Ecological No Net Loss Assessment Report

Prepared for

Aqua Dock
6855 West Mercer Way
Mercer Island, WA 98040

Prepared by

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

January 2024

Purpose

The purpose of this report is to fulfill the requirements of City of Mercer Island Municipal Code 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 repairs and associated moorage improvements.

Location

The subject property is located at 6855 West Mercer Way (King County parcel number 2524049080) 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.

Project Description

The proposed work will remove 289 square feet of the existing western dock and the deck from the remaining part of the 548 square foot structure (536 square feet overwater). The existing timber piles (1 8-inch, 1 10-inch, 2 16-inch) will be repaired by pile splicing, the remaining 16 (2 6-inch, 5 8-inch, 6 10-inch, 2 12-inch, and 1 16-inch) timber piles will be removed. A total of 12 epoxy coated steel piles will then be installed with a vibratory hammer. The dock will be reconfigured into slightly deeper water and the entire new 522-square-foot (510 square feet over water) deck will be decked with grated decking. A new 12-inch epoxy coated steel pile will be installed adjacent to the waterward end of the new dock extension. The existing boat lift will be relocated along the new reconfigured dock section. See Appendix A – Sheets 2.0 to 14.0.

During construction, a floating boom will surround the work barge and dock. (See Appendix A – Sheets 8.0)

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. (See Appendix A – Sheet 9.0 and 10.0).

Project drawings are included in Attachment A.

Approach

Northwest Environmental Consulting LLC (NWEC) biologist Brad Thiele conducted a site visit on January 16, 2024 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 in a residential neighborhood. It has shoreline on its western boundary with single-family homes on all other sides.

The only existing structure on the property is a single-family residence. The property has a shoreline consisting of a poured concrete and rock bulkhead with a sandy beach, planted vegetation, and two piers – the east pier and the west pier.

The substrate of the lake is sand and cobble. No milfoil was observed during the site visit.

The shoreline on the property has a beach cove in front of a poured concrete bulkhead with stairs on the north end of the property and a rock bulkhead on the south end of the property The property to the north has a poured concrete bulkhead and the property to the south has a rock bulkhead.

The property contains a grass lawn, stone walkways, a playset, and shoreline plantings. The property line to the north is planted with ornamental and native vegetation including a shore pine and native groundcovers. The middle of the shoreline has the entrance to the north pier, and is landscaped with Japanese maples, and ground covers. The south end of the shoreline a row of cedar trees and ornamental plantings. A weeping willow surrounded by the children's playset is present about 30 feet from the shore. The entrance to the south pier is at the south property line.

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 lakes system'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 spawning location.

Priority Habitats and Species mapping, maps a Freshwater Emergent Wetland mapped on the entire property and adjacent properties to the north, but no other priority habitats are directly associated with the project site for aquatic or terrestrial species. The site was lawn with some ornamental and native vegetation. No hydrology was observed along the shoreline except for the lake. The source of the wetland layer is based on the National Wetland Inventory based on

infrared aerial photography taken in 1981. This condition no longer appears to exist at the site. No upland work will occur as part of this proposal.

The City of Mercer Island GIS Portal does not indicate any watercourses at the site, but a piped watercourse in a 12-inch concrete pipe is mapped adjacent to the site. The watercourse will not be affected by the project.

Project Impacts and Conservation Measurements

Direct Impacts:

Sediments: Sediment disturbance could occur during pile splicing, removal, and installation. Additionally, the tug and barge propwash may disturb sediments temporarily when making trips to and from the site.

Pile work is not a considered a significant source of turbidity and the course sediments will not become suspended. The project will meet state water quality standards.

Shoreline: Planting native vegetation, including a western red cedar, shore pine and shrubs, will increase the habitat functions of the shoreline by creating natural 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 vegetation will be preserved. The proposed planting plan is included (see Appendix A – Sheet 9.0 and 10.0).

Lakebed: Piling repair will not change lakebed coverage. The proposed project includes removing 16 timber piles (2 6-inch, 5 8-inch, 6 10-inch, 2 12-inch, and 1 16-inch) restoring 8.4 square feet of lakebed. Eight 8-inch and 1 12-inch epoxy coated steel piles will be driven displacing 5.0 square feet of lakebed resulting in 3.4 square feet of lakebed being restored.

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 and other fluid spills that can occur with any equipment operation. The potential impact to the aquatic environment is minimized because a crew trained in spill containment measures will be present that will employ appropriate containment measurements should a spill occur.

Shading: Approximately 289 square feet of the existing 536 square foot overwater portion of the existing dock will be removed. The new dock section will be reconfigured into deeper water and the new reconfigured and remaining dock will be 510 square feet overwater decreasing overwater coverage by 26 square feet at the site.

The entire new deck 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
Existing Dock (SF)	536		n/a		
Proposed Dock (SF)		510	0.57	291	219
TOTAL (SF)	592	744		424	320

The use of grated decking at the site reduces the effective coverage of the reconfigured structure by 219 square feet at the site.

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.

In-lieu Fee: The shoreline on the subject property will be planted with native, overhanging vegetation. The project also 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 mitigation at the subject property required by NMFS 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 Water & Land Resources Division. This funding has been used to remove 350 derelict piles from the mouth of the Cedar River in Lake Washington.

Conclusion

Juvenile Chinook salmon, and other salmonids, rear and migrate along the Lake Washington shoreline. Lake Washington is a Shoreline of the State.

There will be temporary impacts from noise and disturbed sediments during construction.

The proposed 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.

The proposed project will maintain an overwater structure. Salmonid predators are known to use hard shadowing under solid-decked docks to ambush juvenile salmonids. In addition, hard shadowing may increase juvenile salmonid outmigration times when encountered along the shoreline.

The reconfigured dock will reduce overwater coverage by 26 square feet and extend the dock into deeper water away from the nearshore. The new deck will use grated decking to reduce the effective overwater coverage by 219 square feet. The grating reduces the hard shadows favored by salmonid predators and increases productivity under the pier. Using grated decking may reduce the chances of delaying outmigrating juvenile salmonids.

A shoreline planting plan will be implemented that will add 2 native trees and 3 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.

The owner has also opted to pay into the In Lieu Fee program that will be used for conservation projects that benefit salmon habitat in King County.

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**. Reducing the overwater structure and planting native trees and shrubs will **improve ecological functions** at the site.

Document Preparers

Brad Thiele	Biologist	30 years of experience	Northwest Environmental Consulting, LLC (NWEC)

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

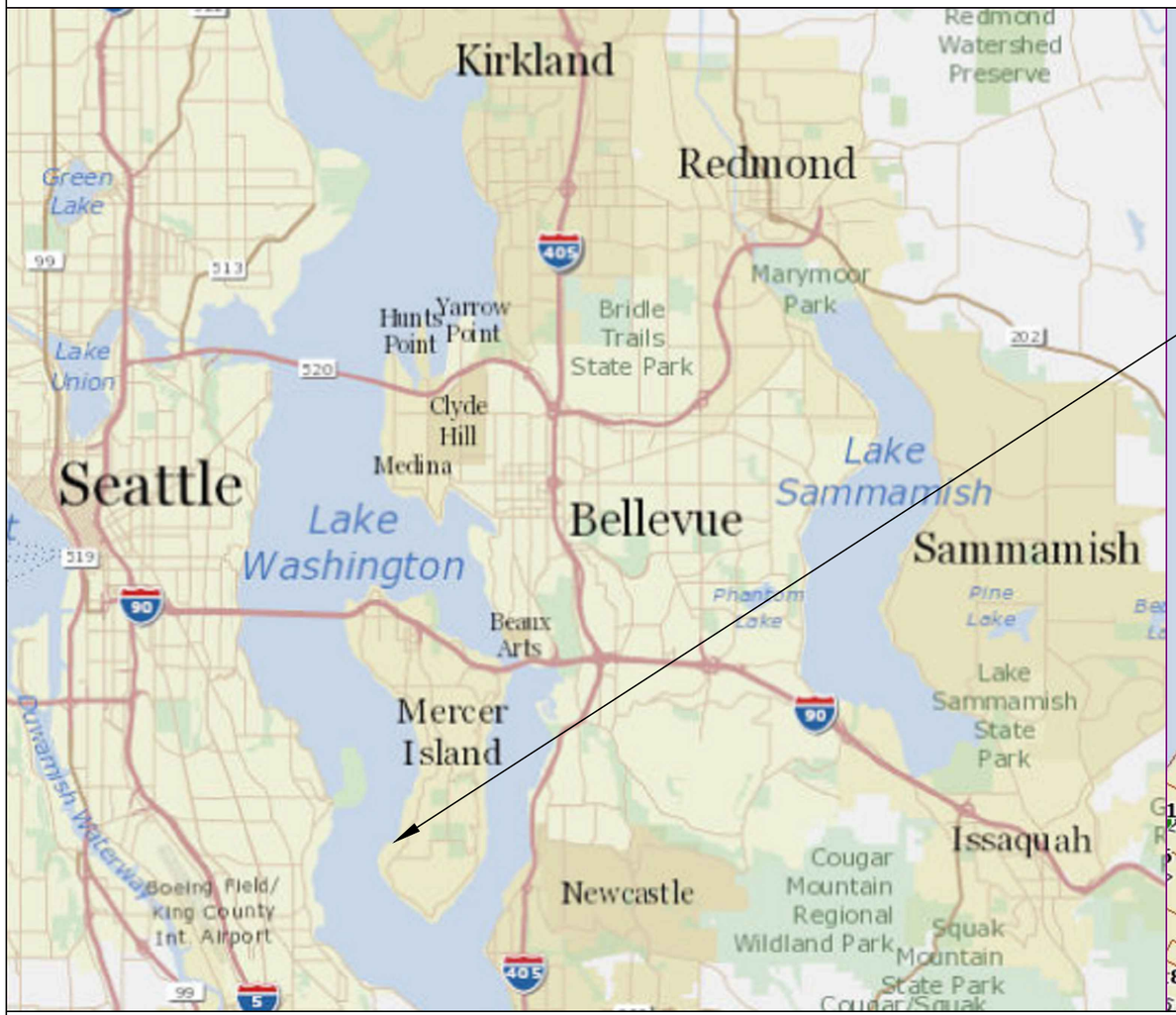
King County. 2024. King County iMap. Online database. Accessed January 2024 at https://gismaps.kingcounty.gov/iMap/

