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

MICC Chapter 19.16 defines No Net Loss as “An ecological concept whereby conservation losses in one geographic or otherwise defined area are equaled by conservation gains in function in another area.”

Location
The subject property is located at 5063 84th Ave SE in the City of Mercer Island, Washington (Sheet 1 in attached figures). The parcel is on the waterfront of Lake Washington, which contains several endangered fish species and designated priority fish species.

Project Description
The proposed work is to remove the existing 801 square foot residential dock, and construct a new 804 square foot 150-foot long residential dock. The first 100-feet of the dock will be configured to be 4’ wide, and the last 50-feet will be 6-feet wide. A new finger pier measuring 26-feet long and 4-feet wide will also be constructed. The new dock will be supported by 22 steel piles and all new surfaces will be grated to allow light penetration into the water below the dock. A new boat lift will be installed on the landward side of the finger pier about 100 feet from shore.

The proposed pier is configured to decrease the amount of overwater coverage within 100 feet of shore and to place moorage in the deepest water possible. A planting plan will be implemented to enhance shoreline conditions.

Approach
Northwest Environmental Consulting LLC (NWEC) biologist Brad Thiele conducted a site visit on September 21, 2017 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
Site Description

The subject property is in a residential neighborhood along the western shoreline of Mercer Island. The adjacent waterfront parcels are also single-family houses. Pictures of the site are included in Attachment B- Site Photos.

The only structure on the upland property is a single-family residence.

The existing dock sits in water up to 7-feet deep water at the waterward end (Sheet 4.0).

The shoreline on the property is armored with a concrete bulkhead. The yard is landscaped with planted trees, shrubs, and lawn. Adjacent parcels are also armored with a concrete bulkhead to the south and rock bulkhead to the north and have a mix of ornamental and native vegetation. Existing mature trees within 15 feet of the water include a crabapple tree. A few areas are mixed with a butterfly bush, hydrangea, rhododendrons and azaleas.

Substrates along the shoreline consist of gravels changing to finer sands away from shore. Aquatic vegetation was present starting about 20 feet from shore at the time of the site visit.

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 clarki), winter steelhead (O. mykiss), Dolly Varden/bull trout (Salvelinus malma), sockeye salmon (O. nerka), fall Chinook (O. tshawytscha), coho salmon (O. kisutch), and kokanee (O. nerka). The Salmonscape database maps the site as accessible to the Endangered Species Units (ESU) of Threatened Chinook and steelhead. The project site is accessible to any fish migrating or rearing in the lake, but specific critical habitat for these species is not present at the subject parcel. Sockeye salmon are not known to use substrates along the shoreline for spawning in this area.

There are no priority habitats directly associated with the project site for terrestrial species. Aquatic wetlands are mapped just north of the parcel, but no wetland vegetation was present at the property or noted along the adjacent parcels. The wetlands are based on NWI mapping, which is often inaccurate. A biodiversity area is mapped approximately 2,500 feet to the northeast and another biodiversity area is mapped about the same distance to the southeast.

Shoreline vegetation on site is broken into two planting beds, Area A and Area B shown in Figure 6 in Attachments. The rest of the area is lawn and will be planted with the proposed planting plan (see Figure 5).

Area A (approximately 100 square feet within 10 feet of the shoreline) includes a ornamental shrubs up to 8-feet tall and includes butterfly bush, azaleas, hydrangeas and includes native soft rush along the shoreline. Area A also includes a native western crabapple about 4-inches in diameter about 15’ from the shoreline. The existing willow is planted along the property line in the neighbors yard.

Area B (approximately 200 square feet within 10 feet of the shoreline) includes two, 6-foot tall Rhododendrons surrounded by dense salal and sword ferns.

Project Impacts and Conservation Measurements

Direct Impacts:

Sediments: Impacts to sediments should be minimal from installation of pilings. The installation of piles may cause some turbidity, but this will be short in duration as installation will be completed within a week.
In addition any angular construction debris will be removed from along the shoreline if discovered.

**Shoreline:** The project will not affect the shoreline significantly. Planting vegetation, as proposed, will increase the habitat functions of the shoreline by creating shade along the shoreline. Increased shading will be an improvement from the existing baseline habitat conditions at the project site, which includes a single native tree and ornamental shrubs. The existing native and ornamental vegetation will remain. See attached photos.

