Ecological No Net Loss Assessment Report

Prepared for

Barlow Gubby
8006 Avalon Place
Mercer Island, WA 98040

Prepared by

Northwest
Environmental Consulting, LLC

Northwest Environmental Consulting, LLC
3639 Palatine Avenue North
Seattle, WA 98103
206-234-2520

December 2020

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 8006 Avalon Place (King County parcel number 3124059014) in the City of Mercer Island, Washington (see Appendix A – Sheet A1.0). The parcel is on the waterfront of Lake Washington, which contains several endangered fish species listed under the Endangered Species Act and Washington State designated priority fish species. Permits are being applied for a pier reconfiguration and reconstruction (see Appendix A – Sheets A2.0 and A5.0).

Project Description

The proposed work on the pier will include constructing a 24 foot, 10 inch by 5 feet, 10-inch wide extension of the existing dock ell. The extension will be 150 square feet. To complete the extension, four 8-inch steel piles will be installed and an existing 16-inch mooring pile will be cut off and left under the extension.

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

A shoreline vegetation plan is proposed, that includes native trees and shrubs. (see Appendix A – Sheet A6.0).

Project drawings are included in Appendix A.

Approach

Northwest Environmental Consulting LLC (NWEC) biologist Brad Thiele conducted a site visit on November 25, 2020 to evaluate conditions on site and adjacent to the site. NWEC 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 shoreline tract in a residential neighborhood. It has Lake Washington shoreline on its eastern boundary and other single-family homes to the north and south.

The only existing structures on the property are the house, garage and dock (Photos 1 to 5). The shoreline is armored with a rock bulkhead. A cove is present in the bulkhead that creates a small beach.

The yard is landscaped with lawn to the edge of the beach. Landscaping beds are present on the north and south property edges along the lake. The southern bed includes a cherry tree, knotweed, and other fruit trees and ornamental shrubs. The northern bed includes Japanese maples, arborvitae, and ornamental roses and heather ground covers.

The substrate of the lake is gravel and sand. Some cobbles are present along the bulkhead that are embedded in the sand. No aquatic vegetation was observed along the dock.

The property to the south includes a continuation of the bulkhead with ornamental landscaping and a dock. The property to the north is a single family home with ornamental landscaping including a shore pine, a continuation of the rock bulkhead, and a dock.

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 the Endangered Species Units (ESU) of Threatened Chinook and steelhead. The nearest salmon-bearing stream, Mercer Slough, approximately 4,000 feet to the northeast, is modeled by Washington Department of Fish and Wildlife (WDFW) for rearing of non-listed coho and listed Fall Chinook. 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, and sockeye spawning has been mapped at the subject parcel.

The closest feature indicated on the PHS map is a biodiversity corridor mapped approximately 2,200 feet to the north in Pioneer Park, but no other priority habitats are directly associated with the project site for aquatic or terrestrial species except for Lake Washington.

The Mercer Island GIS map indicates a watercourses may be present two lots to the north about 100 feet from the project.

Project Impacts and Conservation Measurements

Direct Impacts:

Sediments: Sediment disturbance will occur below the OHWM and along the shoreline of Lake Washington during pile driving. Additionally, the tug and barge propwash may disturb

sediments temporarily when making trips to/from the site.

Sediments are expected to be minimally disturbed during pile driving and the duration of any suspended solids will be short. The project will meet state water quality standards.

Shoreline: Planting native vegetation will increase the habitat functions of the shoreline by creating shade along the shoreline that will be an improvement from the existing baseline habitat conditions at the project site. 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 existing shoreline vegetation is lawn with ornamental landscaping beds. The proposed planting plan is included (see Appendix A - Sheet A6.0).

Lakebed: The project will add four 8-inch steel piles to the lakebed. This will increase lakebed coverage by approximately 1.4 square feet.

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. Work will be completed during the in-water work window when juvenile fish are not expected to be present.

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 (see BMP Notes on Sheet A7.0 in Appendix A).

Indirect Impacts:

Shading: The proposed extension will cover approximately 150 square feet.

Grated decking allows light to penetrate the waters below a dock, which can increase productivity in the waters compared to opaque decking, and reduce the full shade favored by salmonid predators. Salmonid predators are known to use hard shadowing under solid-decked docks to ambush juvenile salmonids. Reducing hard shadows limits the ability of predatory fishes to effectively hunt salmonids.

ThruFlow grated decking has measured performance at 43 percent light penetration (ThruFlow, 2020). Thus, the increase in lighting under the pier is effectively 57 percent of the area of a solid decked structure. Using grated decking on the extension will reduce the effective overwater coverage of the new structure to 85.5 square feet.

The extension will be based off the end of the waterward ell minimizing the shading effect of the nearshore.

Recreational Boating: The project supports continued recreational boating, which has been identified as a limiting factor for salmonid populations in Lake Washington. The pier repair and beach cove will not introduce additional boating to Lake Washington, as the owners could still access the lake from their existing pier, a public boat launch, or other 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 July 31 and November 16 to December 31). 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 (see BMP Notes on Sheet A7.0 in Appendix A). 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.

In-lieu Fee: The project requires approval from the National Marine Fisheries Service (NMFS). NMFS has developed a calculator to determine appropriate mitigation costs for proposed in-water structures in Lake Washington. This calculator has established a fund that owners can pay into if they are not willing or cannot find mitigation to offset impacts from the project. The owner is not able to complete the required at the subject property and the property owners will pay into the in-lieu fee program to mitigate project impacts. An in-lieu fee program is defined as follows:

> "A program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements... Similar to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu program sponsor." (Fed. Reg. 40 CFR Part 230)

The fee has been determined using the Restoration And Permitting (RAP) Calculator for Lake Washington and will be paid to King County Conservation District.

The City of Mercer Island requires that proof of mitigation be provided. The client will provide records of the RAP and payment to King County, if required.