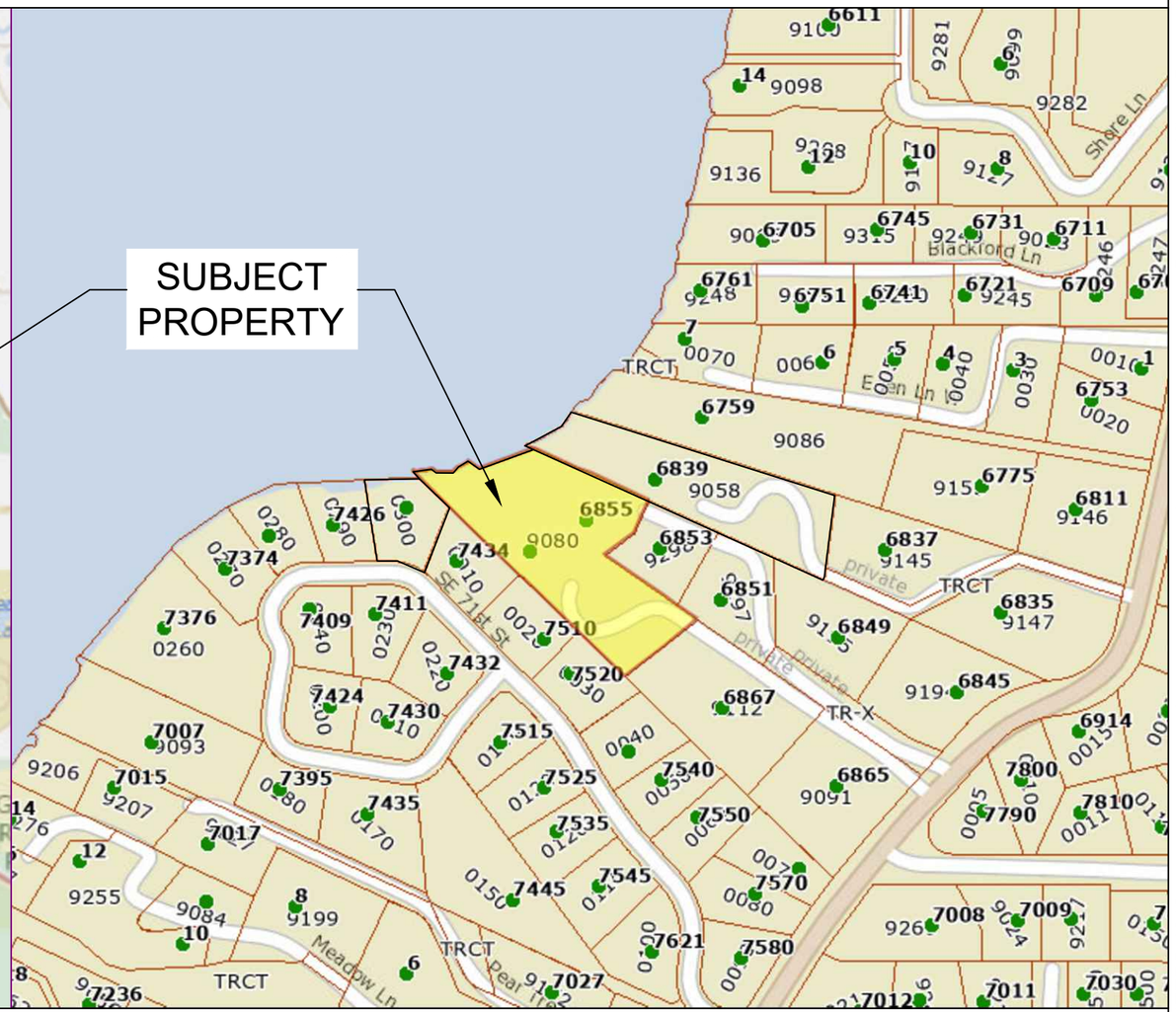
Washington Department of Fish and Wildlife (WDFW). 2024. Priority Habitats and Species. Online database. Accessed January 2024 at http://apps.wdfw.wa.gov/phsontheweb/

WDFW. 2024. SalmonScape. Online database. Accessed January 2024 at http://apps.wdfw.wa.gov/salmonscape/

Appendix A:
Project Drawings

SITE PLAN





Pin: 252404-9080

Legal Description: CONSOLIDATED LOT PER MERCER ISLAND LOT CONSOLIDATION # MI SUB 09-004 REC# 20091202900012 SD LOT DAF- LOT C-3 TGW UND INT IN TR X MI SP #85-06-16 REC #8511139001 TGW LOTS A & B MI SP #MI-79-03-08 REC #7911130595 BEING POR N 1/2 GLS 2 & 3 & S 1/4 OF GL 1 LY W OF MERCER WAY & NELY OF MCLEAN ADD TGW SH LDS ADJ
BUILDING 1

Plat Block:
Plat Lot:

Parcel	Dock
LAT: 47.54166	LAT: 47.541999
LONG: -122.23839	LONG: -122.239380

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Seaborn Pile Driving
1080 W Ewing St
Seattle, WA 98119

Office: 206-236-1700 ext. 5
www.seabornpiledriving.com

Scope of Work: We propose to remove 289 sqft of the existing dock, remove the existing moorage cover, relocate the existing boat lift, repair 259 sqft of the existing dock, install 263 sqft of new dock, drive (12) new piles, remove (16) existing piles, and drive (1) new mooring pile.

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Location: Lake Washington

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Last Updated: 12/18/2023 3:09 PM Shop

Datum: CORPS OF ENGINEERS 1919
SW Quarter Of Section 24, Township 14, Range 05

Adjacent Owners:
HAGSTROM COLLIN S+JILLIAN J
7428 SE 71ST ST 98040
WANG ZHUO+JUNE
6839 W MERCER WAY

SHEET 1.0

GENERAL NOTES:

MATERIALS SPEC LIST:

Boat Lifts: Aluminum
* SL10014ARW - 146" x 191"

Decking Material: FRPP - Fiberglass reinforced polypropylene
Light permeable percentage:
* Surface - 43%
* 18" Dock Height - 61%

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

Piles:
* All new piles are epoxy coated 8" steel piles
* Repair piles are done as a sleeve/strap method
* All Pile tops exposed will have a conical cap placed on top
* Piles are driven using the vibro method

Preservatives
* Structural Glued Laminated timber shall be alaskan cedar AC.AC. 20f-V12
* Wood Shall be seasoned dry with a maximum moisture content of 19%
* Preservative treated wood shall conform to the american wood protection association (AWP) UC4A. All wood shall bear a treatment identification mark by the certifying agency.

CODE REFERENCES: Mercer Island

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

"Development Standards for New and Expanded Moorage Facilities" per MIMC 19.13050(F)(1).

F. Moorage Facilities. All permits for new and expanded moorage facility, other than public access piers or boardwalks, shall meet the following standards unless otherwise exempted. Moorage facilities have the option of meeting either the development standards prescribed in subsection (F)(1) or (F)(2) of this section, or the "alternative development standards" in subsection (F)(3) of this section.
1. Development Standards for New and Expanded Moorage Facilities. A proposed moorage facility shall be presumed to not create a net loss of ecological functions pursuant to subsection (B)(2) of this section if:
i. The surface coverage area of the moorage facility is:

a. Four hundred eighty square feet or less for a single property owner;

b. Seven hundred square feet or less for two residential property owners (residential); or

c. One thousand square feet or less for three or more residential property owners;

ii. Piers, docks, and platform lifts must be fully grated with materials that allow a minimum of 40 percent light transmittance;

iii. Vegetation. The code official approves a vegetation plan that conforms to the following:

Ch. 19.13 Shoreline Master Program | Mercer Island City Code Page 27 of 34

The Mercer Island City Code is current through Ordinance 20C-13, passed June 16, 2020.

