

Ecological No Net Loss Assessment Report

Prepared for

**O'Neil Generational Trust
4452 Ferncroft Road
Mercer Island, WA 98040**

Prepared by

 **Northwest**
Environmental Consulting, LLC

Northwest Environmental Consulting, LLC
600 North 36th Street, Suite 423
Seattle, WA 98103
206-234-2520

March 2023

Purpose

The purpose of this report is to fulfill the requirements of City of Mercer Island Municipal Code (MICC) 19.13 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.”

Permits are being applied for a dock extension and associated moorage improvements.

Location

The subject property is located at 4452 Ferncroft Road (King County parcel number 0046100405) in the City of Mercer Island, Washington (see Appendix A – Sheet 1 of 10). 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.

Project Description

A new dock is proposed at the waterfront residence. The new dock will be constructed by driving 18 (12 6-inch and 6 8-inch) epoxy coated steel piles to support the new dock above the water. Two 6-inch piles will be driven landward of the OHWM to support part of the structure over the shoreline. The dock superstructure will be constructed on the pilings and the new 552 square foot (528 square feet overwater) dock will be fully grated.

The proposed construction also includes removal of 315 square feet of wood decked dock from the adjacent shared use dock. Removal also includes relocation of one of the bottom base lifts and removal of a second bottom based lift and 220 square foot opaque canopy. 9 13-inch timber piles will also be removed and a single 10-inch epoxy coated steel pile will be driven to support the existing dock. See Appendix A – Sheets 2 of 10 to 10 of 10.

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

A shoreline vegetation plan is proposed, that will add 2 native conifers and 3 native shrubs. These shoreline plantings will provide shade and allow beneficial allochthonous material to enter the lake along the shoreline. Existing vegetation will be persevered to the extent practicable. See Appendix A – Sheet 2 of 10.

Project drawings are included in Attachment A.

Approach

Northwest Environmental Consulting LLC (NVEC) biologist Brad Thiele conducted a site visit on March 10, 2023 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 a shoreline tract in a residential neighborhood. It has shoreline on its western boundary with single-family homes to the north and south along the shoreline.

The only existing structure on the property is the house.

The shoreline is lawn with some ornamental shrubs up to the landward side of a concrete tiered bulkhead. The uplands are maintained with lawn and an ornamental hedgerow is present where the proposed dock will be placed. The substrates along the shore are sand with gravel. No aquatic vegetation was present at the time of the site visit.

The neighboring shorelines are landscaped similarly with docks. See attached photos in Appendix B- Photos.

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. Juveniles migrate and may rear in the waters near the project when traveling from spawning sites on other lake tributaries to the lake's outlet at the Hiram M. Chittenden Locks. The project site is accessible to any fish migrating or rearing in the lake. The shoreline is mapped as a sockeye salmon spawning location.

Priority Habitats and Species mapping does not list any priority species or habitats within 1,000 feet of the project other than Lake Washington as mentioned above.

The Mercer Island GIS does not show any environmental layers at the location.

Project Impacts and Conservation Measurements

Direct Impacts:

Sediments: Sediment disturbance may occur below the OHWM during pile installation, removal, and relocation and removal of the boat lifts. Additionally, the tug and barge propwash may disturb sediments temporarily when making trips to and from the site.

Impacts to sediments should be minimal from installation of the pilings and lifts and are

expected to stay within State Water Quality Standards.

Shoreline: Planting native vegetation, including native trees and shrubs, 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 proposed planting plan is included, see Appendix A sheet 3 of 10.

Lakebed: Construction of the dock construction includes driving 16 (12 6-inch, 6 8-inch and 1 10-inch) epoxy coated steel piles and removing 9 13-inch timber piles resulting in restoring 3.3 square feet of lake bottom.

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 in larger numbers.

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 a trained crew will be onsite that will implement spill containment measures should a spill occur.

Shading: The proposed dock will increase overwater coverage by 651 square feet. The proposed decking will be ThruFlow grated decking. Grated decking allows light to penetrate the waters below the dock, which can increase productivity in the water column 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 these hard shadows limits their ability to effectively hunt salmonids. In addition, hard shadowing may increase juvenile salmonid outmigration times when encountered along the shoreline.

ThruFlow grated decking has a measured performance at 43 percent light penetration (ThruFlow, 2021). Thus, the increase in lighting under the pier is effectively 57% of the area of a solid decked structure. Table 1 provides a summary of effective coverage:

Table 1 – Effective coverage

	Existing/ Proposed	Proposed grated	Conversion	Effective coverage	Reduction in effective coverage
New Grated Dock (SF)	0	528	0.57	301	227

The use of grated decking at the site reduces the effective coverage of the new structure by 2227 square feet. Removal of a portion of the shared use dock will reduce overwater coverage by an additional 315 square feet. Removal of the boat lift with opaque boat cover will remove and additional 220 square feet of overwater coverage. Using boat lifts to lift watercraft out of the water reduces shading under the boat that would otherwise be tied to the dock.

The dock has been designed to be only 4 feet wide and will place moorage more than 100 feet from shore. Juvenile salmonids often follow the shoreline while migrating so placing the moorage away from shore is least impacting to the salmonid using the Lake.