Conclusion

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

There will be temporary impacts from noise and disturbed sediments during construction of the pier extension and pile driving. The proposed work will increase the overwater coverage by 150 square feet. The use of grated decking will limit the effective overwater coverage of the extension to 85.5 square feet. The grating reduces the hard shadows favored by salmonid predators and increases productivity under the pier compared to opaque decking. There will also be a 1.4-square-feet increase in lakebed coverage. Juvenile salmon tend to stay in shallower water, so extending the ell in the deepest water possible at the site will minimize impacts to the aquatic environment.

A shoreline planting plan will be implemented, adding native trees and shrubs (Appendix A – Sheet A6.0). The owner is paying into an in lieu fee program that will be used for offsetting habitat projects by the King County Conservation District.

The project will minimize construction effects on the environment by following the prescribed fish window and using applicable BMPs to prevent construction spills and debris from escaping the area.

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**. Installing a shoreline planting plan that will eventually overhang the water will improve ecological conditions along the shoreline over existing conditions at the site.

Document Preparers

Brad Thiele	Biologist	26 years of experience	Northwest Environmental Consulting, LLC. (NWEC)
Paul Korsmo	Biologist	35 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

City of Mercer Island. 2020. Mercer Island GIS. Online database. Accessed November 2020 at https://chgis1.mercergov.org/Html5Viewer/Index.html?viewer=PubMaps&viewer=PubMaps

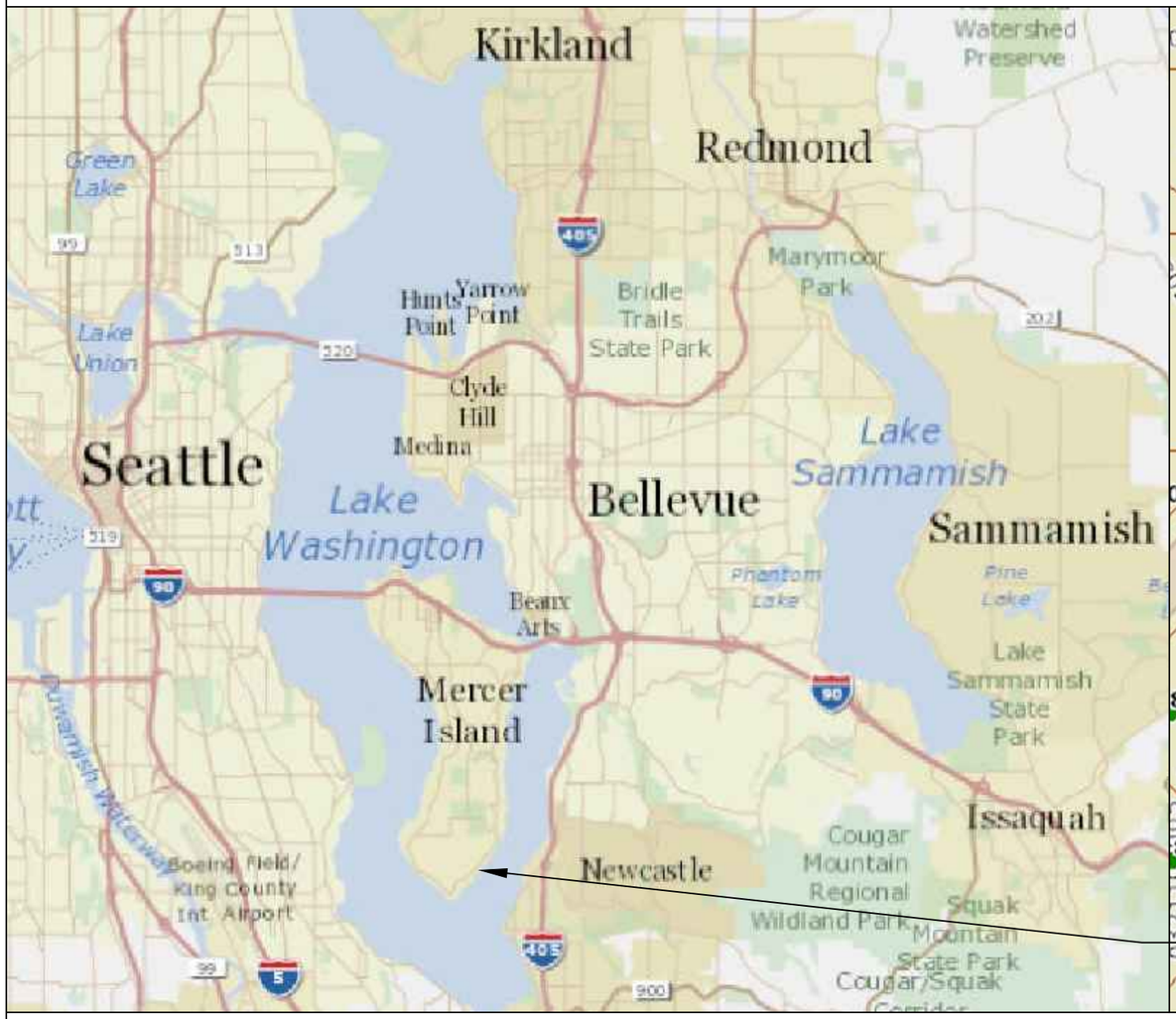
ThruFlow. 2020. Legacy Series. Online. Accessed November 2020 at https://thruflow.com/products/legacy/