Vegetation must be planted as provided in Figure C and as follows: Within the 25-foot shoreline setback, a 20-foot vegetation area shall be established, measured landward from the OHWM. Twenty-five percent of the area shall contain vegetation coverage. The five feet nearest the OHWM shall contain at least 25 percent native vegetation coverage. A shoreline vegetation plan shall be submitted to the city for approval. The vegetation coverage shall consist of a variety of ground cover shrubs and trees, excluding nonnative grasses. No plants on the current King County noxious weed lists shall be planted within the shorelands. Figure C: Vegetation Plan

iv. Only docks, ramps, and boatlifts may be within the first 30 feet from the OHWM. No skirting is allowed on any structure;

v. The height above the OHWM for docks shall be a minimum of one and one-half feet and a maximum of five feet;

vi. The first in-water (nearest the OHWM) set of pilings shall be steel, 10 inches in diameter or less, and at least 18 feet from the OHWM. Piling sets beyond the first shall also be spaced at least 18 feet apart and shall not be greater than 12 inches in diameter. Piles shall not be treated with pentachlorophenol, creosote, CCA or comparably toxic compounds. If ammoniacal copper zinc arsenate (ACZA) pilings are proposed, the applicant shall meet all of the best management practices, including a post-treatment procedure, as outlined in the amended Best Management Practices of the Western Wood Preservers. All piling sizes are in nominal diameter;

vii. Any paint, stain or preservative applied to components of the dock must be leach resistant, completely dried or cured prior to installation. Materials shall not be treated with pentochlorophenol,

creosote, CCA or comparably toxic compounds; Ch. 19.13 Shoreline Master Program | Mercer Island City Code Page 28 of 34 The Mercer Island City Code is current through Ordinance 20C-13, passed June 16, 2020.

viii. No more than two mooring piles shall be installed per structure. Joint-use structures may have up to four mooring piles. The limits include existing mooring piles. Moorage piling shall not be installed within 30 feet of the OHWM. These piles shall be as far offshore as possible;

ix. The applicant shall abide by the work windows for listed species established by the U.S. Army Corps of Engineers and Washington Fish and Wildlife; and

x. 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.

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;

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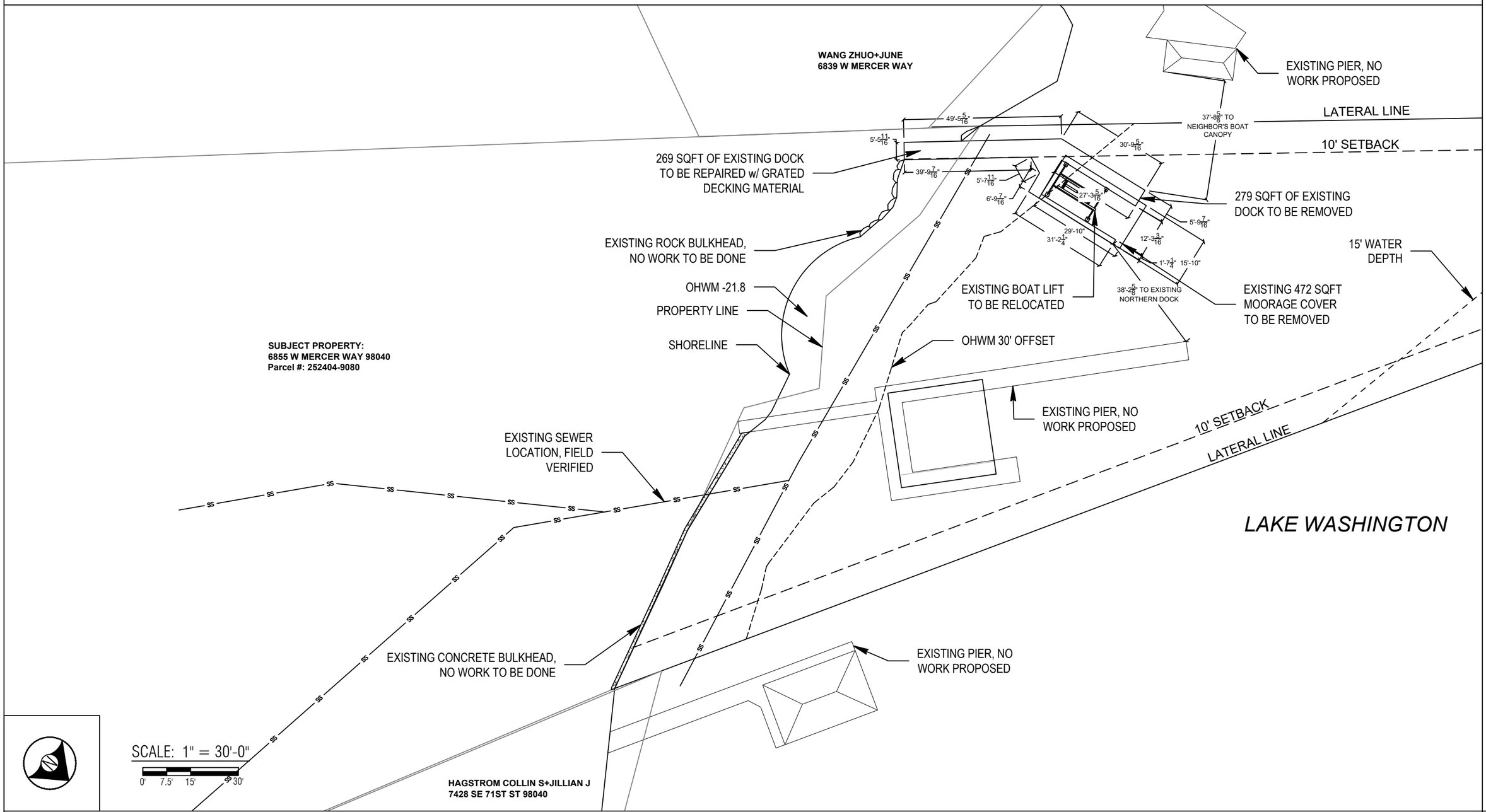
EXISTING CONDITIONS

CLEAN UP LAKE AROUND PROJECT



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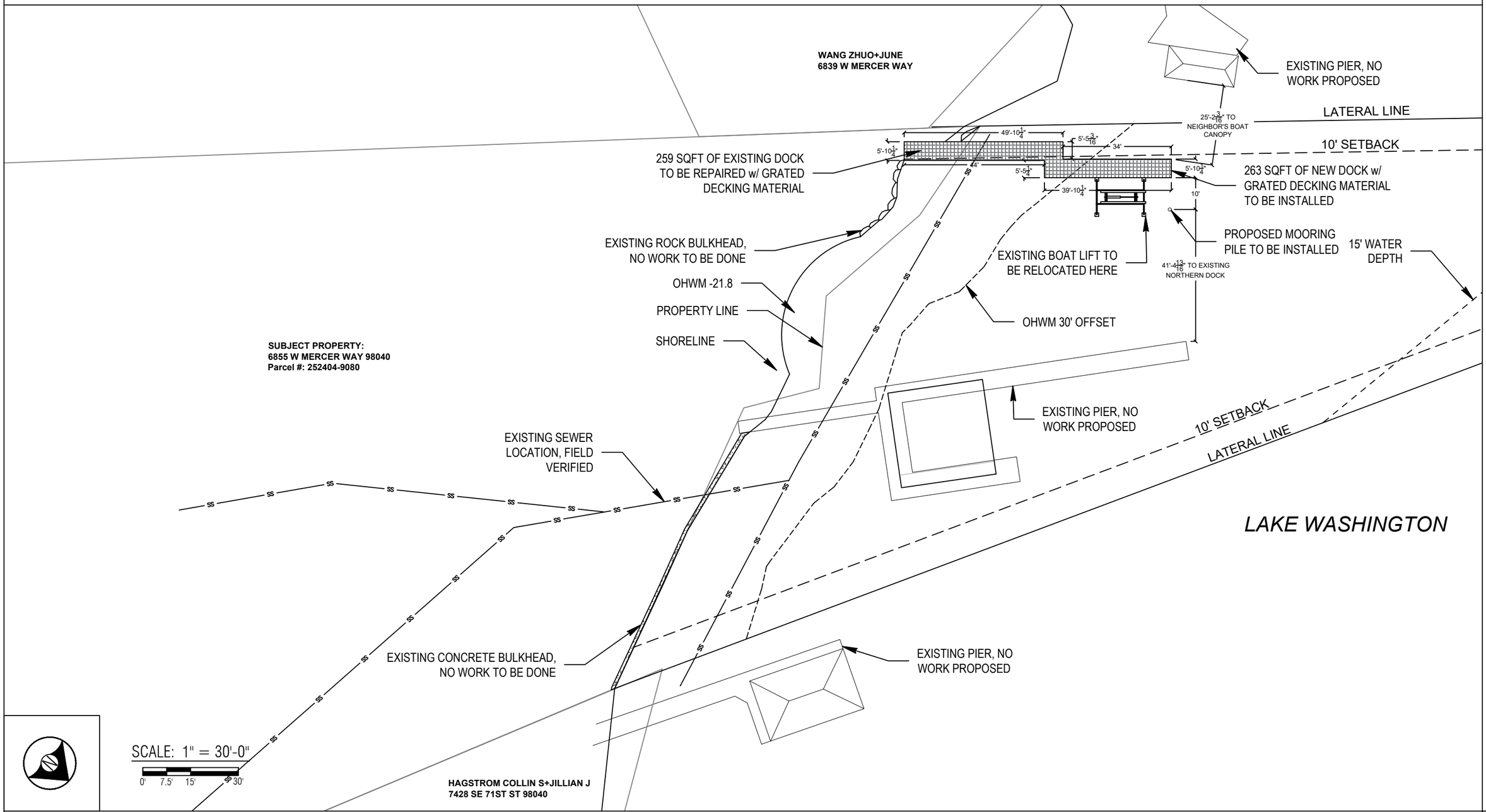
SHEET 3.0

