Ecological No Net Loss Assessment Report And Critical Areas Study

Prepared for

Mercer Island Beach Club
8326 Avalon Drive
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 2025

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” goal of the Shoreline Master Program, as well as to provide a Critical Areas Study.

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 marina and dock repair and reconfiguration.

Purpose and Need

The marina needs significant repairs, and the day dock structure has failed. Replacement of the aging structures are the most cost-effective solution. The existing moorage is in water too shallow for boats to moor without bottoming out or causing propwash when entering and leaving slips at low water.

The new marina will be reconfigured into a single point access ramp to reduce overwater coverage of the nearshore. The swim area will be reconfigured so that moorage does not occur on the same dock that swimmers use to access deeper parts of the swim area.

Location

The subject property is located at 8326 Avalon Drive, Mercer Way (King County parcel number 3124059003) in the City of Mercer Island, Washington (see Appendix A – Sheet A1.0). The parcel is on the waterfront of Lake Washington, a shoreline of the state, that contains several endangered fish species listed under the Endangered Species Act and Washington State designated priority fish species.

Project Description

General Description

The marina will be reconfigured to current standards, including a single access point, and will convert the fixed-pier marina to a hybrid with fixed piers near shore and floating finger piers. Solid decking will be converted to grating. A rock and timber bulkhead will be converted to beach.

Detailed Project Description

Mercer Island Beach Club, established in 1954 as a local 500 member owned non-profit swim and recreational club, is planning a reconfiguration and replacement of the 50 year old+ portion of the existing marina and swim dock. Due to the age of the marina, over the last several years MIBC has faced significant annual repair costs as well as the loss of about 70 feet of the lakeward day dock. The existing configuration includes 7 moorage docks. Five of those

moorage docks would be replaced, the day dock would be replaced to become usable again, and the swim dock and swim area would also be updated. The total existing facility currently provides moorage for 70 boats and 7 jet skis (in repurposed boat slips)

The proposed reconfiguration is to construct a single point access marina to replace the fixed A, B, C, and D docks with a new hybrid marina consisting of a new fixed shorewood and floating seaward slip marina. The replacement portions of the marina configuration will include moorage for 52 boats and 12 Jet Skis. The total boat slip count after project completion will be the exact same as the current marina. The existing fixed swim platform will be replaced with a reconfigured and separated platform having a narrower fixed walkway and moved slightly further into the lake to access deeper water for safety purposes. A replacement log boom will be installed around the existing swim area to protect swimmers from boats.

The reconfigured moorage will increase overwater coverage by 2,669 square feet and will reduce overwater coverage within 30 feet of the shore by approximately 380 square feet and reduce shadowing by using grated decking. Boat moorage will be farther from shore starting approximately 80 feet from shore. The new configuration meets Washington Administrative Code criteria for freshwater marinas by creating a single point access marina in place of the existing multi-point access moorages.

In addition to removal of over water coverage in the nearshore, the proposal will remove 60 linear feet of rock and timber bulkhead and replace it with approximately 60 linear feet of beach in the swim area. Up to an additional 25 cubic yards of beach nourishment will be added to the new beach per WDFW specifications.

The project will remove 121 timber pilings and replace with 93 epoxy coated steel pilings. Piles will be driven with a vibratory hammer.

Project drawings are included in Attachment A, sheets 2 to 15 of 21.

During construction, a floating boom will surround the work barge and dock. (See Appendix A – Sheets 16 to 19 of 21).

A shoreline vegetation plan is proposed, that will add 2 native trees and 3 native shrubs. These shoreline plantings will provide shade and allow allochthonous material to enter the lake along the shoreline and improve shoreline conditions (see Appendix A – Sheet 20 to 21 of 21).

Approach

Northwest Environmental Consulting LLC (NWEC) biologist Brad Thiele conducted a site visit on July 20, 2022 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

Project Setting

The MIBC uplands are landscaped with beds, mature shrubs and trees, parking area, building, outdoor swimming pool, sports courts, and other recreational facilities. The shoreline is heavily used by recreation boaters in the summer months and the waterfront for swimming and enjoying the water views.

The Mercer Island GIS shows piped watercourse crossing the site in a 12-inch PVC pipe. The pipe discharges along the property line and flows on the surface for 15 to 20 feet before discharging to Lake Washington.

Shoreline

The shoreline at the MIBC is bulkheaded with rock, timber, concrete, and shotcrete armoring. A section of beach is present in the swim area. A boat ramp is present on the north side of the property by dock E and F. The MIBC shoreline is landscaped with ornamental trees, shrubs, and ground covers. Decks, picnic areas, and sitting areas are along the shoreline. Paddle craft racks are located near the boat ramp and members use the boat launch and adjacent areas to launch kayaks and paddleboards.

The marina is a series of 5 docks, with a day dock that runs parallel to shore connected to the end of C dock. E and F dock are newer, do not need to be repaired, and no work is proposed at these docks. A swim dock is present south of the marina. 7 slips are present on the north side of the swim dock. A log boom surrounds the swim area.

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 show any other aquatic or terrestrial occurrences at the site or within 500 feet of the site.

Project Impacts and Conservation Measurements

Direct Impacts:

Sediments: Sediment disturbance will occur below the OHWM and along the shoreline of Lake Washington during pile installation and removal, relocation and placement of boatlifts, and

bulkhead removal. Additionally, the tug and barge propwash may disturb sediments temporarily when making trips to/from the site.

In addition, moving moorage into the deepest water possible at the site will reduce chances of turbidity occurring from propwash during castoff and docking. The existing marina is in water from 1-2 feet deep to 10 feet deep. The new configuration will put moorage in water from 5 feet to 20 feet deep.

In addition, the new personal watercraft lifts will be moved further from shore into water 4 to 6 feet deep. Moving the lifts into deeper water will reduce the chances of prop wash from castoff and docking.

Small salmonids could be temporarily displaced or stressed by increased turbidity caused by sediment disturbance from construction and operation of the marina.

The removal of 60 feet of bulkhead has the potential to create a significant sediment plume. A weighted silt curtain will be installed around the perimeter to contain any suspended sediments that occur during construction of the bulkhead.

Impacts to sediments should be minimal from installation of the pilings and lifts and are expected to stay within State Water Quality Standards.

Shoreline: The project will have a positive effect on the shoreline by removing approximately 60 linear feet of bulkhead to expand the existing beach. This will reduce reflecting wave action reducing shoreline erosion and remove shoreline structure from encroachment into the aquatic environment.

Planting additional native vegetation, including two Douglas firs, 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. See Appendix A - Sheet 20 to 21 of 21.

Lakebed: The project includes removal of 121 pilings and replacing with 93 for a decrease of 28 pilings at the site. The average diameter of the timber piles is 13 inches. Adding 93 new piles (46 8-inch, 26 10-inch, and 21 16-inch) will displace 59.5 square feet of lakebed. Removal of 121 timber pilings will restore approximately 111.5 square feet of lakebed, resulting in a net restoration of 52 square feet of lakebed. In addition to piling removal, approximately 8 cubic yards of pile stubs and other debris will be removed from the bottom at the site. See sheet 14 of 21.

Watercourse: A daylighted stream is present that flows along the southern property boundary for approximately 18 feet before discharging to Lake Washington. The proposed bulkhead work will create additional beach and will not affect the stream. The existing playset will be removed, and portable kayak and paddle boards will be placed in the same area as the play area and the footprint of the existing play area will not be increased. The new path to the beach will not include any hardscaping. Native plantings will be placed around this area and removed bulkhead area. Non-native bamboo and English laurel will be removed to enhance the shoreline and riparian area.

Noise: Construction noise will be audible to neighbors and within the water. Noise will reach the behavioral effects threshold for salmonids during installation of 16-inch piles. Pile driving will

occur sporadically over a 6 to 8-week period. Work will occur during the in-water work window when juvenile fish are less likely to be present.

Construction noise will occur from the crane and from hand and power tools. This noise would be audible to neighbors during construction, but no terrestrial listed species are known to occur in the area.

Potential spills: Short-term risks include the potential for petroleum spills that can occur with any equipment operation. Potential risk to the aquatic environment is expected to be minimized because a crew competent using spill containment measures will be on site and employ these measures should a spill occur.

Indirect Impacts:

Shading: The moorage facilities and swim deck will be reconfigured at the site, removing 7,529 square feet of overwater coverage. The new moorage will consolidate moorage into deeper water and use grated decking over the new 10,202 square feet of decking.

Grated decking allows light to penetrate the waters below a dock, which can increase productivity in the aquatic environment 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.

Two types of grated decking will be used. Eco-Grate 62 has an open area of 62% and will be used for decking for all the new moorage walkways, ramps, finger piers, and access to the Jet Ski lifts. The swim dock will use Sunwalk grating that has an open area of 42%. Effective coverage is figured as a reduction in overwater coverage due to the open nature of these decking materials. The increase in natural lighting under the pier is effectively a percentage of the solid decked area. A summary of how this will affect this project's overwater shading is shown in Table 1 below:

Table 1 – Effective Coverage Calculation

Structure	Solid decking (SF)	Proposed grated (SF)	Percent covered	Effective coverage (SF)	Effective coverage change (SF)
REMOVAL					
Dock B,C,D	5,584	0		5,584	-5,584
Swim dock and fingers	1,949	0		1,949	-1,949
Added					
Swim Dock and Ramp	0	1,588	58%	921	-667
Shore moorage and ramp	0	2,474	38%	940	-1,534
Day Dock and moorage	0	6,032	38%	2,292	-3,740
Jet Ski (Eco-Grate 62)	0	108	38%	41	-67
Total (SF)	7,529	10,202		4,194	-6,008

Removal of the solid decked surfaces and replacement and reconfiguration of the overwater structures at the site using grated decking will have a net decrease in effective overwater coverage of 6,008 square feet over using solid decking at the site and results in a reduction of 1,521 square feet over the existing condition.

Overwater structures can be a barrier to migration. In studies associated with the 520 Bridge Project, salmonids were found to show any of three responses to overwater coverage (Celedonia et al. 2008b *in* NOAA Fisheries 2017):

1. Passing under the structure without delay
2. Hesitating to go under the structure for a few seconds to 46 minutes.
3. Passing under the structure multiple times

The study concluded that overwater structures are a partial, but not complete, barrier to migration because they are believed to cause a delay in outmigration times.

Outmigrating salmon tend to use the nearshore environment and avoid deeper waters. In addition to the 6,008-square-foot reduction in effective overwater coverage, the proposed project will consolidate 3 separate moorage docks that all cross the nearshore environment into a single facility with a single access point. The nearshore is considered within 30 feet of shore. This consolidation into a single-point-access moorage facility will not only move moorage into deeper water but will reduce coverage of the nearshore by consolidating 3, 5-foot wide docks crossing the nearshore into a single 6-foot wide access point. In addition, the 12-foot wide swim dock will be reduced to an 8-foot wide dock. This will reduce the coverage of the nearshore by approximately 380 square feet of overwater coverage.

In addition, removal of approximately 50 feet of skirting from the end of Dock B, and about 60 feet of skirting from Dock A. Removal of skirting will raise the effective height of the dock and allows additional light into the water below the dock and has similar effects as grated decking.

This project will reduce effective overwater structure and raise the effective height of several docks in the nearshore and may be beneficial to fish migration over the existing condition.

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 and does not increase moorage capacity. Without the facility the owners could still access the lake from a public boat launch or private moorage facility.

Other Conservation measures:

Proposed work window:

The work window for the project is July 16-December 31. The project will take 6 to 8 weeks.

Other conservation measures:

The following conservation measures will be used to reduce impacts from the marina construction and operation.

- All new surfaces will us grated decking.
- The existing timber and rock bulkhead will be removed and replaced with beach.
- 420 square feet of overwater structure will be removed from the nearshore and consolidated into a single grated overwater structure to access moorage formerly the B, C, and D docks.
- The existing 12-foot wide swim dock will be reduced to an 8-foot wide grated structure.

- Reconfiguration of the marina will put moorage into deeper water resulting in less impacts to the nearshore and less chance of propwash suspending sediments during regular use.
- Concentration of moorage at the marina is preferable to building individual residential docks for the up-to-30-foot vessels the moorage will accommodate. It results in less overwater coverage and places the concentrated moorage farther from the shoreline than individual docks for each of 52 proposed moorage slips,
- Piles will be driven with a vibratory hammer and impact proofing will not be necessary.
- Piles will be pulled up slowly to minimize turbidity. Piles will be removed completely or cut off 2 feet below the mudline.
- A floating boom will be placed around the project area while work is being done. The area inside the boom will be cleared of floating debris before the boom is removed. Spill containment and removal materials will be kept onsite.
- A silt curtain will be used around the bulkhead removal area.
- New pilings will include pile caps to prevent use by piscivorous birds.
- The work barge will not be permitted to ground out on the sediments at any time.

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

Hazardous material containment materials such as spill absorbent pads and trained personnel in their use 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.

Critical Areas on Site

A piped watercourse is present through the property in a 12-inch PVC pipe. This piped water course flows out of the pipe at the edge of the property line and flows along the southern property boundary on the adjacent parcel for approximately 18 feet before discharging to Lake Washington. The stream is non fish bearing and has a 60-foot buffer per Mercer Island Code.

Lake Washington contains federally endangered fish species and priority fish species identified by Washington State Department of Fish and Wildlife. The project follows the Shoreline Code and, as discussed in this report, will result in no net loss of ecological functions by moving the marina away from shore into deeper water, use all grated decking, and use conservation measures to minimize and avoid affects.

Some of the project elements will occur within the 60 foot stream buffer including the bulkhead removal, invasive vegetation removal (English laurel and bamboo) and creation of recreation path down to the water through the footprint of the old bulkhead. The existing playset will be removed, and portable kayak and paddle boards will be placed in the same area as the play area. The footprint of the existing playset area will not be increased and will be used for portable kayak and paddleboard carts.

The Critical Areas Code does not apply to placement of the kayak carts since these will be placed in an existing use area and will not require any additional improvements except for removal of the existing play area structures. The area will remain mulched and lawn areas around it will remain as they are currently.

The following activities are exempt under MICC 19.07.120 *Passive outdoor activities.* When it can be demonstrated that there will be no undue adverse effect, the following activities may be allowed within critical areas and their buffers: educational activities, scientific research, and outdoor recreational activities, including but not limited to interpretive field trips, bird watching, and beach access including water recreation-related activities (underline for emphasis).

The proposed bulkhead work will create additional beach and will not affect screening or runoff or have any other adverse effects on the stream buffer. The new path to the beach will not include any hardscaping. Native plantings will be placed around the path in the removed bulkhead area. Non-native bamboo and English laurel will be removed to enhance the shoreline and riparian area.

Mitigation Strategy

Avoidance and Minimization

Avoidance and minimization are discussed above in the impacts and conservation measures section.

Mitigation Approach

Mitigation includes removal of invasive laurel and bamboo from the shoreline area and by planting native plants.

Shoreline Function and Values Improvements

Shoreline enhancements will increase the buffer functions and values by adding native shrub buffer near Lake Washington that will increase screening, filtering of runoff, and vertical and overhanging structure along the lake edge, and will provide food sources for songbirds and other native fauna that use the Lake Washington shoreline.

Proposed Mitigation

Mitigation Goals

Mitigation goals will include the following:

- Enhance the shoreline by planting two Douglas fir and 3 native shrubs as shown on Sheet 20 of 23 in Attachment A - Drawings

Performance Standards

Buffer plantings shall maintain a 100% survival for 5 years as required by Corps of Engineers permits.

Planting Plan

Shrubs and trees will be containerized or bare root. The planting layouts, details, and quantities are shown in Appendix A – Sheet 20 of 23.

Schedule and Maintenance

Plantings shall be installed in the same season or before completion of the marina construction. Watering will be required for at least the first year after planting during the summer months, and any invasive plants removed.

Monitoring and Contingency

To ensure that the performance standards are met, plantings will be counted in August or September for survival for 5 years. All dead plantings will be replaced with similar native plants so that 100% survival is reached for the five year monitoring period.

Reporting

An as-built report with drawings and photographs demonstrating the plants have been installed per plans. This as-built (Year 0) documentation is to be submitted, labeled with the reference number NWS-2022-457, to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch (Corps) for review and approval within 12 months from the date of permit issuance.

Monitoring reports shall be prepared and submitted to City of Mercer Island annually on years 1-5. In addition, monitoring reports will be sent to the Corps of Engineers by October 31 of each monitoring year. The Monitoring report must include at a minimum, written and photographic

documentation on plant mortality and replanting efforts, and 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 must include a panoramic view of the entire planting area.

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 effects of construction will be short term. Construction disturbance will degrade ecological conditions at the site temporarily and long-term impacts will occur from maintaining an overwater structure.

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.

The proposal will increase overwater coverage at the site by 2,673 square feet.

Overwater structures may slow juvenile salmonid outmigration times and provide habitat for predatory fish.

Removal of the solid decked surfaces and replacement and reconfiguration of the overwater structures at the site using grated decking will have a net decrease in effective overwater coverage of 6,008 square feet over using solid decking at the site. In addition, the new configuration removes 3 of the existing docks to create one access point and reduces the width of the swim dock. This will reduce the coverage of the nearshore by approximately 380 square feet of overwater coverage.

In addition, approximately 50 feet of skirting will be removed from the end of Dock B, and about 60 feet of skirting from Dock A. Removal of skirting will raise the effective height of the dock and allows additional light into the water below the dock and has similar effects as grated decking.

The project includes removal of 121 pilings and installment of 93 for a decrease of 30 pilings at the site restoring about 52 square feet of lake bottom. In addition to piling removal, approximately 8 cubic yards of derelict pile stubs and other debris will be removed from the bottom at the site.

Personal watercraft lifts reduce shading by allowing light under the craft when on the lift. In addition, boat lifts reduce boat maintenance that can add cleaning chemicals to the lake and can preserve zinc anodes. A cleaner hull on a boat also reduces drag that increase fuel use. The use of personal watercraft lifts will minimize the negative effects of moored watercraft in the nearshore.

The removal of the timber and rock bulkhead will enhance the shoreline by reducing reflective waves that can cause shoreline erosion. Up to an additional 25 cubic yards of beach nourishment gravel will be placed in and above the waterline of the lake to create a beach.

