Bridge Inspection Report

Report Type: Primary Safety

**Inspections Performed**

<table>
<thead>
<tr>
<th>Report Type</th>
<th>Inspection Type</th>
<th>Date</th>
<th>Freq</th>
<th>Hours</th>
<th>Inspector</th>
<th>Cert No</th>
<th>Co-Ins.</th>
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</thead>
<tbody>
<tr>
<td>Underwater</td>
<td></td>
<td>4/27/2021</td>
<td>48</td>
<td>2.0</td>
<td>DON</td>
<td>G0314</td>
<td>JRWH</td>
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<tr>
<td>Primary Safety</td>
<td></td>
<td>4/27/2021</td>
<td>24</td>
<td>1.0</td>
<td>LAW</td>
<td>G1112</td>
<td>ABK</td>
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</tbody>
</table>

- **Alignment** (1661) 17 Operating Tons (1552)
- **Deck Overall** (1663) Op RF (1553)
- **Superstructure** (1671) 10 Inventory Tons (1555)
- **Substructure** (1676) Inv RF (1556)
- **Culvert** (1678) Operating Level (1680)
- **Chan/Protection** (1677) Open/Closed (1293)
- **Pier/Abut/Prot** (1679) 4 Structural Eval (1657)
- **Waterway** (1662) * Deck Geometry (1658)
- **Scour** (1680) * Underclearance (1659)

**Bridge Rail** (1684) 0 No Utilities (2675)
- **Transition** (1685)
- **Guardrails** (1686)
- **Terminals** (1687)
- **Bridge Rail Ht** (2612)
- **Design Curb Ht** (2611)
- **Year Built** (1332)
- **Year Rebuilt** (1336)

**Inspection Flags**

- Soundings (2663)  
- Measure Clearance (2694)  
- Revise Rating (2688)  
- Photos (2691)  
- QA Flag (2695)

**BMS Elements**

<table>
<thead>
<tr>
<th>Element</th>
<th>Element Description</th>
<th>Total</th>
<th>Units</th>
<th>CS 1</th>
<th>CS 2</th>
<th>CS 3</th>
<th>CS 4</th>
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<tbody>
<tr>
<td>8361</td>
<td>Scour</td>
<td>4</td>
<td>EA</td>
<td>4</td>
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<td>0</td>
<td>0</td>
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<td>8390</td>
<td>Fixed Bearing</td>
<td>1</td>
<td>EA</td>
<td>1</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>8391</td>
<td>Moveable Bearing (roller, sliding, etc.)</td>
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<td>EA</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>8640</td>
<td>Moveable Pedestrian Gangplank</td>
<td>50</td>
<td>LF</td>
<td>50</td>
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<tr>
<td>8701</td>
<td>Ferry Concrete Floating Pontoon</td>
<td>13</td>
<td>CELL</td>
<td>0</td>
<td>8</td>
<td>5</td>
<td>0</td>
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<tr>
<td>8703</td>
<td>Spud Piling &amp; Wells</td>
<td>16</td>
<td>EA</td>
<td>1</td>
<td>0</td>
<td>9</td>
<td>6</td>
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<tr>
<td>8902</td>
<td>Protective Coating - Piling</td>
<td>2300</td>
<td>SF</td>
<td>1595</td>
<td>100</td>
<td>605</td>
<td>0</td>
</tr>
</tbody>
</table>

**Notes**

- ORIENTATION:
  The McNeil Island Mooring Float includes the float, gangplank, and steel spud piles.
  For location reference: Offshore is south, shore is north, left side is east, and right side is west.
## Notes (Continued)

9 The WSDOT Bridge Preservation Dive Team performed an underwater inspection of the subject facility on April 27, 2021. Sixteen steel pipe piles and the concrete floating pontoon exterior were inspected below water by diving.

In general, the steel pipe piles that position the floating concrete pontoon (spud piles) are in fair to poor condition. The coating has failed in large areas where the pontoon keeper chains abrade directly on the piles. This was most evident in the lower intertidal zone (ITZ) where the steel/UHMW rub strips have failed. Some of these locations have holed thru the pile wall due to the chains rubbing on the pile. Ultrasonic thickness measurements were taken in other locations and minor section losses were noted. Minor section losses are not a structural concern due to the piles being for pontoon positioning only, however holed thru piles may be susceptible to failing in extreme wind and wave event and should be monitored for buckling during such events.

Repair recommendations include repairing or replacing spud piles that have holes in them (REPAIR #10007) which are susceptible to failing during extreme weather events. Recommend retaining the 48-month frequency for underwater inspections. REPAIR #10005 VERIFIED in 2021.