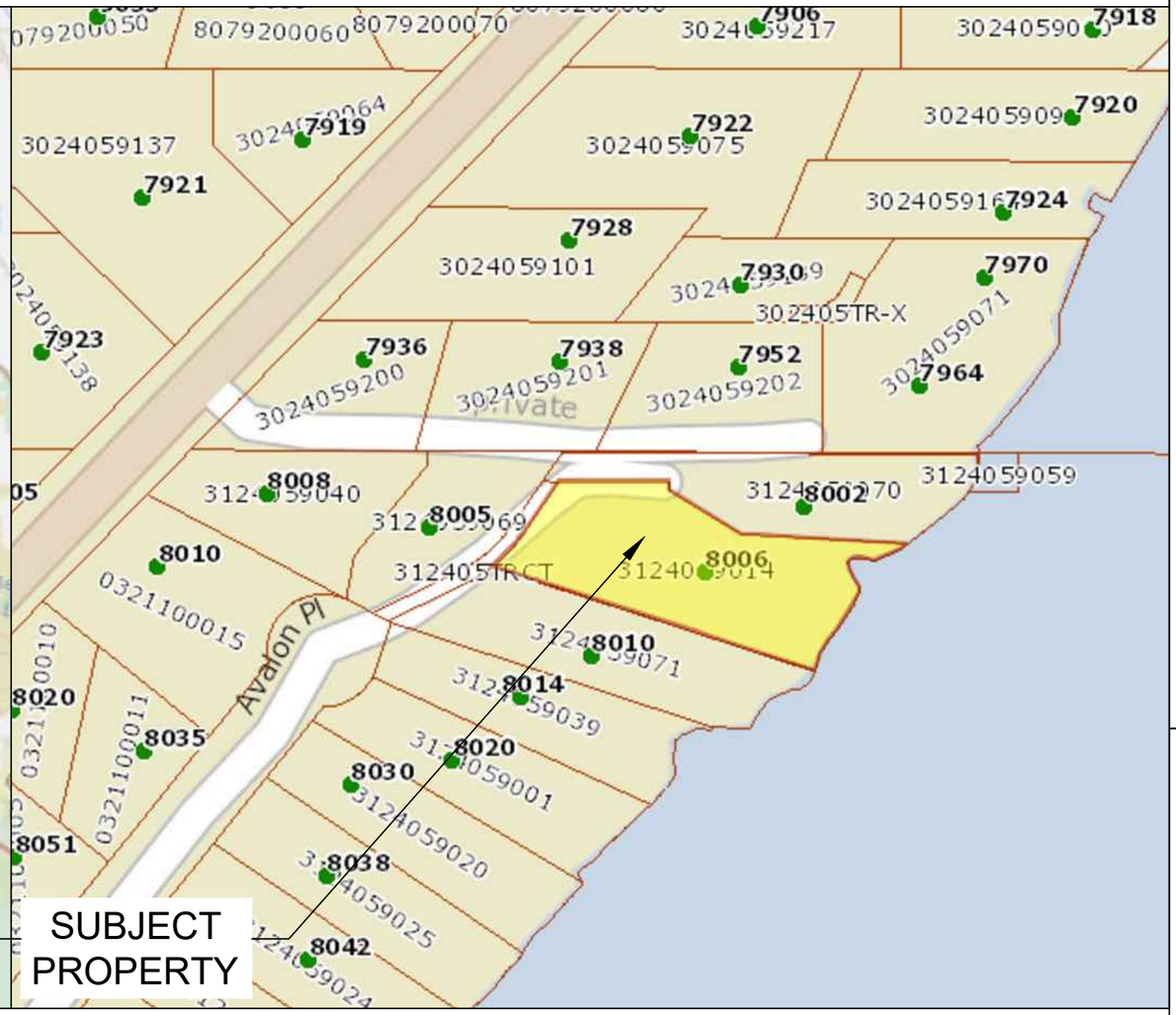
US Army Corps of Engineers (USACE). 2004. Final Biological Evaluation, Regional General Permit: Construction of New or Expansion of Existing Residential Overwater Structures and Driving of Moorage Piling. Lake Washington, Lake Sammamish, the Sammamish River and Lake Union, Including the Lake Washington Ship Canal, in the State of Washington.

Washington Department of Fish and Wildlife (WDFW). 2020. Priority Habitats and Species. Online database. Accessed November 2020 at http://apps.wdfw.wa.gov/phsontheweb/

WDFW. 2020. SalmonScape. Online database. Accessed November 2020 at http://apps.wdfw.wa.gov/salmonscape/

Appendix A:
Project Drawings





SITE PLAN

Pin: 312405-9014

Legal Description:POR GL 1 LY ELY OF MERCER IS BLVD DAF - BEG NW COR SEC TH S 89-50-16 E ALG N SEC LN 1916.51 FT M/L TO ELY MGN OF E MERCER WAY TH CONT ALG SD SEC LN S 89-50-16 E 264.82 FT TH S 34-35-44 W 26.14 FT TH S 89-50-16 E 12.13 FT TH S 34-35-44 W 45.01 FT TAP CRV RGT RAD 105.52 FT TH SWLY ALG SD CRV 31.96 FT TO TPOB TH NELY ALG SD CRV 31.96 FT TH N 34-35-44 E 45.01 FT TH S 89-50-16 E 78 FT TH S 0-09-44 W 6.44 FT TH S 59-12-00 DIST 60 FT TH S 86-55-48 E 101 FT M/L TO SH LN LK WASHINGTON TH SWLY ALG SD SH LN TAP WCH BEARS S 72-04-54 E FR TPOB TH N 72-04-54 W 228 FT M/L TO TPOB TGW UND 1/4 INT IN PVT RD TR PER SD BLA & SH LN ADJ; AKA LOT 3 MI BLA 88-06-23 (J-4) REC #8808299046

Plat Block: NA
LAT: 47.53091

Plat Lot: NA
LONG: -122.21793

Prepared By:

Seaborn Pile Driving
1080 W Ewing St
Seattle, WA 98119

Office: 206-236-1700
permits@seabornpiledriving.com
www.seabornpiledriving.com

Purpose: The proposed dock is to provide for safe boat moorage and safe water recreational activities for a single family residence.

Scope of Work: We propose to drive (4) new 8” steel piles, construct a 24'10" long and 5'10"' wide extension off the existing dock ell. We will also cut down an existing mooring pile for the new extension.