A shoreline planting plan will be implemented that will add 2 native Douglas firs, and 3 native shrubs. Non-native English laurel and bamboo will be removed from the shoreline zone along the property line where the existing watercourse is located. The native vegetation 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 existing native vegetation will be preserved.

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

Document Preparers

Brad Thiele	Biologist	31 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

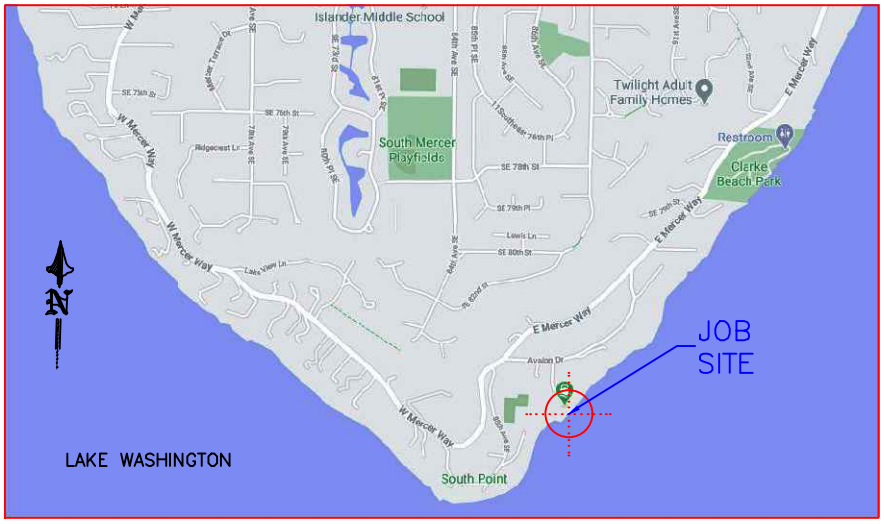
King County. 2025. King County iMap. Online database. Accessed February 2025 at https://gismaps.kingcounty.gov/iMap/

Washington Department of Fish and Wildlife (WDFW). 2025. Priority Habitats and Species. Online database. Accessed February 2025 at http://apps.wdfw.wa.gov/phsontheweb/

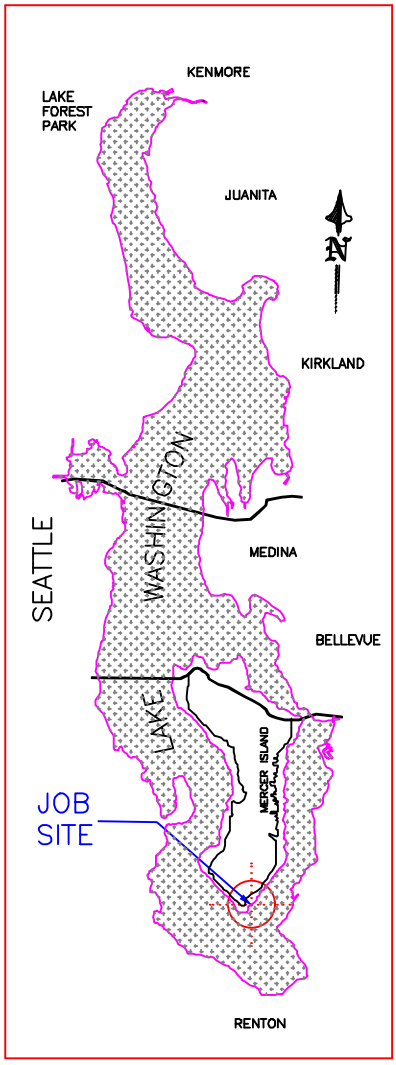
WDFW. 2025. SalmonScape. Online database. Accessed February 2025 at http://apps.wdfw.wa.gov/salmonscape/

Appendix A:
Project Drawings

VICINITY MAP/NO SCALE



AREA MAP/NO SCALE



JOBSITE

LEGAL DESCRIPTION

SECTION: NW-31-24-05 LAT: 47.527430 (47° 31' 38.748" N)
TAXLOT #: 312405-9003 LONG: -122.223480 (122° 13' 24.528" W)

BEG NW COR OF GL 2 TH S 400 FT TH E 856 FT TO SH LN LK WASH TH S 74-19-10 E 252.75 FT M/L TO GOV MDR LN TH NELY ALG SD MDR LN TO NXN N LN SD GL 2 PROD E TH W ALG SD N LN TO BEG & SH LDS ADJ LESS C/M RGTS IN SH LDS LESS POR LY WLY OF E MERCER WAY LESS CO RDS TGW LOT 8 BLK 4 IN PLAT OF AVALON PARK

PROJECT DESIGNED BY:
Waterfront Construction Inc.

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

ADJACENT OWNERS:
1. MICHAEL HARTLEY
8410 BENOTHO PL
MERCER ISLAND, WA 98040
2. MARTIN LEVY
8302 AVALON DR
MERCER ISLAND, WA 98040

APPLICATION#:

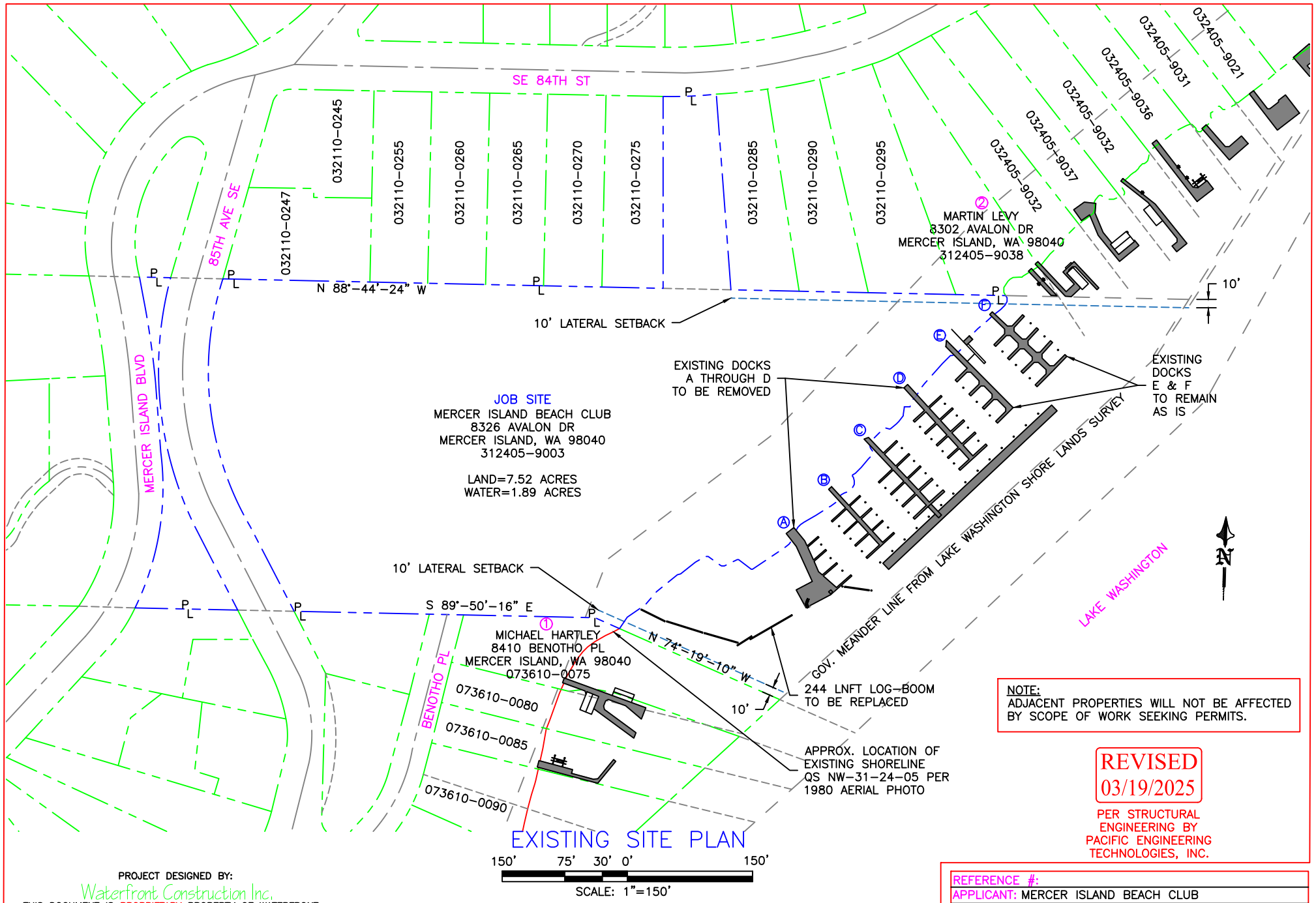
PROPOSED: MARINA REBUILD
PURPOSE: REPLACE AGING MARINA & CREATE ECO-FRIENDLY SHORELINE

DATUM: C.O.E. MLLW=0.0'

DWG#: 20-37005-A15-1

APPLICANT: MERCER ISLAND BEACH CLUB
SITE ADD. 8326 AVALON DRIVE
MERCER ISLAND, WA 98040
MAIL ADD. MIBC, c/o GRANT GOODALL
8326 AVALON DRIVE
MERCER ISLAND, WA 98040

PAGE: 1 OF: 26 DATE: 12/22/2021



EXISTING SITE PLAN

150' 75' 30' 0' 150'

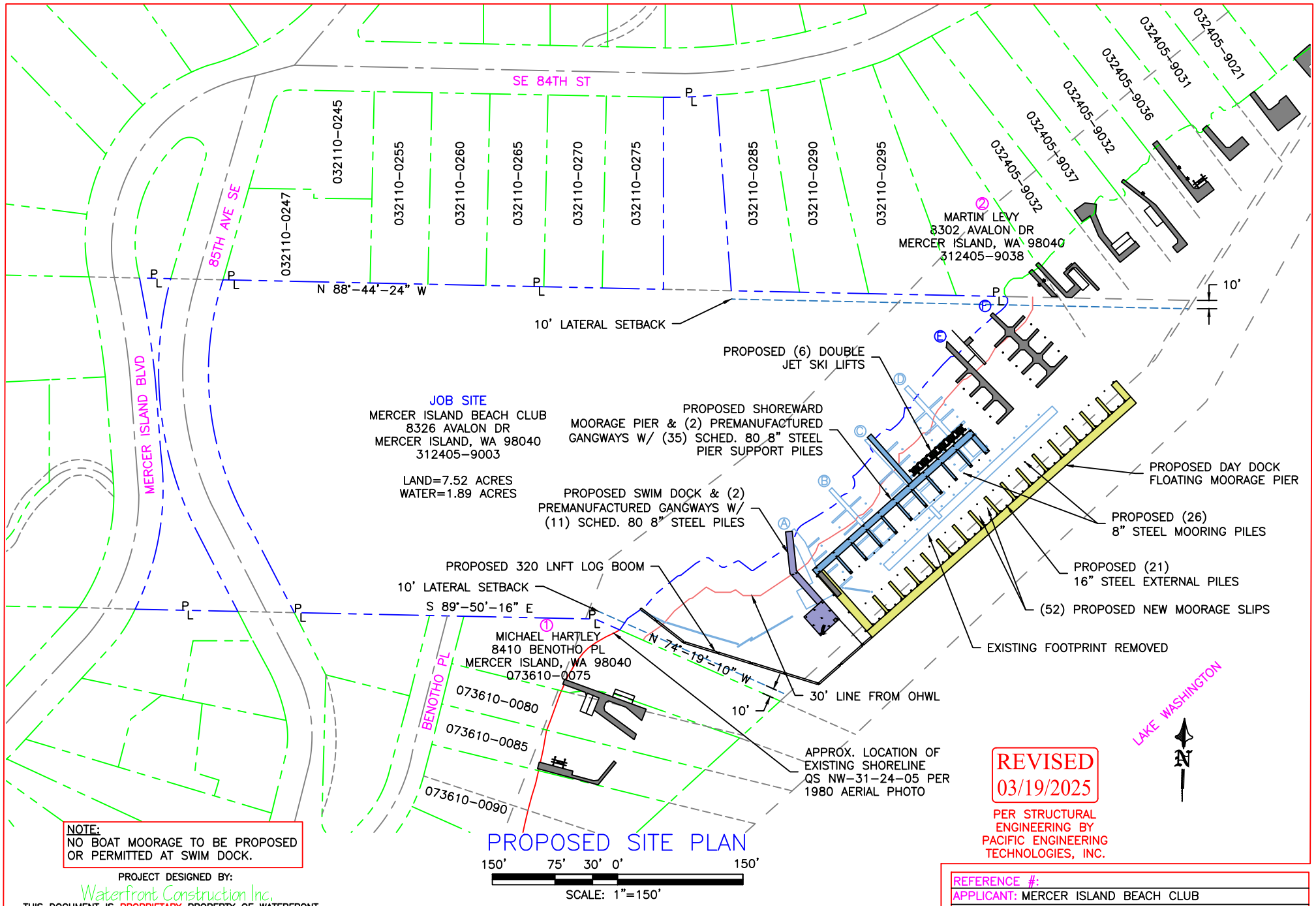
SCALE: 1"=150'

NOTE:
ADJACENT PROPERTIES WILL NOT BE AFFECTED BY SCOPE OF WORK SEEKING PERMITS.

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 2 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-2

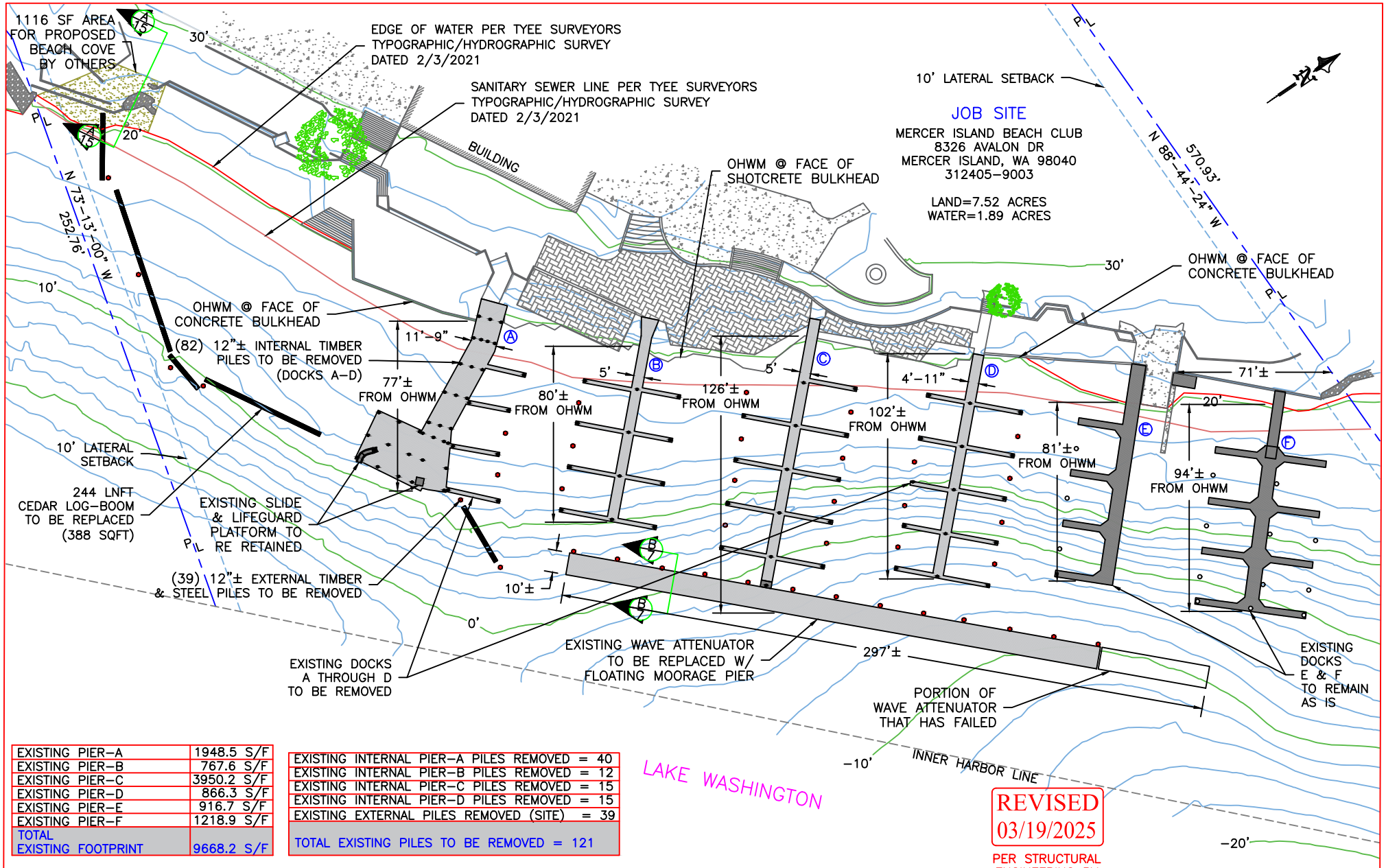


REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

NOTE:
NO BOAT MOORAGE TO BE PROPOSED OR PERMITTED AT SWIM DOCK.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 3 OF: 26	NEAR/AT:MERCER ISLAND
DATE:12/22/2021	DWG#: 20-37005-A15-3



EXISTING PIER-A	1948.5 S/F
EXISTING PIER-B	767.6 S/F
EXISTING PIER-C	3950.2 S/F
EXISTING PIER-D	866.3 S/F
EXISTING PIER-E	916.7 S/F
EXISTING PIER-F	1218.9 S/F
TOTAL EXISTING FOOTPRINT	9668.2 S/F

EXISTING INTERNAL PIER-A PILES REMOVED = 40
EXISTING INTERNAL PIER-B PILES REMOVED = 12
EXISTING INTERNAL PIER-C PILES REMOVED = 15
EXISTING INTERNAL PIER-D PILES REMOVED = 15
EXISTING EXTERNAL PILES REMOVED (SITE) = 39
TOTAL EXISTING PILES TO BE REMOVED = 121

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PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