Recreational Boating: The project supports continued recreational boating, which has been identified as a limiting factor for salmonid populations in Lake Washington. The pier 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 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. 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 supplies 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 temporary impacts from noise and disturbed sediments during construction. Construction disturbance will degrade ecological conditions at the site in the short term and long term by increasing overwater coverage at the site.

The dock will use grated decking to minimize the effective overwater coverage to a net gain of 301 square feet. This will be offset by removing 315 square feet of the existing wooden decked shared dock. In addition removal of the opaque boat cover will reduce overwater coverage by 220 square feet. Using grated decking reduces the hard shadows favored by salmonid predators and increases productivity under the pier.

In addition, the new moorage is in deeper water more than 100 feet from shore. Overwater structures may slow juvenile salmonid outmigration times. Constructing the new moorage away from shore will reduce the chances of delaying outmigrating juvenile salmonids.

The project will restore about 3.3 square feet of lakebed from net installation and removal of pilings.

The project will minimize construction effects on the environment by following the prescribed fish window and using applicable BMPs to prevent construction spills, turbidity, and floating debris from escaping the area. The construction crew will retrieve all dropped items from the bottom and dispose of them properly. The effects of construction will be short term.

A shoreline planting plan will be implemented that will preserve an existing western red cedar, add 2 hooker willow and 4 native shrubs to the shoreline that will provide natural shading, allochthonous food sources and will eventually be a source of woody materials that will improve shoreline conditions at the site in the long-term.

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.**

Document Preparers

Brad Thiele Biologist 29 years of experience Northwest Environmental Consulting, LLC (NVEC)

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

King County. 2022. King County iMap. Online database. Accessed March 2023 at <https://gismaps.kingcounty.gov/iMap/>

Washington Department of Fish and Wildlife (WDFW). 2023. Priority Habitats and Species. Online database. Accessed March 2023 at <http://apps.wdfw.wa.gov/phsontheweb/>

WDFW. 2022. SalmonScape. Online database. Accessed March 2023 at <http://apps.wdfw.wa.gov/salmonscape/>

Appendix A: Project Drawings

PROJECT INFORMATION

OWNERS

O'NEIL GENERATIONAL TRUST

DRAWINGS BY:

ECCO DESIGN INC.
7413 GREENWOOD AVE. N.
SEATTLE, WA 98103
206.706.3937

SITE ADDRESS

4452 FERNCROFT RD
MERCER ISLAND WA 98040

PARCEL

004610-0405

LEGAL DESCRIPTION:

ADAMS LAKE WASHINGTON TRS POR OF N 70 FT OF S 87.88 FT OF 5 E OF LN RNNG N 00 DEG 43 MIN 30 SEC W FR PT ON S LN OF N 22.12 FT OF 6 THAT IS N 89 DEG 16 MIN 30 SEC E 314.41 FT FR C/L OF 30 FT ESMT & SH LDS ADJ

BASE ZONE: R-15

USE: SINGLE FAMILY RESIDENTIAL

LOT AREA: 16,100 SF

DESCRIPTION OF WORK

REMOVE A PORTION OF THE EXISTING SHARED FIXED PIER (APPROX. 315SF) AND ASSOCIATED WOOD PILES (NINE TOTAL). DRIVE ONE NEW PILE AT WATERWARD END OF THE EXISTING PIER TO SUPPORT THE RECONFIGURED STRUCTURE. REMOVE ONE EXISTING BOTTOM BASED BOATLIFT AND CANOPY. RELOCATE ONE EXISTING BOTTOM BASED BOATLIFT TO THE NEW PIER. INSTALL NEW FULLY GRATED SINGLE FAMILY PIER (APPROX. 528SF OVERWATER) & 552SF TOTAL. INSTALL NEW NATIVE SHORELINE PLANTINGS.

VICINITY MAP



GENERAL NOTES:

- 1) IT IS THE CONTRACTORS RESPONSIBILITY TO HAVE A LOCATE COMPLETED AND CALL BEFORE YOU DIG.
- 2) IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY FINAL LOCATION OF ALL STRUCTURES PRIOR TO INSTALLATION

PURPOSE: Boat Moorage

NAME: O'Neil Generational Trust

PROPOSED: New Pier & Reconfigure (E) Pier

DATUM: 21.8' EST. By Corp of Engineers, 1919.

REFERENCE #:

IN: Lake Washington

ADJACENT PROPERTY OWNERS:

SITE LOCATION ADDRESS:
4456 Ferncroft Rd
Mercer Island, WA 98040

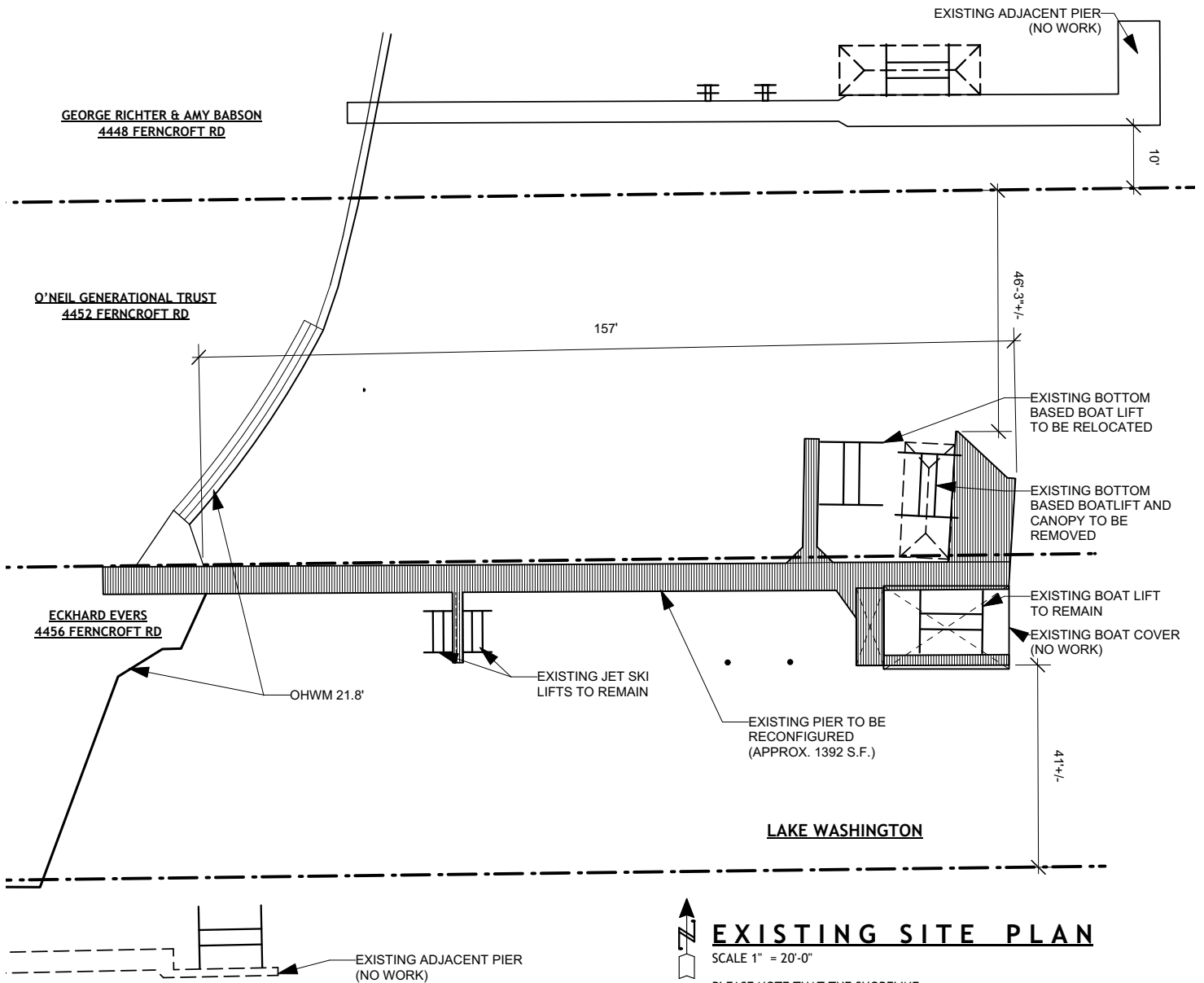
AT: Mercer Island

COUNTY: King **STATE:** WA

1. George Richter
2. Echard Evers

SHEET 1 of 10

DATE: February 17, 2023



Reference:
Applicant: O'Neil Generational Trust

Proposed: New Pier & Recon. (E) Pier
At: Mercer Island, WA

GEORGE RICHTER & AMY BABSON
4448 FERNCROFT RD

O'NEIL GENERATIONAL TRUST
4452 FERNCROFT RD

ECKHARD EVERS
4456 FERNCROFT RD

EXISTING ADJACENT PIER
(NO WORK)

(E) RED CEDAR TREE
TO REMAIN

OHWM 21.8'

132'-0"

4'-0"

OHWM 21.8'

NEW FULLY GRATED PIER
STRUCTURE 552SF
TOTAL (528SF
OVERWATER)

REPOSITION EXISTING
BOTTOM BASED
BOATLIFT

REMOVE EXISTING BOX ALDER
SHRUB IN THIS LOCATION IN
ORDER TO INSTALL NEW
PLANTINGS

EXISTING BOTTOM
BASED BOAT LIFT
TO BE RELOCATED

AREA OF (E) PIER TO
BE REMOVED - 315SF
& NINE EXISTING
WOOD PILES
EXISTING BOTTOM
BASED BOATLIFT
AND CANOPY TO BE
REMOVED

ONE 10" DIA. PILE TO BE
ADDED TO SUPPORT THE
END OF THE (E) PIER

EXISTING BOAT
LIFT TO REMAIN

EXISTING
BOAT COVER
(NO WORK)

SEE
ENLARGED
SITE PLAN

OHWM 21.8'

EXISTING JET SKI
LIFTS TO REMAIN

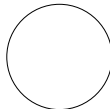
EXISTING
RECONFIGURED PIER
(APPROX. 1077 S.F.)