Conctractor: Seaborn Pile Driving Company
1080 W Ewing St
Seattle, WA 98119

Last Updated: 12/1/2020 1:10 PM Kelse

Applicant: Barlow Residence
8006 Avalon Place
Mercer Island, WA 98040
County: King County
Location: Lake Washington

Created: 12/1/2020

Datum: CORPS OF ENGINEERS 1919
NW Quarter Of Section 31, Township 24, Range 05

Adjacent Owners:
NEIL MICHAEL L+LEE LISA C
8002 AVALON PL 98040

MENG YI+CHEN XIAOFENG
8010 AVALON PL 98040

SHEET A1.0

NWS-2020-XXX
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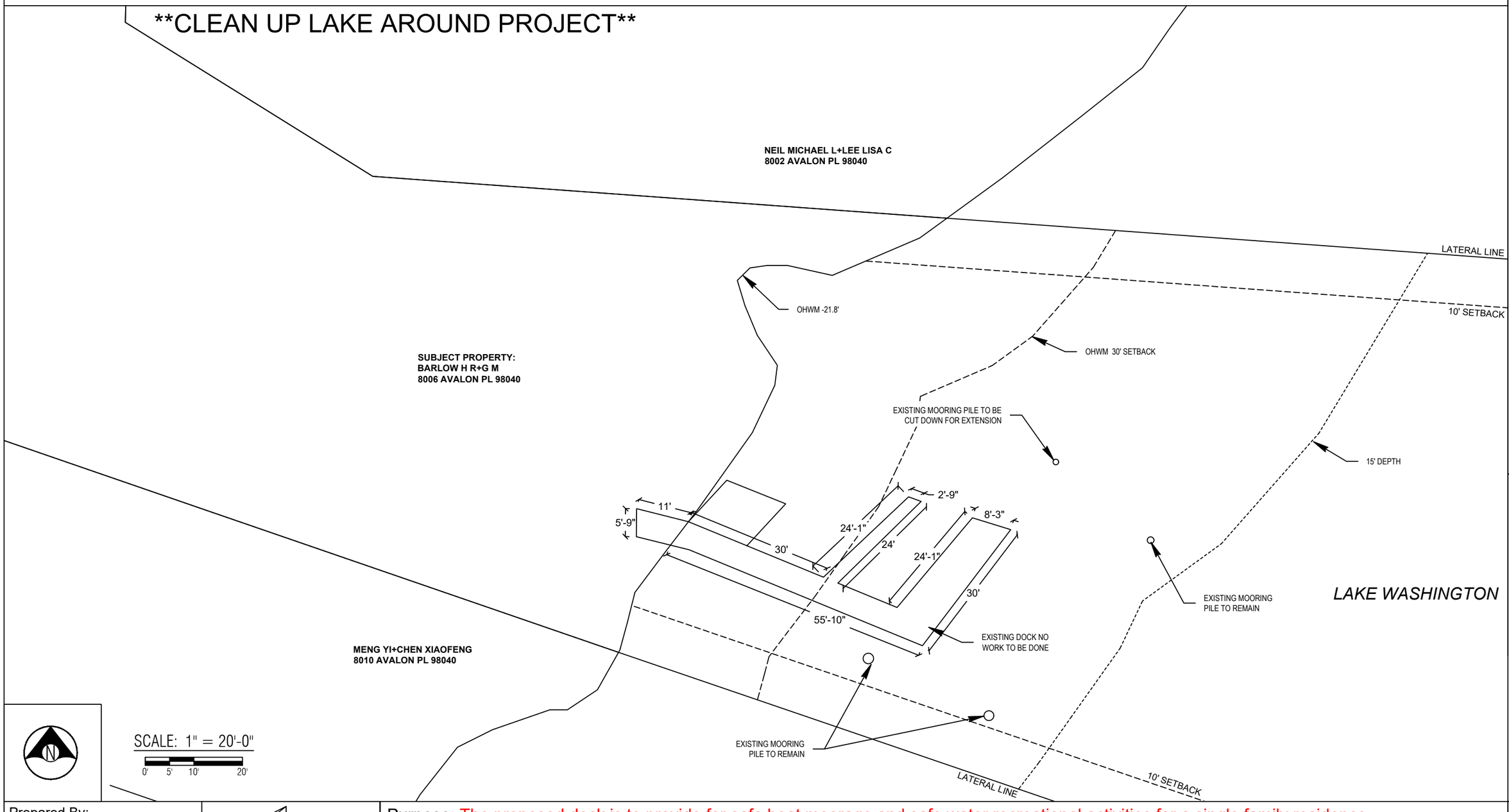
EXISTING CONDITIONS