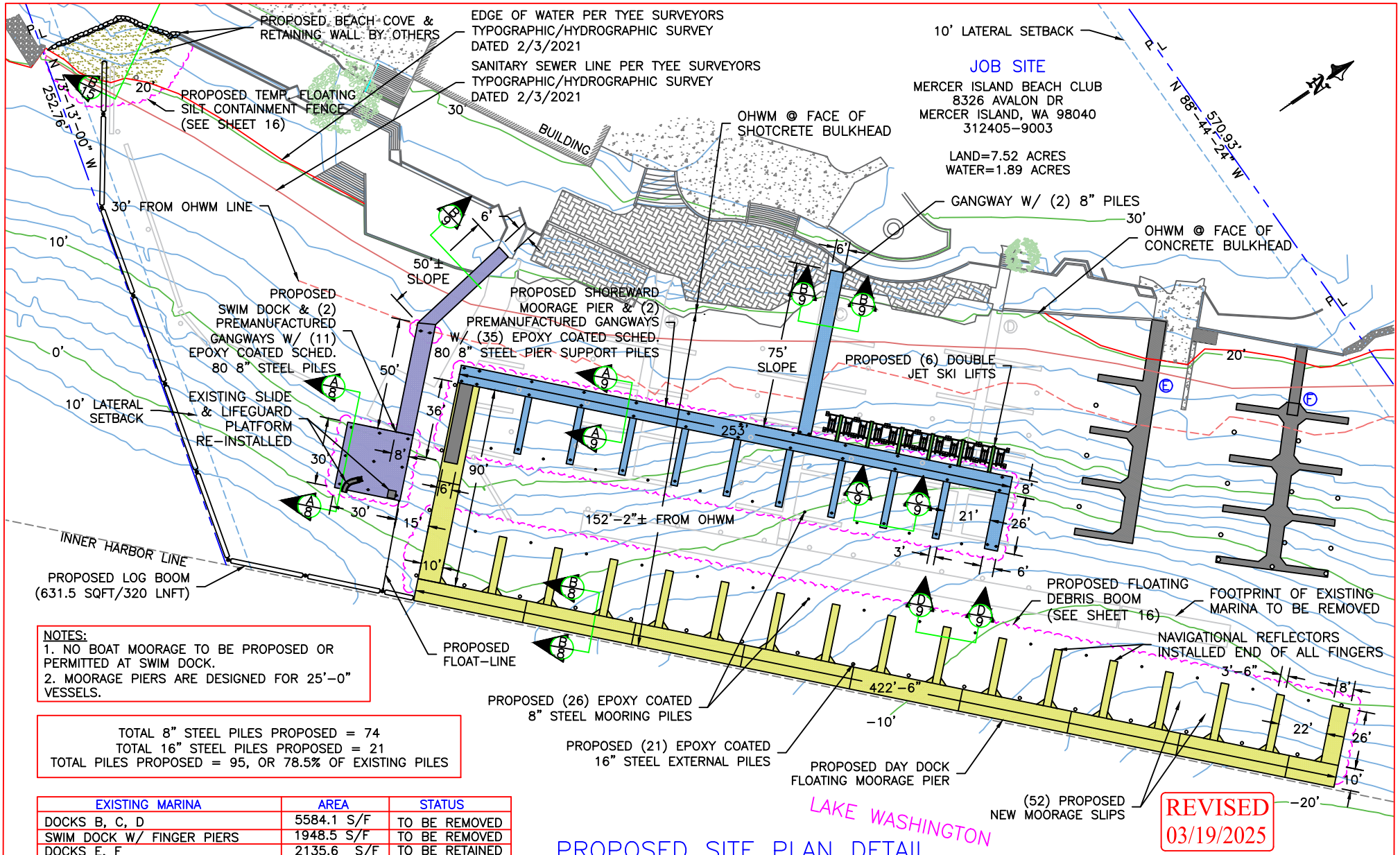
EXISTING SITE PLAN DETAIL

60' 45' 30' 15' 0' 60'

SCALE: 1"=60'

PROJECT DESIGNED BY:
Waterfront Construction Inc.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 4 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-4



NOTES:
1. NO BOAT MOORAGE TO BE PROPOSED OR PERMITTED AT SWIM DOCK.
2. MOORAGE PIERS ARE DESIGNED FOR 25'-0" VESSELS.

TOTAL 8" STEEL PILES PROPOSED = 74
TOTAL 16" STEEL PILES PROPOSED = 21
TOTAL PILES PROPOSED = 95, OR 78.5% OF EXISTING PILES

EXISTING MARINA	AREA	STATUS
DOCKS B, C, D	5584.1 S/F	TO BE REMOVED
SWIM DOCK W/ FINGER PIERS	1948.5 S/F	TO BE REMOVED
DOCKS E, F	2135.6 S/F	TO BE RETAINED
TOTAL EXISTING STRUCTURES	9668.2 S/F	

PROPOSED MARINA	AREA	STATUS
SWIM DOCK PIER & RAMP	1588 S/F	PROPOSED
SHOREWARD MOORAGE PIER & RAMP	2474 S/F	PROPOSED
DOUBLE JETSKI LIFTS	108 S/F	PROPOSED
DAY DOCK MOORAGE PIER	6032 S/F	PROPOSED
EXISTING DOCKS E, F	2135.6 S/F	TO BE RETAINED
TOTAL PROPOSED/EXISTING STRUCT.	12337.6 S/F	

PROPOSED SITE PLAN DETAIL

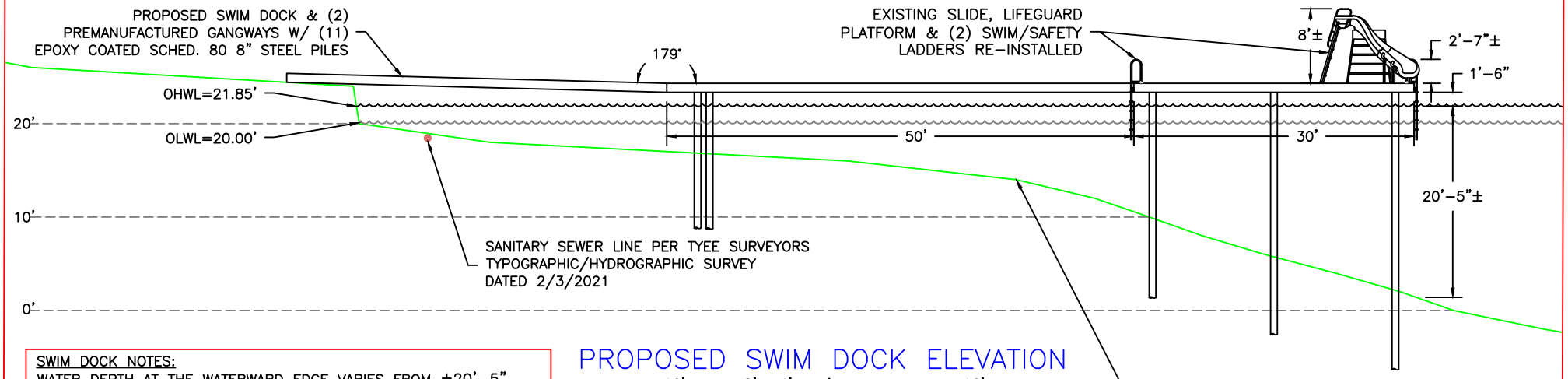
60' 45' 30' 15' 0' 60'

SCALE: 1"=60'

REVISED 03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 5 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-5



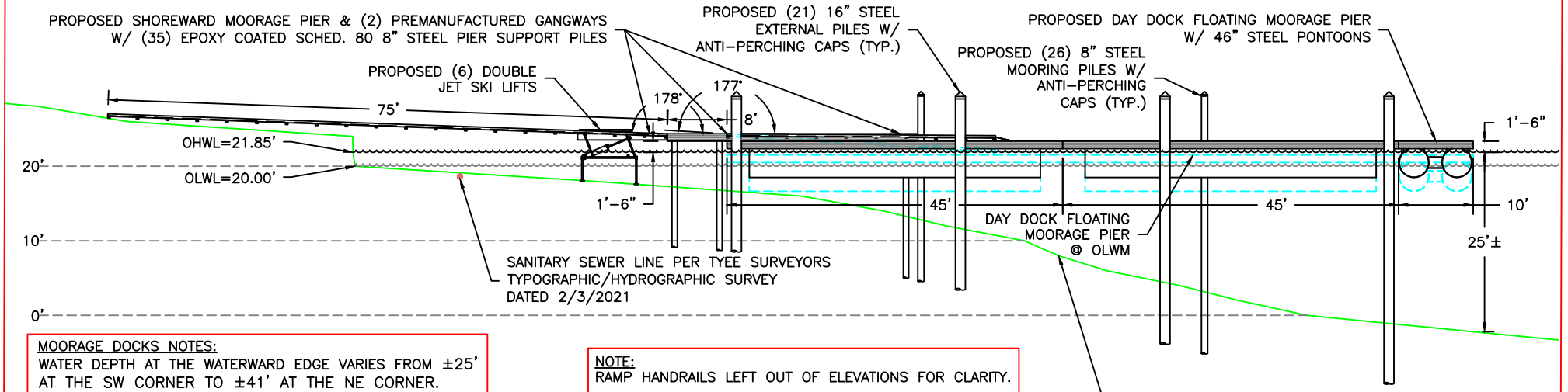
SWIM DOCK NOTES:
WATER DEPTH AT THE WATERWARD EDGE VARIES FROM ±20'-5" AT THE SW CORNER TO ±18'-5" AT THE NE CORNER.

NO BOAT MOORAGE TO BE PROPOSED OR PERMITTED AT SWIM DOCK.

PROPOSED SWIM DOCK ELEVATION

16' 8' 4' 0' 16'

SCALE: 1/16"=1'



MOORAGE DOCKS NOTES:
WATER DEPTH AT THE WATERWARD EDGE VARIES FROM ±25' AT THE SW CORNER TO ±41' AT THE NE CORNER.

FLOATING MOORAGE PIER TO CONSIST OF (2) 45', (8) 50' & (1) 22'-6" SECTIONS.

RAMP TO FLOATING MOORAGE PIER = ±3° INCLINE @ OLWM.

MOORAGE PIERS ARE DESIGNED FOR 25'-0" VESSELS.

NOTE:
RAMP HANDRAILS LEFT OUT OF ELEVATIONS FOR CLARITY.

PROPOSED MOORAGE DOCKS ELEVATION

20' 15' 10' 5' 0' 20'

SCALE: 1"=20'

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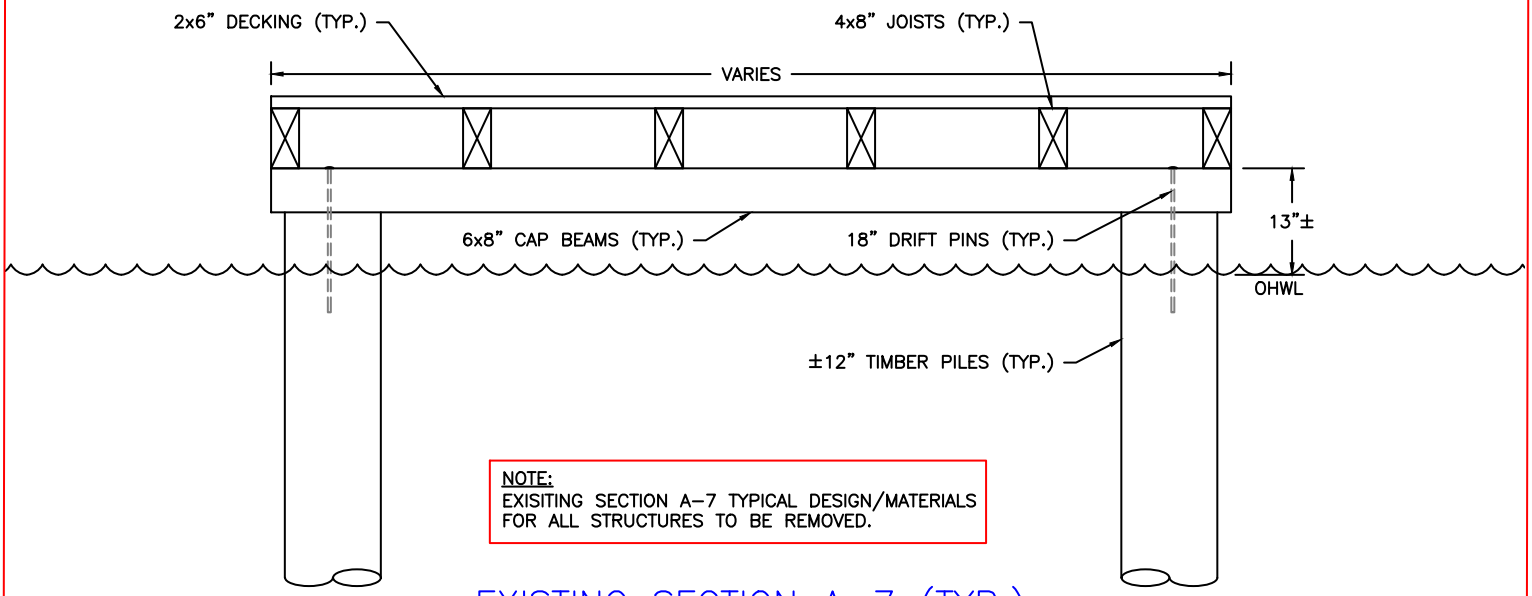
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

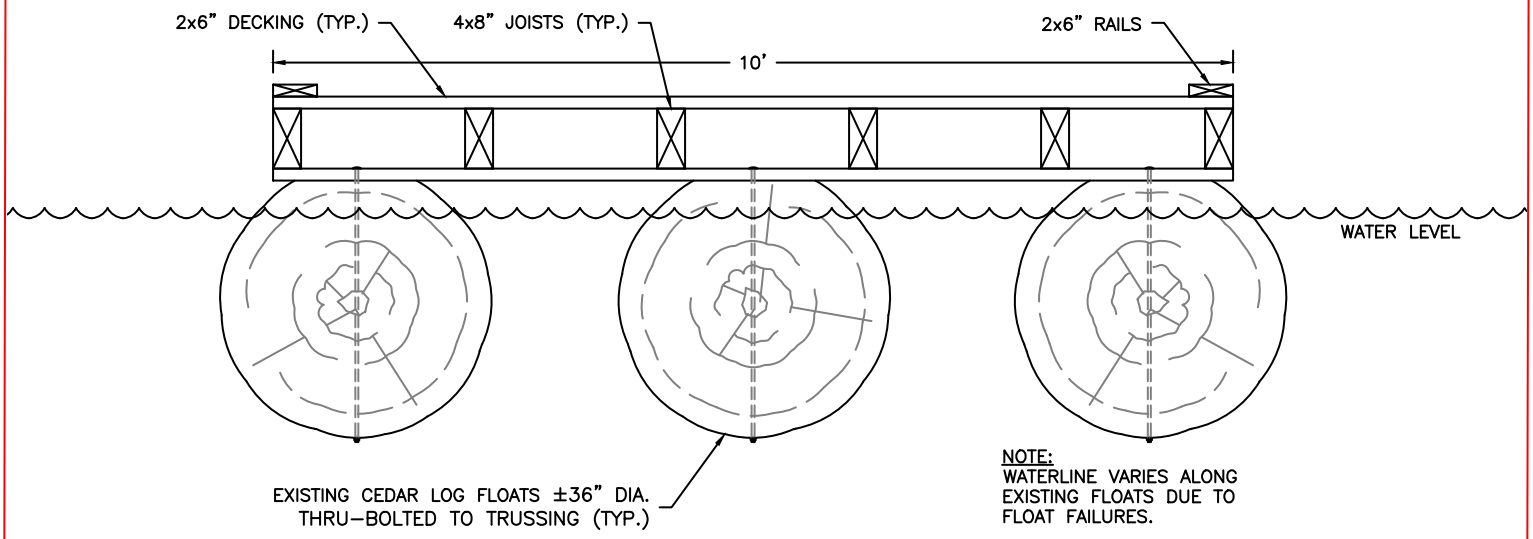
REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 6 OF: 26	NEAR/AT:MERCER ISLAND
DATE:12/22/2021	DWG#: 20-37005-A15-6



NOTE:
EXISITING SECTION A-7 TYPICAL DESIGN/MATERIALS FOR ALL STRUCTURES TO BE REMOVED.

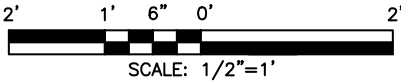
EXISTING SECTION A-7 (TYP.)

SCALE: 1/2"=1'



NOTE:
WATERLINE VARIES ALONG EXISTING FLOATS DUE TO FLOAT FAILURES.

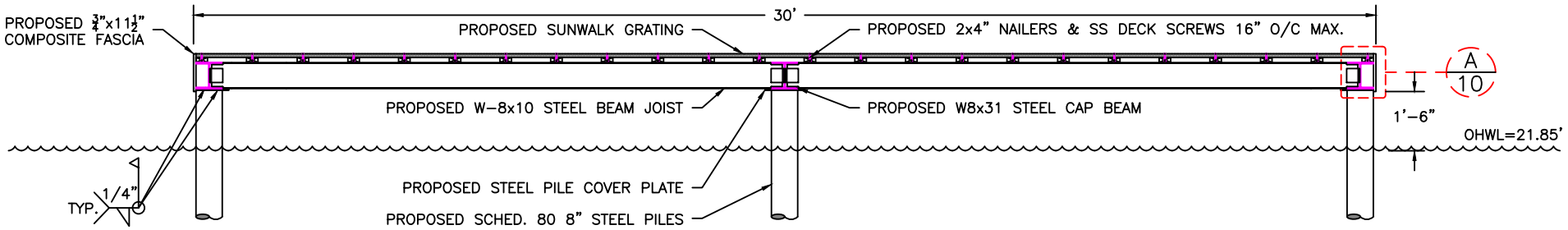
EXISTING SECTION B-7 (TYP.)



