2023 Facility Condition Assessment Report - Final

Task Order No. 06 – West Hylebos Log Dock
On-Call Marine Structures Facility Condition Assessment Services 2023-2027
Contract No. 071856
Port of Tacoma
Tacoma, Washington

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PORT OF TACOMA
WEST HYLEBOS LOG DOCK

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EXECUTIVE SUMMARY

In accordance with professional services agreement no. 071856, dated 11 May 2023, WSP USA Inc. is pleased to present this facility condition assessment report for West Hylebos Log Dock at the Port of Tacoma.

The purpose of this report is to present the current overall condition assessment rating of the facility to provide a summary of observations and findings resulting from the facility condition assessment and provide concept level repair recommendations with estimated repair costs for elements that were found to be structurally deficient.

Overall, the West Hylebos Log Dock is in **fair** condition. The primary structural components that make up the wharf are sound, with minor to moderate defects throughout. Localized areas of moderate to advanced deterioration are present but do not significantly reduce the load carrying capacity of the structure. Repair recommendations include repairing or replacing elements with major or severe damage.

The estimated cost for the recommended repairs are approximately $1.1 million. Consideration of a pile wrap installation program is recommended for the timber piles that support the wharf, but the cost of which is not included in the repair estimate. Changes to the inspection intervals are not recommended at this time. Inspection intervals and future inspection years for various assets at West Hylebos Log Dock are provided in Table 1 below.

Table 1. West Hylebos Log Dock Inspection Cycle

ASSET GROUP	INSPECTED IN THIS FCA?	INSPECTION INTERVAL IN YEARS	NEXT INSPECTION YEAR
Deck Overlay	X	4	2027
Bullrail	X	2	2025
Mooring Fittings	X	2	2025
Utility Vault Lids	X	4	2027
Fender System	X	2	2025
Decking	X	6	2029
Pile Caps	X	2	2025
Firewall	X	2	2025
Bulkhead	X	2	2025
Ladders	X	6	2029
Bearing Piles	X	2	2025
Floating Docks	X	2	2025

1.0 INTRODUCTION

WSP USA Inc. (WSP) has been retained by Moffatt & Nichol under professional services agreement no. 071856, dated 11 May 2023, to perform a facility condition assessment (FCA) of West Hylebos Log Dock at the Port of Tacoma. This report describes the observations and findings from our on-site routine condition assessment; identifies the current overall condition assessment rating of the wharf and the condition rating of its various components and structural members; provides recommendations and estimated repair costs. This FCA is performed in accordance with Port of Tacoma's (Port) asset inspection program and the previous FCA reports for this facility.

WSP obtained the information necessary to complete this FCA report by performing the following tasks.

- Reviewed existing record documents and previous inspection reports.
- Performed a routine condition assessment of the above-deck portions of the terminal structures.
- Performed a routine condition assessment of the below-deck/above-water portions of timber framing elements.
- Performed a routine underwater inspection of timber piles.

2.0 DESCRIPTION OF STRUCTURE

The West Hylebos Log Dock is owned by the Port of Tacoma and is located along the southwest shoreline of the Hylebos Waterway within Commencement Bay. The wharf, originally constructed in 1970, is approximately 1,030 feet long and 103 feet wide. The pile bents are oriented from the northwest to southeast, starting at Bent 1 and extending to Bent 113. Pile rows are labeled alphabetically starting with "A" at the outboard face of the wharf. There are two timber floating docks located to the northwest of the wharf. See Figure 1 for an aerial view of the West Hylebos Log Dock. Figure 2 shows the pile naming designation for each guide pile cluster at the floats.

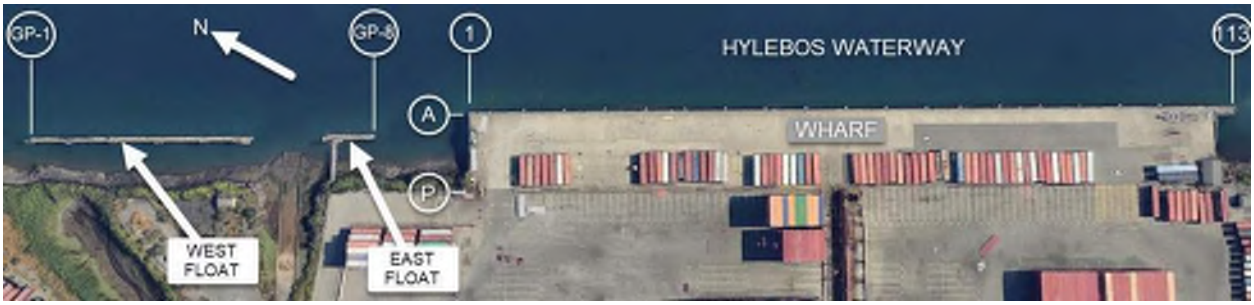

Figure 1. West Hylebos Log Dock

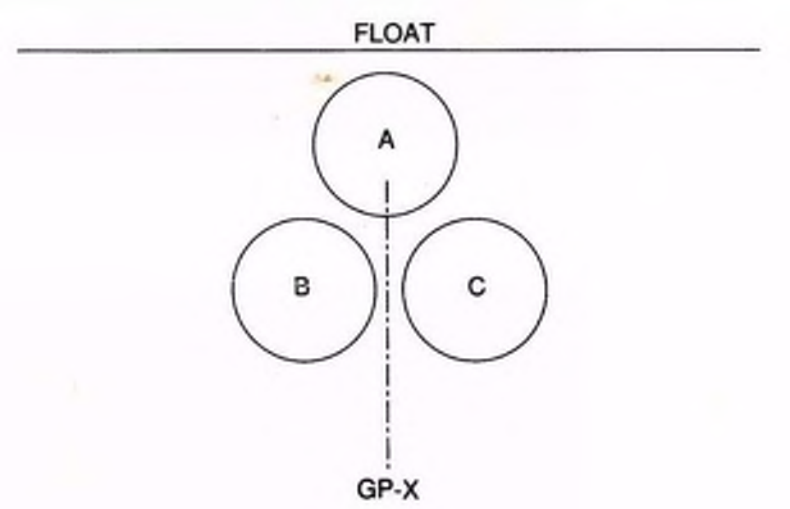

Figure 2. Float Guide Pile Cluster – Pile Designation

The wharf is primarily composed of timber components. Laminated timber decking comprised of 6-inch by 14-inch boards spanning between 16-inch square timber pile caps, spaced at 9 feet on center. The pile caps are supported by approximately 1,485 creosote-treated timber bearing piles that are 14-inch diameter. Splices between timber pile cap members are present on each bent between Row D and Row E, as well as between Row H and Row J. The pile caps at Row P are attached to the concrete bulkhead cap with a bolted plate connection. The concrete bulkhead cap is supported by battered timber piling. Transverse timber firewalls are located every 16 bents. The typical timber framing, including piling, pile caps, and laminated timber decking are shown in Photo 1.

Photo 1. Typical Below-deck Framing

The timber decking is overlaid with areas of reinforced concrete or asphalt pavement. A concrete bullrail extends along the outboard edge of the wharf, see Photo 2.

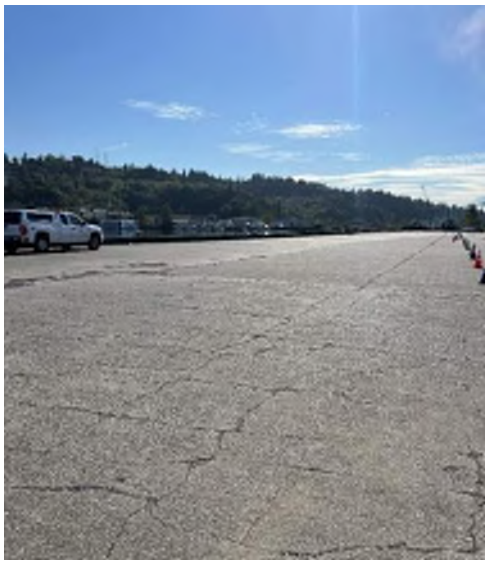

Photo 2. Typical Deck Reinforced Overlay

The fender system consists of 17 breasting dolphins spaced every six bents along the face of the wharf. Each dolphin contains five timber piles, timber blocking, and wire cable wraps. The outer two piles in a cluster are faced with high-density polyethylene (HDPE) rub strips. See Photo 3 for the typical fender system.