CLEAN UP LAKE AROUND PROJECT



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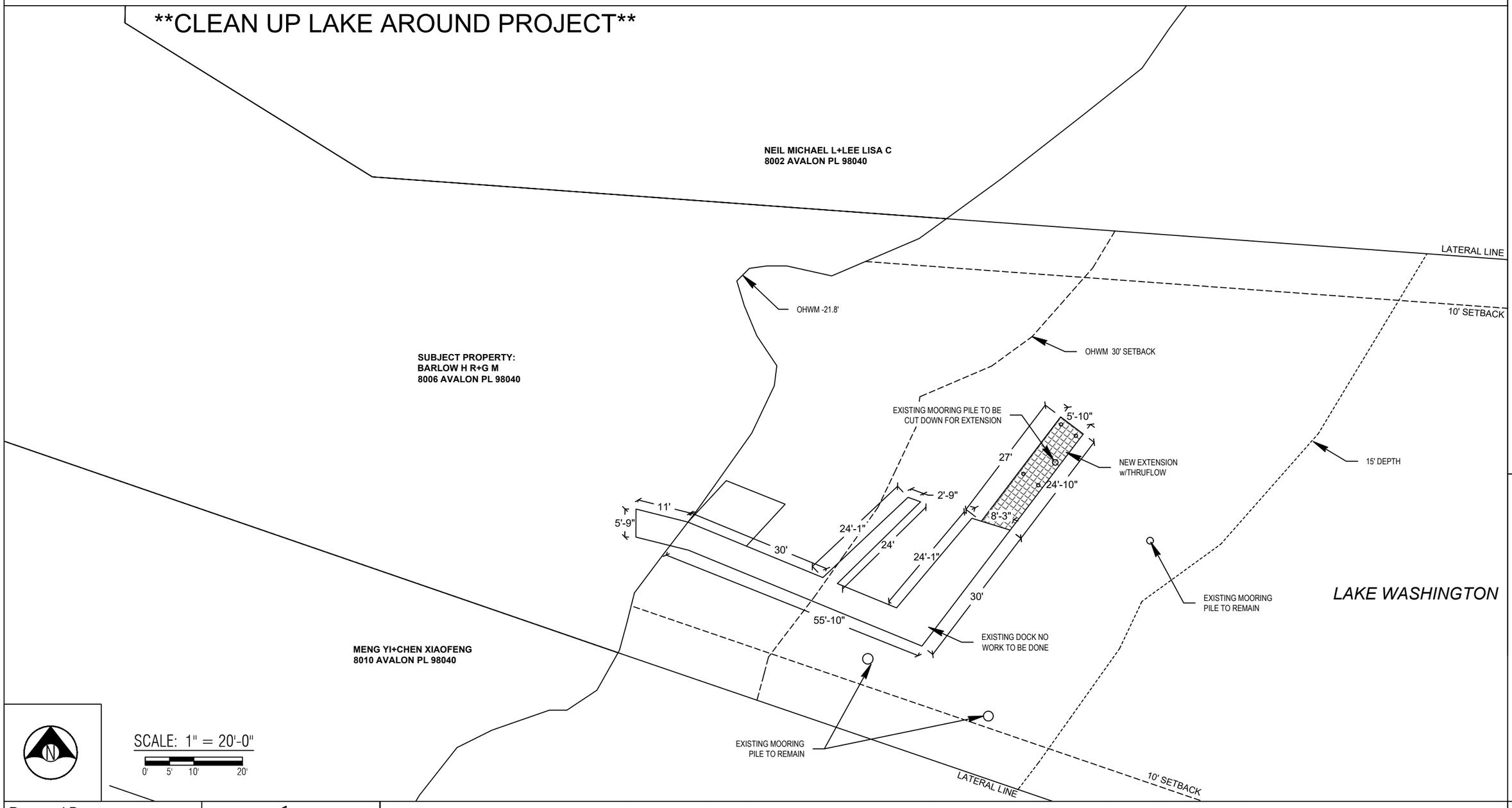
SHEET A2.0

PROPOSED CONDITIONS

CLEAN UP LAKE AROUND PROJECT



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Scope of Work: We propose to drive (4) new 8” steel piles, construct a 24'10" long and 5'10"' wide extension off the existing dock ell. We will also cut down an existing mooring pile for the new extension.

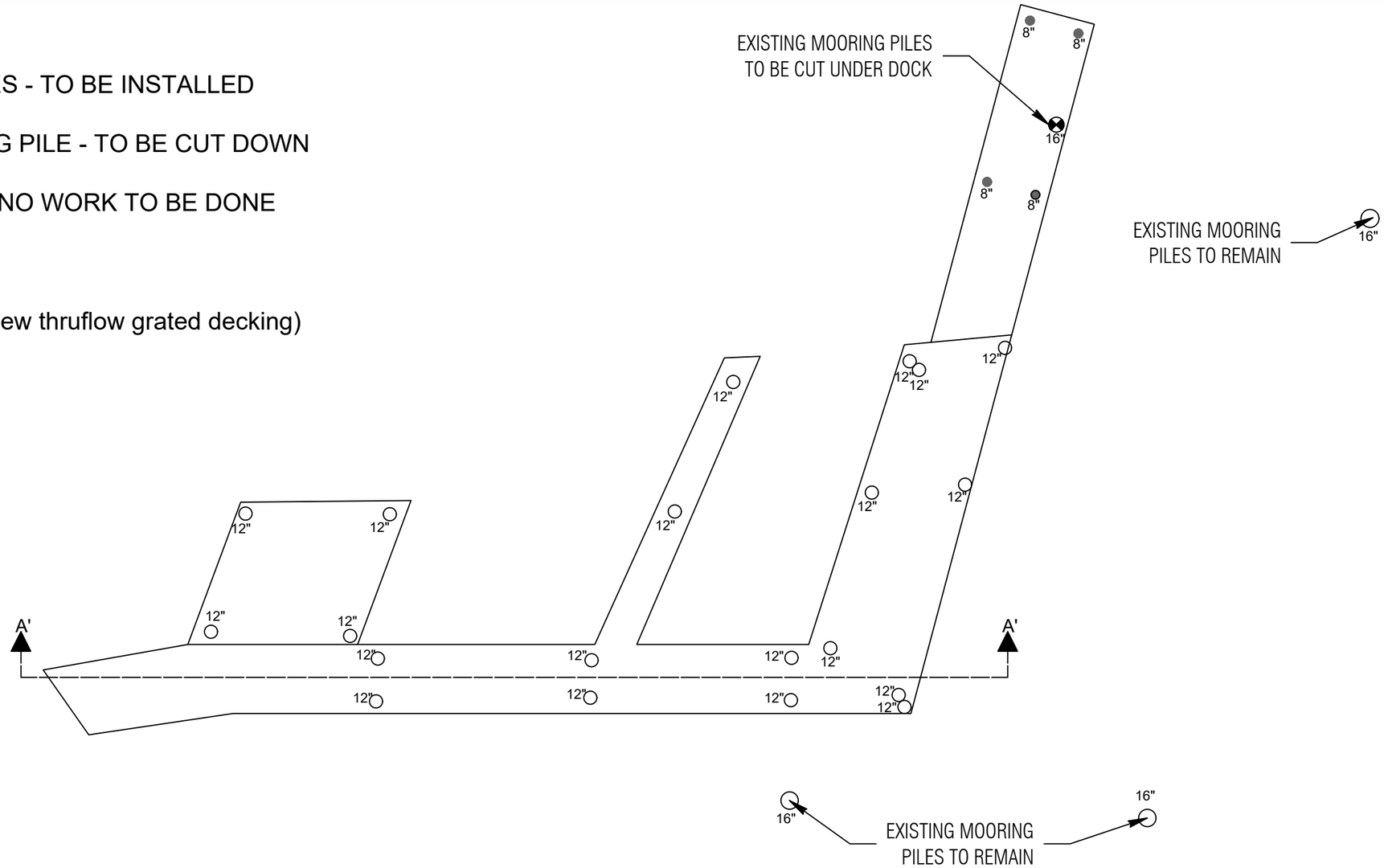
SHEET A3.0

PIER DETAILS

LEGEND

- (4) NEW 8" STEEL PILES - TO BE INSTALLED
- (1) EXISTING MOORING PILE - TO BE CUT DOWN
- (23) EXISTING PILES - NO WORK TO BE DONE