4'-1"±

LAKE WASHINGTON

EXISTING ADJACENT PIER
(NO WORK)

PLANT SCHEDULE



(1) ONE EXISTING
WESTERN RED CEDAR
TREE TO REMAIN



(1) ONE AMELANCHIER
ALNIFOLIA SERVICEBERRY
(5 GALLON)



(3) HOLODISCUS DISCOLOR
OCEAN-SPRAY (1 GALLON)



(2) HOOKER WILLOW SHRUB -
(SALIX HOOKERIANA) @ 5' O.C.



OPTION TWO

SCALE 1" = 30'-0"

PLEASE NOTE THAT THE SHORELINE CONFIGURATION AND
PROPERTY LINE LOCATIONS ARE APPROXIMATE ONLY.
PROPERTY LINES WERE NOT SURVEYED.

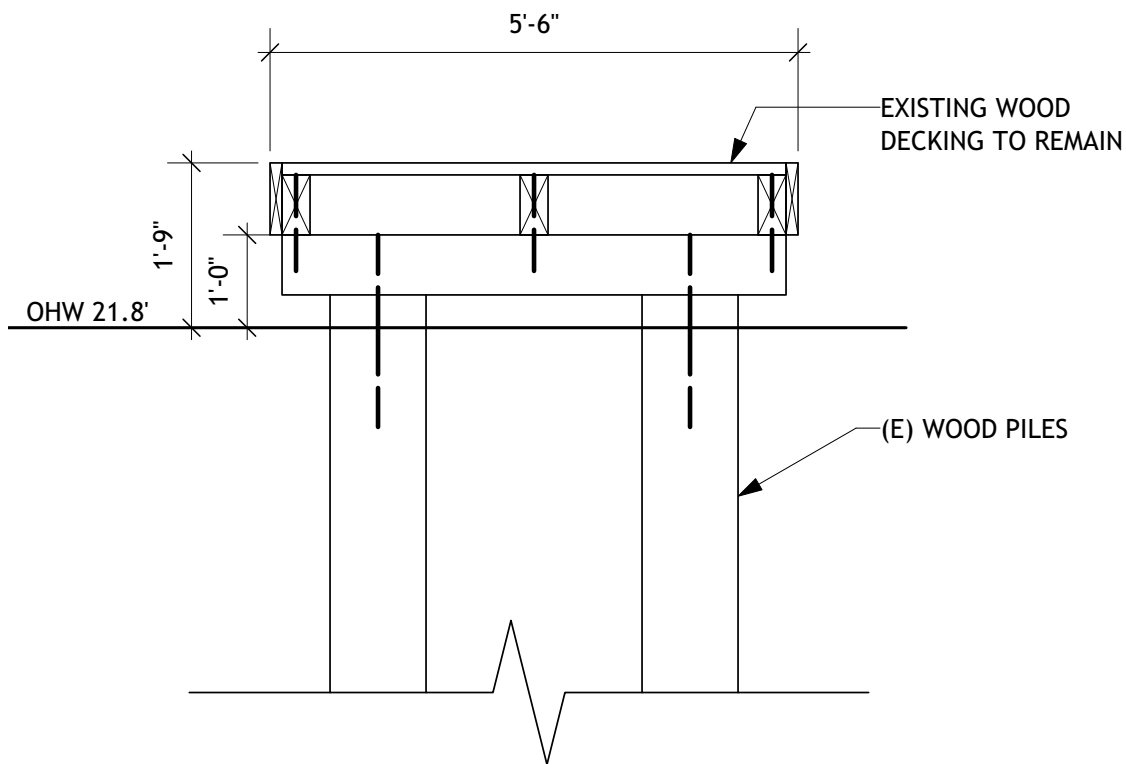
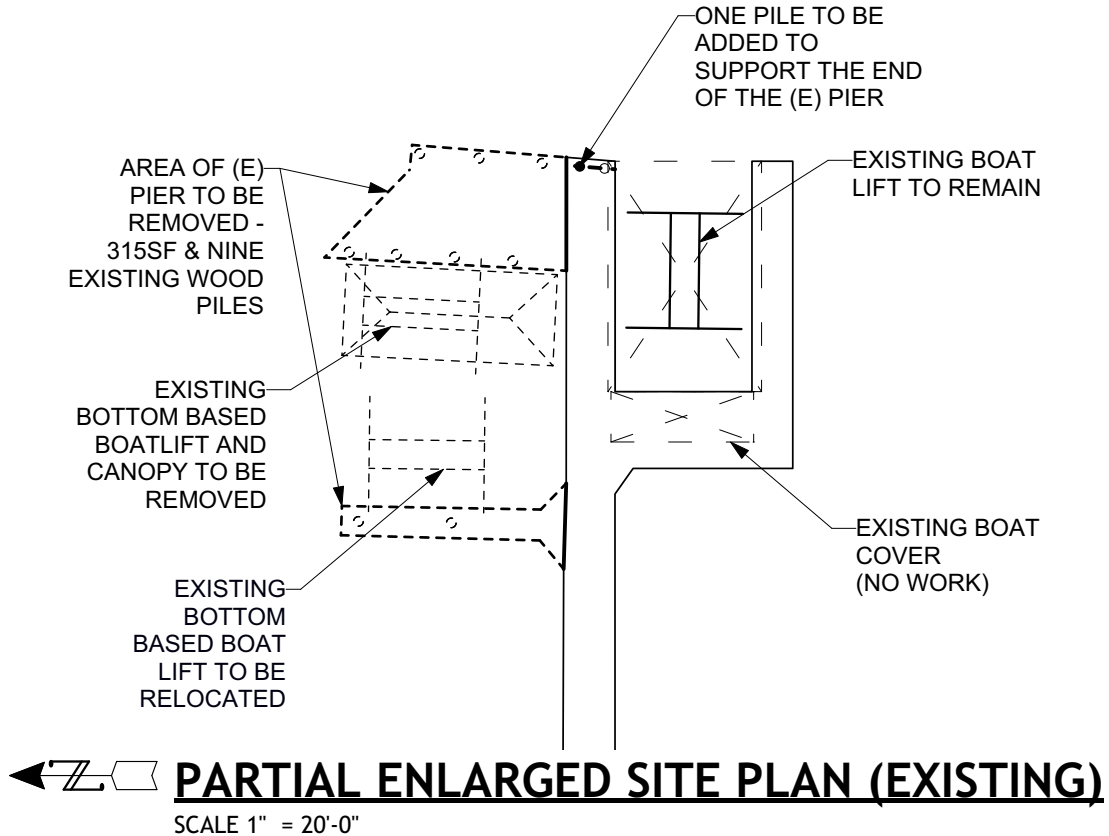
DEPTH AT END OF PIER WAS RECORDED BY MARKER OFF
SHORE ON 12/17/2021