Photo 3. Typical Breasting Dolphin

The mooring system consists of steel cleats spaced approximately every eight to nine bents along the berth face. See Photo 4 for a typical mooring fitting.

Photo 4. Typical Cleat Mooring Fitting

The timber floating docks are comprised of timber framing with polystyrene foam blocks for floatation. The docks are secured with galvanized chains around timber guide piles. Timber batter piles provide lateral stability and are connected in clusters of three piles. The northwest float has six guide piles, and the southeast float has two guide piles. The west float is accessible only by boat and is approximately 300 feet long and 6 feet wide. The east float is accessible from the shore via an aluminum gangway and is approximately 70 feet long and 6 feet wide. See Photo 5 for the typical floating dock.

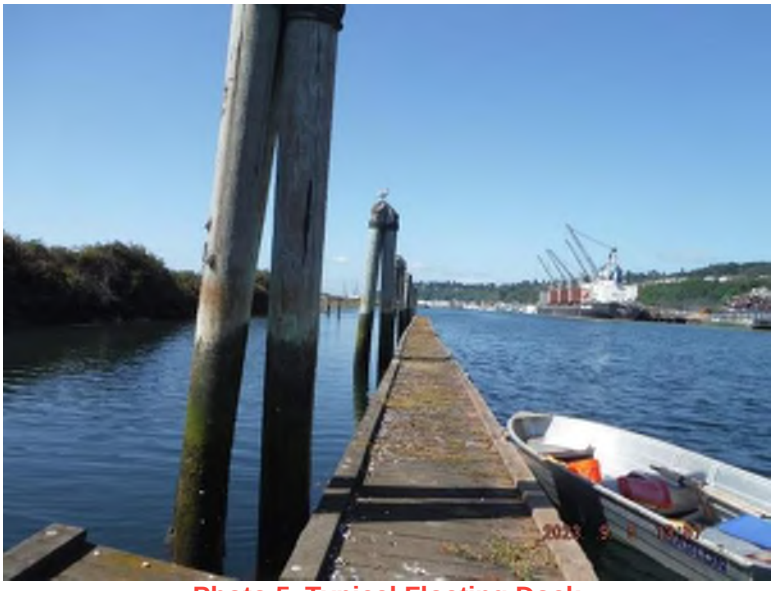

Photo 5. Typical Floating Dock

3.0 FACILITY CONDITION ASSESSMENT METHODOLOGY

3.1 REFERENCE STANDARDS

The FCA is performed in accordance with the following American Society of Civil Engineers (ASCE) publication. This standard applies to the execution of the field inspection, the classification of damage and condition of individual structural members and the facility.

- ASCE Manuals and Reports on Engineering Practice No. 130, *"Waterfront Facilities Inspection and Assessment"*

3.2 INDIVIDUAL ELEMENTS AND STRUCTURAL MEMBERS

The condition assessment of individual elements and structural members of the facility was performed by both visual observations and hands-on, tactile, methods. Hammer soundings to detect rot or voids in timber members or delamination and spalls in concrete members were employed as needed. Probing was performed using a thin steel tool, awl or screwdriver, where needed to help determine the extent of rot and voids in members. An electronic UT gauge was used to detect remaining thickness of steel members where needed. Timber members were drilled with a small diameter bit, 3/16", where needed to determine the extent of rot and voids and then patched with a treated wood plug.

Elements and members were assigned an element level damage rating, with damages defined as minor, moderate, major, or severe. For instances where damage was not observed, elements were classified as "no damage." These damage ratings are defined in Chapter 2 of the ASCE 130 manual and have been standardized to provide a qualitative and consistent description of an elements level of damage. See Appendix C for a detailed description of damage ratings for elements present at West Hylebos Log Dock.

3.3 OVERALL FACILITY

Following completion of the field work, element level damage ratings in combination with visual observations were used to assign an overall facility condition assessment rating. In accordance with Table 2-14 of the ASCE 130 manual, a summary of the facility condition assessment ratings are shown in Table 2 below.

Table 2. ASCE 130 Condition Assessment Ratings

Rating	Description
Good	No visible damage or only minor damage noted.
Satisfactory	Limited minor to moderate defects or deterioration observed.
Fair	All primary structural elements are sound but minor to moderate defects or deterioration observed.
Poor	Advanced deterioration or overstressing observed on widespread portions of the structure but does not significantly reduce the load-bearing capacity of the structure.
Serious	Advanced deterioration, overstressing, or breakage may have significantly affected the load-bearing capacity of primary structural components.
Critical	Very advanced deterioration, overstressing, or breakage has resulted in localized failure(s) of primary structural components.

3.4 PORT OF TACOMA STRUCTURAL ASSESSMENT AND PIER INSPECTION PROGRAM

Components of this wharf are routinely inspected on various intervals depending on the amount and severity of damage found. The report titled "FINAL Structural Assessment and Pier Inspection Program," dated 18 July 2017 by BergerABAM defines the framework for performing above-deck, below-deck/above-water, and underwater inspections for wharves, piers, bulkheads, and waterfront assets at the Port of Tacoma. Depending on the level of observed damage/deterioration, assets are assigned an inspection frequency of two, four, or six years. Assets with a two-year inspection cycle are those with moderate to advanced deterioration throughout the structure (rated as poor or fair). Assets on a four-year inspection cycle are those with limited moderate defects or localized areas of moderate to advanced deterioration (rated as fair or satisfactory). Assets with a six-year inspection cycle represent components with limited visible damage or minor to moderate defects without signs of overstressing (rated as satisfactory or good). Inspection intervals and future inspection years for various asset groups at West Hylebos Log Dock are provided in Table 3 below.

Table 3. West Hylebos Log Dock Inspection Cycle

ASSET GROUP	INSPECTED IN THIS FCA?	INSPECTION INTERVAL IN YEARS	NEXT INSPECTION YEAR
Deck Overlay	X	4	2027
Bullrail	X	2	2025
Mooring Fittings	X	2	2025
Utility Vault Lids	X	4	2027
Fender System	X	2	2025
Decking	X	6	2029
Pile Caps	X	2	2025
Firewall	X	2	2025
Bulkhead	X	2	2025
Ladders	X	6	2029
Bearing Piles	X	2	2025
Floating Docks	X	2	2025

For each group of assets listed in Table 3, only a portion is inspected during its inspection cycle. The table below states the percentage of each asset group that is inspected during their inspection cycle. The facility regions stated are delineated by inspection personnel access. The "above-deck" region can be inspected by walking, the "below-deck/above-water" region can be inspected by either boat or walking along the shoreline beneath the wharf at low tide, and the "underwater" region can only be inspected by diving. Future FCAs for West Hylebos Log Dock will cover a different 25% of pile caps and 20% of bearing piles, which will undergo four and five FCAs respectively, before the same structural members are again inspected. The table below shows asset groups highlighted in yellow that were inspected during this FCA, which are consistent with Table 3. A detailed list of the assets inspected during this FCA is provided in Appendix B as well.