Area: 759 sqft (total)
Area: 708 sqft (over water)
Area: 150 sqft (extension w/new thruflow grated decking)



PLAN VIEW

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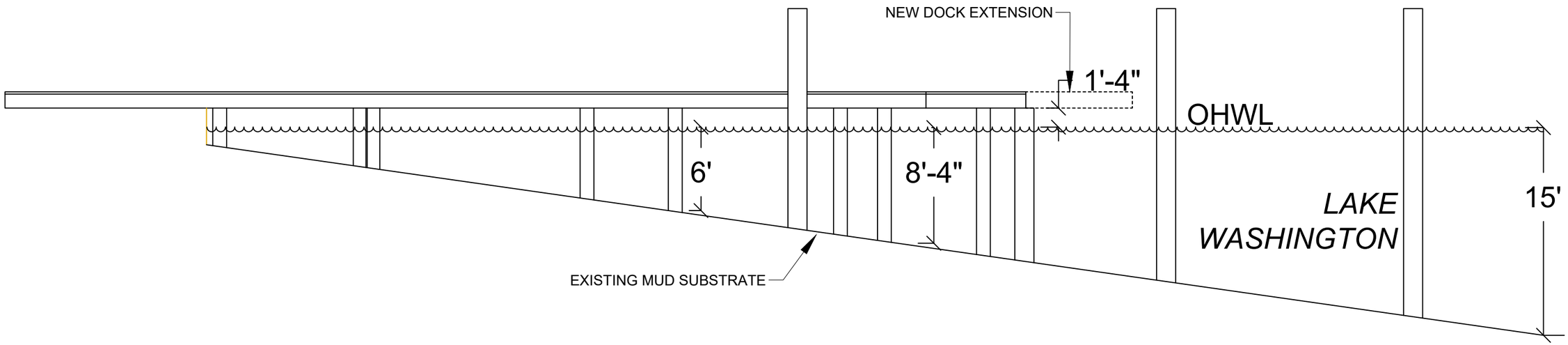
SHEET A4.0

PIER DETAILS



SECTION VIEW

Prepared By:

Seaborn Pile Driving
1080 W Ewing St
Seattle, WA 98119

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permits@seabornpiledriving.com
www.seabornpiledriving.com

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Scope of Work: We propose to drive (4) new 8” steel piles, construct a 24'10" long and 5'10"' wide extension off the existing dock ell. We will also cut down an existing mooring pile for the new extension.

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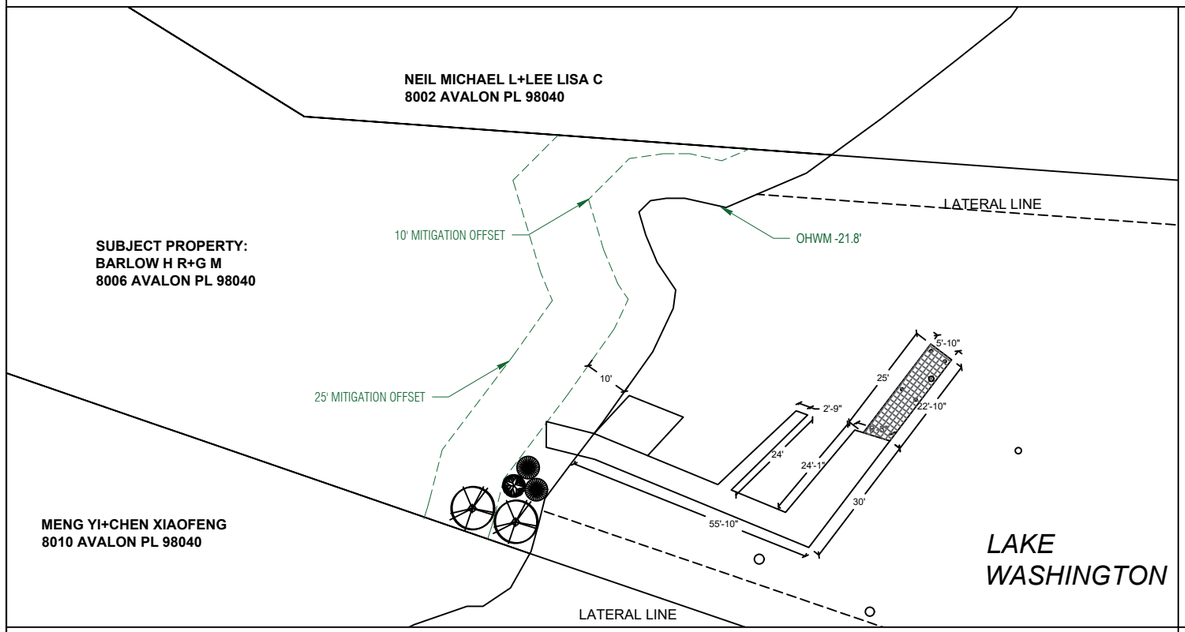
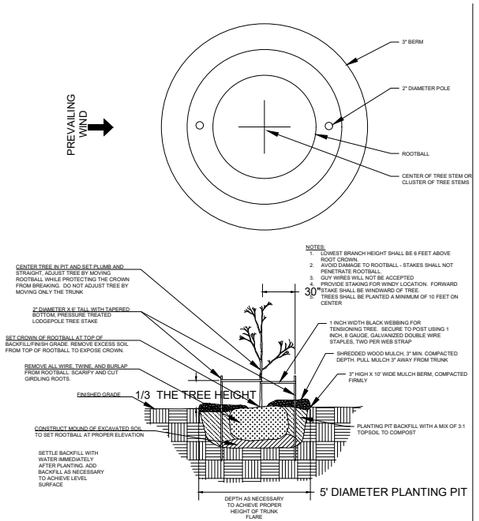
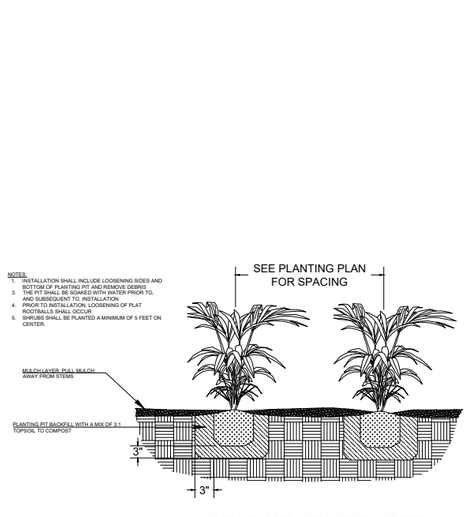
SHEET A5.0

