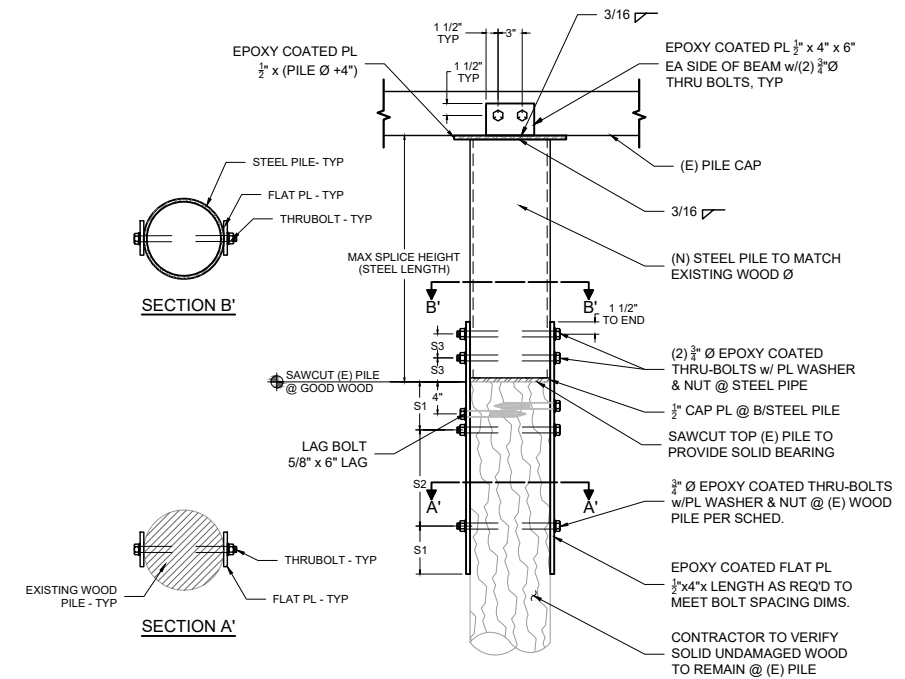
**S** SLEEVE PILE REPAIR - TYP  
SCALE: 1/2" - 1"

**S** DETAIL NOT IN USE  
SCALE: 1/2" - 1"

**S** DETAIL NOT IN USE  
SCALE: 1" - 1"

**S** DETAIL NOT IN USE  
SCALE: 1" - 1"

**S** SPLICE PILE REPAIR - TYP  
SCALE: 1/2" - 1"



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Office: 206-236-1700 ext. 3  
www.seabornpiledriving.com

Scope of Work: We propose to repair (6) piles, remove (1) mooring pile, remove a PWC lift, install a boat lift, and install a dual jet ski lift.

**SHEET**  
**A9.0**



# **Attachment B: Site Photographs**

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Photo 1 - Pier looking water ward.



Photo 2 - Pier looking landward.



Photo 3 - Shoreline conditions looking south.



Photo 4 - Shoreline conditions looking north.



Photo 5 - Shoreline conditions south of property.



Photo 6 - Shoreline conditions north of property.