Table 4. Portion of West Hylebos Inspected by Facility Region During Each Inspection Cycle

ASSET GROUP	FACILITY REGION		
	ABOVE-WATER	BELOW-DECK/ ABOVE-WATER	UNDERWATER
Deck Overlay	100%		
Bullrail	100%		
Mooring Fittings	100%		
Utility Vault Lids	100%		
Fender System	100%	100%	
Decking		25%	
Pile Caps		25%	
Firewall		25%	
Bulkhead		100%	
Ladders	100%	100%	
Bearing Piles		25%	20%
Floating Docks	100%		20%

4.0 FACILITY CONDITION ASSESSMENT APPROACH

The above-water site inspections for West Hylebos Log Dock were performed by two-engineer teams from WSP, Daniel Woodman and Tim Fisher on the 5th of September 2023, and Daniel Woodman and Sean Duncan on the 6th of September

2023. The weather conditions were clear and dry with no wind on the day the inspections. The underwater inspections were conducted by Daniel Woodman, Benjamin Pesicka, Aaron Christy, Grace Roberts, and Aiden Nichols with WSP between 11 September 2023 and 13 September 2023. The weather conditions were overcast with no wind. In-water temperature was approximately 56 degrees with 6 feet of visibility.

WSP performed a condition assessment of above-deck, below-deck/above-water, and underwater assets at West Hylebos, as described in the below sub sections. See Appendix B for a detailed list of assets that were inspected and assessed for this FCA.

4.1 ABOVE-DECK

The assessment of this region was performed by walking along the wharf surface. The elements inspected include the fender system, deck overlay, bullrail, mooring fittings, utility vault lids, ladders, and floating docks.

4.2 BELOW-DECK/ABOVE-WATER

A detailed assessment of the deck framing, firewall, and fender system was performed from a work skiff. Visual inspection of the bulkhead was completed by walking along the shoreline at low tide.

The detailed below-deck/above-water assessment was performed on 25 percent of the structural framing members (pile caps, deck panels, and exposed portions of piles between the waterline and pile cap soffits). Cursory high-level assessment of the remaining 75 percent of framing elements was performed by a brief motor-by from our work skiff. Only visual observations at a distance were made during this activity, looking for obvious significant damage.

4.3 UNDERWATER

The underwater assessment inspected approximately 20 percent of bearing piles. For this effort, dive operations were performed using surface-supplied air (SSA) staged from our 26-foot dive boat. The dive team consisted of a three-man crew; diver, tender, and dive supervisor/rack operator.

All piles included in this work received a Level I/visual inspection in accordance with the ASCE 130 manual. This level of inspection is essentially a “swim-by” over the entire length of the pile above the mudline and typically does not involve any cleaning of the piles. The diver relies primarily on visual and/or tactile observations (depending on water clarity) to make condition assessments. A Level II inspection was performed on approximately 10 percent of the inspected piles. In addition to a visual inspection, this level involves removing the marine growth in a 12-inch-wide band around the pile at three elevations (mudline, +0.0 mean lower low water, and midway between). See Appendix D for a more detailed description of Level I and Level II examinations.

5.0 FINDINGS

Condition assessment ratings for above-deck, below-deck/above-water, and underwater assets are described in the following subsections. Ratings have been assigned to each asset group based on the sum of all field observations of wear, deterioration and damage. A general description of the condition is included for each asset group. Photographs showing typical conditions of assets at the terminal and observed damage and deterioration are provided in Appendix A. A detailed list of deficiencies and their damage rating by individual assets are provided in Appendix E.

5.1 ABOVE-DECK

5.1.1 Deck Overlay

The asphalt and concrete deck overlay is in **poor** condition. Widespread minor cracks and ruts are present along the entire surface of the asphalt overlay (Appendix A, Photo 1). Widespread minor to major cracks, ruts, spalls, and delamination are present along the concrete overlay surface. There are isolated areas where spalled concrete have been filled with cold patch between Bent 2 and Bent 25. Areas of concrete spalling with exposed reinforcement was observed primarily between Bent 25 to Bent 100 (Appendix A, Photo 2). Cumulative surface area of spalled concrete pavement over the wharf is approximately 2,800 square feet.

5.1.2 Bullrail

The concrete bullrail is generally in **fair** condition. Minor to major spalls are present along the entire length of the landside edge. Impact spalls with exposed reinforcing steel are present and are up to 9 feet long (Appendix A, Photo 3).

5.1.3 Mooring Fittings

The mooring fittings are in **poor** condition. Coating loss, heavy corrosion with loose scale, and noticeable corrosion of fasteners are present on all the steel cleats. At 11 locations, Bents 2, 18, 26, 30, 34, 52, 61, 70, 79, 87, and 101, the cleats and concrete mounting locations have major to severe deterioration, including section loss on the neck of the cleat (Appendix A, Photo 4), and open corrosion spalls on the mounting locations with exposed reinforcing. The ear of the steel cleat at Bent 10 is broken (Appendix A, Photo 5) and the cleat at Bent 43 is missing (Appendix A, Photo 6). There is moderate to major corrosion of the cleat anchor plates that bear against the pile cap soffits (Appendix A, Photo 7).

5.1.4 Utility Vault Lids

The utility vault lids are in **satisfactory** condition. There is minor corrosion on the utility vault lid near Bent 46.5.

5.1.5 Fender System

The fender system is in **fair** condition. The fender system generally exhibits widespread areas of minor to moderate damage or deterioration, including splitting, checking, fungal decay, rot, abrasion, and marine borer activity. A portion of the wale is missing, exposing the anchor connection of the wharf face at Bent 34 (Appendix A, Photo 8). The fender piles at Bent 21 are detached from the wharf face (Appendix A,

Photo 9). The fender at Bent 39 is missing the center pile and chock. The center fender pile at Bent 51 is approximately 10 feet shorter than the adjacent fender piles. The northwest fender pile at Bent 57 exhibits major crushing at the top and a missing chock (Appendix A, Photo 10). There is a major split in the timber chock at Bent 98. The fender at Bent 104 exhibits leaning piles that are no longer plumb, as well as a major split in the chock (Appendix A, Photo 11). There is a dolphin pile cluster with a loose steel cable wrap at Bent 39. There are multiple missing or damaged pile aluminum sheet metal hats, exposing the tops of the piles to precipitation, were found on the fenders at Bents 15, 21, 33, 45, 57, 63, 74, and 86. The fender pile connection at Bent 19 and 19.5 has loose and missing thru-bolt nuts that connect the piles to the wale.

5.1.6 Floating Docks

The timber floating docks are in **poor** condition. The walking surfaces are covered in moss and debris and the docks have a moderate to major list to the outboard side and low freeboard (Appendix A, Photo 12). The galvanized hardware and chains securing the docks to the guide piles have moderate to severe corrosion with section loss. One of the two galvanized chains that secure the southeast float to the guide piles is broken, leaving only one lashing chain to hold the entire southeast float on-location. There are two locations where major to severe rotting of the timber wale is present on the northwest float and one instance of major rot on the southeast float.

5.2 BELOW-DECK/ABOVE-WATER

5.2.1 Timber Decking

The laminated timber decking is in **good** condition. Minor checks and splits are visible at isolated locations throughout the wharf. No significant damage of the timber decking was observed.

5.2.2 Timber Pile Caps

The timber pile caps are in **satisfactory** condition. The majority of timber pile caps exhibit only minor to moderate signs of deterioration, including checks and splits less than 1/2-inch wide. The bolted plate connection to the bulkhead cap exhibits only minor surface corrosion. Pile cap repairs have been performed in isolated locations that consist of a replacement pile cap butted against the original cap and lap spliced with two 3-inch by 12-inch timbers. The splice is typically located at the midspan (Appendix A, Photo 13). There is a major split on the outboard face of the pile cap at Bent 88 (Appendix A, Photo 14).

5.2.3 Timber Firewall

The timber firewalls are in **fair** condition. Above-water, the firewalls show localized areas of minor to moderate damage or deterioration (Appendix A, Photo 15). Localized areas of major to severe deterioration are present, particularly below mean lower low water. Segments of firewall are missing or partially detached at Bents 33, 49, and 97.