MITIGATION PLAN





TREE PLANTING DETAILS (NTS)



SHRUB AND GROUNDCOVER PLANTING DETAILS (NTS)

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	2	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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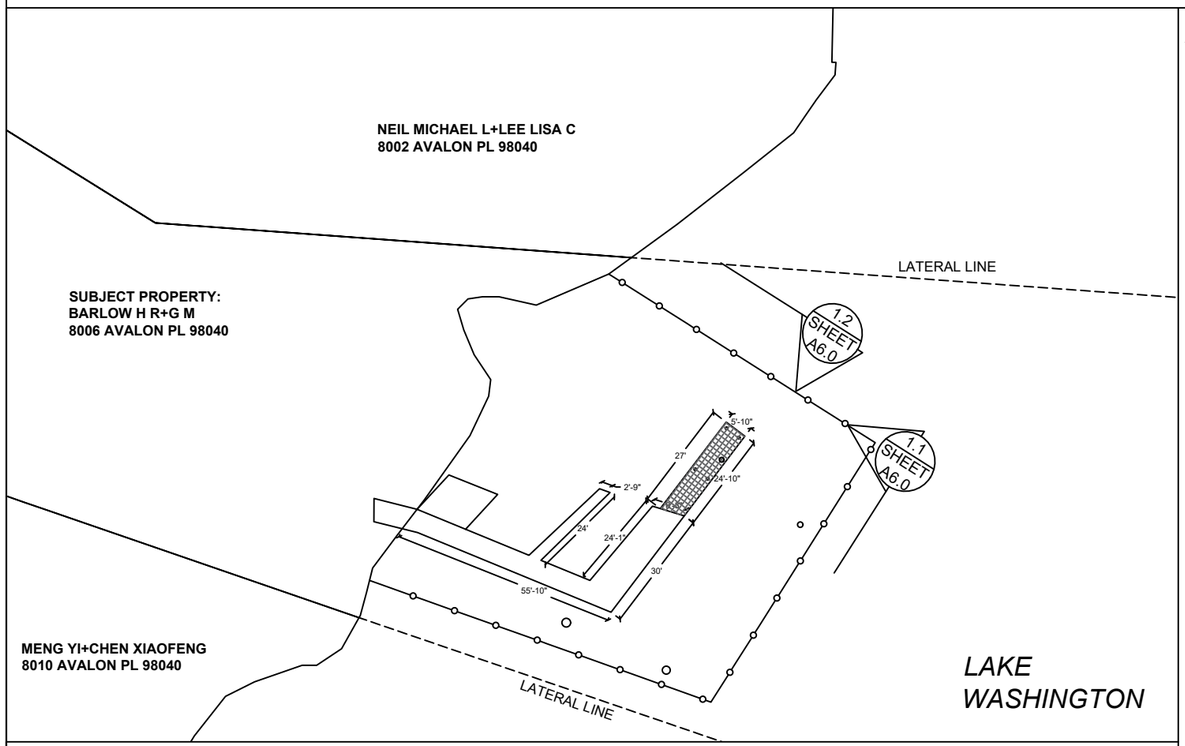
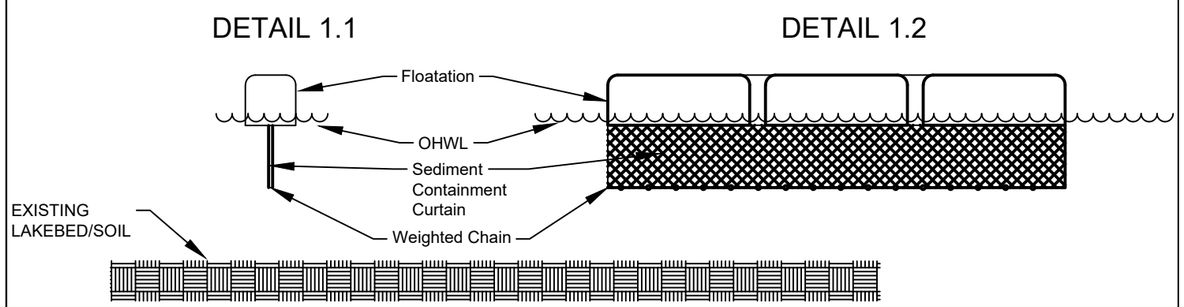
SHEET A6.0

BMP INFORMATION





DETAIL 1.1 & 1.2

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.