Reference:

Applicant: O'Neil Generational Trust

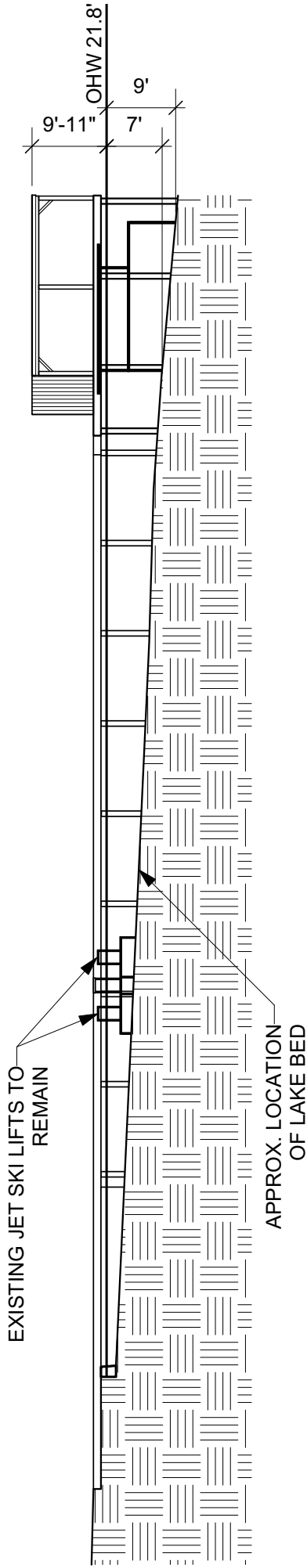
Proposed: New Pier & Recon. (E) Pier

At: Mercer Island, WA



Reference:
Applicant: O'Neil Generational Trust

Proposed: New Pier & Recon. (E) Pier
At: Mercer Island, WA



SOUTH ELEVATION (EXISTING PIER)

SCALE 1" = 20'-0"

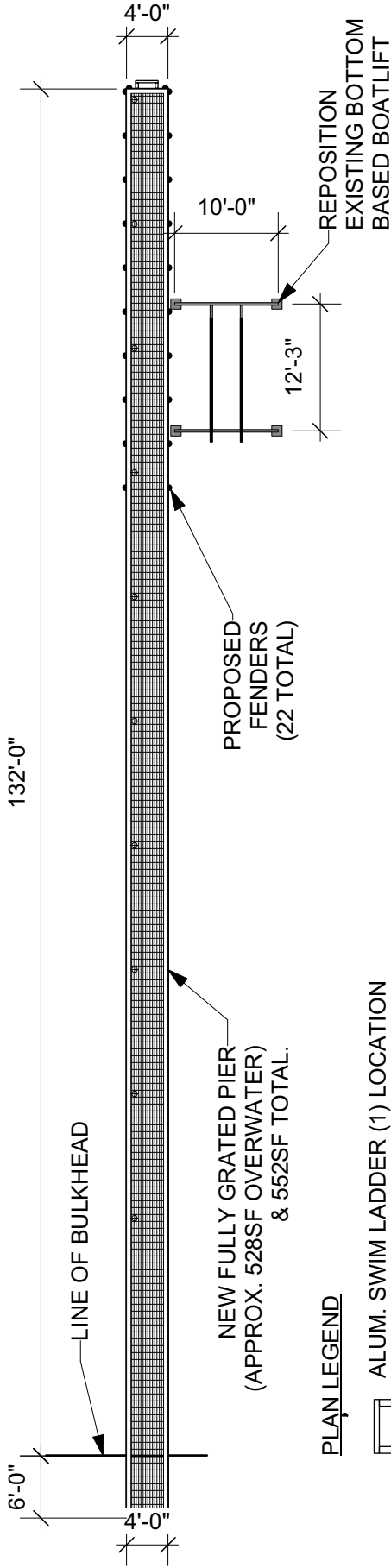
Reference:

Applicant: O'Neil Generational Trust

Proposed: New Pier & Recon. (E) Pier

At: Mercer Island, WA

Sheet 5 of 10 **Date:** 2/17/2023



NOTE: ARTIFICIAL NIGHT LIGHTING ON AND FROM OVERWATER STRUCTURES MUST BE MINIMIZED BY FOCUSING THE LIGHT ON THE PIERS SURFACE, AND USING SHADES THAT MINIMIZE ILLUMINATION OF THE SURROUNDING ENVIRONMENT AND REDUCES GLARE ON THE WATER SURFACE. THE VISIBLE LIGHT EMITTED BY AN INDIVIDUAL FIXTURE SHALL NOT EXCEED 450 LUMENS, AND THE TOTAL VISIBLE LIGHT EMITTED BY ALL FIXTURES ON A PIER SHALL NOT EXCEED 2,700 LUMENS

PLAN LEGEND

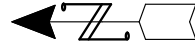
ALUM. SWIM LADDER (1) LOCATION

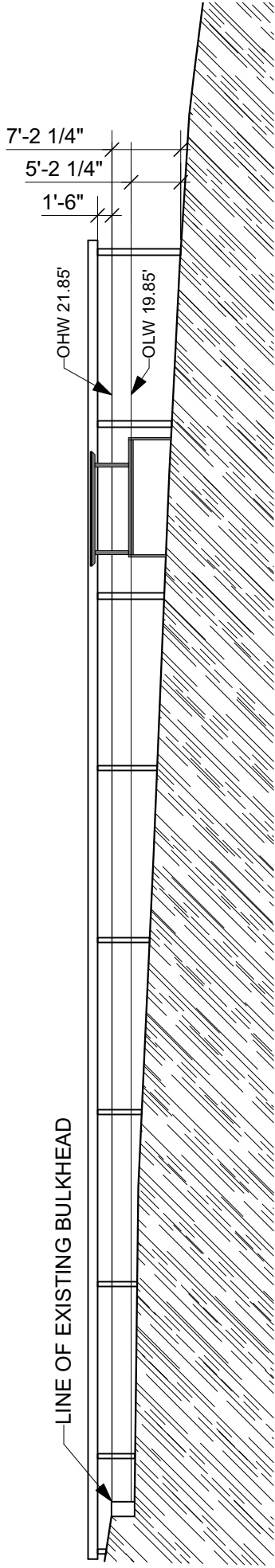
FENDERS 5"X5", TYP. 22 LOCATIONS

DOCK LIGHT (EPL1 OR 3) DEPENDING ON LOCATION - CONFIRM LIGHT MEETS SPECIFICATIONS BELOW, TYP. (10) LOCATIONS.

PROPOSED PIER PLAN

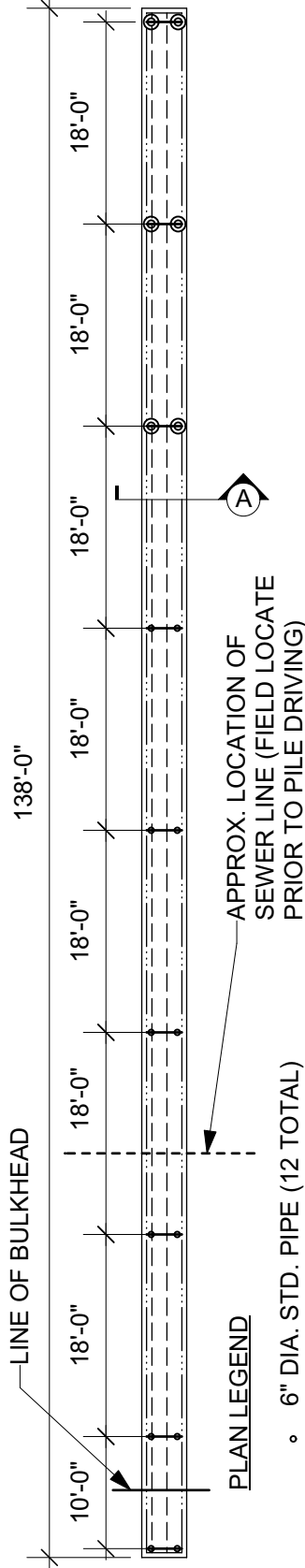
SCALE 1/16" = 1'-0"





PROPOSED ELEVATION

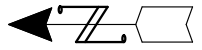
SCALE 1/16" = 1'-0"



PLAN LEGEND

- 6" DIA. STD. PIPE (12 TOTAL)
(note that two are upland of bulkhead)
- ⊙ 8" DIA. STD. PIPE (6 TOTAL)