PROPOSED CONDITIONS

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



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SHEET 4.0

PIER DETAILS - EXISTING PLAN VIEW

LEGEND

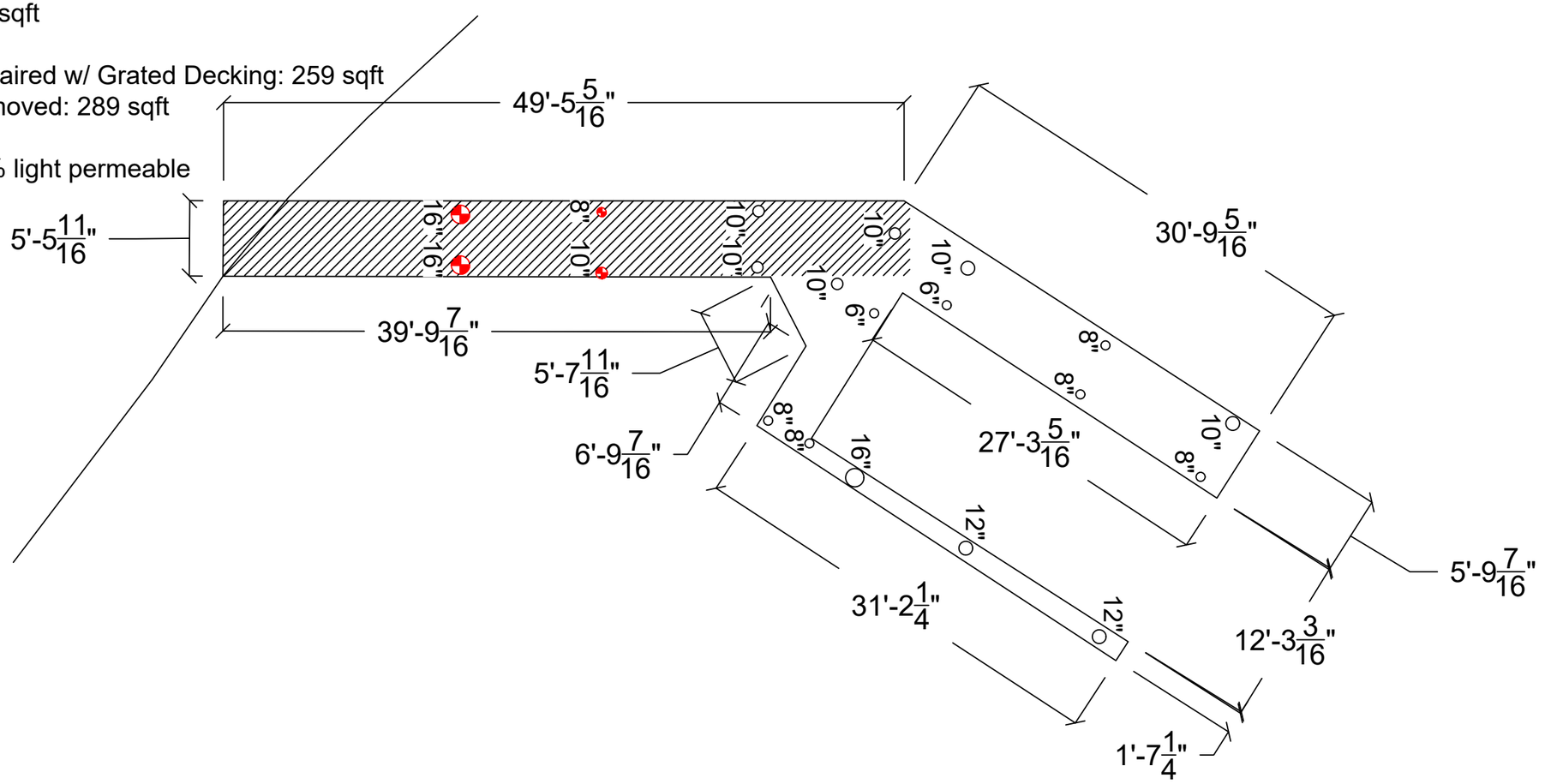
(4) EXISTING PILES - TO BE REPAIRED

(16) EXISTING PILES - TO BE REMOVED

Existing Pier Overwater: 536 sqft
Existing Pier Total: 548 sqft

Existing Pier To Be Repaired w/ Grated Decking: 259 sqft
Existing Pier To Be Removed: 289 sqft

**Grated decking is 43% light permeable



PLAN VIEW

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SHEET 5.0

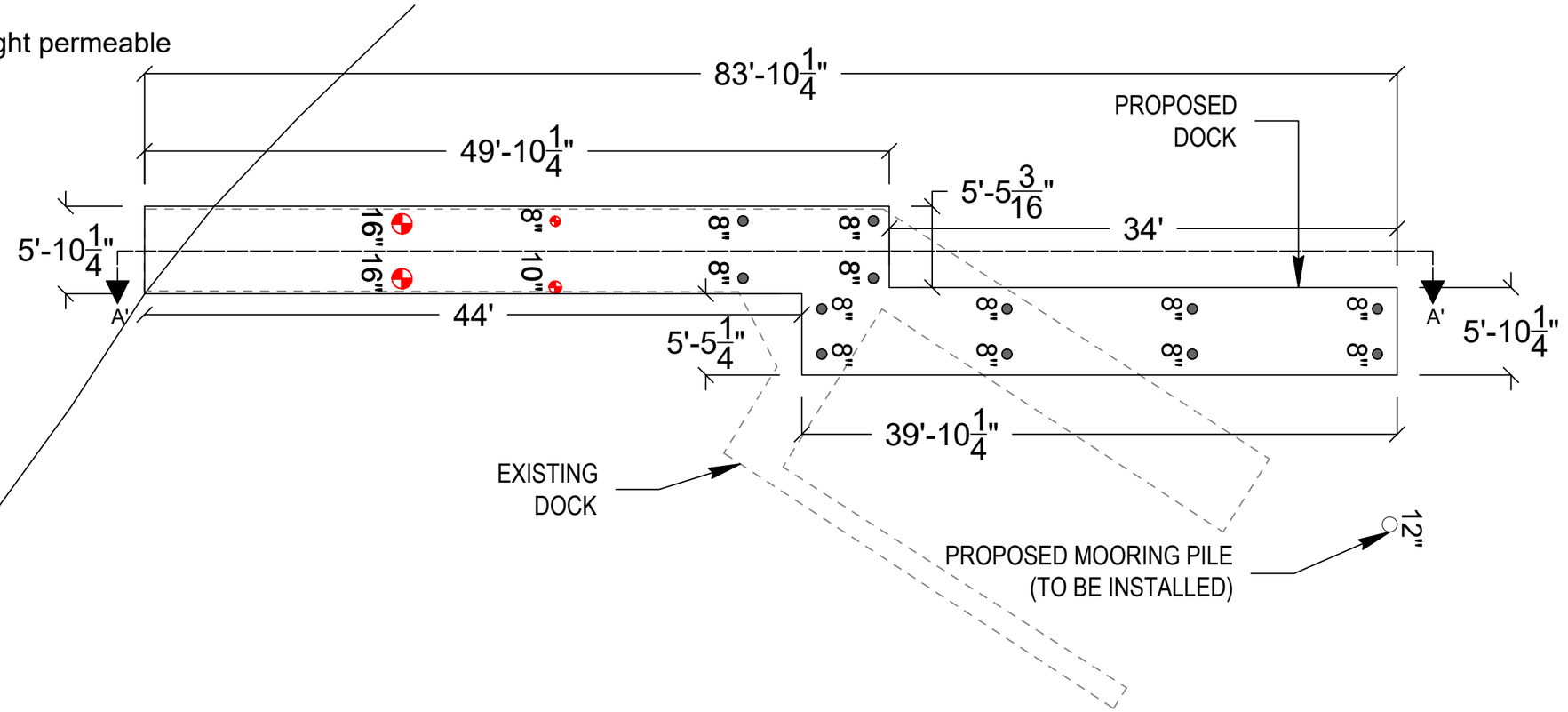
PIER DETAILS - PROPOSED PLAN VIEW

LEGEND

- (4) EXISTING PILES - TO BE REPAIRED
- (12) PROPOSED STEEL PILES - TO BE ADDED
- (1) PROPOSED MOORING PILE - TO BE ADDED