SCALE: 1/2"=1'

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 7 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-7



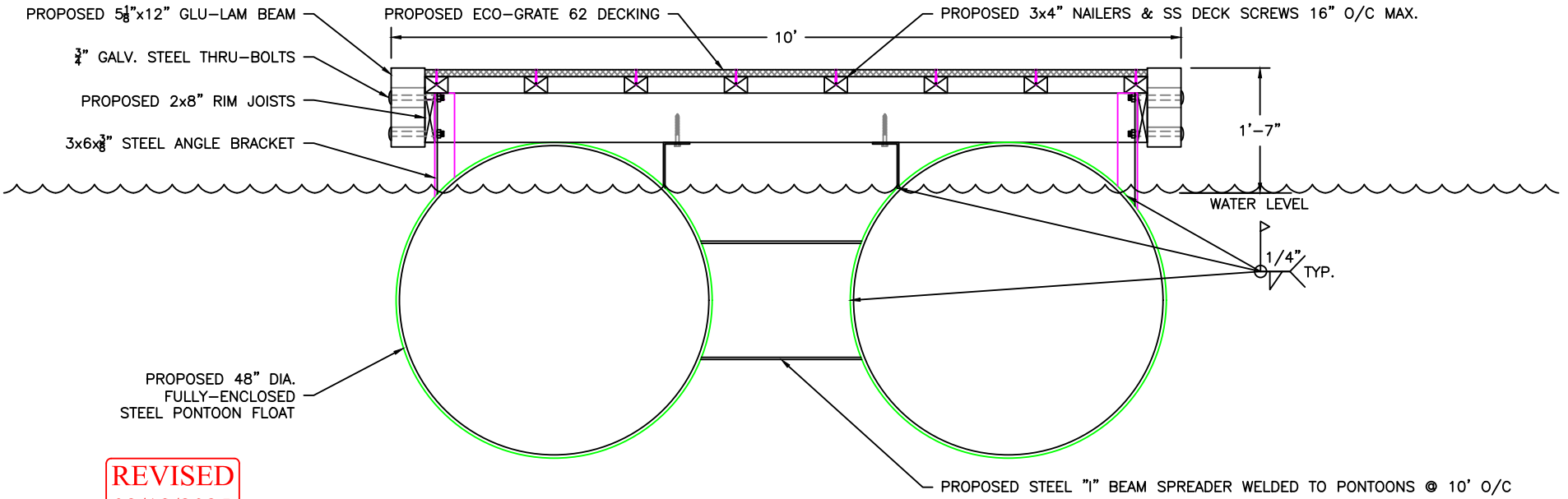
PROPOSED SECTION A-8 (SWIM DOCK)

4' 3' 2' 1' 0' 4'

SCALE: 1/4"=1'

NOTES:
PROPOSED DESIGN AND MATERIALS CONSISTENT THROUGHOUT SWIM DOCK.

NO BOAT MOORAGE TO BE PROPOSED OR PERMITTED AT SWIM DOCK.



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03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

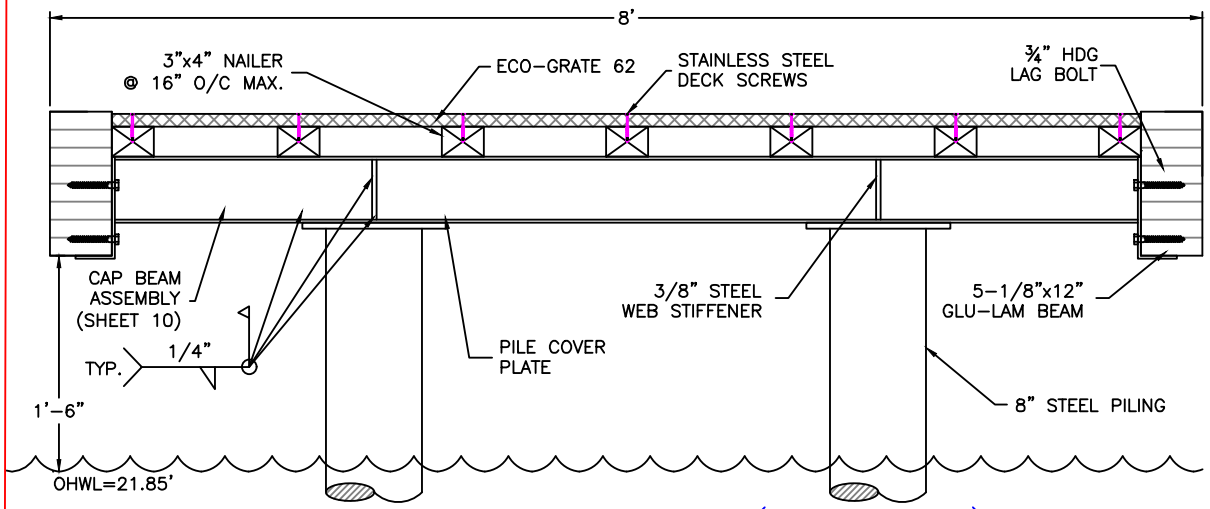
PROPOSED SECTION B-8 (FLOATING MOORAGE PIER - TYP.)

2' 1' 6" 0' 2'

SCALE: 1/2"=1'

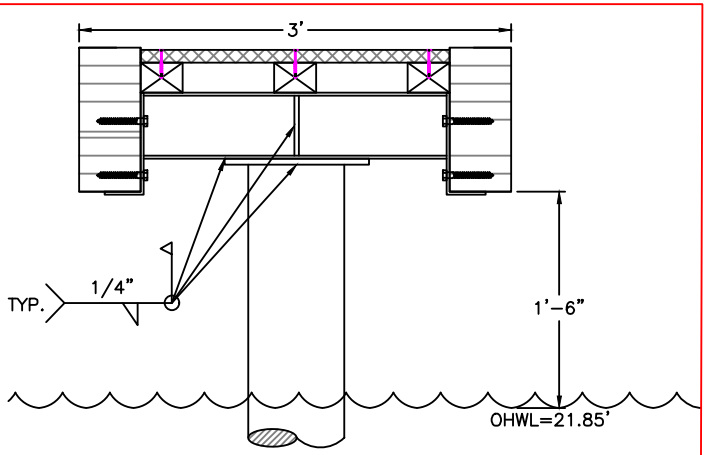
PROJECT DESIGNED BY:
Waterfront Construction Inc.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 8 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-8



PROPOSED SECTION A-9 (FIXED PIER)

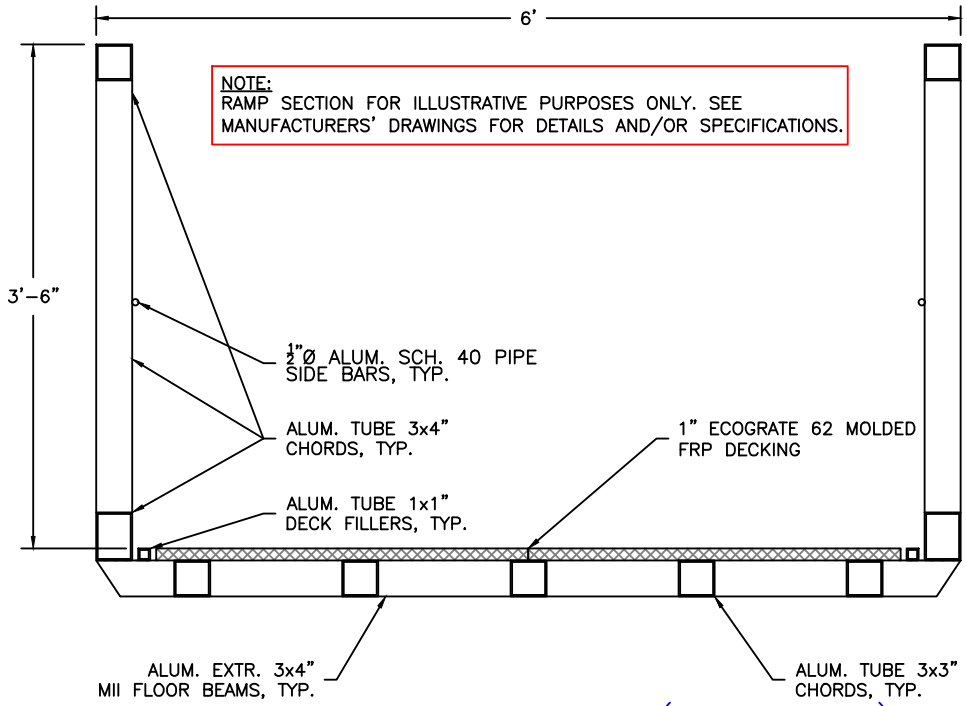
SCALE: 3/4"=1'



PROPOSED SECTION C-9 (FIXED FINGER PIER)

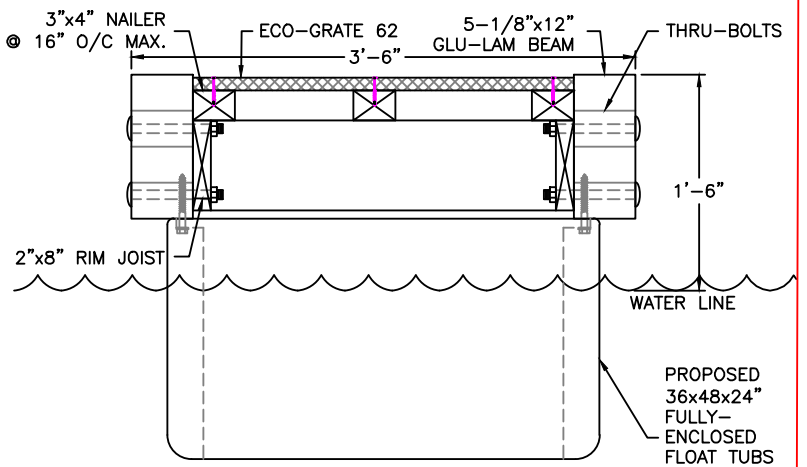
SCALE: 3/4"=1'

NOTE:
FIXED FINGER PIER FRAMING MEMBERS SAME AS FIXED PIER AT LEFT.



PROPOSED SECTION B-9 (MAIN RAMP)

SCALE: 3/4"=1'



PROPOSED SECTION D-9 (FLOATING FINGER PIER)

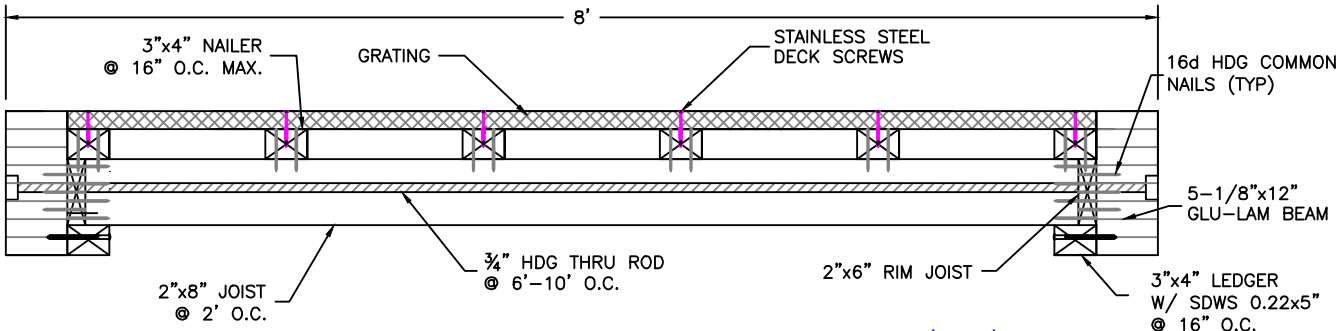
SCALE: 3/4"=1'

REVISED
03/19/2025

PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

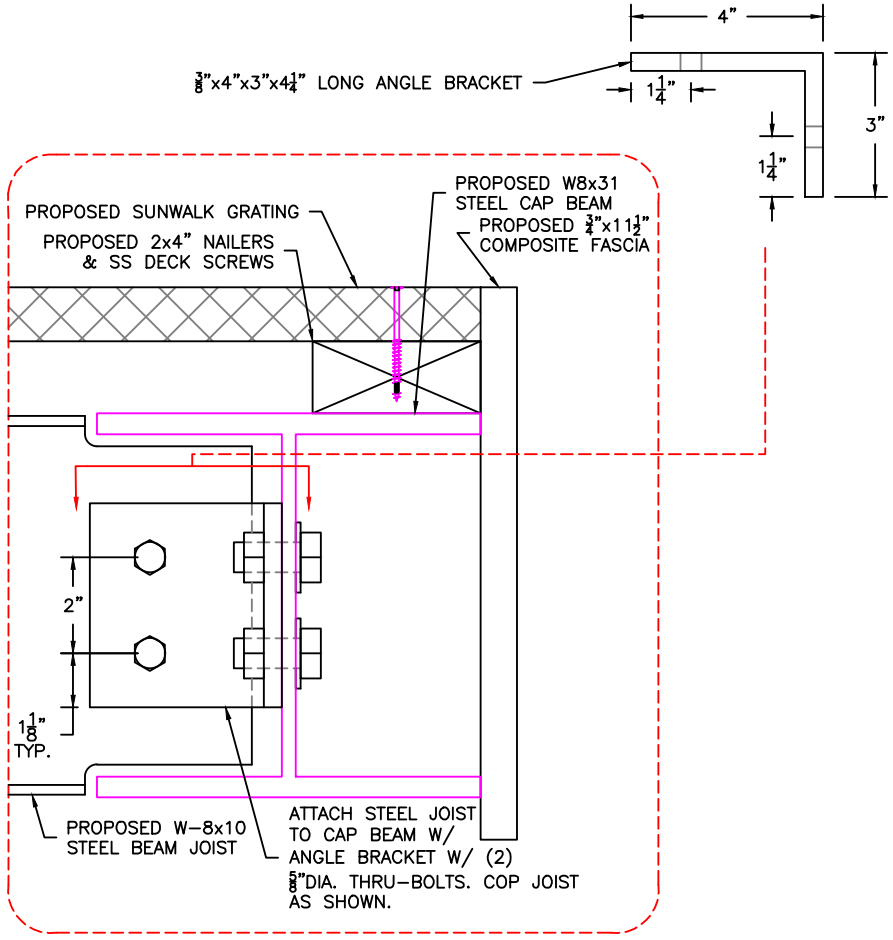
REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 9 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-9



PROPOSED FRAMING SECTION FOR SHOREWARD PIER (A-9)

12" 6" 3" 0' 1'

SCALE: 3/4"=1'



DETAIL A-10

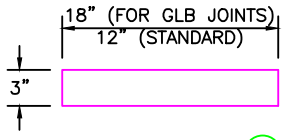
0' 3" 6" 9" 1'

SCALE: 3"=1'

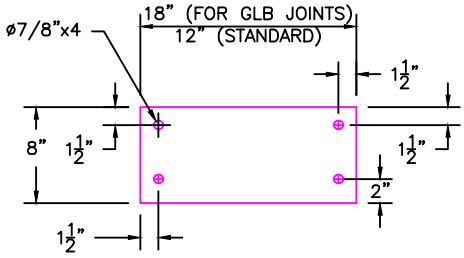
REVISED
03/19/2025

PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

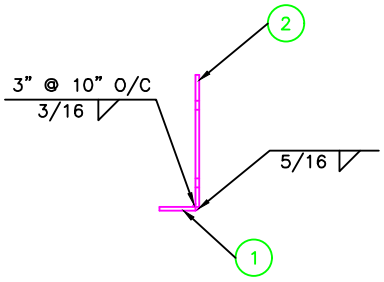
REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 10 OF: 26	NEAR/AT:MERCER ISLAND
DATE:12/22/2021	DWG#: 20-37005-A15-10