5.2.4 Bulkhead

The bulkhead is in **fair** condition. Minor to moderate erosion of the slope armoring is present at multiple locations, which has exposed the pile cap soffit and the battered timber piling. The erosion varies in height up to 24 inches high. The erosion is not expected to result in reduction of structural capacity in the abutment because it is fully supported on the batter piles; however, slope erosion may result in sinkholes in the unpaved area in the future. No sinkholes were observed from above-deck at this time. The concrete portions of the bulkhead show no widespread damage but does have spalling with exposed reinforcement near Bent 110 (Appendix A, Photo 16).

5.2.5 Ladders

The ladders are overall in **good** condition with minor coating loss and corrosion present. Two ladders are bent but still appear to be functional.

5.3 UNDERWATER

5.3.1 Timber Piles

In general, the timber piles are in **fair** condition. Appendix A, photo 17 shows a typical underwater Level II pile cleaning. The majority of piles inspected exhibit minor to moderate signs of deterioration, including checks, shakes, splits, and gouges of less than ½-inch wide. Approximately 25 percent of the piles inspected show evidence of minor marine borer deterioration with less than 5 percent loss of section. Pile 4:B has major damage consisting of marine borer damage with 50 percent section loss (Appendix A, Photo 18). Pile 25:B is rated as major damage due to it being partially nonbearing under the pile cap.

The floating dock guide piles and batter piles are in **fair** condition with typical minor abrasion. GP-2:A exhibits severe section loss with 20 percent remaining cross section (Appendix A, Photo 19).

6.0 OVERALL FACILITY CONDITION RATING

The overall facility and asset group condition assessment ratings for West Hylebos Log Dock are provided in Table 5. Assessment ratings are assigned based on visual observations and element level damage ratings, see Appendix C. The asset group overall ratings were determined by considering the bullet points below. The overall facility condition assessment rating stated in the table below is a weighted average of all the asset group overall ratings, including those carried over from the previous inspection period.

- Total amount of observed damage
- Severity of observed damage
- Distribution of observed damage
- Sensitivity of affected elements
- Locations of damage
- Serviceability

Table 5. Overall Facility Condition Rating

ASSET IDENTIFICATION	CONDITION RATING
Above-Deck Assets	
Deck Overlay	Poor
Bullrail	Fair
Mooring Fittings	Poor
Utility Vault Lids	Satisfactory
Fender System	Fair
Floating Docks	Poor
Below-Deck/Above-Water Assets	
Timber Decking	Good
Timber Pile Caps	Satisfactory
Timber Firewall	Fair
Bulkhead	Fair
Ladders	Good
Underwater Assets	
Timber Piles	Fair
Overall Facility Condition Assessment Rating	**Fair**

7.0 RECOMMENDATIONS

The specific elements and structural members recommended to be repaired or replaced are highlighted in color in Appendix E and are described in the following list:

1. Replace all cracked and spalled concrete pavement overlay. A waterproof concrete overlay is critical to preserving the longevity of the timber structure below.
2. Repair bullrail impact spalls with exposed reinforcing.
3. Replace mooring fittings exhibiting major to severe deterioration.
4. Replace fender piles with major or severe damage.
5. Replace fender system wales and chocks with major or severe damage.
6. Replace steel fender system pile wraps with major or severe damage.
7. Replace all torn or missing sheet metal pile hats on fender piles.
8. Install supplemental floatation at the floating docks to correct listing and low freeboard. Consider decommissioning or replacing these floats.
9. Replace broken/missing chain hardware that secures floats to guide piles.
10. Replace pile caps with major splitting.
11. Replace missing/detached segments of firewall.
12. Repair major spalling in bulkhead concrete cap.
13. Install FRP Jacket on bearing piles with major or severe damage.
14. Restore pile to pile cap bearing, including pile straps.

15. Replace missing or loose nuts that connect fender pile to wale.
16. Considering implementing a pile wrap installation program to address marine borer activity, see below.

Marine borers require an oxygenated environment to survive, a common intervention is to turn the pile's environment anoxic (deficient in dissolved oxygen), thereby reducing marine borer activity. This solution consists of petrolatum material wrap to seal the pile surface from the water and HDPE sheeting to protect the wrap from damage. The sheeting is secured to the pile with stainless steel banding or similar hardware. Preparation of the pile requires removing the marine growth, typically with high-pressure water. The pile wrap and sheeting should begin above the mean higher high-water level and extend to 1 foot below the mudline, providing isolation of the timber pile from the water.

A pile wrap program is an approach to slow the deterioration of vulnerable timber piles from continued marine borer attack over several years, beginning with piles that have known marine borer activity and section loss. The number of piles to protect each year can be based on available funding.

8.0 LIMITATIONS

Findings, recommendations, and conclusions in this report are based on WSP's field observations only. This inspection was performed by observation with the naked eye and limited tactile detection. It is possible that defects and deficiencies of structural components and members exist that were not detectable with these methods at the time of inspection for the effort budgeted, especially for treated timber that regularly rots from the inside out. The intent of this work is to estimate the structural condition of members observed relative to their new condition. Destructive testing is not part of this work. This condition assessment excludes the utility systems and electrical systems.

9.0 REPAIR COSTS

An opinion of the probable construction cost for repairs to assets, described in Section 7.0, is provided in the table below. These costs are intended to provide a rough order of magnitude (ROM) for construction, including labor, materials, equipment, mobilization, construction contingency, contractor overhead and profit, and sales tax. Engineering, studies, permitting, testing, project management, construction management, Port oversight/management, and escalation are not included.

Table 6. West Hylebos Repairs ROM Opinion of Probable Repair Cost

ITEM NO.	TYPE OF REPAIR	UNIT	QUANTITY	UNIT COST	EXTENDED COST
1	Repair Concrete Deck Overlay	CY	88	$1,500	$132,000
2	Repair Concrete Bullrail	SF	159	$200	$31,744
3	Replace Mooring Fitting and Foundation	EA	13	$13,700	$178,100
4	Replace Fender Pile or Guide Pile	EA	3	$8,000	$24,000
5	Replace Fender Wale & Chock	EA	13	$3,000	$39,000
6	Replace Fender Cable Wraps	EA	1	$1,700	$1,700
7	Replace Fender Pile Hats	EA	21	$100	$2,100
8	Add Supplemental Floatation to Floating Docks	LS	1	$40,000	$40,000
9	Replace Float Chains	EA	2	$900	$1,800
10	Replace Pile Cap	LF	10	$630	$6,300
11	Replace Firewall Timbers	SF	280	$100	$28,000
12	Repair Bulkhead Cap Spall	EA	1	$3,500	$3,500
13	Jacket Bearing Pile	EA	1	$15,000	$15,000
14	Re-center Misaligned Pile	EA	1	$1,700	$1,700
				SUBTOTAL COST	**$504,900**
	Mob/Demob (5%)				$25,250
	Project Administration (21%)				$111,330
	Contingency (50%)				$320,740
	Sales Tax (10.3%)				$99,110
				TOTAL COST	**$1,061,330**

APPENDIX A

PHOTOGRAPHS

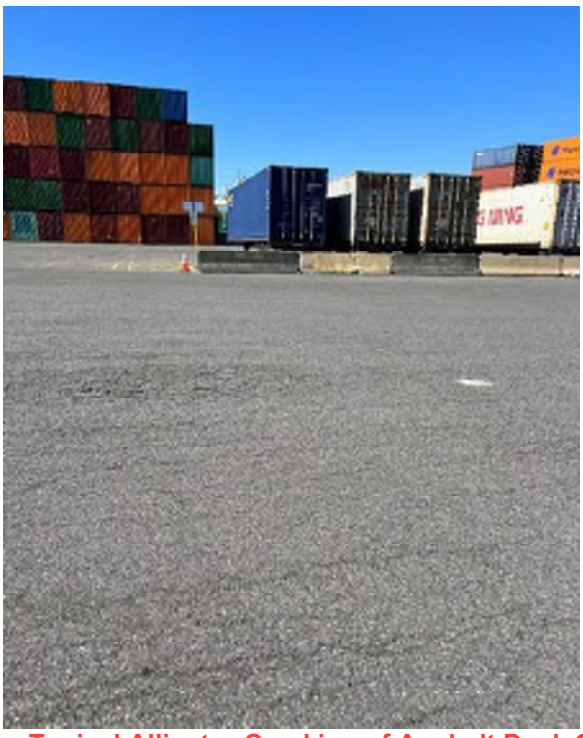

Photo 1 – Typical Alligator Cracking of Asphalt Deck Overlay.