Proposed Pier Overwater: 510 sqft (GRATED DECKING MATERIAL)
Proposed Pier total: 522 sqft (GRATED DECKING MATERIAL)

**Grated decking is 43% light permeable



PLAN VIEW

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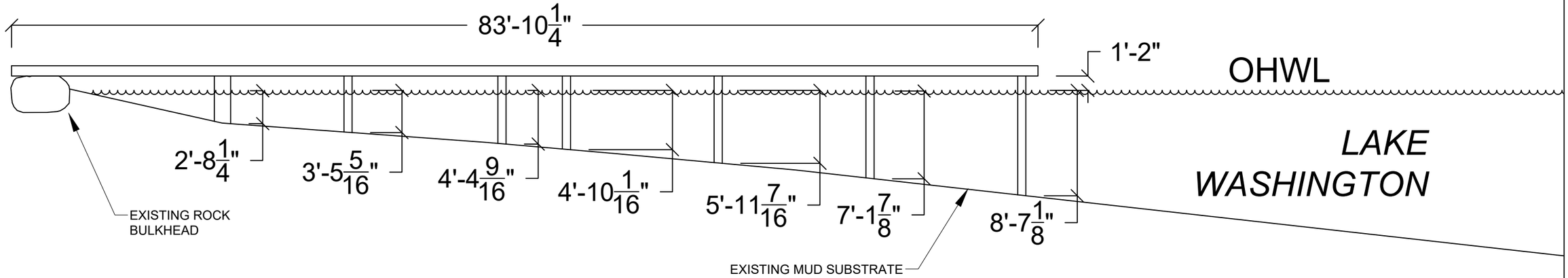
SHEET 6.0

PIER DETAILS EXISTING/PROPOSED - SECTION VIEW



SECTION VIEW: A'-A'

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County: King County
Location: Lake Washington

Applicant: Aqua Dock
6855 W. Mercer Way
Mercer Island, WA 98040

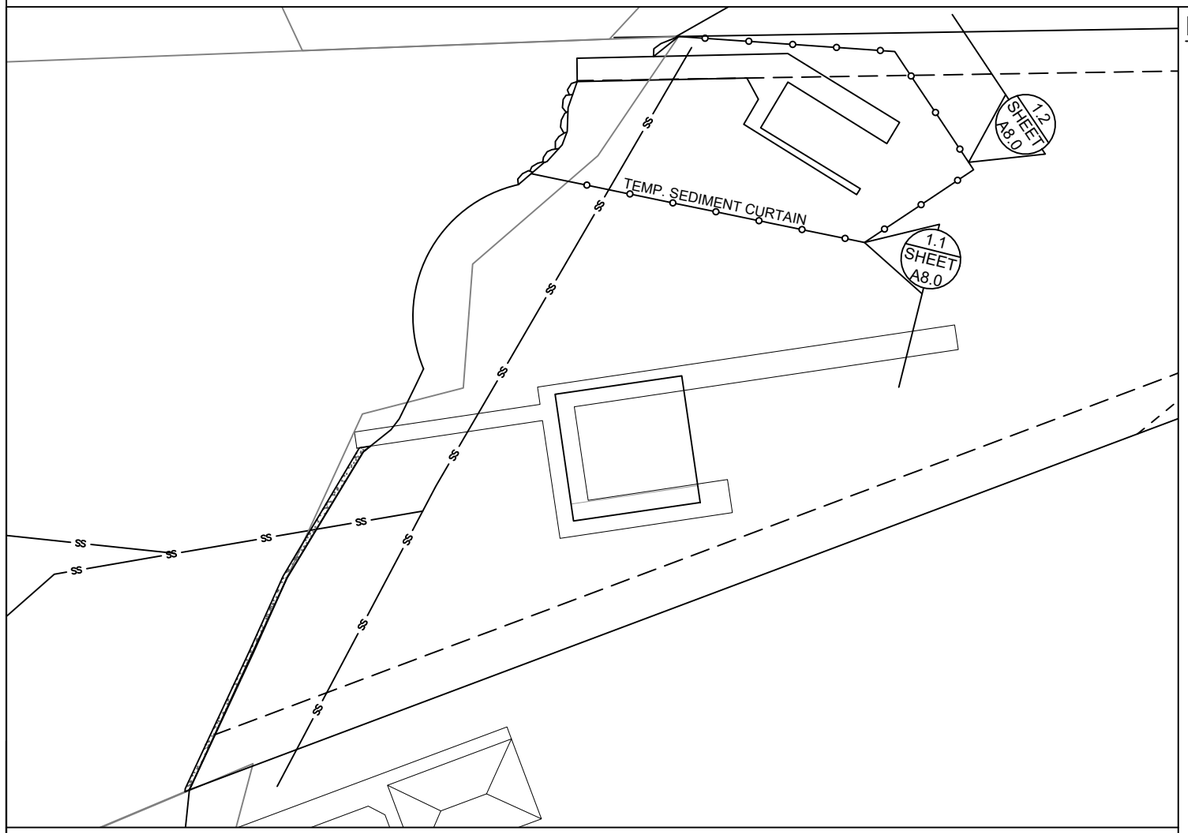
Created: 11/08/23
Last Updated: 12/18/2023 3:09 PM Shop

Datum: CORPS OF ENGINEERS 1919
SW Quarter Of Section 24, Township 14, Range 05

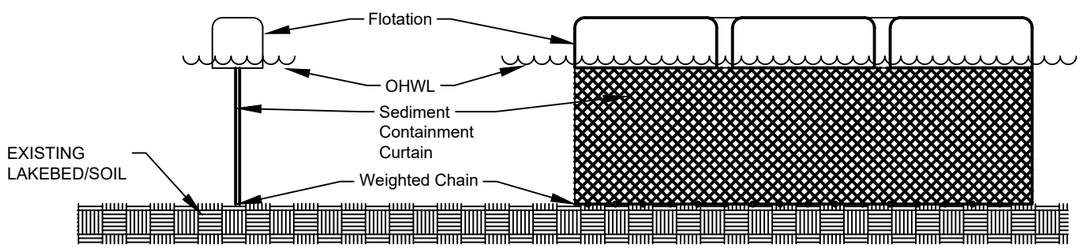
Adjacent Owners:
HAGSTROM COLLIN S+JILLIAN J
7428 SE 71ST ST 98040
WANG ZHUO+JUNE
6839 W MERCER WAY

SHEET 7.0

BMP INFORMATION



DETAIL 1.1 DETAIL 1.2



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 curtain 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 curtain.
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 an agency approved treatment.