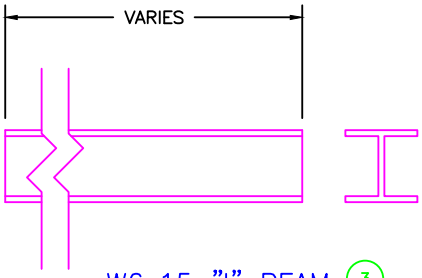
BEAM PLATE (BOTTOM) 1



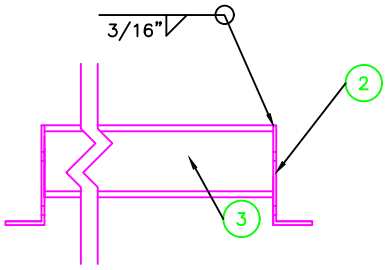
BEAM PLATE (BACK) 2

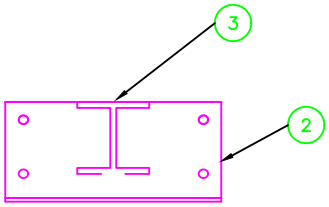


BEAM BRACKET ASSEMBLY

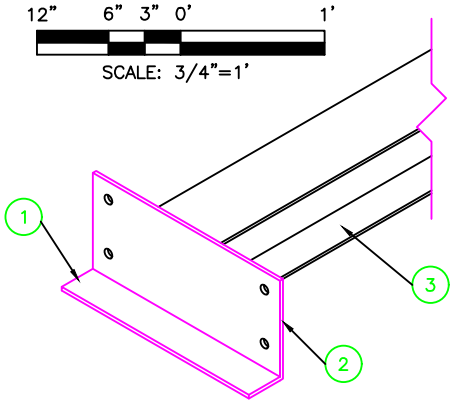


W6x15 "I" BEAM 3





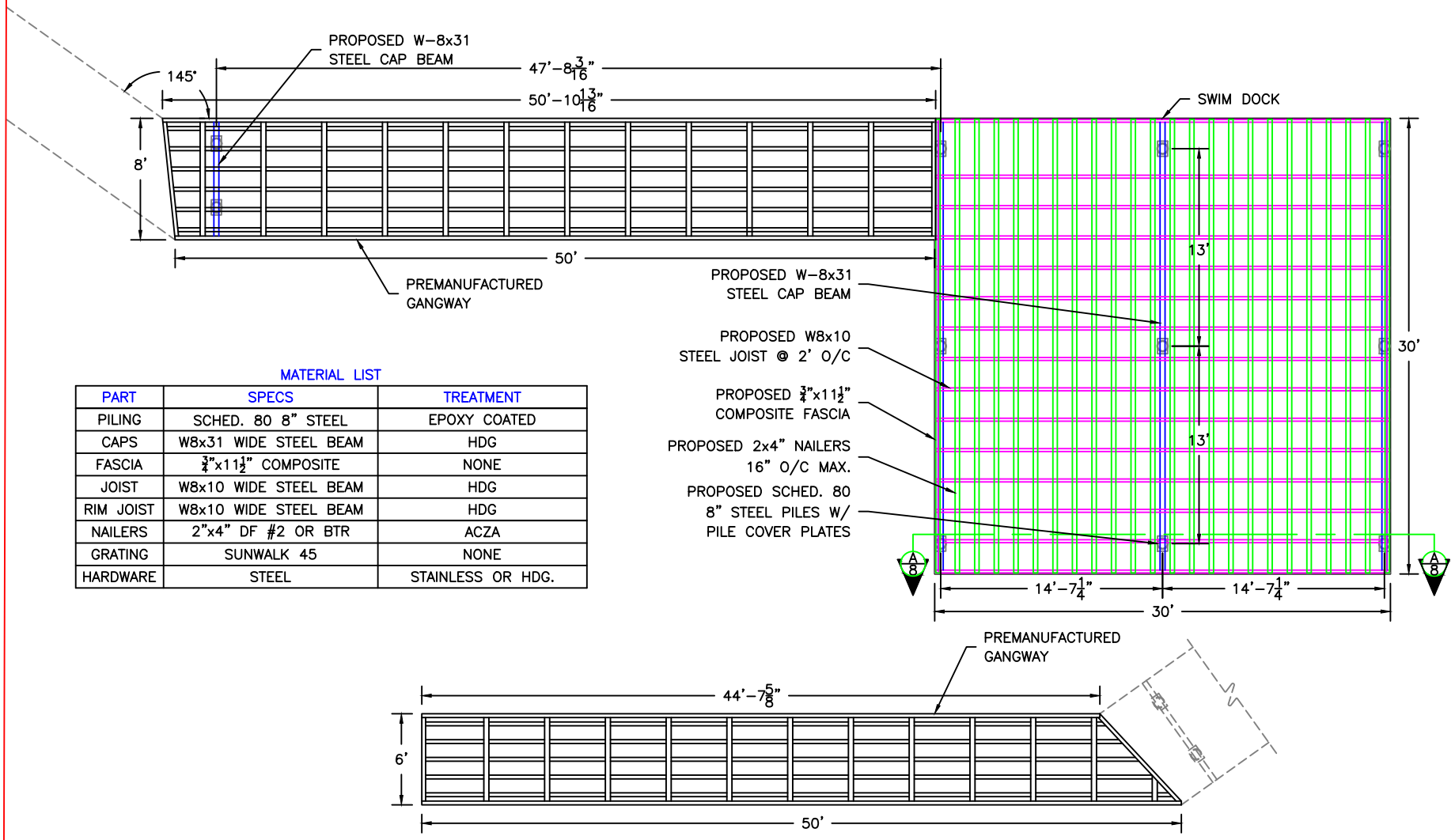
STEEL CAP ASSEMBLY



PART #	QTY REQD	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
3	–	W6x15 "I" BEAM	6" 15 LB PER FOOT I–BEAM
2	1	BACK BEAM PLATE	18"x8"x5/16" STEEL PLATE
1	1	BOTTOM BEAM PLATE	18"x3"x5/16" STEEL PLATE

REVISED 03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 11 OF: 26	NEAR/AT:MERCER ISLAND
DATE:12/22/2021	DWG#: 20–37005–A15–11



MATERIAL LIST

PART	SPECS	TREATMENT
PILING	SCHED. 80 8" STEEL	EPOXY COATED
CAPS	W8x31 WIDE STEEL BEAM	HDG
FASCIA	¾"x11½" COMPOSITE	NONE
JOIST	W8x10 WIDE STEEL BEAM	HDG
RIM JOIST	W8x10 WIDE STEEL BEAM	HDG
NAILERS	2"x4" DF #2 OR BTR	ACZA
GRATING	SUNWALK 45	NONE
HARDWARE	STEEL	STAINLESS OR HDG.

PROPOSED SWIM DOCK, PIER & RAMP FRAMING PLAN VIEWS

10' 5' 2' 0 10'

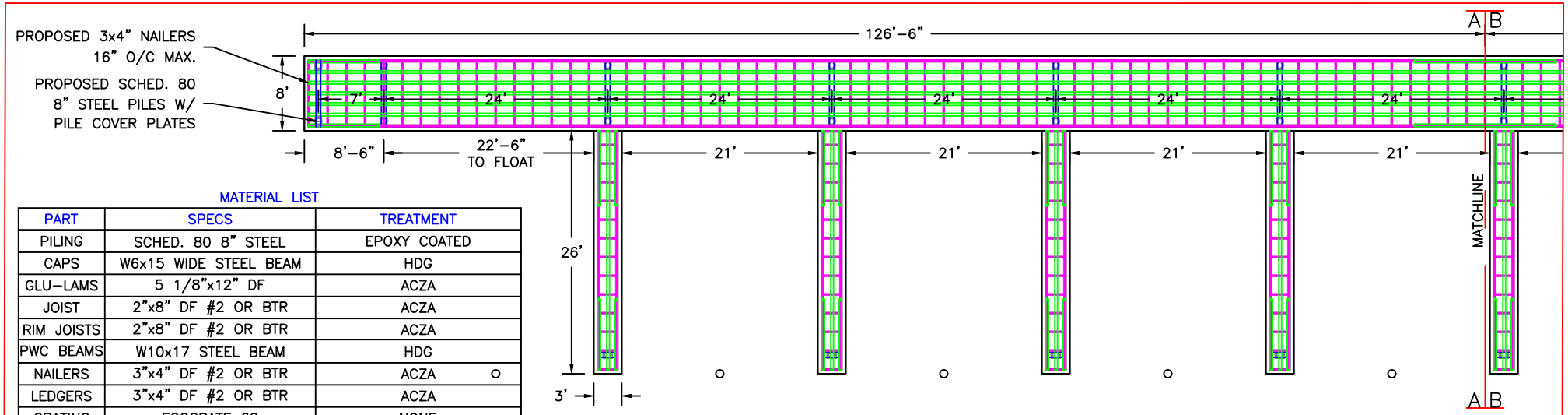
SCALE: 1"=10'

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

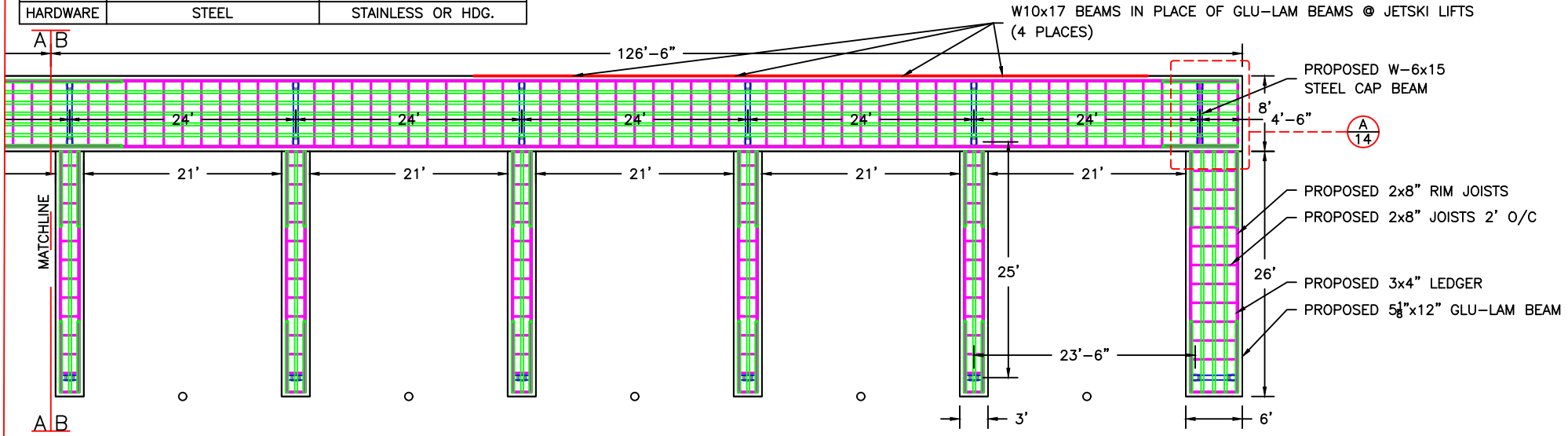
SUNWALK 45 ARE MANUFACTURED WITH AN ADA COMPLIANT SLIP–RESISTANT WALKING SURFACE, COUPLED WITH A 45% OPEN AREA.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 12 OF: 26	NEAR/AT:MERCER ISLAND
DATE:12/22/2021	DWG#: 20–37005–A15–12



MATERIAL LIST

PART	SPECS	TREATMENT
PILING	SCHED. 80 8" STEEL	EPOXY COATED
CAPS	W6x15 WIDE STEEL BEAM	HDG
GLU-LAMS	5 1/8"x12" DF	ACZA
JOIST	2"x8" DF #2 OR BTR	ACZA
RIM JOISTS	2"x8" DF #2 OR BTR	ACZA
PWC BEAMS	W10x17 STEEL BEAM	HDG
NAILERS	3"x4" DF #2 OR BTR	ACZA
LEDGERS	3"x4" DF #2 OR BTR	ACZA
GRATING	ECOGRATE 62	NONE
HARDWARE	STEEL	STAINLESS OR HDG.



PROPOSED SHOREWARD MOORAGE PIER FRAMING PLAN VIEWS A&B

16' 8' 4' 0' 16'

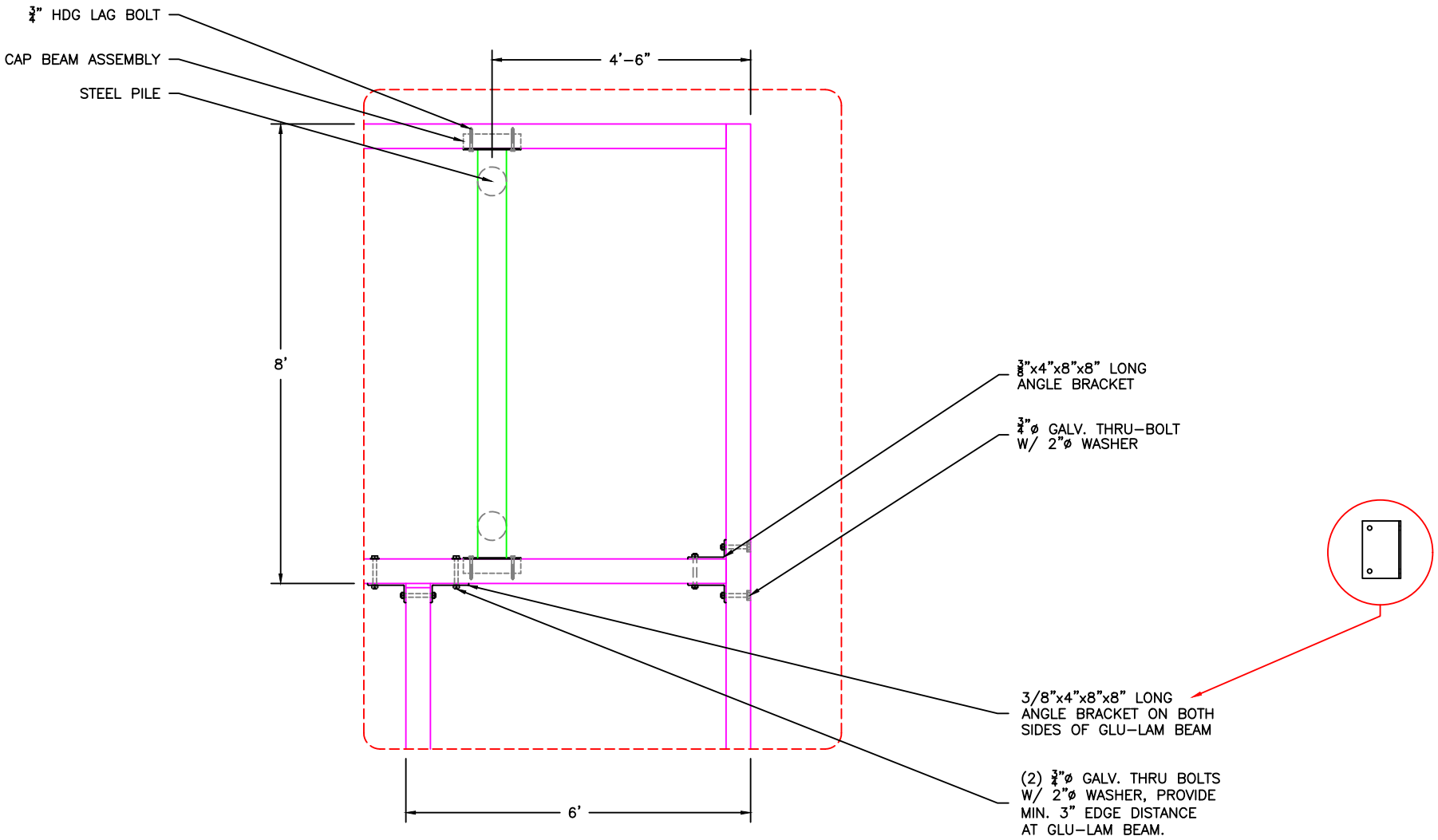
SCALE: 1/16"=1'

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

ADA COMPLIANT ECOGRATE 62 IS SPECIFICALLY DESIGNED TO MEET REQUIREMENTS OF THE NATIONAL MARINE FISHERIES SERVICE AND U.S. ARMY CORPS OF ENGINEERS FOR MARINE DECKING AND DOCKS. WITH A 3/4" X 4" MESH AND 62% OPEN AREA, THIS GRATING PROTECTS SEAGRASS AND OTHER SHALLOW MARINE HABITATS BENEATH DOCKS. ECOGRATE®62 COMES WITH A STANDARD COARSE GRIT WALKING SURFACE OR THE OPTIONAL AQUA GRIT (FINE GRIT) SURFACE WHICH PROVIDES INCREASED COMFORT UNDER BARE FEET.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 13 OF: 26	NEAR/AT:MERCER ISLAND
DATE:12/22/2021	DWG#: 20-37005-A15-13



TYPICAL GLU–LAM BEAM CONNECTION DETAIL A–14

2' 1' 6" 0' 2'

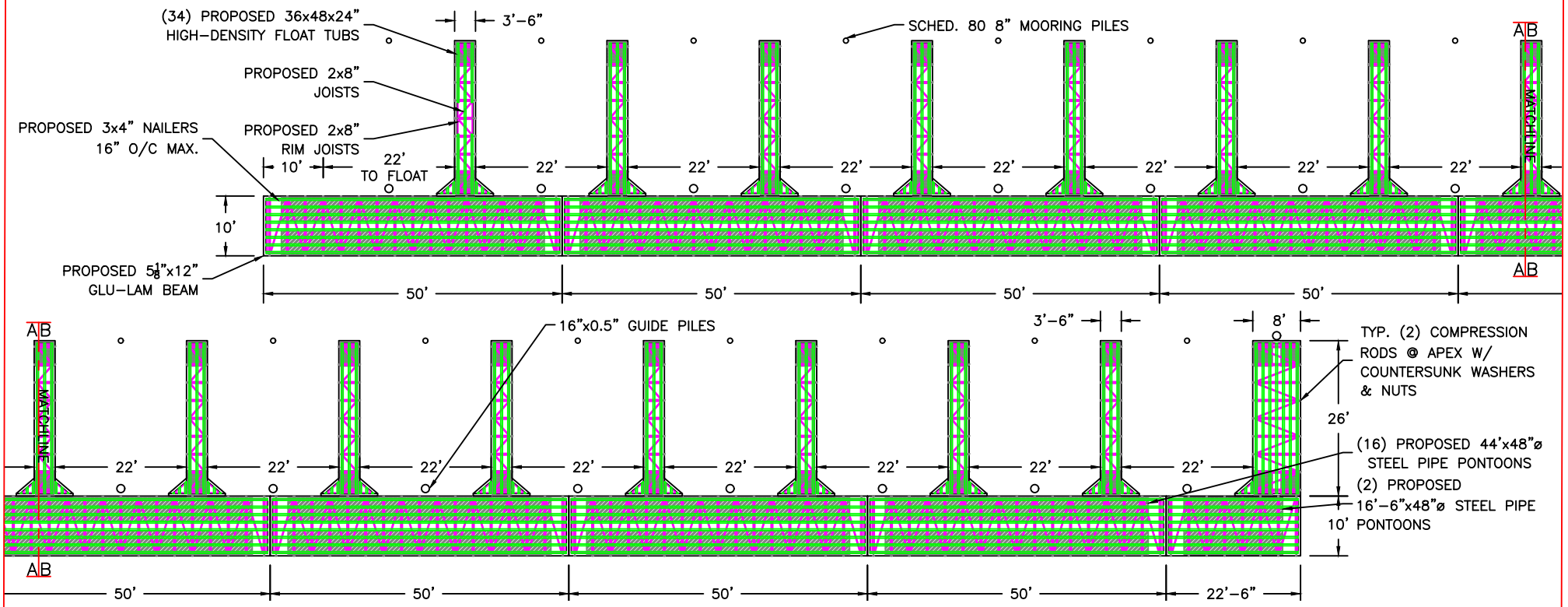
SCALE: 3/8"=1'

REVISED
03/19/2025

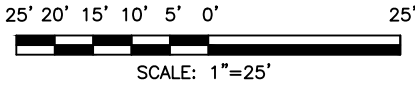
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