<table>
<thead>
<tr>
<th>1676</th>
<th>SUBSTRUCTURE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substructure moved to a coding of '4', due to as of yet unknown water infiltration rates into pontoon cells (see note 8701).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1677</th>
<th>CHANNEL:</th>
</tr>
</thead>
<tbody>
<tr>
<td>This structure abuts another structure and does not connect to the shoreline directly. No bank issues noted. No restrictions to water flow past the structure.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1680</th>
<th>SCOUR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure is in tidal waters with weak and variable tidal currents. Scour code set to &quot;T - tidal&quot; and is considered a low risk for scour. See note 8361.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8361</th>
<th>SCOUR (Field):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underwater Inspection Findings (2021):</td>
<td></td>
</tr>
<tr>
<td>Water flow is tidal. No scour patterns or scour countermeasures were observed around the float or spud piles.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8390</th>
<th>FIXED BEARING:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The gangplank connection to the fixed dock consists of a structural tube that has sliding bearings and a center pin connection (photo #21). The center pin connection is a 1-1/4&quot; diameter bolt connected through an upper and lower plate. Fixed Pin Bearing was replaced in 2016. Inspect each inspection for condition and wear.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8391</th>
<th>MOVEABLE BEARING:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two slider bearings under the floater side of the gangplank (photo #6). Bearings are wearing - 1/2&quot; on the right side, 3/4&quot; on the left. (photos #36 and #37)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8640</th>
<th>MOVEABLE PEDESTRIAN GANGPLANK:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Gangplank, 50 ft. Top and bottom connections of railing (truss) inspected each inspection. Cables tied to the fixed trestle installed to keep gangplank square (photo #20). Additional rope installed from offshore side of float to the end of the gangplank to prevent it from working towards shore (photo #31). Left side tie back cable attachment is cracked along the bottom of the gangplank (photos #40 and #41).</td>
<td></td>
</tr>
</tbody>
</table>
FERRY CONCRETE FLOATING PONTOON:
The floating dock consists of the main float with eight cells, and two flanker pontoons with two and three cells, for a total of 13 cells.

INTERIOR:
All eight of the main pontoon cells were entered during the 2021 inspection (see layout sheet for cell numbering) (photos #7 and 8).

WATER DEPTH TRACKING (T = some ponding to <1" deep, D = Dry)

<table>
<thead>
<tr>
<th>DATE</th>
<th>CELL</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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</thead>
<tbody>
<tr>
<td>5/21/2013</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/20/2015</td>
<td>1/2&quot;</td>
<td>1&quot;</td>
<td>1/4&quot;</td>
<td>1/2&quot;</td>
<td>D</td>
<td>D</td>
<td>T</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>4/25/2017</td>
<td>1/2&quot;</td>
<td>4&quot;</td>
<td>1&quot;</td>
<td>1/4&quot;</td>
<td>1/2&quot;</td>
<td>D</td>
<td>D</td>
<td>1-1/2&quot;</td>
<td></td>
</tr>
<tr>
<td>4/8/2019</td>
<td>1&quot;</td>
<td>1/2&quot;</td>
<td>3&quot;</td>
<td>1&quot;</td>
<td>1/2&quot;</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>8&quot;</td>
</tr>
</tbody>
</table>

2021: Cells 1, 3, 4, 5, and 8 are in Condition State 4 (CS4) due to water presence as well as statements made by DOC employees concerning pumping of pontoons. Leaks were not found, source of water may be seepage through the hatches. Cells 2, 6 and 7 are in CS3 due to presence and depth of water.
All cells pumped during the inspection.
Pumping records are needed. REPAIR #10006.

EXTERIOR:
The offshore exterior top edge has many concrete patches. Cells 6 and 7 are in CS2 due to these patches (CS3 due to water)
Boat fender bumpers are in fair condition, many have had repairs (photo #24).
The right flanker fender bracket at the right shore side corner had been repaired with new bolts added (photos #35, #29 & #30).
REPAIR #10004 VERIFIED 2021.

Four corner water depth taken on the main float found to be approximately level. Wave action makes this difficult.