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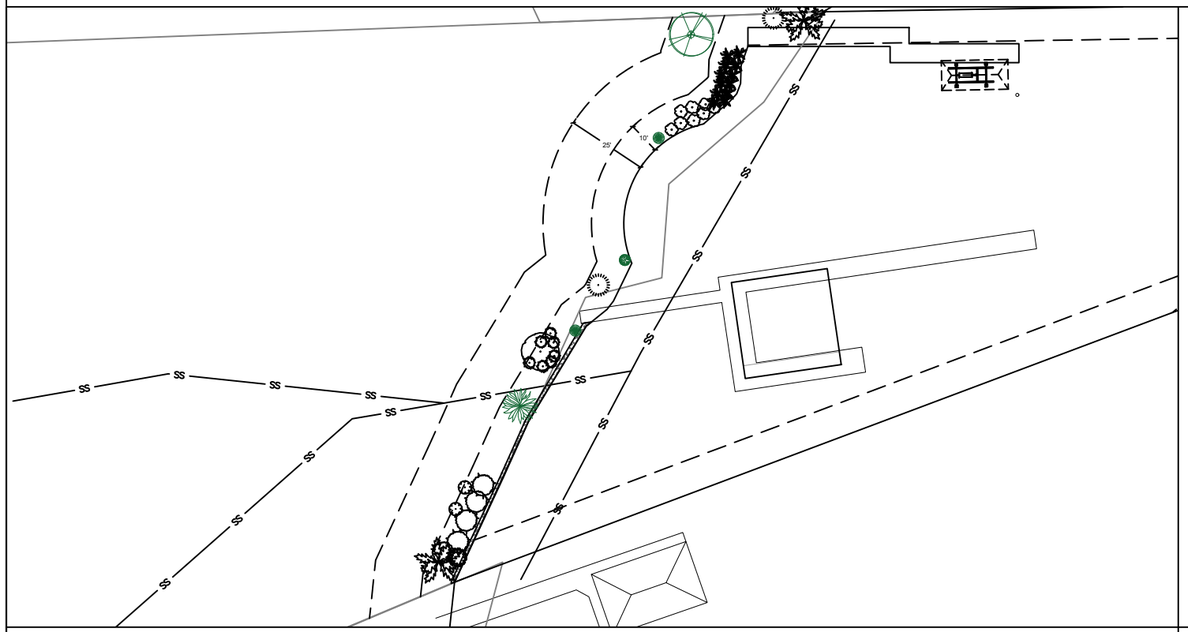
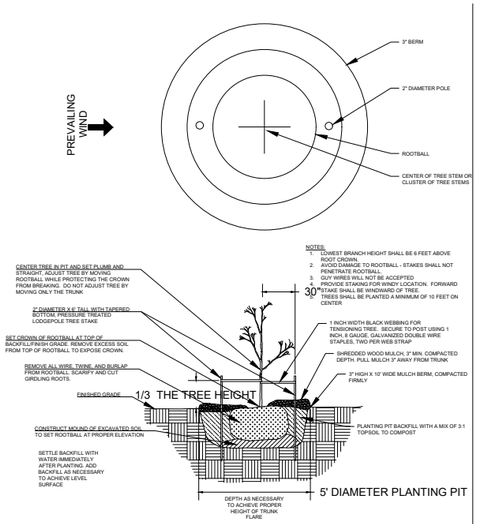
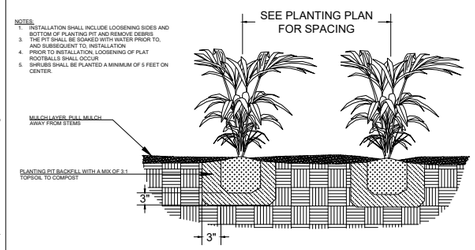
SHEET 8.0

MITIGATION PLAN





TREE PLANTING DETAILS (NTS)



SHRUB AND GROUNDCOVER PLANTING DETAILS (NTS)

Notes:

1. The property owner shall implement and abide by the shoreline planting plan, including the installation of the identified species, in the identified locations. Shrubs shall be planted at least five feet on center, and trees shall be planted at least ten feet on center.

2. For best plant survival, planting should be completed the first October through March period concurrent with or immediately following 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 shall preserve in good health 100% of shoreline planting plan vegetation for as long as the structures that have been permitted under the RAP program remain in place. Plants that die must be replaced with the appropriate plant type (i.e. tree for tree, shrub for shrub) from the RAP Plant List.

4. The property owner shall monitor the survival of shoreline planting plan vegetation for five years (Monitoring Years 1-5) after the U.S. Army Corps of Engineers accepts the as-built report. The property owner shall also submit annual monitoring reports to the U.S. Army Corps of Engineers each year during this period. Each annual monitoring report will include written and photographic documentation that the performance standards are being met, including documentation of plant mortality and replacement. 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 plicata	Western Red Cedar	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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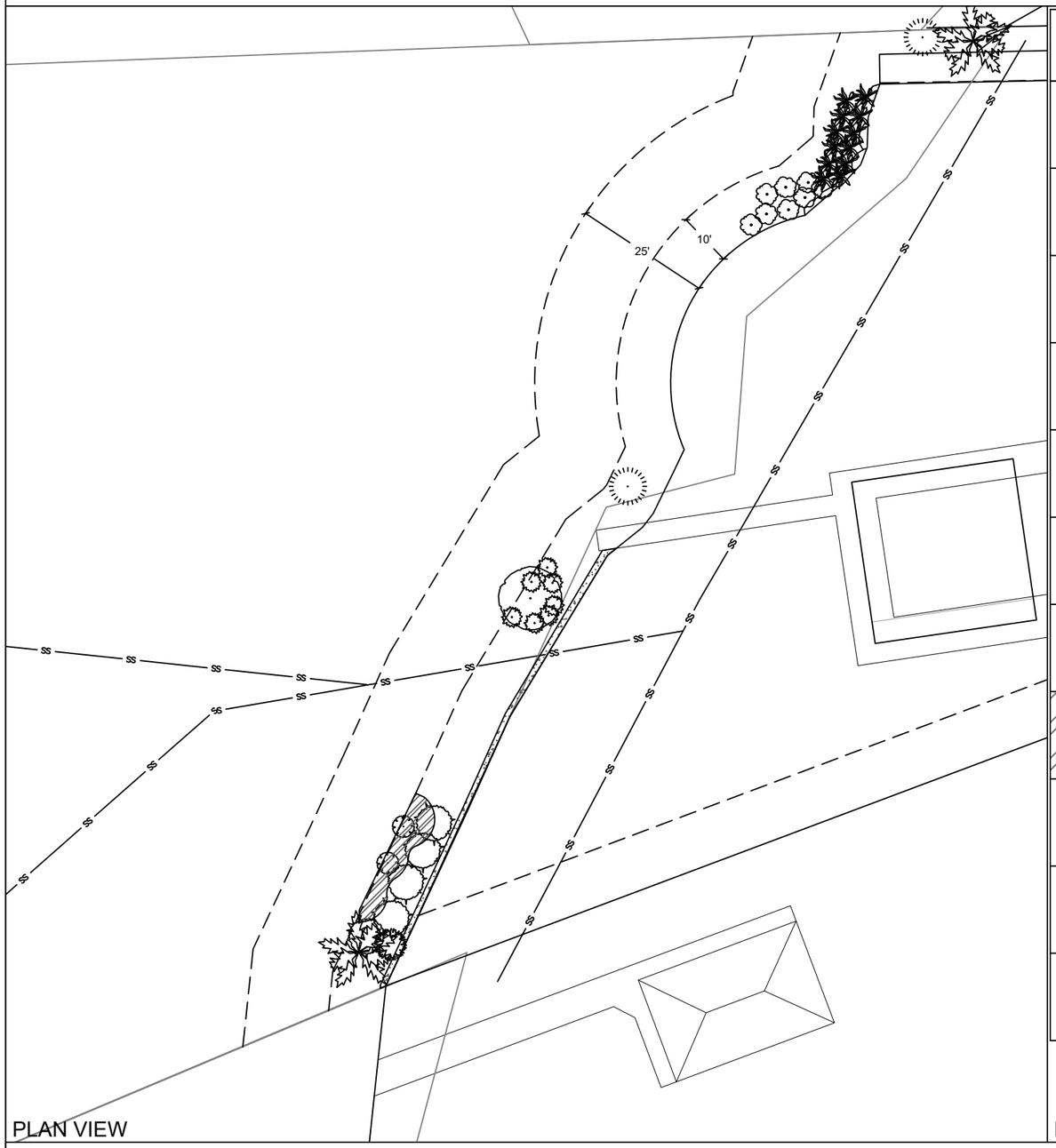
SHEET 9.0

EXISTING PLANT PLAN



PLAN VIEW

EXISTING PLANTING SPECIES/QUANTITIES

SYMBOL	SCIENTIFIC NAME	COMMON NAME	QTY	SIZE
	Phyllostachys area	Bamboo	N/A	~3'x15'x12'
	Phormium tenax	Flax	1	~2ft
	Ficus mcrocarpa	Fig Tree	5	~ 3ft
	Acer circinatum	Vine Maple	1	~ 8ft
	Cenchrus setaceus	Rose fountain grass	N/A	N/A
	Pseudognaphalium microphalum	Rabbit tobacco	N/A	N/A
	Impatiens hawkeri	Impatients	N/A	N/A
	Thuja picatta	Western Redcedar	2	~ 5ft
	Rosa nutkana	Nootka Rose	1	~ 3 ft
	Philadelphus lewisii	Mock Orange	2	~ 3 ft

EXISTING PLANTS TABLE

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GENERAL ENGINEERING NOTES:

GENERAL

1. ALL CONSTRUCTION SHALL CONFORM TO THESE PLANS.
2. CONTRACTOR SHALL VERIFY ALL LEVELS, DIMENSIONS, AND EXISTING CONDITIONS IN THE FIELD BEFORE PROCEEDING. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR FIELD CHANGES PRIOR TO INSTALLATION OR FABRICATION. IN CASE OF DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS, THE CONTRACTOR SHALL OBTAIN DIRECTION FROM THE ENGINEER BEFORE PROCEEDING. DIMENSIONS NOTED AS PLUS OR MINUS (±) OR REF INDICATE UNVERIFIED DIMENSIONS AND ARE APPROXIMATE. NOTIFY ENGINEER IMMEDIATELY OF CONFLICTS OR EXCESSIVE VARIATIONS FROM INDICATED DIMENSIONS, NOTED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS – DO NOT SCALE DRAWINGS. DIMENSIONS OF EXISTING CONDITIONS ARE BASED ON RECORD DRAWINGS AND ARE TO BE FIELD-VERIFIED BY THE CONTRACTOR.
3. CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND BRACING OF ALL STRUCTURAL MEMBERS AND EXISTING MEMBERS, AS REQUIRED, AND IN A MANNER SUITABLE TO WORK SEQUENCE. TEMPORARY SHORING AND BRACING SHALL NOT BE REMOVED UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE DRAWINGS AND MATERIALS HAVE ACHIEVED DESIGN STRENGTH.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES REQUIRED TO PERFORM THE WORK.
5. ALL MATERIALS SHALL BE NEW, UNO.
6. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE DRAWINGS, NOTES, AND MANUFACTURER RECOMMENDATIONS. IF THERE ARE ANY CONFLICTS BETWEEN THESE DOCUMENTS, THE ENGINEER SHALL BE CONTACTED FOR DIRECTION.
7. THE CONTRACTOR SHALL CAREFULLY DECONSTRUCT EXISTING ELEMENTS AS NECESSARY TO ACCESS THE WORK AREAS. SUCH DECONSTRUCTION MAY INCLUDE, INTERIOR AND EXTERIOR FINISHES. ALL DECONSTRUCTION ELEMENTS SHALL BE RECONSTRUCTED TO MATCH THE ORIGINAL APPEARANCE AND MEET THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE.
8. ALL MOORAGE COVERS AND LIFTS SHALL BE FREESTANDING AND SHALL NOT BE ATTACHED TO THE DOCK, UNLESS NOTED OTHERWISE.

CODES AND STANDARDS

1. ALL METHODS AND MATERIALS SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE, 2018 EDITION.
2. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) STANDARD 7-16 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
3. WOOD WORK SHALL CONFORM TO THE NATIONAL DESIGN SPECIFICATION (NDS) 2018 EDITION.
4. AMERICAN SOCIETY FOR TESTING AND MATERIALS, CURRENT EDITION

DESIGN CRITERIA

WIND DESIGN: WIND LOAD IS BASED ON ASCE 7 CHAPTER 29 WITH THE FOLLOWING FACTORS

EXPOSURE CATEGORY = D
V_{3S} = 98MPH
RISK CATEGORY = II
WIND IMPORTANCE FACTOR, I_W = 1.0

DESIGN VESSEL IS 30' LONG WITH AVERAGE FREEBOARD OF 11'-6"
DESIGN VESSEL IS 60' LONG WITH AVERAGE FREEBOARD OF 14'

WAVE LOADS: P = 328 LBS

LIVE LOADS: LIVE LOAD = 40 PSF
SNOW LOAD = 25 PSF

SEISMIC LOADS: DOCK PILING R = 2.0
SEISMIC IMPORTANCE = 1.0
SD_1 = 0.595g

STRUCTURAL STEEL

1. ALL MISCELLANEOUS STEEL SHAPES AND PLATES, EXCEPT AS NOTED BELOW, SHALL CONFORM TO ASTM 36.
2. ALL WF SHAPES SHALL CONFORM TO ASTM A992, Fy = 50 KSI
3. ALL PILES SHALL CONFORM TO ASTM A252 GRADE 3, Fy = 45 KSI
4. ALL BOLTS SHALL BE ASTM A307, UNO.
5. ALL NUTS SHALL BE ASTM A563, UNO.
6. ALL WASHERS SHALL BE ASTM F436, UNO.
7. ALL THREADED RODS SHALL CONFORM TO ASTM F1554, GRADE 36.
8. ALL STEEL MEMBERS AND FASTENERS THAT ARE NOT EPOXY COATED SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 AS APPLICABLE.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY WELDERS QUALIFIED FOR THE WELD AND POSITION SHOWN IN ACCORDANCE WITH AWS AND HAVING CURRENT CERTIFICATION FROM WABO.
2. ALL WELDS SHALL BE PERFORMED WITH PROCEDURES PREQUALIFIED OR QUALIFIED IN ACCORDANCE WITH AWS D1.1.
3. THE WELDS SHOWN ARE FOR THE FINAL CONNECTIONS, FIELD WELD SYMBOLS ARE SHOWN WHERE FIELD WELDS ARE REQUIRED BY THE STRUCTURAL DESIGN. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING IF A WELD SHOULD BE SHOP OR FIELD WELDED IN ORDER TO FACILITATE THE STRUCTURAL STEEL ERECTION.
4. WELDING ELECTRODES SHALL BE 70 KSI STRENGTH AND SHALL BE "LOW-HYDROGEN ELECTRODES."

WOOD

1. EACH PIECE OF LUMBER SHALL BEAR A STAMP INDICATING A GRADE MARK OF THE WEST COAST LUMBER INSPECTION BUREAU (WCLIB), WESTERN WOOD PRODUCTS ASSOCIATION (WWPA), OR OTHER AGENCY ACCREDITED BY THE AMERICAN STANDARD COMMITTEE (ALSC).
2. DIMENSION LUMBER SHALL BE P.T. DOUG-FIR NO 2 OR BETTER, UNLESS NOTED OTHERWISE.
3. STRUCTURAL GLUED LAMINATED TIMBER SHALL BE ALASKAN CEDAR AC.AC 20F-V12.
4. WOOD SHALL BE SEASONED DRY WITH A MAXIMUM MOISTURE CONTENT OF 19%.
5. PRESERVATIVE TREATED WOOD SHALL CONFORM TO THE AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) UC4A. ALL WOOD SHALL BEAR A TREATMENT IDENTIFICATION MARK BY THE CERTIFYING AGENCY.
6. ALL BOLT HOLES IN WOOD MEMBERS SHALL BE A MINIMUM OF 1/32" TO MAXIMUM OF 1/16" LARGER THAN THE BOLT DIAMETER. PROVIDE PLATE WASHERS WHERE NUTS, BEAR ON WOOD. CUT WASHERS SHALL MEASURE 2 1/4"ø x 3/16" THICK.

GRATING

1. DECK GRATING SHALL BE SUNWALK 90 SERIES OR APPROVED EQUAL.

ABBREVIATIONS

@	AT
AWS	AMERICAN WELDING SOCIETY
CL	CENTER LINE
CLR	CLEAR
COL	COLUMN
CONT.	CONTINUOUS
DF	DOUG FIR
EA	EACH
EX OR (E)	EXISTING
GLB	GLULAM BEAM
LLH	LONG LEG HORIZONTAL
MIN	MINIMUM
MNFR	MANUFACTURER
OC	ON CENTER
OPP	OPPOSITE
PL	PLATE
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
P.T.	PRESERVATIVE TREATED
SF	SQUARE FOOT
REF	REFERENCE
SIM	SIMILAR
SS	STAINLESS STEEL
t	THICK
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VIF	VERIFY IN FIELD
WABO	WASHINGTON ASSOCIATION OF BUILDING OFFICIALS
WF	WIDE FLANGE
W/	WITH

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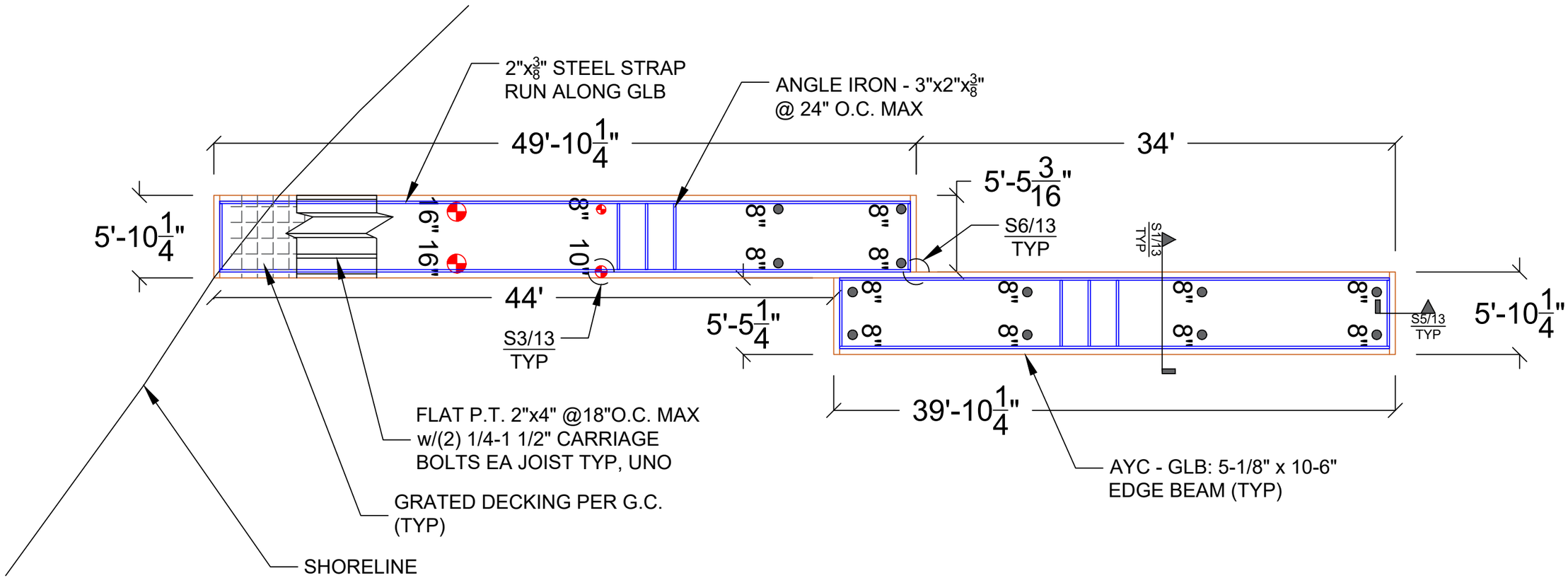
SHEET 10.0