Photo 2 –Spalling of Concrete Overlay with Exposed Reinforcement at Bent 34. Similar Damage Present in Multiple Locations between Bent 25 and Bent 100.

Photo 3 – Concrete Bullrail Mechanical Spall with Deformed Bar at Bent 25.

Photo 4 – Cleat with Section Loss at the Neck, Missing Anchor. Surrounding Bullrail Mechanical Spalling at Bent 79.

Photo 5 – Cleat with Broken Ear at Bent 10.

Photo 6 – Missing Cleat at Bent 43.

Photo 7 – Moderate Corrosion of Bearing Plate that Anchors the Mooring Fitting at Bent 101.

Photo 8 – Split Wale with Exposed Anchor and Rot. Split Pile with Torn Sheet Metal Hats at Bent 34.

Photo 9 – Fender System Disconnected from Wharf at Bent 21.

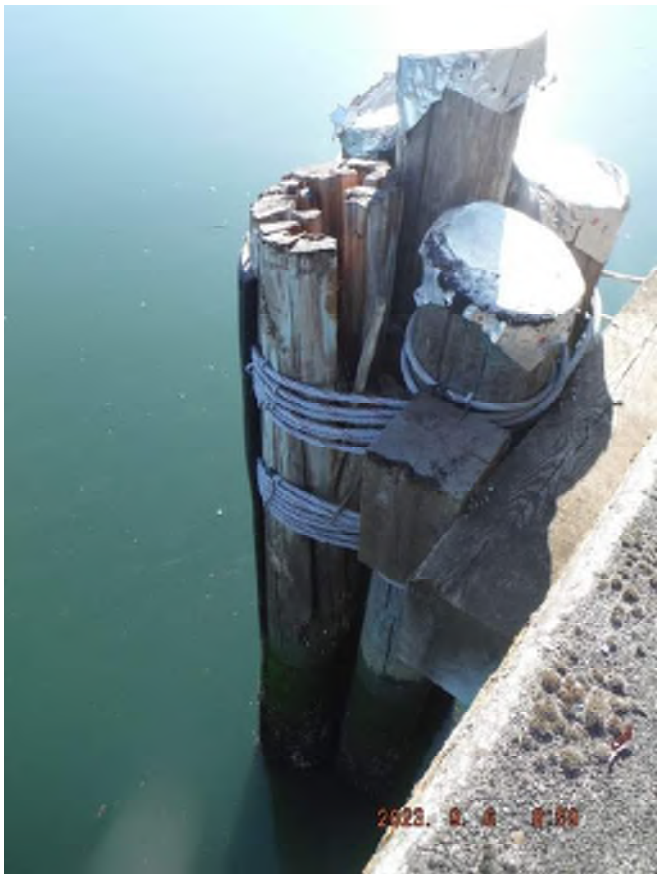

Photo 10 – Top of Pile Crushed with Missing Sheet Metal Pile Hat and Missing Timber Chock at Bent 57.

Photo 11 – Fender Piles Out of Plumb and Split Chock at Bent 104.

Photo 12 – Southeast Float Listing.

Photo 13 – Typical Pile Cap Splice.

Photo 14 – Major Split in Pile Cap End at Bent 88.

Photo 15 – Typical Above-Water Condition of Firewall.

Photo 16 – Open Spalling with Exposed Reinforcement in Bulkhead Pile Cap at Bent 11.

Photo 17 – Typical Level II Pile Cleaning Underwater.

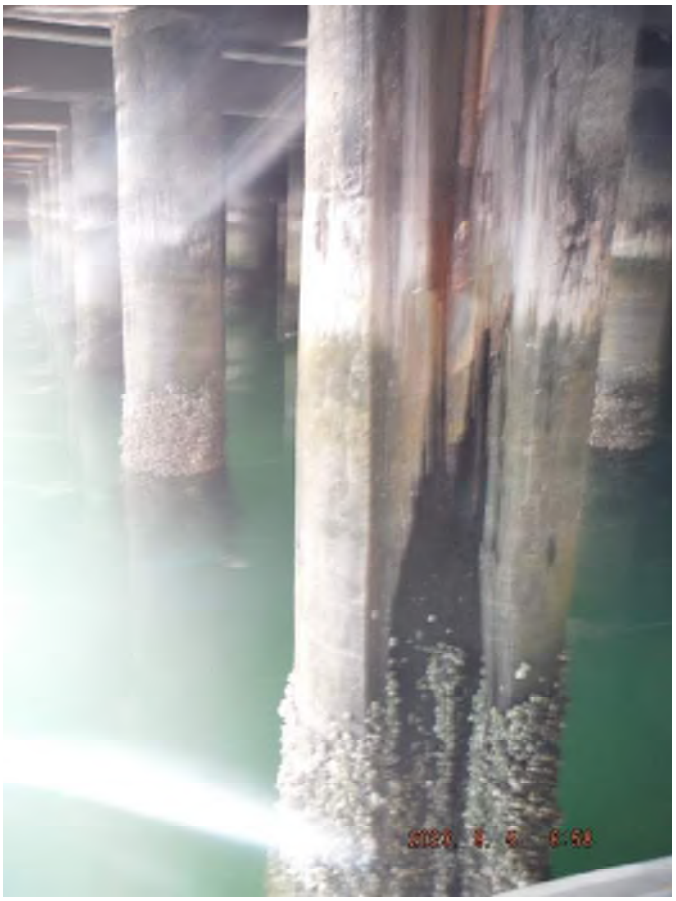

Photo 18 – Pile Cross Section Major Loss at Waterline, Pile 4:B.

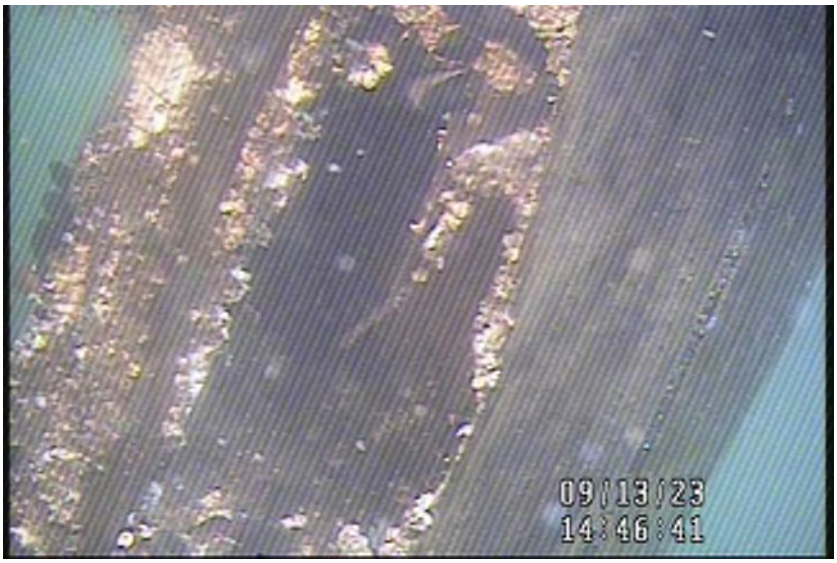

Photo 19 – Cavity in Pile GP-2:A. Severe Section Loss.