GENERAL NOTE:
PILES DRIVEN WITH HYDRAULIC HAMMER TO REFUSAL OR A MIN. OF 15'-0" EMBEDMENT. REFUSAL IS DEFINED AS LESS THAN ONE INCH OF PENETRATION PER ONE MINUTE OF CONTINUOUS JACKING

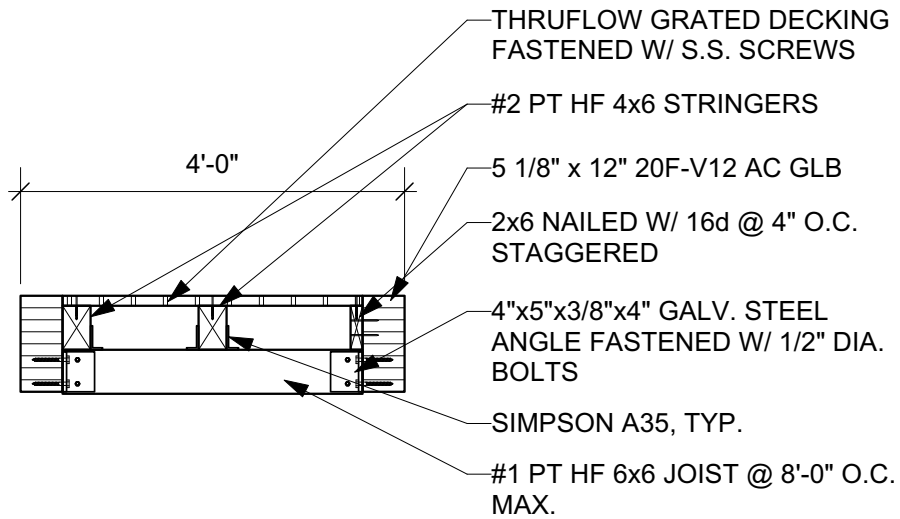


PROPOSED FRAMING PLAN

SCALE 1/16" = 1'-0"

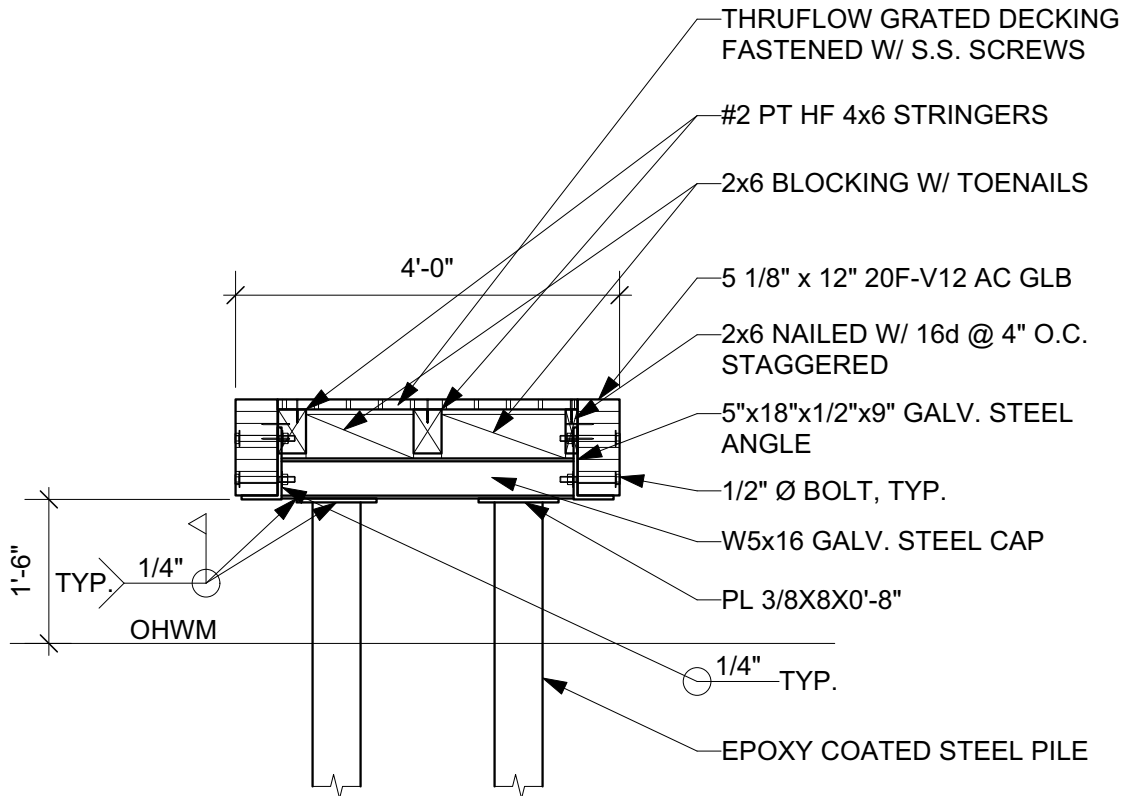
Reference: O'Neil Generational Trust
Applicant: O'Neil Generational Trust

Proposed: New Pier & Recon. (E)Pier
At: Mercer Island, WA



MIDSPAN SECTION - B

SCALE 1/2" = 1'-0"