FLOATER FOUR CORNER DRAFT MEASUREMENTS

<table>
<thead>
<tr>
<th>DATE</th>
<th>CORNER ---</th>
<th>OFFSHORE RT ---</th>
<th>OFFSHORE LT ---</th>
<th>SHORE RT ---</th>
<th>SHORE LT ---</th>
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<tbody>
<tr>
<td>4/20/2015</td>
<td>28-5/8&quot;</td>
<td>29&quot;</td>
<td>26-1/2&quot;</td>
<td>26-3/4&quot;</td>
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<tr>
<td>4/25/2017</td>
<td>29&quot;</td>
<td>28&quot;</td>
<td>26&quot;</td>
<td>27&quot;</td>
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<td>4/27/2019</td>
<td>27&quot;</td>
<td>27.5&quot;</td>
<td>26&quot;</td>
<td>25&quot;</td>
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<tr>
<td>4/27/2021</td>
<td>27&quot;</td>
<td>24.5&quot;</td>
<td>29.5&quot;</td>
<td>25.5&quot;</td>
<td></td>
</tr>
</tbody>
</table>

FLANKER PONTOON:
The left flanker pontoon patched spall in the right exterior wall (CS2 condition) (photo #26).
The flanker pontoons are full of water and foam and cannot be entered. All CS3 due to water found.

Underwater Inspection Findings (2021):
The concrete pontoon surfaces below water are typically about 90% covered in marine growth up to 1.5-ft. thick. Spot cleaning of growth revealed no defects in the underlying concrete.
Notes (Continued)

8703 SPUD PILING & WELLS:
The Steel Spud Piles adjacent to the concrete float are showing their age. The piles are attached to the float via a chain. The tides and wave action move the chain up and down on the pile. The piles have steel backer plates with missing UHMW sheeting. There are locations of wear on the exposed structural surface.
Pile SP1-A has had plates welded on to prevent wear to the pile from the chain. (photo #34).
Spud pile group SP2 has failing UHMW protection with steel backer plates remaining, typical for spud piles (photo #17).
Spud pile SP2-C has heavy rusting and section loss at the high side of the tidal zone (photo #33).
Spud pile SP3-D has been repaired several feet below the high water mark (CS2) (Photo #32 and #27). REPAIR #10005 VERIFIED 2021.
Pile Inspection Data Sheets have 9 piles in CS3 due to minor section loss and 5 additional piles in CS4 due to holes in piling (6 total).

Underwater Inspection Findings (2021):
The steel pipe pile spuds are in generally fair to poor condition underwater with some areas showing more advanced deterioration. Coating failure with corrosion and steel section losses including holes thru piles were the most common defects noted. Thickness measurements of the steel were taken in localized areas of corrosion and pitting as well as in good areas for comparison (photo #UW-6). The most extreme cases of section losses are typically in the spud piles closest to the floats that have keeper chains around them (photo #UW-5). The majority of the rub strips have failed in the lower intertidal zone (ITZ) and the chains rub directly on the pile causing large areas of corrosion and section loss, including holes worn thru the pile wall from chain fretting. Minor section losses (CS3) are not a structural concern since the spud piles are for pontoon positioning only. However piles with holes may be susceptible to failure during extreme events such as heavy wind/wave events (CS4), and should be repaired or replaced REPAIR #10007.
See attached Layout drawing and Pile Inspection Data Sheets for additional photo references and location/defect information.

8902 PROTECTIVE COATING - PILING:
The spud piles have rust blooms in the intertidal zone (photo #39).

Underwater Inspection Findings (2021):
The spud pile coating is largely failed in the intertidal zone (ITZ) mainly from pontoon positioning chains rubbing directly on the piles (photo #UW-3). Underwater coating condition below the ITZ is largely intact with only about 5%-10% of the pile surface area showing corrosion on most piling (photo #UW-7).