**Noise:** Construction equipment will create construction 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.

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

**Indirect Impacts:**

**Shading:** The new pier configuration will increase the amount of overwater coverage along the near shore by 3 square feet. The new dock will shade approximately 804 square feet of lake surface. Grated decking will allow light penetration under the dock that will soften the hard shadow line created by opaque decking that is used by salmonid predators to ambush juvenile salmonids. The grated decking will reduce the shading impact over the current condition by removing 801 square feet of opaque decking. The dock is also be configured so that shading impacts are minimized within the first 100 feet of the shoreline.

Salmonid predators’ are known to use shadowing by docks to ambush juvenile salmonids. The ability of the predators to ambush juvenile salmonids will be reduced by using grated decking and reducing overwater coverage.

**Conservation measures:**

**Work window:** The project will complete the work during the prescribed inwater work window for this area of Lake Washington. Operating within this time frame helps protect Chinook salmon, steelhead, bull trout and other salmonid fish species.

**Best Management Practices:** Applicable BMPs will be used such as a containment barrier (floating) around the inwater work area that will contain floating construction debris during demolition and construction. The barge will contain a perimeter containment sock to absorb oil and grease that may wash from the barge during construction. Erosion BMPs will be used on shore during construction if soils are disturbed (e.g., covering exposed ground during construction to prevent loose soils from washing into the lake during rain events).

**Conclusion**

Juvenile Chinook salmon, and other salmonids, rear and migrate along the Lake Washington shoreline. The project will remove an existing 801 square foot dock construct a new 804 square foot dock with a boat lift. The dock has been configured to move moorage farther from shore than what currently exists. All new decking surfaces will be grated reducing salmonid predator habitat under the proposed dock. A shoreline planting plan will be implemented that will improve shoreline habitat conditions and the existing vegetation will be retained. The project will follow
the prescribed fish window and use applicable BMPs to prevent construction spills and turbidity from occurring.

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


Figures
PurPOSE: The proposed dock length is required to locate the fixed pier where there are acceptable annual water recreational and moorage depths.

PREPARED BY:
TED BURNS OF SEABORN PILE DRIVING
9311 SE 36TH ST, SUITE 204
MERCER ISLAND, WA  98040
TEDEBURNS@GMAIL.COM
WWW.SEABORNPILEDRIVING.COM

PROPOSED: Remove the existing pier and construct a new residential dock with a 150’ long walkway consisting of 100’ long and 4’ wide, and 50’ long and 6’ wide. Construct a finger pier measuring 26’ long and 4’ wide. The dock is supported by (22) steel piles. Install one boatlift.

IN: LAKE WASHINGTON
AT: 5063 84th AVE SE, MERCER ISLAND
COUNTY: KING
LAT: 47.55746    LONG: -122.23112
CREATED: 10/09/2017

APPLICANT: TED BURNS
SEABORN PILE DRIVING COMPANY
9311 SE 36th ST, SUITE 204
MERCER ISLAND, WA  98040

DATUM: CORPS OF ENGINEERS 1919
NE QUARTER OF SECTION 24, TOWNSHIP 24, RANGE 04
ADJACENT OWNERS:
ERYN MORGAN
5063 84th AVE SE
MERCER ISLAND, WA  98040

LEGAL DESCRIPTION:
Lot 7 of the Lake Shores Addition
**EXISTING CONDITIONS**

**EXISTING PIER:**
NO WORK PROPOSED

**LATERAL LINE**

**LAKE WASHINGTON**

**OHWM 10' SETBACK**

Approx. Sewer Location
(to be field verified)

**EXISTING PIER:**
NO WORK PROPOSED

**SUBJECT PROPERTY**

5063 84th AVE SE,
MERCER ISLAND, WA 98040

**PIN:** 407600-0070

**PURPOSE:**
The proposed dock length is required to locate the fixed pier where there are acceptable annual water recreational and moorage depths.

**EXISTING CONDITIONS**

**IN:** LAKE WASHINGTON
**AT:** 5063 84th AVE SE, MERCER ISLAND
**COUNTY:** KING
**LAT:** 47.55746 **LONG:** -122.23112
**CREATED:** 10/09/2017

**PREPARED BY:**
TED BURNS OF SEABORN PILE DRIVING
9311 SE 36TH ST, SUITE 204
MERCER ISLAND, WA 98040
OFFICE: 206-236-1700
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**APPLICANT:** TED BURNS
SEABORN PILE DRIVING COMPANY
9311 SE 36th ST, SUITE 204
MERCER ISLAND, WA 98040