PILE CAP SECTION - A

SCALE 1/2" = 1'-0"

Reference:

Applicant: O'Neil Generational Trust

Proposed: New Pier & Recon. (E)Pier

At: Mercer Island, WA

Sheet 8 of 10 **Date:** 2/17/2023

GENERAL NOTES

- A. These notes are in abbreviated form. The intent is to further define those areas of work not clearly delineated on the drawings. The quality of workmanship throughout should be first class and all materials shall meet or exceed the normal industry standards applicable in each case.
- B. All work is to be performed in strict compliance with applicable provisions of prevailing local, state, and federal code ordinances, including appropriate licensing laws including local amendments.
- C. Notify and consult with Owner and Permit Agent if discrepancies are found between drawings and/or on site conditions and/or building or zoning requirements prior to start of work.
- D. Contractor to physically inspect site prior to commencing any work. Report any discrepancy to Owner and Permit Agent. Contractor to review construction documents prior to commencing construction. Any questions should be directed to owner and permit agent. Contractor to crossreference with city approved plans for any changes and/or additional requirements by city.
- E. Area measurements: area is measured from the perimeter of each floor/space within the footprint of the structure and is inclusive of all open areas, stairways, stairwells and basement stem walls, at each level. Projections such as bay windows are also included in heated area calculations. Interior walls separating heated and unheated enclosed space is measured from the exterior of conditioned space.
- F. Do not scale drawings. During the reprographic process, proportions may have been altered. Use written dimensions. Where conflicts exist, notify the permit agent immediately. Written dimensions take precedence.
- G. Contractor to maintain in force at all times, insurance as required by Article II of the General Conditions of the Contract for Construction, AIA Document A201.
- H. The Contractor should carry all insurance required by law.
- I. Contractor is solely responsible for all construction means and methods and shall maintain the structural integrity of any construction until all final lateral and vertical load carrying systems are completed. Approvals from the permit agent do not extend to approval of construction means and methods.
- J. Drawings are for a complete installation with fully-functional assemblies. Contractor is to field verify all dimensions and conditions prior to any work, and shall be responsible for all work and materials including those finished by subcontractor.
- K. All information contained in these documents represents a "basic limited architectural service" that requires the contractor to be knowledgeable and experienced with all aspects of construction including all building codes and regulations imposed by the city or county and any other agency having jurisdiction over the project.
- L. All work shall comply with the state and local ordinances and shall be done to the highest standards of craftsmanship by journeymen of the respective trades.
- M. Safety, care of adjacent properties during construction, compliance with local, state, federal regulations regarding safety on site shall be the contractors responsibility.
- N. No deviations from these documents shall be made without written approval from the owner and permit agent. Any changes can affect the structural integrity and code related issues of the structure.
- O. All information contained in these documents is for the purpose of construction permit acquisition and construction only. The information provided is not intended for any other purpose and no other use is intended or implied. e.g. plan information is not intended to be used as a base for sale or transfer of real estate.
- P. Unless otherwise specified, electrical, mechanical, etc. is bidder designed. Owner and/or agent (contractor) is responsible for all work done on site (field) as to proper installation etc.
- Q. The permit agent may assist in coordination with consultants (such as soils, structural, civil engineers etc.) but under the terms of basic limited service, receives no compensation for, and assumes no responsibility or liability for the area of their (consultants) work and expertise.

Acceptance of these plans for construction constitutes an understanding of above mentioned terms and basic limited architectural service as described in agreement between owner/permit agent.

Reference:

Applicant: O'Neil Generational Trust

Proposed: New Pier & Recon. (E)Pier

At: Mercer Island, WA

Sheet 9 of 10 Date: 2/17/2023

GENERAL NOTES - CONT.

GENERAL REQUIREMENTS

- A. Provide all required temporary facilities and all temporary utilities as required. Contractor is responsible for all costs associated with temporary facilities and temporary utilities.
- B. Construction Barricades: Provide construction barricade as required to keep public and employees safe, following all applicable federal, state and city codes and regulations.

DRAWINGS / PERMITS BY OTHERS:

It is the contractor's responsibility to provide additional drawings and permits as required to complete the project. The following list is by no means meant to be comprehensive, rather suggestive of the possible types of additional permits, drawings, and submittals that may be required during the course of the project. Depending on the project, some of the following permits, drawings, and submittals could come up including others not listed below:

- Provide information to City regarding disposal of materials.
- Provide Design / obtain Permit for any required Shoring work.
- Provide Drawings / obtain Permit for Plumbing work.
- Provide Drawings / obtain permit for Electrical work.
- Obtain permit for Storm Sewer design and hook-up
- Apply and pay for any required Water Meters.
- Obtain separate permits for Demolition, accessory buildings, and retaining walls.
- Any deferred submittals shall be submitted to the Building Department for review and approval.

Reference:

Applicant: O'Neil Generational Trust

Proposed: New Pier & Recon. (E)Pier

At: Mercer Island, WA

Sheet 10 of 10 Date: 2/17/2023

Appendix B: Site Photographs



Photo 1 - Existing conditions where new dock is proposed. Note section of pier to be removed from adjacent dock.



Photo 2 - Existing shoreline conditions.