<table>
<thead>
<tr>
<th>Repair No</th>
<th>Pr</th>
<th>R</th>
<th>Repair Descriptions</th>
<th>BMS</th>
<th>Noted</th>
<th>Maint</th>
<th>Verified</th>
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</thead>
<tbody>
<tr>
<td>10004</td>
<td>1</td>
<td>B</td>
<td>Right flarker pontoon fender bracket at the right shore side corner has pulled out hold down bolts. Refasten anchor bolts to pontoon. 2021 LAW Bolts have been tightened with more added on top. REPAIR VERIFIED</td>
<td>8701</td>
<td>4/8/2019</td>
<td>4/27/2021</td>
<td></td>
</tr>
<tr>
<td>10005</td>
<td>1</td>
<td>B</td>
<td>Spud pile SP3-D has a horizontal crack across a butt weld several feet below the high water mark. Weld cover plate over crack or replace pile. 2021 LAW - Cover plate welded on. REPAIR VERIFIED</td>
<td>8703</td>
<td>4/8/2019</td>
<td>4/27/2021</td>
<td></td>
</tr>
<tr>
<td>10006</td>
<td>2</td>
<td>B</td>
<td>Pumping records of the float cells should be recorded and tracked. This should include cell # (see layout sheet), date, and depth of water removed. Infiltration rates can be tracked and used for future repair work scheduling.</td>
<td>8701</td>
<td>4/8/2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10007</td>
<td>1</td>
<td>B</td>
<td>The following Spud Piles have holes in the pile wall and are susceptible to failure during extreme wind/wave events. SP1-A, SP1-D, SP3-B, SP3-C, and SP4-A These piles should be repaired (if possible) or replaced.</td>
<td>8703</td>
<td>4/27/2021</td>
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<tr>
<td>Br. No.</td>
<td>DOC-3</td>
<td>SID</td>
<td>00200438</td>
<td>Br. Name</td>
<td>MCNEIL IS. MOORING FLOAT</td>
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<tr>
<td>---------</td>
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<td>-------</td>
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<tr>
<td>Intersecting</td>
<td>PUGET SOUND</td>
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<tr>
<td>Underwater</td>
<td>4/27/2021</td>
<td>48</td>
<td>2.0</td>
<td>DON G0314 JRWH</td>
<td>Underwater inspection by WSDOT Dive Team. Frequency set at 48 months to correspond with every-other routine inspection.</td>
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</tr>
<tr>
<td>Resources</td>
<td>Hours</td>
<td>Min</td>
<td>Pref</td>
<td>Max</td>
<td>Freq Date</td>
<td>Need Date</td>
<td>Override</td>
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<td>Primary Safety</td>
<td>4/27/2021</td>
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<td>1.0</td>
<td>LAW G1112 ABK</td>
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<td>Resources</td>
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<td>Pref</td>
<td>Max</td>
<td>Freq Date</td>
<td>Need Date</td>
<td>Override</td>
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<tr>
<td>Boat</td>
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</tr>
</tbody>
</table>

Third Party Notification

Schedule inspection with Greg Buikema (DOC)
253-328-3229 or 253-588-6281 (cell).
Br. No.  DOC-3

Carrying

Intersecting  PUGET SOUND

### SI-1

- **0 Orientation**
- **Photo Type:** E - Elevation
- **Orientation:** E
- **Date:** 4/18/2013
- **Repairs:**
  - Elevation view looking east.

### SI-2

- **0 Orientation**
- **Photo Type:** E - Elevation
- **Orientation:** W
- **Date:** 5/21/2013
- **Repairs:**
  - Elevation looking west.
Br. No. DOC-3
Carrying
Intersecting PUGET SOUND

SID 00200438 Br. Name MCNEIL IS. MOORING FLOAT
Route On 10210 Mile Post 5.96
Route Under Mile Post

0 Orientation
Photo Type: D - Deck
Orientation: E
Date: 4/8/2019
Repairs:
Deck looking east

UW-0
9 Underwater Report Executive Summary
Photo Type: W - UW Cover
Orientation: NW
Date: 4/27/2021
Repairs:
UW report cover (elevation).
**SI-21**

- 8390 Fixed Bearing
- Photo Type: G - General
- Orientation: W
- Date: 5/3/2017
- Repairs:

Top end gangplank center pin connection is under upper landing plate.

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**SI-6**

- 8391 Moveable Bearing (roller, sliding, etc.)
- Photo Type: G - General
- Orientation: Shore
- Date: 4/18/2013
- Repairs:

Gangplank sliding bearings.
Br. No.  DOC-3  
Carrying 
Intersecting  PUGET SOUND

SI-36
8391 Moveable Bearing (roller, sliding, etc.)
Photo Type:  G - General
Orientation:  Sea
Date:  4/27/2021
Repairs:
Gangplank sliding bearing is warn to 1/2" on the right side.

SI-37
8391 Moveable Bearing (roller, sliding, etc.)
Photo Type:  G - General
Orientation:  Shore
Date:  4/27/2021
Repairs:
Gangplank sliding bearing is warn to 3/4" on the left side.
Br. No. DOC-3
Carrying
Intersecting PUGET SOUND

SI-20
8640 Moveable Pedestrian Gangplank
Photo Type: G - General
Orientation: Right
Date: 5/3/2017
Repairs:
Cables tied to the fixed truss installed to keep gangplank square.

SI-31
8640 Moveable Pedestrian Gangplank
Photo Type: G - General
Orientation: Left
Date: 4/8/2019
Repairs:
Additional rope attached to gangplank to prevent it from working towards shore.
Br. No. DOC-3

Carrying

Intersecting PUGET SOUND

SID 00200438

Br. Name MCNEIL IS. MOORING FLOAT

Route On 10210 Mile Post 5.96
Route Under Mile Post

SI-40

8640 Moveable Pedestrian Gangplank
Photo Type: G - General
Orientation: W
Date: 4/27/2021
Repairs:
Tie back cable attachment on the left side of the gangplank has a cracked weld. See Photo #41.