FRAMING PLAN



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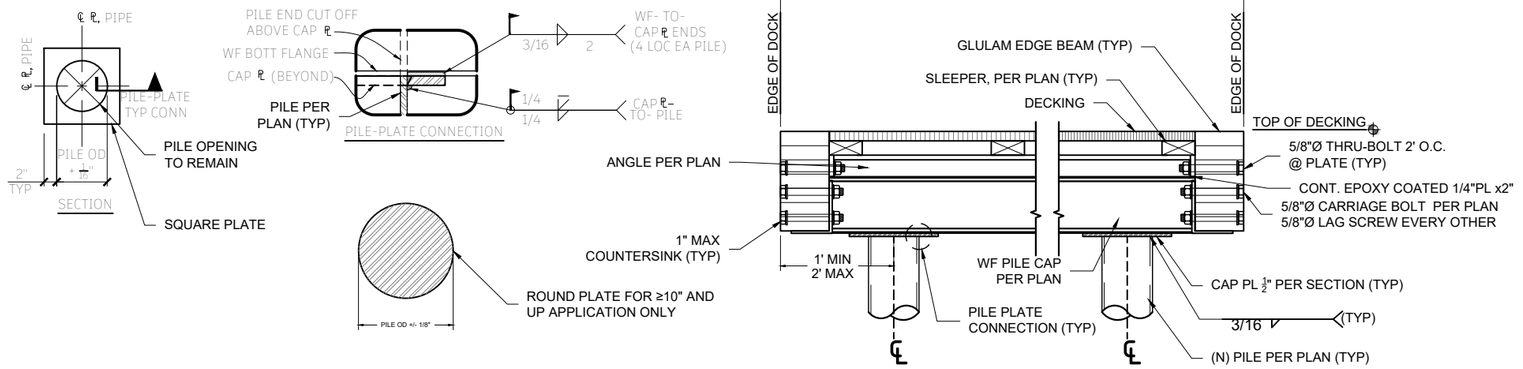
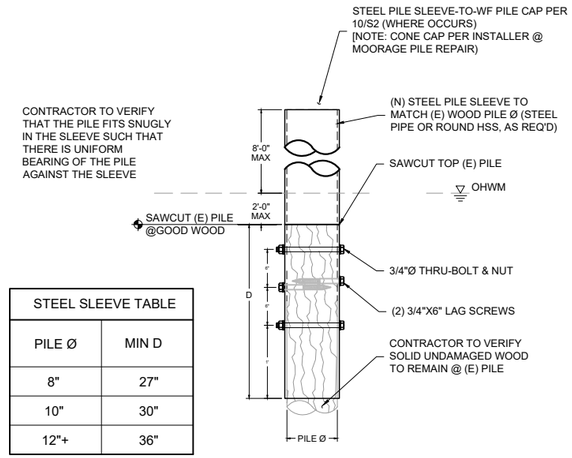
SHEET 11.0

DETAILS - TRACK



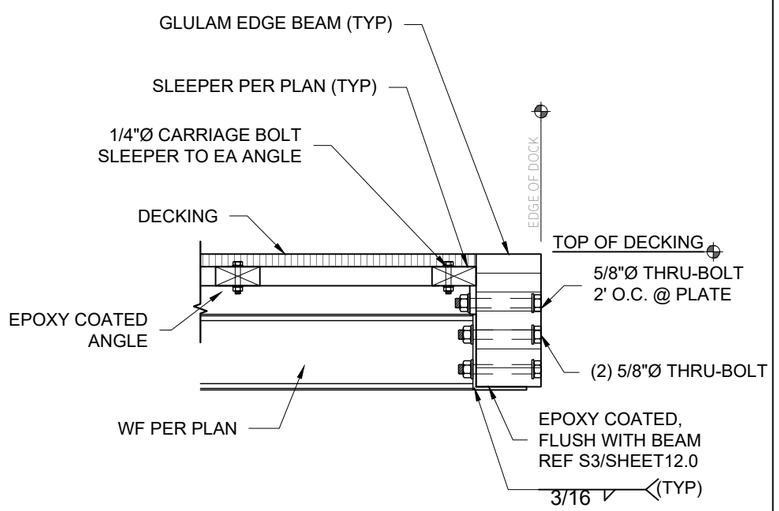
S1 DOCK SECTION w/PILES - TYP
SCALE: 1" - 1'



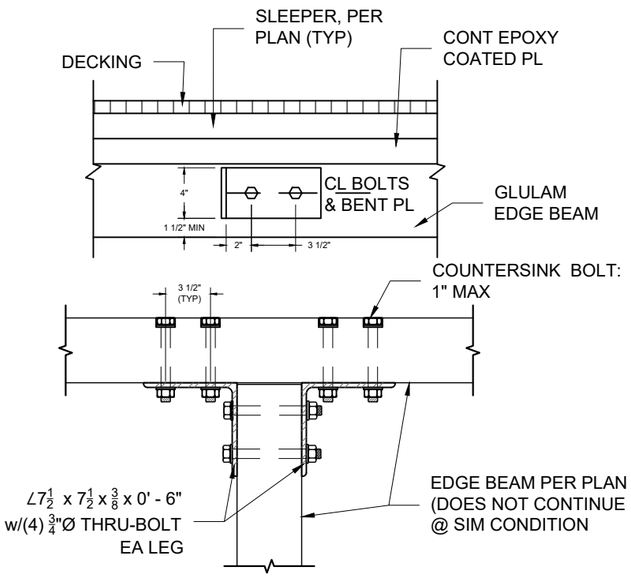
STEEL SLEEVE TABLE	
PILE Ø	MIN D
8"	27"
10"	30"
12"+	36"

S3 SLEEVE PILE REPAIR - TYP
SCALE: 1/2" - 1'

S4 DETAIL NOT IN USE



S5 EDGE SECTION (STEEL TRACK) - TYP
SCALE: 1" - 1'



S6 BEAM TO BEAM - TYP
SCALE: 1" - 1'

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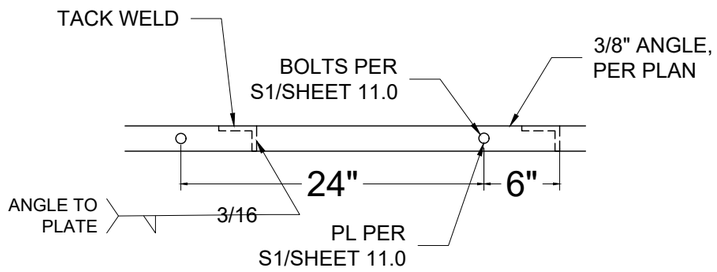
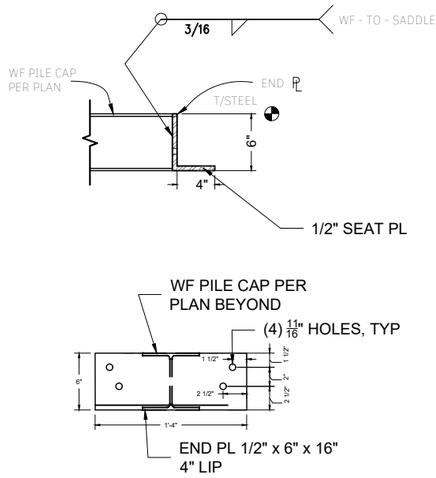
SHEET 13.0

DETAILS - TRACK

S1 DETAIL NOT IN USE



S2 ANGLE TO PLATE - TYP
SCALE: 1" - 1'



S3 BEAM SADDLE BRACKET
SCALE: 3/4" - 1'

S4 DETAIL NOT IN USE

S5 DETAIL NOT IN USE

S6 DETAIL NOT IN USE

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Appendix B:
Site Photographs

Photo 1 - Existing dock looking waterward.

Photo 2 - Existing dock looking landward.

Photo 3 - Existing shoreline looking easterly.

Photo 4 - Existing shoreline looking westerly.

Photo 5 - Existing conditions east of the project.

Photo 6 - Existing conditions west of the project.