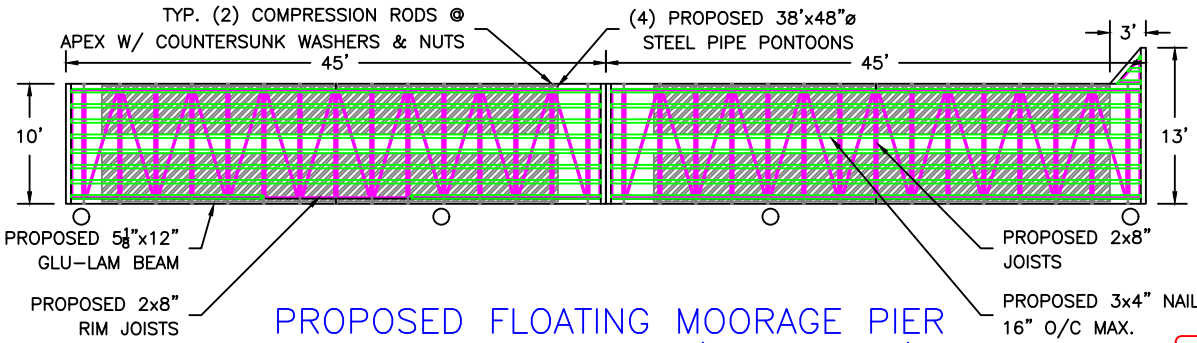
REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 14 OF: 26	NEAR/AT:MERCER ISLAND
DATE:12/22/2021	DWG#: 20–37005–A15–14



PROPOSED FLOATING MOORAGE PIER FRAMING PLAN VIEWS – A&B



SCALE: 1"=25'



PROPOSED FLOATING MOORAGE PIER FRAMING PLAN VIEW (MAIN WALK)

SCALE: 1/16"=1'

MATERIAL LIST

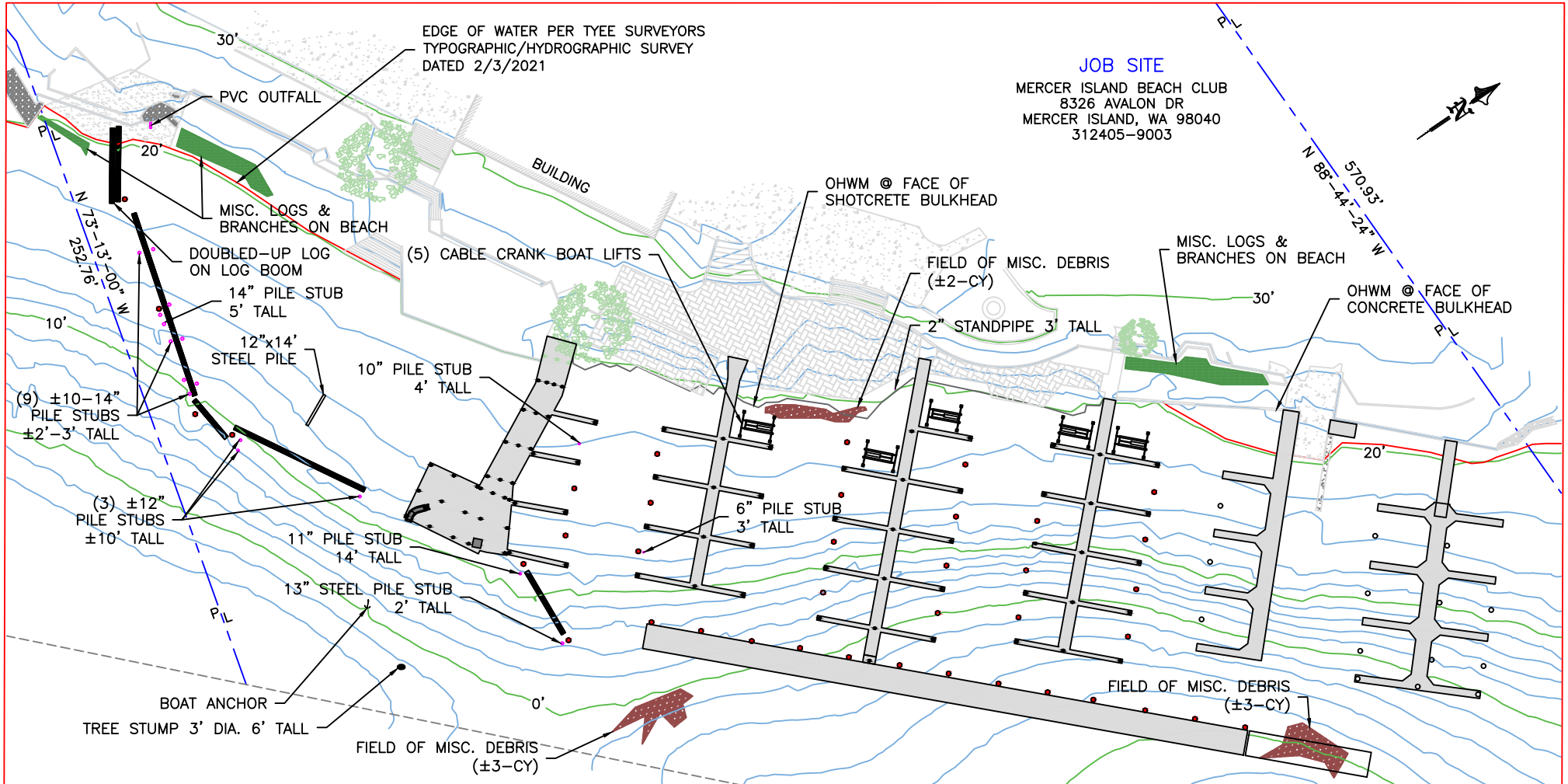
PART	SPECS	TREATMENT
GUIDE PILES	16"x0.5" DIA. STEEL	EPOXY
MOORING PILES	SCHED. 80 8" STEEL	EPOXY
GLU-LAMS	5 1/8"x12" DF	ACZA
JOIST	2"x8" DF #2 OR BTR	ACZA
RIM JOIST	2"x6" DF #2 OR BTR	ACZA
NAILERS	3"x4" DF #2 OR BTR	ACZA
PONTOONS	48" DIA. STEEL PIPE	EPOXY
GRATING	ECOGRATE 62	NONE
HARDWARE	STEEL	STAINLESS OR HDG.

REVISED 03/19/2025

PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 15 OF: 26	NEAR/AT:MERCER ISLAND
DATE:12/22/2021	DWG#: 20-37005-A15-15



DEBRIS DIVE ASSESSMENT KEY

(±15-20) MISC. BRANCES & LOGS ON BEACHES
(1) 12"x14' STEEL PILE
(1) DOUBLED-UP LOG ON LOG BOOM
(9) ±10-14" PILE STUBS ±2-3' TALL
(1) 14" PILE STUB 5' TALL
(3) 12 PILE STUB 10' TALL
(1) 11" PILE STUB 14' TALL
(1) 6" PILE STUB 3' TALL
(1) 10" PILE STUB 4' TALL

(3) FIELDS OF MISC. DEBRIS ±8-CY
(1) 2'x8' LOG
(1) 3'x6' TREE STUMP
(1) BOAT ANCHOR
(5) CABLE CRANK BOAT LIFTS
(1) 2" STANDPIPE 3' TALL
(1) PVC OUTFALL

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

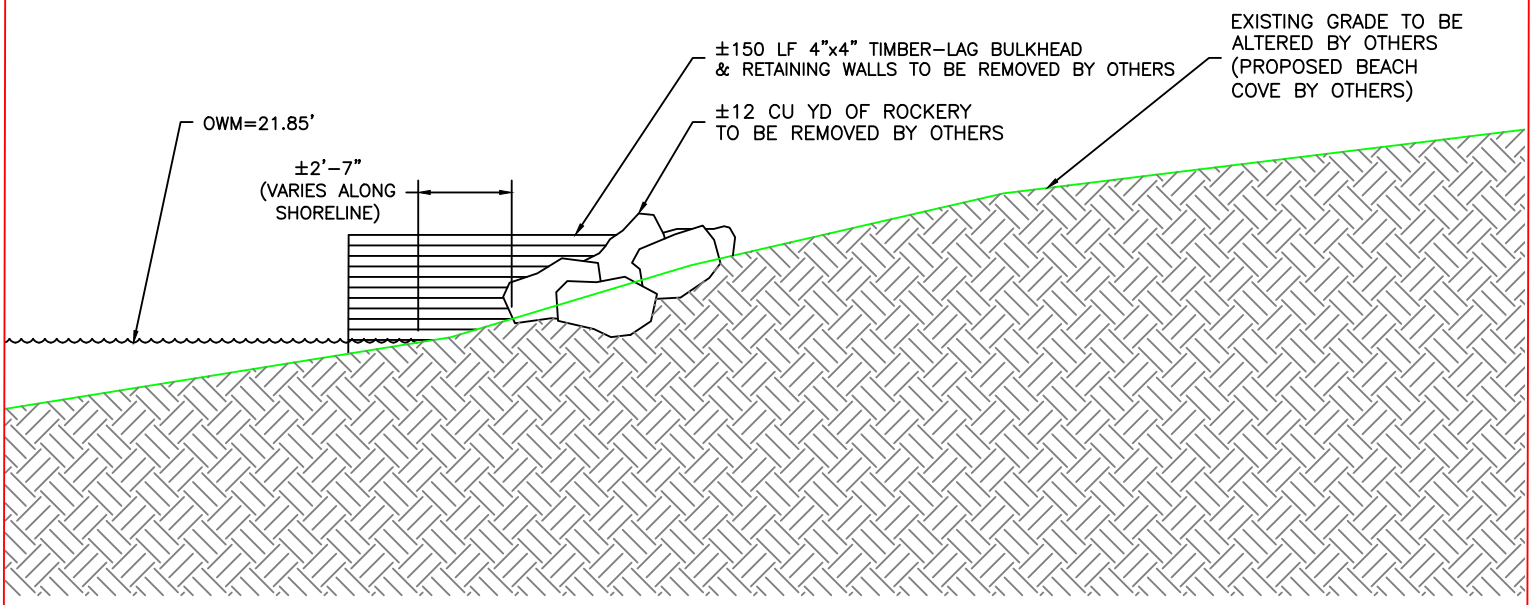
PROPOSED MITIGATION PLAN VIEW

60' 45' 30' 15' 0' 60'

SCALE: 1"=60'

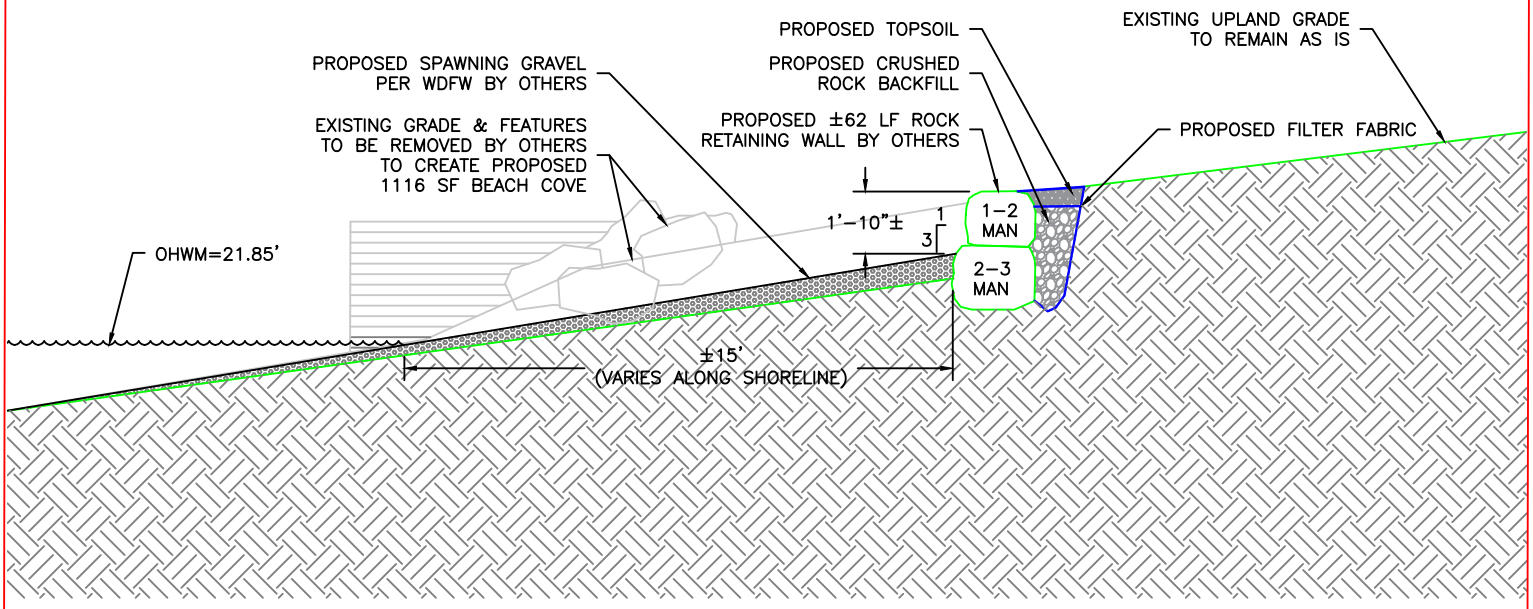
PROJECT DESIGNED BY:
Waterfront Construction Inc.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 16 OF: 26	NEAR/AT:MERCER ISLAND
DATE:12/23/2021	DWG#: 20-37005-A15-16



EXISTING SECTION A–15

SCALE: 3/16"=1'



PROPOSED SECTION B–15

4' 3' 2' 1' 0' 4'

SCALE: 3/16"=1'

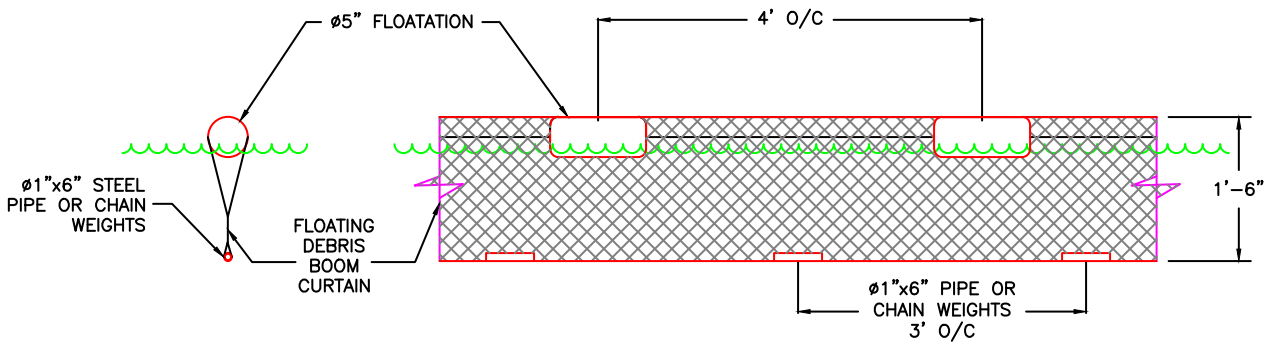
REVISED
03/19/2025

PER STRUCTURAL
ENGINEERING BY
PACIFIC ENGINEERING
TECHNOLOGIES, INC.

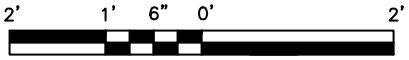
PROJECT DESIGNED BY:

Waterfront Construction Inc.

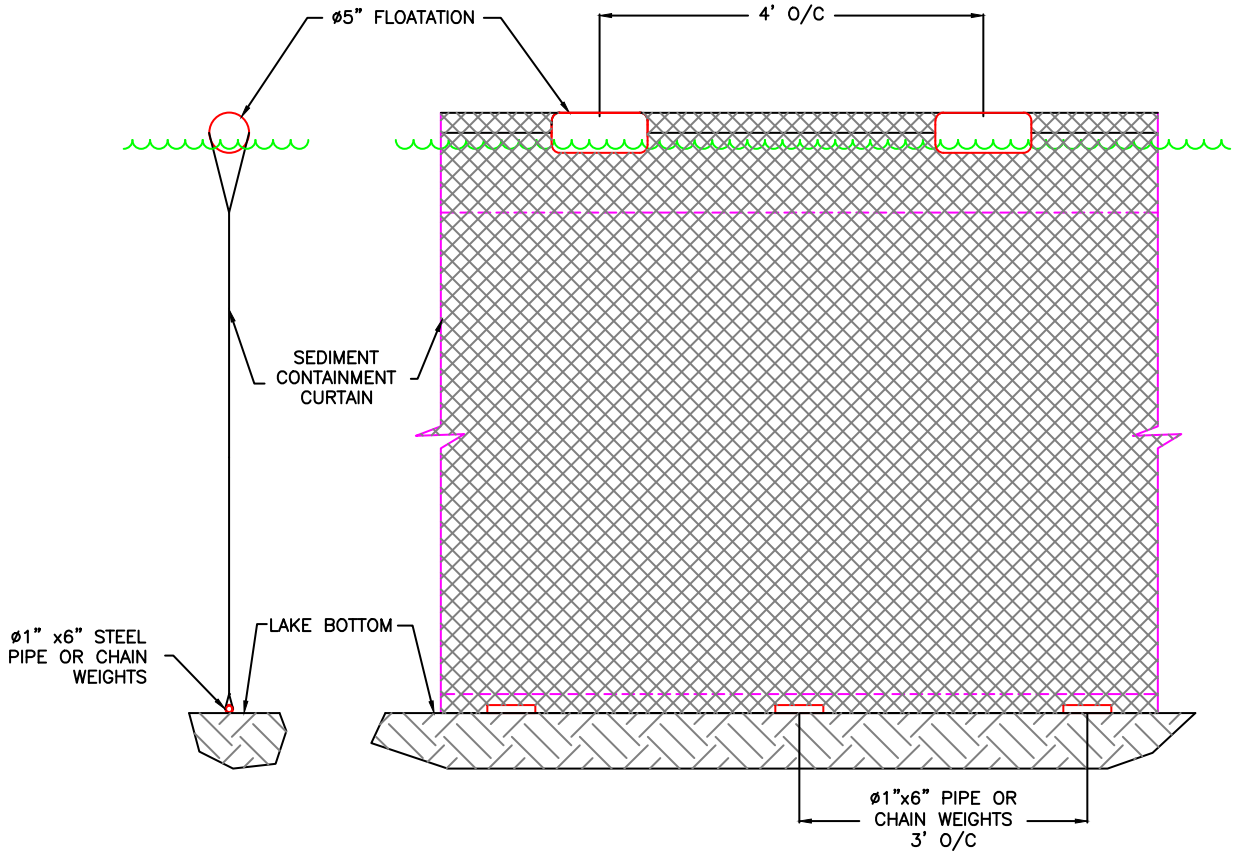
REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 17 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20–37005–A15–17



FLOATING DEBRIS BOOM



SCALE: 1/2"=1'



TEMP. FLOATING SILT CONTAINMENT FENCE

SCALE: 1/2"=1'

REVISED 03/19/2025

PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 18 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-18

WATERFRONT CONSTRUCTION, INC.
BEST MANAGEMENT PRACTICES

GENERAL CLEANUP

Objective:
Maintain a clean pier and upland work area to provide an environment that reduces the potential for pollutants to enter groundwater or adjacent surface waters and reduce the risk of injury to workers.