SI-41

8640 Moveable Pedestrian Gangplank
Photo Type: I - In Depth
Orientation: W
Date: 4/27/2021
Repairs:
Close up of crack in tie back cable attachment on the left side of the gangplank.
**Br. No.** DOC-3  
**Carrying**  
**Intersecting** PUGET SOUND

**SID** 00200438  
**Br. Name** MCNEIL IS. MOORING FLOAT

**Route On** 10210  
**Route Under**  
**Mile Post** 5.96

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**SI-7**

8701 Ferry Concrete Floating Pontoon  
**Photo Type:** G - General  
**Orientation:** Shore  
**Date:** 5/21/2013  
**Repairs:** Cell entry via tripod with winch.

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**SI-8**

8701 Ferry Concrete Floating Pontoon  
**Photo Type:** G - General  
**Orientation:** Shore  
**Date:** 5/21/2013  
**Repairs:** Cell entry via tripod with winch.
Br. No. DOC-3
Carrying
Intersecting PUGET SOUND

SI-24
8701 Ferry Concrete Floating Pontoon
Photo Type: G - General
Orientation: Left
Date: 5/3/2017
Repairs:
Most of the fender brackets have been repaired or replaced.

SI-35
8701 Ferry Concrete Floating Pontoon
Photo Type: C - Completed
Orientation: Left
Date: 4/27/2021
Repairs: 10004
Right flanker pontoon fender bracket at the right shore side corner has been repaired. Archive photo next inspection.
<table>
<thead>
<tr>
<th>Site</th>
<th>Photo Type</th>
<th>Repair Code</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Si-29</td>
<td>R - Repair</td>
<td>10004</td>
<td>4/8/2019</td>
<td>Pre-repair photo. See Photo #35. Right flanker pontoon fender bracket at the right shore side corner has pulled out hold down bolts. Archive next inspection.</td>
</tr>
<tr>
<td>Si-30</td>
<td>R - Repair</td>
<td>10004</td>
<td>4/8/2019</td>
<td>Pre-repair photo. See Photo #35. Right flanker pontoon fender bracket at the right shore side corner has pulled out hold down bolts. Archive next inspection.</td>
</tr>
</tbody>
</table>
**Br. No.** DOC-3  
**Carrying**  
**Intersecting** PUGET SOUND

**SI-26**

- 8701 Ferry Concrete Floating Pontoon
- **Photo Type:** G - General
- **Orientation:** Left
- **Date:** 5/3/2017

**Repairs:**

- Left flanker pontoon has an old repair.

**SI-34**

- 8703 Spud Piling & Wells
- **Photo Type:** G - General
- **Orientation:** Sea
- **Date:** 4/27/2021

**Repairs:**

- Pile SP1-A has had plates welded on to prevent wear to the pile from the chain.
Br. No.  DOC-3
Carrying
Intersecting  PUGET SOUND

SI-17
8703 Spud Piling & Wells
Photo Type:  G - General
Orientation:  Left
Date:  4/22/2015
Repairs:
Spud pile group SP2 has failing UHMW protection with steel backer plates remaining, typical for spud piles.

SI-33
8703 Spud Piling & Wells
Photo Type:  G - General
Orientation:  Shore
Date:  4/27/2021
Repairs:
Spud pile SP2-C has heavy rusting and section loss at the high side of the tidal zone.
<table>
<thead>
<tr>
<th>Br. No.</th>
<th>DOC-3</th>
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</thead>
<tbody>
<tr>
<td>SID</td>
<td>00200438</td>
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<tr>
<td>Br. Name</td>
<td>MCNEIL IS. MOORING FLOAT</td>
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<tr>
<td>Route On</td>
<td>Route Under</td>
</tr>
<tr>
<td>10210</td>
<td>Mile Post 5.96</td>
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</table>

### Intersecting PUGET SOUND

#### SI-32

8703 Spud Piling & Wells
- Photo Type: C - Completed
- Orientation: Left
- Date: 4/27/2021
- Repairs: 10005

Spud Pile SP3-D has been repaired. See photo #27 for pre-repair photo. Archive next inspection.

#### SI-27

8703 Spud Piling & Wells
- Photo Type: R - Repair
- Orientation: Left
- Date: 4/8/2019
- Repairs: 10005

Pre-repair: Spud Pile SP3-D is cracked at a butt splice. Archive next inspection.
**BRIDGE INSPECTION REPORT**

**Br. No.** DOC-3  
**Carrying**  
**Intersecting** PUGET SOUND  
**SID** 00200438  
**Br. Name** MCNEIL IS. MOORING FLOAT  
**Route On** 10210  
**Route Under** Mile Post 5.96  
**Mile Post**

**UW-6**
- 8703 Spud Piling & Wells  
- **Photo Type:** G - General  
- **Orientation:**  
- **Date:** 4/25/2017  
- **Repairs:** Using D-meter thickness gauge to measure pile section thicknesses.