Conctractor: Seaborn Pile Driving Company
1080 W Ewing St
Seattle, WA 98119

Applicant: Barlow Residence
8006 Avalon Place
Mercer Island, WA 98040

County: King County
Location: Lake Washington

Created: 12/1/2020

Last Updated: 12/1/2020 1:10 PM Kelse

Datum: CORPS OF ENGINEERS 1919
NW Quarter Of Section 31, Township 24, Range 05

Adjacent Owners:
NEIL MICHAEL L+LEE LISA C
8002 AVALON PL 98040
MENG YI+CHEN XIAOFENG
8010 AVALON PL 98040

Prepared By:

Seaborn Pile Driving
1080 W Ewing St
Seattle, WA 98119

Office: 206-236-1700
permits@seabornpiledriving.com
www.seabornpiledriving.com

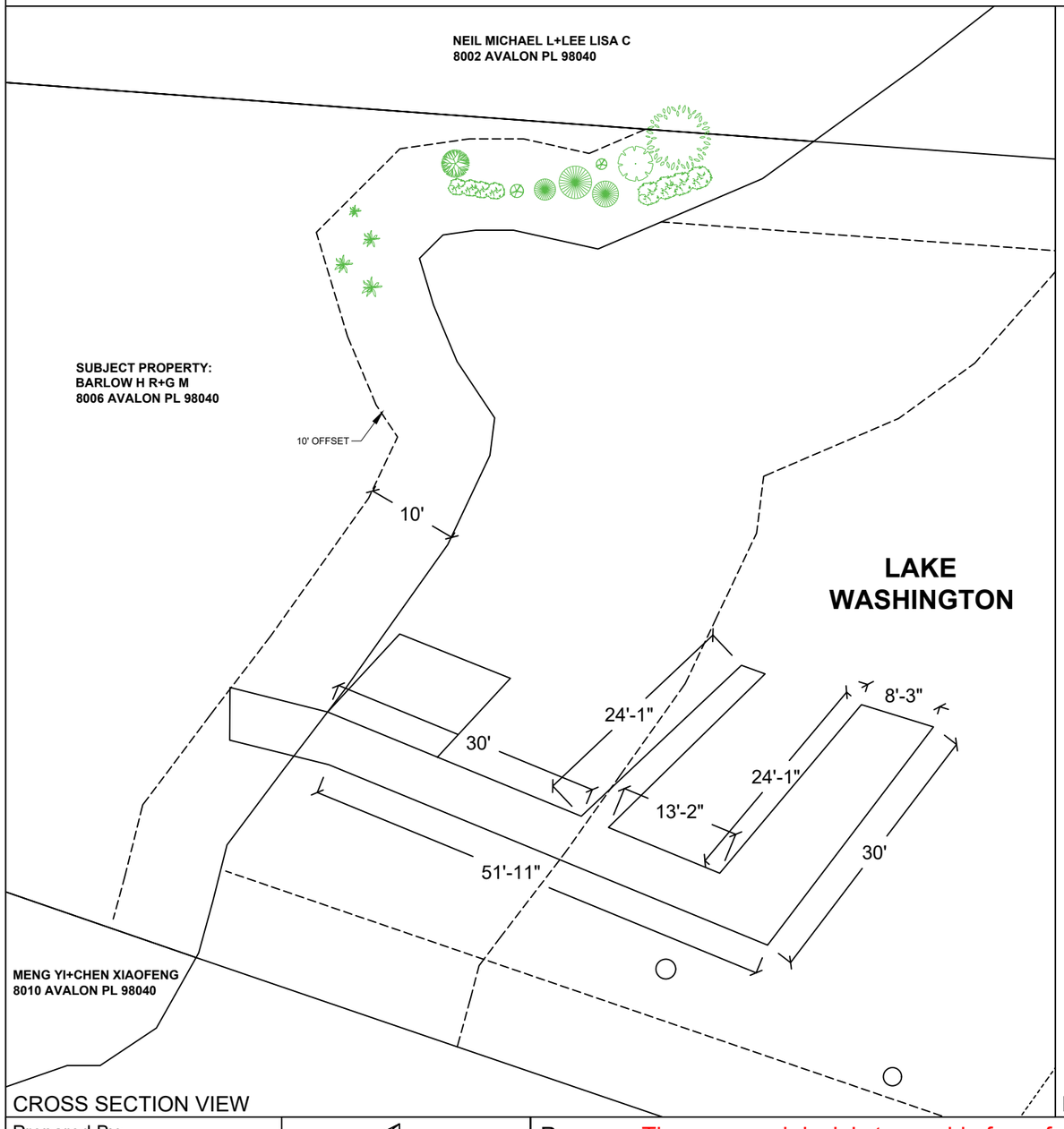
SEABORN
PILE DRIVING COMPANY

Purpose: The proposed dock is to provide for safe boat moorage and safe water recreational activities for a single family residence.

Scope of Work: We propose to drive (4) new 8” steel piles, construct a 24'10" long and 5'10"' wide extension off the existing dock ell. We will also cut down an existing mooring pile for the new extension.

SHEET A7.0

EXISTING PLANT PLAN



CROSS SECTION VIEW

EXISTING PLANT SPECIES/QUANTITIES

SYMBOL	LATIN NAME	COMMON NAME	QTY	SIZE
	Scotch Heather	Calluna	2	10 ft
	Japanese Maple	Acer	1	7.5 ft
	Laurustinus	Viburnum Tinus	1	4 ft
	Orange Daylily	Hemerocallis	4	1 ft
	Chinese Silver Grass	Miscanthus	2	2 ft
	White Spruce	Picea	1	3.5 ft
	Strawberry Tree	Arbutus	3	3.5 ft

EXISTING PLANTS TABLE

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SEABORN
PILE DRIVING COMPANY

Purpose: The proposed dock is to provide for safe boat moorage and safe water recreational activities for a single family residence.

Scope of Work: We propose to drive (4) new 8” steel piles, construct a 24'10" long and 5'10"' wide extension off the existing dock ell. We will also cut down an existing mooring pile for the new extension.

SHEET A8.0

Appendix B:
Site Photographs

Photo 1 - Dock from shoreline.

Photo 2 - shoreline conditions from dock.

Photo 3 - Existing cove in shoreline

Photo 4 - Shoreline looking north

Photo 5 - Shoreline to the south.