APPENDIX B

ASSET ASSESSMENT LIST

APPENDIX B – ASSET ASSESSMENT LIST

Overlay:	All topside
Safety Ladders:	All safety ladders
Bullrail:	Full length of concrete bullrail
Utility Vault Lid:	All visible utility vault lids
Bearing Pile Bents:	7, 8, 9, 10, 23, 24, 25, 26, 35, 36, 37, 38, 57, 58, 59, 60, 75, 76, 77, 78, 106, 107, 108, 109
Fender Pile Bents:	All (above-water) 9, 57, 80, 104 (underwater)
Float Guide Piles:	All (above-water) GP-4, GP-8 (underwater)
Pile Cap Bents:	1, 5, 9, 10, 17, 20, 24, 28, 33, 36, 40, 47, 49, 57, 63, 67, 70, 75, 79, 82, 87, 90, 97, 99, 103, 107, 112
Deck Panels:	1-2, 4-6, 8-11, 16-18, 19-21, 23-25, 27-29, 32-34, 35-37, 39-41, 46-50, 56-58, 62-64, 66-68, 69-71, 74-76, 78-83, 86-88, 89-91, 96-100, 102-104, 106-108, 111-112
Mooring Hardware:	All cleats and pedestals
Fender System:	All fender piles, wales, chocks, and chains
Bulkhead:	Full length

APPENDIX C

ELEMENT LEVEL DAMAGE RATING SYSTEM

Table 2.4 - Damage Rating for Timber Elements*

Damage Rating		Existing Damage[a]	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
NI	Not Inspected	Not inspected, inaccessible, or passed by[b]	
ND	No Defects	• Sound surface material	
MN	Minor	• Checks, splits, and gouges less than 0.5 in. wide • Evidence of marine borers or fungal decay	Minor damage not appropriate if • Loss of cross section • Marine borer infestation • Displacements, loss of bearing, or connections
MD	Moderate	• Remaining diameter loss up to 15% • Checks and splits wider than 0.5 in. • Cross-section area loss up to 25% • Corroded hardware • Evidence of marine borers or fungal decay, with loss of section	Moderate damage not appropriate if • Displacements, loss of bearing or connections
MJ	Major	• Remaining diameter loss 15 to 30% • Checks and splits through full depth of cross section • Cross-section area loss 25 to 50%; heavily corroded hardware • Displacement and misalignments at connections	Major damage not appropriate if • Partial or complete breakage
SV	Severe	• Remaining diameter loss more than 30% • Cross-section area loss more than 50% • Loss of connections and/or fully nonbearing condition • Partial or complete breakage	

*Taken from ASCE Waterfront Facilities Inspection and Assessment Manual No. 130, 2015.
a = Any defect listed is sufficient to identify relevant damage grade.
b = If not inspected due to inaccessibility or passed by, note as such.

Table 2.5 - Damage Ratings for Steel Elements*

Damage Rating		Existing Damagea	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
NI	Not Inspected	Not inspected, inaccessible, or passed by[b]	
ND	No Defects	• Protective coating or wrap intact • Light surface rust • No apparent loss of material	
MN	Minor	• Protective coating or wrap damaged and loss of thickness up to 15% of nominal at any location • Less than 50% of perimeter or circumference affected by corrosion at any elevation or cross section • Loss of thickness up to 15% of nominal at any location	Minor damage not appropriate if • Changes in straight line configuration or local buckling • Corrosion loss exceeding fabrication tolerances (at any location).
MD	Moderate	• Protective coating or wrap damaged and loss of thickness 15 to 30% of nominal at any location • More than 50% of perimeter or circumference affected by corrosion at any elevation or cross section • Loss of thickness 15 to 30% of nominal at any location	Moderate damage not appropriate if • Changes in straight line configuration or local buckling • Loss of thickness exceeding 30% of nominal at any location
MJ	Major	• Protective coating or wrap damaged and loss of nominal thickness 30 to 50% at any location • Partial loss of flange edges or visible reduction of wall thickness on pipe piles • Loss of nominal thickness 30 to 50% at any location	Major damage not appropriate if • Changes in straight line configuration or local buckling • Perforations or loss of wall thickness exceeding 50% of nominal
SV	Severe	• Protective coating or wrap damaged and loss of wall thickness exceeding 50% of nominal at any location • Structural bends or buckling, breakage, and displacement at supports, loose, or lost connections • Loss of wall thickness exceeding 50% of nominal at any location	

*Taken from ASCE Waterfront Facilities Inspection and Assessment Manual No. 130, 2015.
a = Any defect listed is sufficient to identify relevant damage grade.
b = If not inspected due to inaccessibility or passed by, note as such.

Table 2.6 - Damage Ratings for Reinforced Concrete Elements*

Damage Rating		Existing Damage[a]	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
NI	Not Inspected	Not inspected, inaccessible, or passed by[b]	
ND	No Defects	Good original hard surface, hard material, sound	
MN	Minor	• Mechanical abrasion or impact spalls up to 1 in. in depth • Occasional corrosion stains or small pop-out corrosion spalls • General cracks up to 1/16 in. in width	Minor damage not appropriate if • Structural damage • Corrosion cracks • Chemical deterioration[c]
MD	Moderate	• Structural cracks up to 1/16 in. in width • Corrosion cracks up to 1/4 in. in width • Chemical deterioration: random cracks up to 1/16 in. in width; “soft” concrete and/or rounding of corners up to 1 in. deep • Mechanical abrasion or impact spalls greater than 1 in. in depth	Moderate damage not appropriate if • Structural breakage and/or spalls • Exposed reinforcement • Loss of cross section due to chemical deterioration beyond rounding of corner edges
MJ	Major	• Structural cracks 1/16 in to 1/4 in. in width and partial breakage (through section cracking with structural spalls) • Corrosion cracks wider than 1/4 in. and open or closed corrosion spalls (excluding pop-outs) • Multiple cracks and disintegration of surface layer due to chemical deterioration • Mechanical abrasion or impact spalls exposing the reinforcing	Major damage not appropriate if • Loss of cross section exceeding 30% due to any cause
SV	Severe	• Structural cracks wider than 1/4 in. or complete breakage • Complete loss of concrete cover due to corrosion of reinforcing steel with more than 30% of diameter loss for any main reinforcing bar • Loss of bearing and displacement at connections • Loss of concrete cover (exposed steel) due to chemical deterioration • Loss of more than 30% of cross section due to any cause	

*Taken from ASCE Waterfront Facilities Inspection and Assessment Manual No. 130, 2015.
a = Any defect listed is sufficient to identify relevant damage grade.
b = If not inspected due to inaccessibility or passed by, note as such.
c = Chemical deterioration: sulfate attack, alkali-silica reaction, alkali-aggregate reaction, alkali-carbonate reaction ettringite distress, or other chemical/concrete deterioration.