**UW-5**
- 8703 Spud Piling & Wells  
- **Photo Type:** G - General  
- **Orientation:**  
- **Date:** 4/25/2017  
- **Repairs:** 10007  
- Keeper chains fret directly on spud piles in the lower ITZ, causing holes in some locations.
**BRIDGE INSPECTION REPORT**

**Br. No.** DOC-3  
**Carrying**  
**Intersecting** PUGET SOUND

**SID** 00200438  
**Br. Name** MCNEIL IS. MOORING FLOAT  
**Route On** 10210  
**Mile Post** 5.96  
**Route Under** Mile Post

**UW-8**

8703 Spud Piling & Wells  
**Photo Type:** I - In Depth  
**Orientation:** SE  
**Date:** 4/27/2021  
**Repairs:** 10007  
Spud Pile SP1-A holed thru from keeper chain fretting.

**UW-9**

8703 Spud Piling & Wells  
**Photo Type:** G - General  
**Orientation:**  
**Date:** 4/27/2021  
**Repairs:**  
Most spud piles have good coating below the ITZ. Pile SP1-B shown near mudline (MDL).
Br. No. DOC-3

Carrying

Intersecting PUGET SOUND

UW-10

8703 Spud Piling & Wells
Photo Type: I - In Depth
Orientation: Date: 4/27/2021
Repairs:
Localized deep pitting in Pile SP1-C; typical of other piles in localized areas.

UW-11

8703 Spud Piling & Wells
Photo Type: I - In Depth
Orientation: SE
Date: 4/27/2021
Repairs: 10007
Spud Pile SP1-D holed thru near mudline.
Br. No. DOC-3  
SID 00200438  
Br. Name MCNEIL IS. MOORING FLOAT

**Carrying**  
PUGET SOUND

**Intersecting**  
PUGET SOUND

**UW-12**

8703 Spud Piling & Wells  
Photo Type: I - In Depth  
Orientation: DN  
Date: 4/27/2021  
Repairs:

Heavy corrosion and section loss in SP2-A from chain fretting. Only about 1/8" section remaining in this location.

**UW-13**

8703 Spud Piling & Wells  
Photo Type: I - In Depth  
Orientation: W  
Date: 4/27/2021  
Repairs: 10007  
Spud Pile SP3-B holed thru at MDL+4
Br. No. DOC-3  
Carrying  
Intersecting PUGET SOUND  

**UW-14**  
8703 Spud Piling & Wells  
Photo Type: I - In Depth  
Orientation: W  
Date: 4/27/2021  
Repairs: 10007  
Spud Pile SP3-C deeper pits holed thru at MDL+4

**UW-15**  
8703 Spud Piling & Wells  
Photo Type: I - In Depth  
Orientation: NW  
Date: 4/27/2021  
Repairs: 10007  
Spud Pile SP4-A holed thru in the ITZ from chain fretting.
**BRIDGE INSPECTION REPORT**

**Br. No.** DOC-3  
**Carrying**  
**Intersecting** PUGET SOUND

**UW-16**

8703 Spud Piling & Wells  
**Photo Type:** I - In Depth  
**Orientation:** W  
**Date:** 4/27/2021  
**Repairs:**  
Localized deep pitting near MDL in Spud Pile SP4-B.

**UW-17**

8703 Spud Piling & Wells  
**Photo Type:** I - In Depth  
**Orientation:**  
**Date:** 4/27/2021  
**Repairs:**  
Spud Pile SP4-C deep pits mid-height.
Br. No.  DOC-3
Carrying
Intersection  PUGET SOUND

SI-39
8902 Inorganic Zinc Vinyl Paint
Photo Type:  G - General
Orientation:  Right
Date:  4/27/2021
Repairs:  Spud pile paint has many rust blooms.