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**ADJACENT OWNERS:**
PAVLIN EDWARD G DR
5021 84th AVE SE
MERCER ISLAND, WA 98040
MICHAEL MORGAN
5067 84th AVE SE
MERCER ISLAND, WA 98040
**EXISTING PIER:**
**NO WORK PROPOSED**

**LATERAL LINE**

**LAKE WASHINGTON**

**OHWM**

10' SETBACK

Approx. Sewer Location
(to be field verified)

0           10         20'

0            5         10'

45'-6"

**INSTALL FULL GRATED DECKING**

**PAVLIN EDWARD G DR**

5021 84th AVE SE  
MERCER ISLAND, WA 98040

MICHAEL MORGAN  
5067 84th AVE SE  
MERCER ISLAND, WA 98040

**SUBJECT PROPERTY**

5063 84th AVE SE  
MERCER ISLAND, WA 98040

PIN: 407600-0070

**PROPOSED AND EXISTING CONDITIONS**

**PURPOSE:** The proposed dock length is required to locate the fixed pier where there are acceptable annual water recreational and moorage depths.

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**APPLICANT:** TED BURNS  
SEABORN PILE DRIVING COMPANY  
9311 SE 36th ST, SUITE 204  
MERCER ISLAND, WA  98040

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PROPOSED CONDITIONS

PURPOSE: The proposed dock length is required to locate the fixed pier where there are acceptable annual water recreational and moorage depths.

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CREATED: 10/09/2017

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SEABORN PILE DRIVING COMPANY
9311 SE 36TH ST, SUITE 204
MERCER ISLAND, WA 98040

DATUM: CORPS OF ENGINEERS 1919
NE QUARTER OF SECTION 24, TOWNSHIP 24, RANGE 4
ADJACENT OWNERS:
PAVLIN EDWARD G DR
5021 84TH AVE SE
MERCER ISLAND, WA 98040
MICHAEL MORGAN
5067 84TH AVE SE
MERCER ISLAND, WA 98040
PURPOSE: The proposed dock length is required to locate the fixed pier where there are acceptable annual water recreational and moorage depths.

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MERCER ISLAND, WA 98040
MICHAEL MORGAN
5067 84TH AVE SE
MERCER ISLAND, WA 98040

LAKE WASHINGTON

APPROX. SEWER LOCATION
(to be field verified)

INSTALL FULL GRATED DECKING

PIER DETAILS

ELEVATION VIEW 1

PROPOSED MOORING

LAKE WASHINGTON

4'
EXISTING PIER: NO WORK PROPOSED

NEED EXISTING VEG. FOR IRPP SUBMITAL

Approx. Sewer Location (to be field verified)

SUBJECT PROPERTY
5063 84th AVE SE, MERCER ISLAND, WA 98040
PIN: 407600-0070

PROPOSED PLANTING SPECIES/QUANTITIES

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>LATIN NAME</th>
<th>COMMON NAME</th>
<th>QTY</th>
<th>SIZE</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Thuja picatta</td>
<td>Western Redcedar</td>
<td>2</td>
<td>3 ft</td>
</tr>
<tr>
<td></td>
<td>Rosa nutkana</td>
<td>Nootka rose</td>
<td>1</td>
<td>1 Gallon</td>
</tr>
<tr>
<td></td>
<td>Philadelphus lewissi</td>
<td>Mock Orange</td>
<td>2</td>
<td>1 Gallon</td>
</tr>
</tbody>
</table>

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Install one boatlift.
Figure 6 - Existing Vegetation

- **Existing Willow**
- **Area A**
- **Area B**
- **4" DBH western crabapple**

**Legend:**
- **20 ft**

**Source:**
https://www.google.com/maps/place/5063+84th+Ave+SE,+Mercer+Island,+WA+98040/@47.5574278,-122.230578/15z/data=!3m1!4b1!4m5!3m4!1s0x54906980b18353b7:0x1a9ec46c9e0d6e9818m2!1m2!1s0x54906980b18353b7:0x1a9ec46c9e0d6e9818m2!1m5!1s0x0:0xb7adedd45a635930!1d118.163965!1d47.5574278!1d-122.230578!1d47.5574278!1d-122.230578
Photos
Photo 1 - View of dock from shore.

Photo 2 - View of shore from dock.
Photo 3 - Shoreline Vegetation north of dock.

Photo 4 - Shoreline conditions and vegetation on south side of dock.
Photo 5 - Shoreline conditions on adjacent parcel to the south.

Photo 6 - Shoreline conditions on adjacent parcel to the north.