BMP:
The upland work area and pier is to be cleaned on a regular basis in order to minimize the loss of accumulated debris to adjacent waters.

- Remove and properly dispose of all refuse, including but not limited to: paper, cans, bottles, wood, steel, and other fabrication and construction materials.
- Procedures and practices should be established to ensure that adequate clean_up occurs.
- Debris that accumulates along the facilities shoreline should be periodically cleaned_up and removed.
- All waste shall be managed within the guidelines of federal, state, and local regulations.

NOTE: Methods used for general cleanup range from broom sweeping and hand pick_up to the use of mechanized equipment.

SPILL CONTROL AND COUNTERMEASURE PLAN (SCC PLAN)

Objective:
In the event of a hazardous or non-hazardous spill emergency, an on_site SCC plan will greatly enhance the ability for adequate response, containment, and clean_up of the spill.

BMP:
- The SCC plan should be implemented and adhered to by all members of Waterfront Construction, Inc., sub_contractors, and customers working on site.
- Items for the work areas that need to be addressed are spill reporting, spill clean_up, portable tanks, material storage areas, employee training, reporting and record keeping, and many others.
- An adequate supply of spill cleanup and containment materials should be placed on all vessels carrying potential hazardous spill material.
- Cleanup materials designed to absorb petroleum products and plastic bags used to transport used absorbent pads.

EMERGENCY SPILL PROCEDURES
- Report spill location, type, size and approximate time to the following agencies, in the order listed:

Agency	*Phone Number*
US Coast Guard Spill Response Branch	206-220-7000 #7221 or 1-800-982-8813 #7221
Foss Environmental Services	1-800-337-7455
Waterfront Construction, Inc.	206-548-9800
Emergency Pager	206-534-8500
WA ST Dept of Ecology	425-649-7000

"NO DUMPING"

Objective:
To educate employees, subcontractors and vessel operators about illegal dumping in Waterfront Construction Seattle Yard or onsite work areas.

BMP:
What is Dumping? For the purpose of this BMP, it means: No discarding of pollutants into the surface waters, storm drains, sinks and toilets, or on the grounds. Pollutants consist of: paints, solvents, adhesives, oils, detergents, general trash and debris, etc.
"NO DUMPING" INTO:
- **Surface Waters**: Committed to preserving state waters and the local environment. All persons are asked to take part in the commitment to preserve the environment by not dumping.
- **Storm Drains**: Storm drains usually lead to the surface waters. These drains are a potential source of pollution. Be aware of the storm drains and do not allow "Dumping."
- **Sinks & Toilets**: Sinks and toilets usually discharge to the local sewage treatment plant. "Dumping" pollutants into the treatment plant is illegal. It slows the water treatment process and can cause sewage spills, which pollute the state waters. Also many illegally "dumped" pollutants do not get treated and end up in the ocean. Do not "Dump" into sinks and toilets.
- **Facility Grounds**: "Dumping" of pollutants on the grounds is unacceptable. All spills must be cleaned_up immediately. If the pollutants are not cleaned_up, wind and rain will eventually transport the pollutants to state waters. Liquids will soak into the soil, which will also eventually reach surface waters. Do your part to put litter in trashcans and report and/or clean_up all spills.
-

Be Aware, regulatory agencies will fine individuals and companies for illegal dumping.

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 19 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-19

WATERFRONT CONSTRUCTION, INC.
BEST MANAGEMENT PRACTICES

OIL CONTAINMENT BOOMS

Background:
Oil containment booms may be positioned around vessels when determined necessary, while vessel is berthed at the Waterfront Construction Seattle yard or on a construction at a job site. The booms are designed to contain spills that might occur during the vessel's stay at the yard or at a job site. When booms are placed around vessels, it is easier to determine where a spill originated (i.e., from outside the boom or inside). Booms may also be kept on shore to deploy as ancillary containment if required in case a spill should occur.

Objective:
Ensure accidental spills that reach state waters are contained.

BMP:
Yard foreman or construction crew chief may position oil containment booms around vessels that present a possibility for improper discharges while berthed at the facility.
- Reserve booming should be on site ready to deploy in case a spill requires additional containment.
- Procedures should be developed for deploying additional oil containment booms around and for clean up.
- Procedures for clean_up inside the boomed area should follow Spill Control and Countermeasure Plan.

The employees responsible for deploying booms should be aware of outfall locations. These outfalls are potential locations where booms will need to be placed if a spill occurs near a storm drain.

TEMPORARY AND PERMANENT LIQUID STORAGE AREAS

Objective:
Provide an area on vessels and in Waterfront Construction Seattle Yard where hazardous liquids can be stored that will help ensure spillage from paint, solvent, and oil containers does not soak into the underlying soils or enter nearby surface waters.

BMP:
Dangerous materials such as fuels, paints, solvents, etc. should be stored in a place that can contain the material in the event of a spill. The contained area should be surrounded by a curb, dyke, berm or some other type of secondary containment to provide sufficient volume to help contain possible spills.
- Storage of reactive, ignitable, or flammable materials will comply with all local and state fire codes.

NOTE: The following BMPs are designed to complement, not conflict with fire code requirements.
- Temporary containment will be used to contain small quantities of fuel, paint, thinner, solvents, etc. used for construction equipment, work vessel or construction project.

Larger quantities of reserve fuel will be stored in the appropriate storage tank on board the vessel.

BILGE AND BALLAST WATERS

Objective:
Prevent discharge of oily bilge water to surface waters and provide an acceptable method for handling.

BMP:
- Oily bilge water should not be discharged to surface waters.
- The wastewater must be disposed of properly (i.e., water treatment plant, oil/water separator, etc.) depending on local, state, and federal regulations.

NOTE: Depending on the presence of oils, solvents, detergents, etc., direct discharge to sanitary sewer systems or to temporary holding tanks for off_site treatment (treatment and discharge requirements are site_specific) may be the most feasible method for disposal when approved by the local sanitation district.

HAZARDOUS MATERIALS AND WASTE TRANSPORTATION WITHIN THE YARD

Background:
Waterfront Construction, Inc. transports hazardous materials and waste throughout their facility.

Objective:
To minimize the likelihood of spills occurring during transportation and offer practices to control spills if they occur.

BMP:
- Materials should not be transported unless they are properly prepared for transportation. This may include properly secured lids, plugged bungs, proper labeling, and others.
- Material and waste can be secured to transportation pallets by using cellophane wrap, nylon strap/rope, or some other method that minimizes the potential that the load spills during transportation.
- Materials transported on pallets should be compatible with one another.
- Secondary containment pallets are useful when transporting hazardous materials and wastes.
- Material and waste pallets should be kept to manageable load size while being transported.
- Hazardous wastes transported must be labeled in accordance with local, state, and federal labeling requirements.

Transportation personnel should be aware of the risks associated with spilling hazardous materials and waste. They should also be very aware of spill notification procedures.

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 20 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-20

WATERFRONT CONSTRUCTION, INC.
BEST MANAGEMENT PRACTICES

THE DO'S AND DON'TS OF HAZARDOUS WASTE DISPOSAL

Waste Oils: Hydraulic oil, gear oil, engine oil, lubricating grease, and other lubricating liquids
Don't: It is illegal to pour oil onto the ground, into the sewer system, or into storm drains. Used oils shall not be used as dust suppressants, burned, or disposed of as general refuge. Do not mix degreasers, solvents, anti_freeze, or brake fluid with oil to be recycled.
Do: Recycle used oils with an authorized recycler. Put the waste oil into a clean, sealed, labeled and approved container. Have a licensed transporter take the waste to the recycling facility.

Used Antifreeze: Antifreeze is also a very toxic chemical which needs special disposal procedures.
Don't: Do not pour antifreeze fluid into sewer, storm drains, or onto the ground (soils).
Do: Recycle antifreeze if the option is viable. Dispose of antifreeze within the guidelines of these BMP's.

Used Batteries: There are a variety of batteries used in equipment and in the yard.
Don't: Do not dispose of batteries into general refuge dumpsters or let them stack_up in storage.
Do: Collect and recycle all used batteries.
.

Petroleum Waste: Petroleum waste products consist of gasoline, diesel, kerosene, and cosmoline.
Don't: Do not discharge to storm drains, sewer system, or grounds.
Do: Petroleum waste must be recycled or otherwise disposed of through a licensed transporter.

Degreaser Waste: Degreasers consist of solvents, mineral spirits, paint thinners, etc.
Don't: Don't discharge to sanitary sewer, storm drains, or soils.
Do: Recycle to the greatest extent possible all degreasers and where possible switch from organic based solvents to inorganic, aqueous substitute detergents.

STRUCTURAL NOTES

CODE:
THE WASHINGTON STATE BUILDING CODE (WSBC) 2021 EDITION AND THE 2021 WASHINGTON STATE EXISTING BUILDING CODE (WSEBC).

THE UNIFIED FACILITIES CRITERIA (UFC) – DESIGN: SMALL CRAFT BERTHING FACILITIES, UFC-4-152-07, CHANGE 1, DATED SEPTEMBER 2012. THE PIERS HAVE RESTRICTED ACCESS. THE MOORAGE PIERS HAVE BEEN DESIGNED FOR MOORAGE OF 25 FOOT LONG BOATS.

LIVE LOADS:

PIERS AND SWIM DOCK (RESTRICTED ACCESS)	40 PSF

LATERAL LOADS (BASED ON ASCE 7):
WIND DESIGN DATA:

WIND SPEED	97 MPH
IMPORTANCE FACTOR	1.0
RISK CATEGORY	II
EXPOSURE	C
TOPOGRAPHICAL FACTOR	1.0

EARTHQUAKE DESIGN DATA (USING USGS SEISMIC HAZARD MAPS):

LATITUDE	47.53 DEGREES (°N)
LONGITUDE	-122.22 DEGREES (°W)
Ss	1.463
S1	0.504
SITE CLASS	D- DEFAULT
SDS	1.17
SD1	0.603
IMPORTANCE FACTOR	1.0
SEISMIC DESIGN CATEGORY	D

BASIC SEISMIC-FORCE-RESISTING SYSTEM:
STEEL ORDINARY CANTILEVER COLUMN SYSTEM

R	1.25
Cs	0.936
OVERSTRENGTH FACTOR	1.25

GEOTECHNICAL ENGINEERING REPORT:
THE DESIGN OF THE PILES ARE BASED ON THE GEOTECHNICAL ENGINEERING REPORT "GEOTECHNICAL ENGINEERING STUDY, MARINA REBUILD" PREPARED BY TERRA ASSOCIATES, INCORPORATED DATED FEBRUARY 13, 2025 (REVISED ON MARCH 11, 2025). ALL PILES SHALL BE DRIVEN TO A MINIMUM TIP ELEVATION OF 35 FEET BELOW THE LAKEBED.

PILING:
BEFORE WORK BEGINS, LOCATE ALL UNDERGROUND UTILITIES BY CONTACTING "CALL BEFORE YOU DIG" AT 1-800-424-5555 OR 811. HOWEVER, THIS SERVICE DOES NOT HAVE A COMPLETE DATABASE OF ALL OBSTRUCTIONS, THEREFORE OTHER LOCATING SERVICES MAY ALSO BE NECESSARY.

STEEL PILING:
8" PILING SHALL BE X-STRONG ASTM A252, GRADE "3" Fy = 45,000 PSI.
16" X 0.50" PILING SHALL BE ASTM A252, GRADE "3" Fy = 45,000 PSI.

CORROSION PROTECTION FOR PILING TO BE PROVIDED BY OTHERS.

PROJECT DESIGNED BY:
Waterfront Construction Inc.

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 21 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-21

STRUCTURAL NOTES CON'T

STRUCTURAL STEEL:
WIDE-FLANGE BEAMS ASTM A992 Fy = 50,000 PSI. CHANNELS, ANGLES, AND PLATES ASTM A36 Fy = 36,000 PSI. ALL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AISC "STEEL CONSTRUCTION MANUAL."

ALL WELDS SHALL BE 3/16" MINIMUM CONTINUOUS FILLET WELDS USING AWS D1.1 CLASS E70 ELECTRODES UNLESS NOTED OTHERWISE. ALL WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED BY WABO.

ALL STEEL SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123. REPAIR ALL SCRAPES, DINGS, WELDS, ETC., IN ACCORDANCE WITH ASTM A780.

STEEL BOLTS:
STEEL-TO-STEEL: HIGH STRENGTH BOLTS SHALL BE A325-N HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153-CLASS C UNLESS NOTED OTHERWISE.

STEEL-TO-WOOD: BOLTS AND THREADED RODS SHALL BE ASTM A307 HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153-CLASS C UNLESS NOTED OTHERWISE. PROVIDE CUT WASHERS FOR ALL BOLT HEADS AND NUTS BEARING ON WOOD.

SCREWS INSTALLED IN WOOD:
SCREWS FOR INSTALLATION IN WOOD SHALL BE MANUFACTURED BY THE SIMPSON STRONG-TIE COMPANY, IN ACCORDANCE WITH ICC-ES REPORT ESR-2236 AND IAPMO UES REPORT #192. THE SCREW DIAMETERS AND LENGTHS ARE AS FOLLOWS:

SDWS22 (0.22" DIAMETER, LENGTHS: 3" TO 10")

SDWS22 SCREWS HAVE PROPRIETARY CORROSION-RESISTANT COATINGS EQUIVALENT TO ASTM A153-CLASS D AND ARE INTENDED TO BE USED WHERE EXPOSED TO WEATHER OR IN CONTACT WITH MOST PRESSURE TREATED WOOD. EQUIVALENT SCREWS BY OTHER MANUFACTURERS MAY BE SUBSTITUTED PROVIDED THEY HAVE ICC-ES APPROVAL FOR EQUAL LOAD CAPACITIES AND CORROSION RESISTANCE.

STRUCTURAL LUMBER GRADES AND SHEATHING RATINGS:
ALL LUMBER SHALL BE GRADED IN ACCORDANCE WITH CURRENT WWPA STANDARD GRADING RULES FOR WESTERN LUMBER. USE THE FOLLOWING SPECIES AND MINIMUM GRADE:

JOISTS & RAFTERS D.F.-L #2 Fb=900 PSI

ALL SHEATHING SHALL BE APA PERFORMANCE RATED PANELS. SHEATHING SHALL BE PLYWOOD OR ORIENTED STRAND BOARD (OSB). BOND CLASSIFICATION SHALL BE 'EXPOSURE 1' WHERE PROTECTED FROM THE WEATHER. BOND CLASSIFICATION SHALL BE 'EXTERIOR' WHERE EXPOSED, SUCH AS EAVE AND SIDING APPLICATIONS. ALL ABUTTING PANELS SHALL HAVE 1/8" GAP.

WOOD FOR OVER-WATER AND IN-WATER:
ALL WOOD PARTIALLY OR FULLY SUBMERGED IN WATER SHALL BE TREATED WITH AMMONIACAL COPPER ZINC ARSENATE (ACZA), EXCEPT WHEN WOOD IS IN STATE-OWNED AQUATIC LANDS (SOAL) MANAGED BY THE DEPARTMENT OF NATURAL RESOURCES (DNR) WHERE TREATMENT TO WOOD IN WATER/IN SPLASH ZONE IS PROHIBITED. ALL WOOD INSTALLED ABOVE WATER (WHERE CLEARLY OUT OF THE SPLASH ZONE) SHALL BE TREATED WITH AMMONIACAL COPPER ZINC ARSENATE (ACZA). WOOD TREATED WITH PENTACHLOROPHENOL, CREOSOTE, CHROMATE COPPER ARSENATE (CCA), OR COMPARABLY TOXIC COMPOUNDS IS PROHIBITED FOR PIERS, DOCKS, AND PILING.

WOOD SHALL BE TREATED IN ACCORDANCE WITH AWPA STANDARD U1. USE THE FOLLOWING MINIMUM AWPA USE CATEGORIES:
WOOD OVER WATER: UC4B
WOOD IN WATER: UC4C

TREAT CUT ENDS OF AND HOLES IN TREATED WOOD WITH SAFECOAT'S DYNOSEAL OR SEAL-IT-GREEN XTREME PLANT BASED STAIN.

GLUED LAMINATED LUMBER:
DOUGLAS FIR-LARCH GRADE 24F-V4 (Fb=2400 PSI) FOR SINGLE SPAN BEAMS. ALL GLULAM MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AITC A190.1 AND BE STAMPED WITH AN AITC QUALITY MARK OR AN APA-EWS TRADEMARK. ADHESIVES USED IN THE GLULAM MANUFACTURING PROCESS SHALL CONFORM TO AITC 405 FOR WET USE ADHESIVES. GLULAM MEMBERS SHALL BE MANUFACTURED FROM DOUGLAS FIR LAMINATING LUMBER. ALL BEAMS SHALL HAVE ZERO CAMBER UNLESS NOTED OTHERWISE.

GENERAL WOOD FRAMING NOTES:
1. MINIMUM NAILING SHALL BE IN ACCORDANCE WITH FASTENING SCHEDULE TABLES 11-13 IN ICC-ES EVALUATION REPORT ESR-1539.
2. PROVIDE CONTINUOUS 2x SOLID BLOCKING OR ENGINEERED LUMBER BLOCKING OR A RIM JOIST FOR FRAMING MEMBERS AT ALL SUPPORTS.
3. CURRENT WSBC BUILDING CODES ARE AVAILABLE ONLINE FOR FREE PUBLIC ACCESS AT CODES.ICCSAFE.ORG.