UW-3
8902 Inorganic Zinc Vinyl Paint
Photo Type:  G - General
Orientation:  DN
Date:  4/25/2017
Repairs:  Typical spud pile condition in the upper intertidal zone (ITZ)
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<td>Mile Post</td>
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</table>

8902 Inorganic Zinc Vinyl Paint

- Photo Type: I - In Depth
- Orientation: DN
- Date: 5/21/2013

Repairs:
- 5%-10% coating failure with rusting.
- SP4-B shown; typical of other piles.
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<th>Entry Name</th>
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<td>UW-0</td>
<td>9 Underwater Report Executive Summary</td>
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<td>8390 Fixed Bearing</td>
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<td>8391 Moveable Bearing (roller, sliding, etc.)</td>
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<td>Condition/Damage</td>
<td>Inspection Type</td>
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<tr>
<td>Bent</td>
<td>Pile Type</td>
<td>Cond. State</td>
<td>Elevation</td>
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<tr>
<td>SP1</td>
<td>A</td>
<td>Steel</td>
<td>CS4</td>
<td>Thickness = 0.485&quot; (2021)</td>
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<tr>
<td>B</td>
<td>Steel</td>
<td>CS3</td>
<td></td>
<td>Thickness = 0.480&quot; (2021). Coating looks good near MDL (Photo #UW-9). Up to 3/16&quot; deep pits @7:00 in larger 3&quot;(h) x 4&quot;(w) area of section loss from chain fretting. Thickness in good area adjacent = 0.485&quot;(2021)</td>
</tr>
<tr>
<td>C</td>
<td>Steel</td>
<td>CS3</td>
<td></td>
<td>Thickness = 0.485&quot; (2017) 1&quot; dia. localized pit @1:00; 0.41&quot; deep. Thickness = 0.480&quot;(2021) in adjacent good area. Typical of other areas of localized deep pitsing (Photo #UW-10). 5% - 10% area general coating loss/failure.</td>
</tr>
<tr>
<td>D</td>
<td>Steel</td>
<td>CS4</td>
<td></td>
<td>Thickness = 0.490&quot; (2013) 3&quot;(h) x 5&quot;(w) hole thru pile @4:00 (Photo #UW-11). Thickness = 0.490&quot; (2021) in adjacent good area. 3/4&quot; dia. pits up to 0.25&quot; deep in Level II cleaned area @4:00</td>
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<td>SP2</td>
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<td>Steel</td>
<td>CS3</td>
<td>Thickness = 0.495&quot; (2021) MDL to MDL+1.5 ITZ 18&quot;(h) x 9&quot;(w) area of coating failure with pitting up to 3/8&quot; deep @2:30 Up to 50% coating failure and heavy corrosion from chain fretting (Photo #UW-12). Thickness readings were 0.130&quot; &amp; 0.270&quot; in fretted area (2021).</td>
</tr>
<tr>
<td>B</td>
<td>Steel</td>
<td>CS3</td>
<td></td>
<td>Thickness = 0.480&quot; (2021) MDL+1 ITZ 10% area general coating loss/failure. Pontoon chains are fretting on pile and causing heavy corrosion and section loss. Thickness readings were 0.300&quot; &amp; 0.340&quot; in fretted area from 6:00-9:00 (2021).</td>
</tr>
<tr>
<td>C</td>
<td>Steel</td>
<td>CS3</td>
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<td>Thickness = 0.515&quot; (2013) MDL+1 ITZ Thickness = 0.480&quot; (2021). Small dia. pitting up to 3/8&quot; deep @ 6:00 5% - 10% area general coating loss/failure.</td>
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<td>Thickness = 0.510&quot; (2021) MDL ITZ 5% - 10% area general coating loss/failure.</td>
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<td>Bent</td>
<td>Pile</td>
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<td>Thickness = 0.500&quot; (2013); 0.500&quot; (2021). 5%-10% area general coating loss/failure. Pontoon chains are fretting on pile though rubbing plates are still intact. Some small localized areas of 0.25&quot; deep pitting. Thickness = 0.225&quot; @ MDL+18; 9:00 (2021)</td>
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WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
NBI STRUCTURE INVENTORY AND APPRAISAL REPORT
(ENGLISH UNITS)

IDENTIFICATION

(1) STATE NAME - WASHINGTON 530
(8) STRUCTURE NUMBER 002004380000000
(5) INVENTORY ROUTE (ON/UNDER) - On 151 10210
(9) STATE ROUTE MILEPOST 5.96
(2) HIGHWAY AGENCY DISTRICT - OL Region 03
(3) COUNTY CODE 53 - Pierce County
(4) PLACE CODE 00000
(6) FEATURES INTERSECTED PUGET SOUND
(7) FACILITY CARRIED
(9) LOCATION MCNEIL ISLAND
(12) BASE HIGHWAY NETWORK -
(13) LRS INV ROUTE AND SUB ROUTE
(11) LRS MILEPOST
(16) LATITUDE 47 Deg 11 Min 41.15 Sec
(17) LONGITUDE 122 Deg 38 Min 11.56 Sec
(96A) BORDER BR. - Not a border bridge (96B) BORDER BR. SIID - Not a border bridge