Table 2.7 - Damage Ratings for Prestressed Concrete Elements*

Damage Rating		Existing Damage[a]	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
NI	Not Inspected	Not inspected, inaccessible, or passed by[b]	
ND	No Defects	Good original hard surface, hard material, sound	
MN	Minor	• Minor mechanical or impact spalls up to 0.5 in. deep	Minor damage not appropriate if • Structural damage • Corrosion damage • Chemical deterioration[c] • Cracks of any type or size
MD	Moderate	• Structural cracks up to 1/32 in. in width • Chemical deterioration: random cracks up to 1/32 in. in width	Moderate damage not appropriate if • Structural breakage and/or spalls • Corrosion cracks • Loss of cross section in any form • “Softening” of concrete
MJ	Major	• Structural cracks 1/32 in. to 1/8 in. in width • Any corrosion cracks generated by strands or cables • Chemical deterioration: cracks wider than 1/8 in. • “Softening” of concrete up to 1 in. deep	Major damage not appropriate if • Exposed prestressing steel
SV	Severe	• Structural cracks wider than 1/8 in. and at least partial breakage or loss of bearing • Corrosion spalls over any prestressing steel • Partial spalling and loss of cross section due to chemical deterioration	

*Taken from ASCE Waterfront Facilities Inspection and Assessment Manual No. 130, 2015.
a = Any defect listed is sufficient to identify relevant damage grade.
b = If not inspected due to inaccessibility or passed by, note as such.
c = Chemical deterioration: sulfate attack, alkali-silica reaction, alkali-aggregate reaction, alkali-carbonate reaction ettringite distress, or other chemical/concrete deterioration.

Table 2.8 - Damage Ratings for Mooring Hardware*

Damage Rating		Existing Damage[a]	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
NI	Not Inspected	Not inspected, inaccessible, or passed by[b]	
ND	No Defects	• Material sound, surfaces smooth without indications of corrosion, surface coating in good condition, connections sound • Bolt countersinks grouted or sealed	No Defects Rating not appropriate if • Surface coatings worn or damaged • Visible corrosion on fasteners
MN	Minor	• Fitting has surface corrosion over 10 to 25% of its area. • Minor wear marks or pitting on surface of fittings are less than 1/8-in. deep • Fasteners have minor corrosion with no significant loss of section.	Minor damage not appropriate if • Deep pits, gouges, or wear on fitting surfaces • Any noticeable loss of section on fasteners threads, if visible
MD	Moderate	• Fitting has moderate surface corrosion with loose scale over less than 50% of its area • Significant surface wear marks or pitting on fitting are up to 1/4-in. deep • Fasteners have corrosion with less than 25% loss of section	Moderate damage not appropriate if • Loose scale on fasteners • Inability to remove fasteners due to heavy corrosion, if accessible
MJ	Major	• Fitting has surface corrosion with loose scale over 50% or more of its surface area and/or less than 25% section loss • Significant surface wear marks or pitting on fitting 1/4-in. deep or greater • Fasteners have corrosion with loose scale or loss of section greater than 25%	Major damage not appropriate if • Displaced, damaged, or broken fitting components • Loose or missing fasteners
SV	Severe	• Fitting has heavy surface corrosion and loose scale with greater than 25% loss of section at critical areas of the fitting • Structural displacement, deformation, or rotation of the fitting are present; fitting components are broken, cracked, or delaminated • Loose, broken, or missing fasteners	

*Taken from ASCE Waterfront Facilities Inspection and Assessment Manual No. 130, 2015.
a = Any defect listed is sufficient to identify relevant damage grade.
b = If not inspected due to inaccessibility or passed by, note as such.

Table 2.9 - Damage Ratings for Mooring Foundations*

Damage Rating		Existing Damage[a]	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
NI	Not Inspected	Not inspected, inaccessible, or passed by[b]	
ND	No Defects	• Good original hard surface, hard material, sound	No Defects Rating not appropriate if • Weathering on timber, steel, or composite fenders • Hairline cracks in concrete elements
MN	Minor	• Timber Foundations: Weathered timber; evidence of fungal decay; minor checks, splits, and gouges up to 1/4-in. wide • Steel Foundations: Weathering of steel coating, light surface corrosion • Concrete Foundations: No significant section loss to load-bearing areas, hairline cracking of the concrete due to corrosion of the mooring hardware • Composites: Weathered surfaces	Minor damage not appropriate if • Load-bearing areas around mooring hardware not sound • Displacement, loss of bearing, or connections • Fungal decay, insect infestation within or adjacent to the bearing area on timber elements • Corrosion loss exceeding fabrication tolerances (at any location) • Structural damage or corrosion cracking or concrete elements
MD	Moderate	• Timber cracked and checked up to 1/2-in. wide; weathered surfaces; fungal decay under or adjacent to the mooring hardware, with loss of section (max 1 in.) • Corrosion of steel with less than 10 to 25% section loss at any location • Noticeable cracking of concrete, larger than hairline but with no loss of interlock	Moderate damage not appropriate if • Displacements, loss of bearing, or connections • Changes in straight-line configuration or local buckling • Loss of thickness exceeding 30% of nominal at any location for steel elements • Structural breakage, spalls, or corrosion cracks in concrete elements • Chemical deterioration[c] or “softening” of concrete elements
MJ	Major	• Timber cracked and checked greater than 1/2-in. wide; weathered; fungal decay present (max 3 in. depth); up to 25% loss of bearing • Steel corrosion with 25 to 50% section loss at any location • Noticeable cracking of concrete, resulting in loss of interlock • Composite elements cracked or split	Major damage not appropriate if • Breakage or displacement of any element • Exposed steel strands in prestressed concrete elements • Perforations or loss of section exceeding 50% on steel elements

Table 2-9. Damage Ratings for Mooring Foundations (Continued)*

Damage Rating		Existing Damage[a]	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
SV	Severe	• Displacement/yielding of any support members • Loss of full bearing of fitting under hardware • Fungal decay of timber members (greater than 3 in. depth) • Significant corrosion of steel members with greater than 50% section loss at any location • Cracking or spalling of concrete based under hardware • Composite broken or damaged	

*Taken from ASCE Waterfront Facilities Inspection and Assessment Manual No. 130, 2015.
a = Any defect listed is sufficient to identify relevant damage grade.
b = If not inspected due to inaccessibility or passed by, note as such.
c = Chemical deterioration: Sulfate attack, alkali-silica reaction, alkali-aggregtate reaction, alkali-carbonate reaction ettringite distress, or other chemical/concrete deterioration.

Table 2.10 - Damage Ratings for Fender Piles*

Damage Rating		Existing Damage[a]	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
NI	Not Inspected	Not inspected, inaccessible, or passed by[b]	
ND	No Defects	• Good original surface, sound, no defects observed	No defects rating not appropriate if • Surface coatings worn or damaged
MN	Minor	• Light abrasion less than 1/2-in. deep, light (surface) fungal decay, minimal marine borer activity observed (less than 5% section loss) • Weathering of steel coating, surface corrosion with no significant pitting • Hairline cracking of concrete • Weathered composite elements	Minor damage not appropriate if • “Softening” of concrete
MD	Moderate	• Timber cracked and checked up to 1/2-in. wide, fungal decay (max 1 in. depth), abrasion up to 2-in. deep, loss of section due to marine borers less than 10% • Corrosion of steel with up to 25% localized section loss • Noticeable cracking of concrete but with no loss of interlock	Moderate damage not appropriate if • “Softening” of the concrete (up to 1-in.) • Prestressed concrete fender piles (with a low effective prestress) are expected to crack under load; therefore, should be rated minor if no corrosion and the cracks are closed
MJ	Major	• Timber cracked and checked greater than 1/2-in. wide, fungal decay (max 3-in. depth), abrasion damage greater than 2-in. deep, loss of section due to marine borers between 10 and 25% • Corrosion of steel elements with 25 to 50% localized section loss, localized buckling of a flange • Noticeable cracking of concrete with loss of interlock, softening of the concrete greater than 1-in. deep • Composite elements cracked or split	

Damage Rating		Existing Damage[a]	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
SV	Severe	• Fungal decay on timber members (greater than 3-in. depth), loss of section due to marine borers (more than 25% of the section), broken • Significant corrosion of steel members with more than 50% localized section loss, broken, or yielded • Broken, exposed reinforcing steel or prestressing steel strands, spalling of the concrete, softening of the concrete greater than 3-in. deep • Composite elements broken	

*Taken from ASCE Waterfront Facilities Inspection and Assessment Manual No. 130, 2015.
a = Any defect listed is sufficient to identify relevant damage grade.
b = If not inspected due to inaccessibility or passed by, note as such.