MISCELLANEOUS:
CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD. REPETITIVE FEATURES MAY BE DRAWN OR CALLED OUT ONCE BUT SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL. ALL WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY STANDARDS. PROVIDE TEMPORARY BRACING AS REQUIRED UNTIL ALL PERMANENT CONNECTIONS AND STIFFENINGS HAVE BEEN INSTALLED.

SAFETY:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION, TEMPORARY BRACING, SHORING, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES IN CONNECTION WITH THE WORK.

THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITION ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

THE REQUIRED AND/OR IMPLIED DUTY OF THE ENGINEER TO CONDUCT CONSTRUCTION REVIEW OF CONTRACTOR'S PERFORMANCE DOES NOT, AND IS NOT INTENDED TO, INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

THE SEAL ON THESE DRAWINGS REPRESENTS THE ENGINEERING ANALYSIS OF THE SHOREWARD MOORAGE PIER AND SWIM PLATFORM AND PIER SUPPORT PILES, MOORAGE PILES, DAY DOCK PILES, AND SWIM PLATFORM PILES.

THE DESIGN IS BY THE 2021 WASHINGTON STATE BUILDING CODE AND THE 2009 UNIFIED FACILITIES CRITERIA. OUR SCOPE OF WORK DOES NOT INCLUDE THE DESIGN OF THE FLOATS, RAMPS AND CONNECTIONS, BUOYANCY, GRATING, BULKHEAD, JET SKI LIFTS, LIFEGUARD PLATFORM, SLIDE, UPLAND STRUCTURES, ETC.

THE SITE INFORMATION, DIMENSIONS, AND PLAN LAYOUT FOR THE PIER HAS BEEN PROVIDED TO US BY WATERFRONT CONSTRUCTION, INC.

PACIFIC ENGINEERING JOB NUMBER: 24237.00

PROJECT DESIGNED BY:
Waterfront Construction Inc.

REVISED
03/19/2025

PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

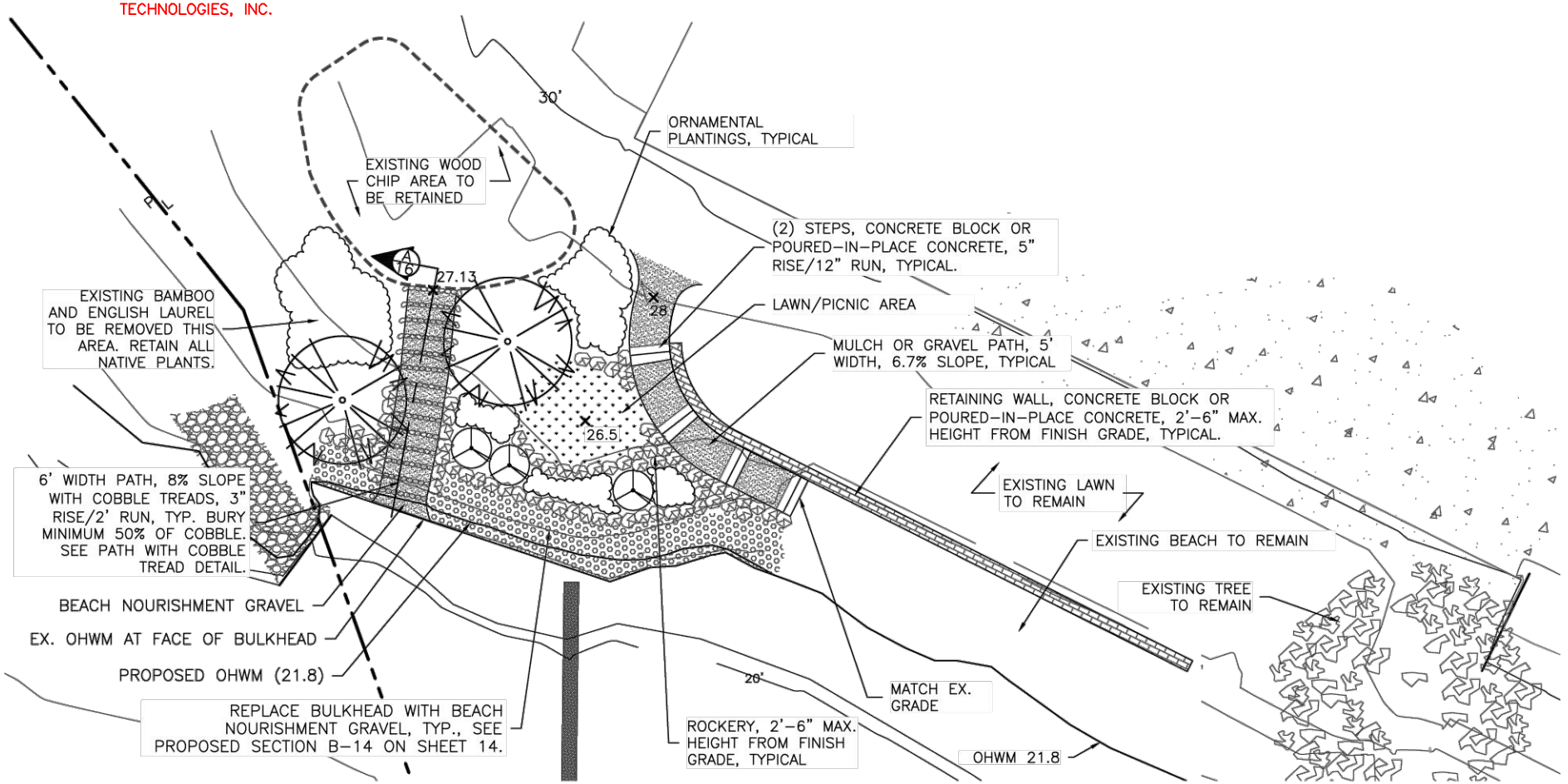
REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 22 OF: 26	NEAR/AT: MERCER ISLAND
DATE: 12/22/2021	DWG#: 20-37005-A15-22

REVISED
03/19/2025

PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

PLANT SCHEDULE

QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
2	*PSEUDOTSUGA MENZIESII*	DOUGLAS FIR	18" MIN HEIGHT	AS SHOWN
3	*RIBES SANGUINEUM*	RED FLOWERING CURRANT	#2	AS SHOWN



PROJECT DESIGNED BY:

russell lambert LANDSCAPE ARCHITECTURE

RUSSELL + LAMBERT
LANDSCAPE ARCHITECTURE
7724 2nd Ave NE
Seattle, WA 98115

LANDSCAPE PLAN

20' 10' 0' 20'

SCALE: 1"=20'

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 23 OF: 26	NEAR/AT:MERCER ISLAND
DATE:4/25/2022	DWG#: 20-37005-A15-23

PLANTING NOTES:

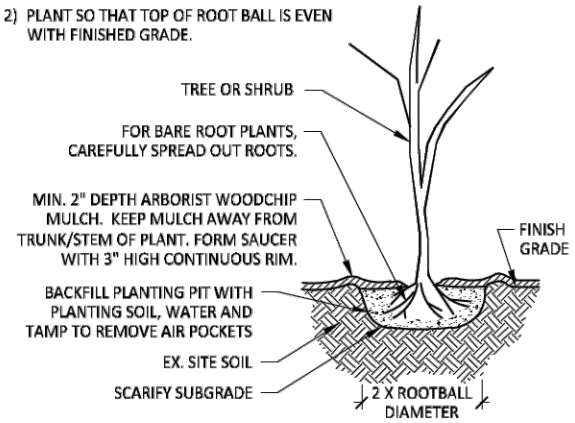
1. REMOVE ALL HIMALAYAN BLACKBERRY, JAPANESE KNOTWEED, BAMBOO, AND ENGLISH IVY FROM PLANTING AREA USING KING COUNTY RECOMMENDATIONS. RETAIN AND PROTECT ALL EXISTING NATIVE VEGETATION.

2. PLANT MATERIAL SHALL BE LOCALLY GROWN (PUGET SOUND REGION) AND CONFORM TO THE MOST RECENT ANLA STANDARDS. THE OWNER RESERVES THE RIGHT TO REFUSE ANY AND ALL PLANT MATERIAL THAT DOES NOT MEET STANDARDS.

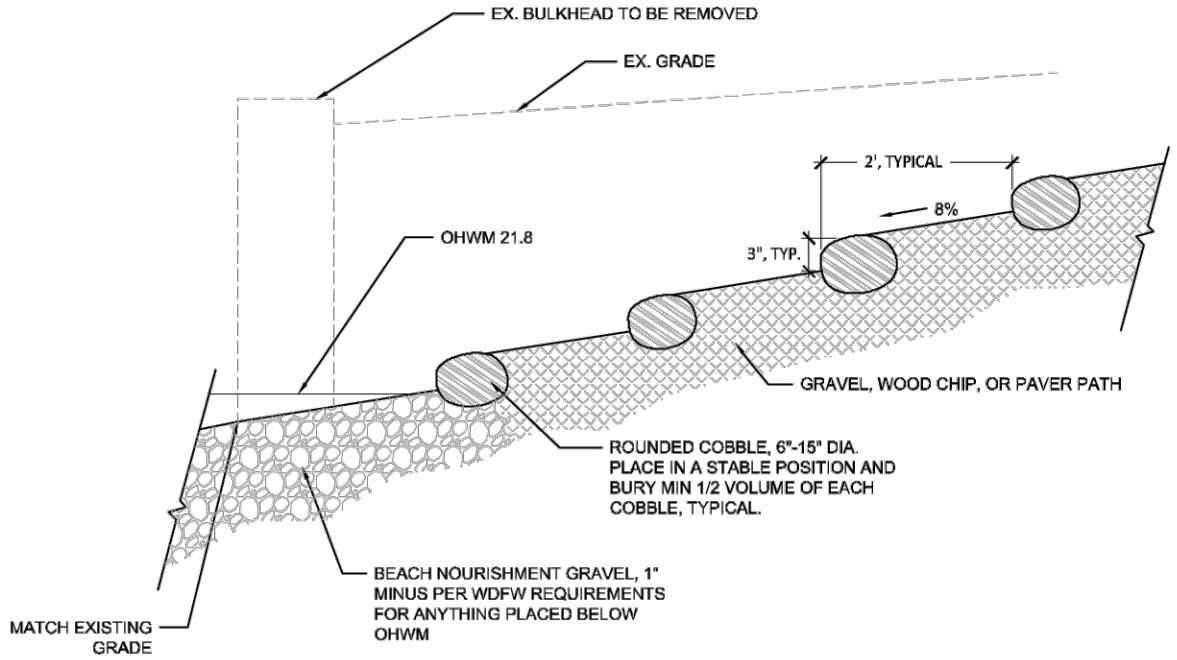
3. PLANT LOCATIONS ARE SCHEMATIC AND MAY NEED ADJUSTMENT TO MEET ACTUAL FIELD CONDITIONS. WHEN A CONFLICT WITH FIELD CONDITIONS OCCURS CONSULT WITH THE PROJECT BIOLOGIST.

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

NOTES:
1) MULCH COMPLETELY BETWEEN ALL PLANTS.
2) PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH FINISHED GRADE.



TYPICAL TREE OR SHRUB PLANTING
NOT TO SCALE



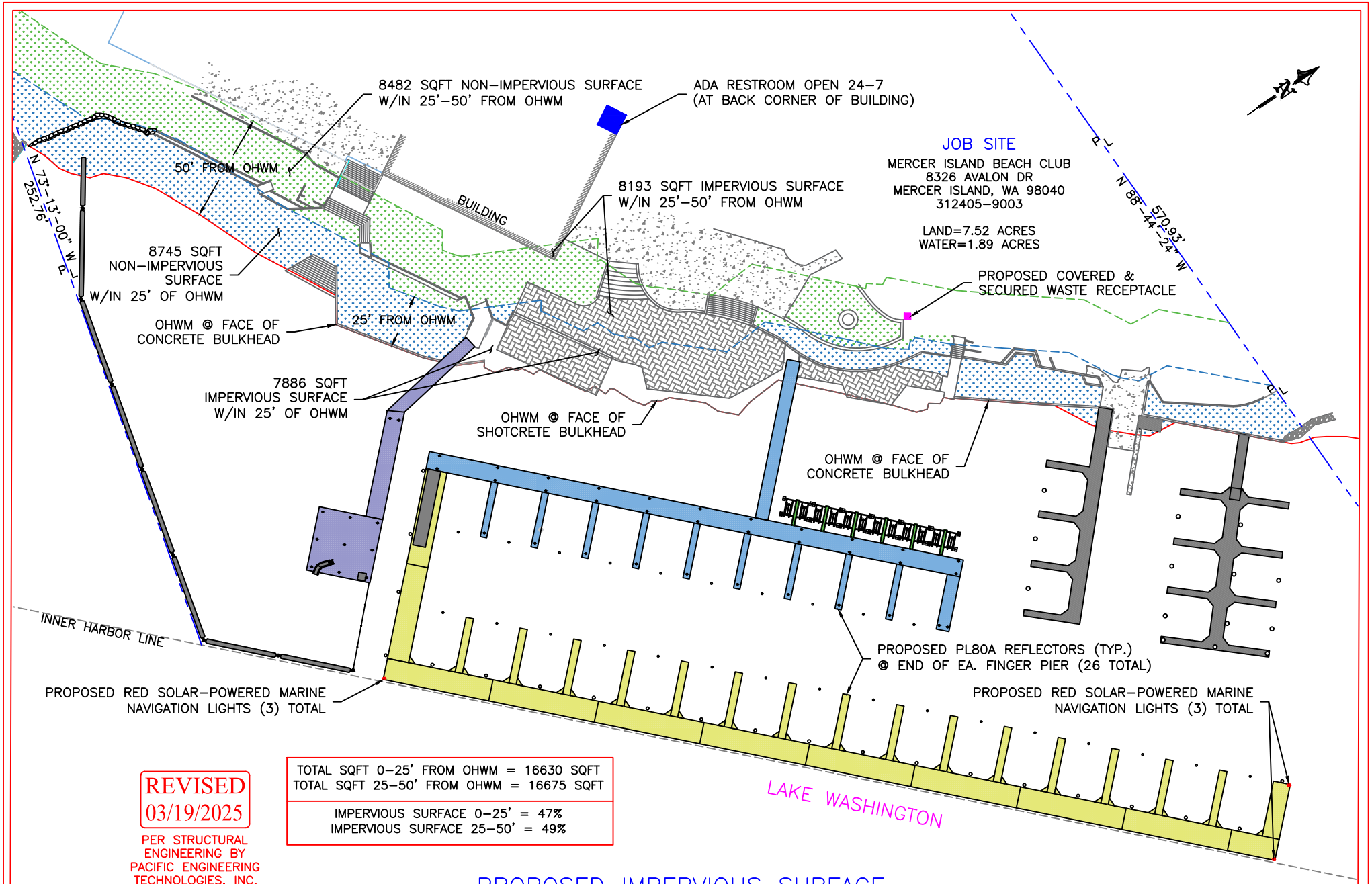
PATH WITH COBBLE TREAD DETAIL (SECTION A-16)
NOT TO SCALE

PROJECT DESIGNED BY:

russell lambert LANDSCAPE ARCHITECTURE
RUSSELL + LAMBERT
LANDSCAPE ARCHITECTURE
7724 2nd Ave NE
Seattle, WA 98115

LANDSCAPE DETAILS

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 24 OF: 26	NEAR/AT:MERCER ISLAND
DATE:4/25/2022	DWG#: 20-37005-A15-24



REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

TOTAL SQFT 0-25' FROM OHWM = 16630 SQFT TOTAL SQFT 25-50' FROM OHWM = 16675 SQFT
IMPERVIOUS SURFACE 0-25' = 47% IMPERVIOUS SURFACE 25-50' = 49%

PROPOSED IMPERVIOUS SURFACE CALCULATIONS - PLAN VIEW

60' 45' 30' 15' 0' 60'

SCALE: 1"=60'

PROJECT DESIGNED BY:
Waterfront Construction Inc.

REFERENCE #:	
APPLICANT: MERCER ISLAND BEACH CLUB	
PROPOSED: MARINA REBUILD	
SHEET: 25 OF: 26	NEAR/AT:MERCER ISLAND
DATE:12/22/2021	DWG#: 20-37005-A15-25

NOTE:
PRELIMINARY DESIGN SUBJECT TO CHANGE PER FINAL ENGINEERING.

Cascade Fire & Security
P.O. BOX 7459
KENT, WA 98042
(206) 767-5800 - (253) 630-4851
CASCAAI962RW

WASHINGTON STATE
CERTIFICATE OF COMPETENCY
FIRE PROTECTION SPRINKLER SYSTEMS
Roxanne Marie Craine
7327-0202-CG Level 3
Cascade Alarm, LLC
CASCAAL962RW
12 / 31 / 22 Expires
Signature

REVISED
03/19/2025
PER STRUCTURAL ENGINEERING BY PACIFIC ENGINEERING TECHNOLOGIES, INC.

REVISIONS		
	DATE	COMMENTS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

PROJECT: MERCER ISLAND BEACH CLUB
8326 AVALON DRIVE
MERCER ISLAND, WA 98040

CONTRACT WITH: WATERFRONT CONSTRUCTION
205 NE NORTHLAKE WAY, #230, SEATTLE, WA 98105
GEOFF WHITTEN - (425) 221-1495

TITLE: NEW MARINA - DRY STANDPIPE EXTENSION

DESIGNER:	P. STOKESBERRY
DATE:	3/31/2022
SCALE:	1/16" = 1'-0"
HAZARD:	CLASS I STANDPIPE
AHJ:	MERCER ISLAND FD
JOB #	39412
SHEET #	FP-01
PLOTTED:	April 06, 2022

Appendix B:
Site Photographs

Photo 1 - Existing marina looking waterward.

Photo 2 - Existing marina looking north. Note day dock is currently not useable.

Photo 3 - Existing swim dock looking waterward.

Photo 4 - B-dock looking waterward.

Photo 5 - C-dock looking waterward.

Photo 6 - D-dock looking waterward.

Photo 7 - Existing bulkhead to be removed. Note lake is at low water.

Photo 8 - Existing beach at swim area.