STRUCTURE TYPE AND MATERIAL

(43) STRUCTURE TYPE MAIN: MATERIAL - DESIGN -
(44) STRUCTURE TYPE APPR: MATERIAL - Other DESIGN - Other 000
(45) NO. OF SPANS IN MAIN UNIT 1
(46) NO. OF APPROACH SPANS 0
(107) DECK STRUCTURE TYPE -
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
(A) TYPE OF WEARING SURFACE -
(B) TYPE OF MEMBRANE -
(C) TYPE OF DECK PROTECTION -

AGE AND SERVICE

(27) YEAR BUILT
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE ON - UNDER -
(28) LANES: ON STRUCTURE UNDER STRUCTURE
(29) AVERAGE DAILY TRAFFIC 0
(30) YEAR OF ADT (109) TRUCK ADT 0%
(19) BYPASS, DETOUR LENGTH 000

GEOMETRIC DATA

(48) LENGTH OF MAXIMUM SPAN
(49) STRUCTURE LENGTH
(50) CURB OR SIDEWALK: LEFT RIGHT
(51) BRIDGE ROADWAY WIDTH CURB TO CURB
(52) DECK WIDTH OUT TO OUT
(32) APPROACH ROADWAY WIDTH (W/SHOULders)
(33) BRIDGE MEDIANT -
(34) SKEW Deg (35) STRUCTURE FLARED No 0
(10) INVENTORY ROUTE MIN VERT CLEAR 99 ft 99 in
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR
(53) MIN VERT CLEAR OVER BRIDGE RDW
(54) MIN VERT UNDERCLEAR
(55) MIN LAT UNDERCLEAR RT
(56) MIN LAT UNDERCLEAR LT

NAVIGATION DATA

(38) NAVIGATION CONTROL - Not applicable
(111) PIER PROTECTION - Not Applicable
(39) NAVIGATION VERTICAL CLEARANCE
(116) VERT-LIFT BRIDGE NAV MIN VERT CLR
(40) NAVIGATION HORIZONTAL CLR

WSBIS DATA

BRIDGE NUMBER DOC-3
BRIDGE NAME MCNEIL IS. MOORING FLOAT
CUSTODIAN Other State Agencies
CROSSING DESC
MAIN LISTING FLAG M
SUFFICIENCY RATING 43.00

CLASSIFICATION

(112) NBS BRIDGE LENGTH
(104) HIGHWAY SYSTEM -
(26) FUNCTIONAL CLASS -
(100) DEFENSE HIGHWAY -
(101) PARALLEL STRUCTURE -
(102) DIRECTION OF TRAFFIC - 1-way traffic
(103) TEMPORARY STRUCTURE - Not Applicable
(105) FEDERAL LANDS HIGHWAY - Not Applicable
(110) DESIGNATED NATIONAL NETWORK - Not part of network
(20) TOLL -
(21) MAINTENANCE -
(22) OWNER - Other State Agencies 21
(37) HISTORICAL SIGNIFICANCE - Not determined 4

CONDITION

(58) DECK 7
(59) SUPERSTRUCTURE 7
(60) SUBSTRUCTURE 4
(61) CHANNEL AND CHANNEL PROTECTION 8
(62) CULVERTS N

LOAD RATING AND POSTING

(31) DESIGN LOAD - Other or Unknown 0
(63) OPERATING RATING METHOD - No rating analysis 5
(64) OPERATING RATING 17 T
(65) INV RATING METHOD - No rating analysis 5
(66) INVENTORY RATING 10 T
(70) BRIDGE POSTING -
(41) STRUCTURE OPEN, POSTED, CLOSED -

APPRAISAL

(67) STRUCTURAL EVALUATION 4
(68) DECK GEOMETRY
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL
(71) WATERWAY ADEQUACY
(72) APPROACH ROADWAY ALIGNMENT
(36) TRAFFIC SAFETY FEATURES
(113) SCOUR CRITICAL BRIDGE T

PROPOSED IMPROVEMENTS

(75) TYPE OF WORK -
(76) LENGTH OF STRUCTURE IMPROVEMENT
(94) BRIDGE IMPROVEMENT COST
(95) ROADWAY IMPROVEMENT COST
(96) TOTAL PROJECT COST
(97) YEAR OF IMPROVEMENT COST ESTIMATE
(114) FUTURE ADT
(115) YEAR OF FUTURE ADT

INSPECTIONS

(90) INSPECTION DATE
(92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
(A) FRACTURE CRIT DETAIL - NO - Month (A)_/
(B) UNDERWATER INSPI - YES - 48 Month (B) 04/21
(C) OTHER SPECIAL INSPI - NO - Month (C)__/