Table 2.12 - Damage Ratings for Rubber Fender Elements*

Damage Rating		Existing Damage[a]	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
NI	Not Inspected	Not inspected, inaccessible, or passed by[b]	
ND	No Defects	• Good original surface, sound • Connections intact and tight	No Defects Rating not appropriate if • Noticeable abrasion or wear of rubber surfaces
MN	Minor	• Small gouges or surface defects present less than 10% of nominal depth • Connection intact, tight with light corrosion (less than 10% section loss at any location)	Minor damage not appropriate if • Surface cracking or degradation of rubber components
MD	Moderate	• Gouges, wear, or tears less than 25% of nominal depth • Rubber damaged at the connectors or connection plates • Connections loose, a bolt missing, or corrosion with 10 to 25% section loss at any location	Moderate damage not appropriate if • Permanent deformation or misalignment of rubber elements
MJ	Major	• Cracks, gouges, or tears between 25 and 50% of nominal depth • Rubber torn at the connectors or connection plates • Connections loose, two bolts missing, or corrosion with 25 to 50% section loss at any location	Major damage not appropriate if • Rubber element is split or torn through
SV	Severe	• Cracks, gouges, or tears greater than 50% of nominal depth • Rubber torn through at the connectors or connection plates • Connections with loose or missing bolts, or corrosion with greater than 50% section loss at any location	

*Taken from ASCE Waterfront Facilities Inspection and Assessment Manual No. 130, 2015.
a = Any defect listed is sufficient to identify relevant damage grade.
b = If not inspected due to inaccessibility or passed by, note as such.

Table 2-13. Damage Ratings for Fender Panels*

Damage Rating		Existing Damage[a]	Exclusions [Defects Requiring Elevation to the Next Higher Damage Rating(s)]
NI	Not Inspected	Not inspected, inaccessible, or passed by[b]	
ND	No Defects	• Good original surfaces • All connections intact • Backing panel sound	No Defects Rating not appropriate if • Coatings damaged • Visible surface corrosion
MN	Minor	• Small cracks or gouges (less than 10% of nominal) • 90% of panel connections intact • Backing frame with surface corrosion with no significant loss of section • Support chains intact with light surface corrosion	Minor Rating not appropriate if • Panels displaced or misaligned • Any loose or missing hardware
MD	Moderate	• Cracks or gouges (less than 25% of nominal) • 75% of panel connections intact • Panels displaced from the backing panel • Backing frame corroded • Support chains intact, with less than 25% section loss	Moderate Rating not appropriate if • Panels displaced or misaligned • Any loose or missing hardware
MJ	Major	• Cracks or gouges (less than 50% of nominal) • 50% of the panel connections intact or multiple panels displaced from the backing panel • Backing frame corroded with loose scale, but panel substantially in place • Support chains heavily corroded with more than 25% section loss	Major Rating not appropriate if • Panel/frame system sagging, misaligned, or with limited bearing
SV	Severe	• Cracks or gouges (greater than 50% of nominal) • Less than 50% of the panel connections intact or multiple panels displaced from the backing panel • Backing frame heavily corroded with loose scale • Sagging/displacement of panel/frame system • Support chains heavily corroded with loose scale and/or missing or broken	

*Taken from ASCE Waterfront Facilities Inspection and Assessment Manual No. 130, 2015.
a = Any defect listed is sufficient to identify relevant damage grade.
b = If not inspected due to inaccessibility or passed by, note as such.

Table 2.14 - Condition Assessment Ratings*

Rating		Description
6	Good	No visible damage or only minor damage noted. Structural elements may show very minor deterioration, but no overstressing observed. No repairs are required.
5	Satisfactory	Limited minor to moderate defects or deterioration observed but no overstressing observed. No repairs are required.
4	Fair	All primary structural elements are sound but minor to moderate defects or deterioration observed. Localized areas of moderate to advanced deterioration may be present but do not significantly reduce the load-bearing capacity of the structure. Repairs are recommended, but the priority of the recommended repairs is low.
3	Poor	Advanced deterioration or overstressing observed on widespread portions of the structure but does not significantly reduce the load-bearing capacity of the structure. Repairs may need to be carried out with moderate urgency.
2	Serious	Advanced deterioration, overstressing, or breakage may have significantly affected the load-bearing capacity of the primary structural components. Local failures are possible, and loading restrictions may be necessary. Repairs may need to be carried out on a high-priority basis with urgency.
1	Critical	Very advanced deterioration, overstressing, or breakage has resulted in localized failure(s) of primary structural components. More widespread failures are possible or likely to occur, and load restrictions should be implemented as necessary. Repairs may need to be carried out on a very high-priority basis with strong urgency.

*Taken from ASCE Waterfront Facilities Inspection and Assessment Manual No. 130, 2015.

APPENDIX D

UNDERWATER INSPECTION PROCEDURES

APPENDIX D

UNDERWATER INSPECTION PROCEDURES

Reference Documents:

- ASCE Manuals and Reports on Engineering Practice No. 101, *"Underwater Investigations – Standard Practice Manual"*; Section 3.1.3, Definition of Inspection Levels
- ASCE Manuals and Reports on Engineering Practice No. 130, *"Waterfront Facilities Inspection and Assessment"*; Section 3.1.3, Definition of Inspection Levels of Effort

To efficiently communicate the results of this inspection to reviewers of this facility condition assessment report, it is necessary that common terminology and methodology be established. The following are definitions of standard levels of effort required in all underwater inspections and were followed in this inspection effort.

LEVEL I - GENERAL EXAMINATION

Level I inspection effort includes a close visual examination underwater or a tactile examination using large sweeping motions of the hands where visibility is limited underwater. Although the Level I effort is often referred to as a "swim by" inspection, it must be detailed enough to detect obvious major damage or deterioration due to overstress or other severe deterioration. It should confirm the continuity of the full length of all members and system components and detect undermining or exposure of normally buried elements. A Level I effort may also include limited probing of the substructure and adjacent channel bottom.

The underwater inspector relies primarily on visual and/or tactile observations (depending on water clarity) to make condition assessments. These observations are normally made over the total exterior surface area of the underwater structure whether it is a quaywall, bulkhead, seawall, pile, or floating structure.

LEVEL II - DETAILED EXAMINATION

Level II inspection effort is a detailed inspection underwater that requires wrappings, coatings, corrosion, and/or marine growth to be removed from portions of the structure. Underwater marine growth removal is costly, hence, the need to base the inspection on a representative sampling of components. For piles, a 12-inch-high band should be cleaned at designated locations, generally near the low waterline, at the mudline, and midway between the low waterline and the mudline. On large solid faced elements, such as retaining structures, 1-foot by 1-foot areas should be cleaned at these three elevations. The Level II effort should also focus on typical areas of weakness such as connections, attachment points, and welds. The Level II effort is intended to detect and identify damaged and deteriorated areas that may be hidden by surface biofouling, coating, or corrosion, or that which may not be readily accessible for a Level I inspection effort.

The thoroughness of marine growth should be governed by what is necessary to discern the condition of the underlying material. Removal of all bio-fouling staining is generally not required. Means and methods for the removal of bio-fouling growth are not typically defined in a scope of work. However, it may be appropriate for owners to specify particular methods based on environmental and site conditions or on concern for maintaining the integrity of the coating materials. Methods may include hand scrapers or mechanical systems ranging from high-

pressure water blasters to barnacle busters and pressurized air bubble devices on the principles of cavitation.

LEVEL III - HIGHLY DETAILED EXAMINATION

Level III inspection effort is a detailed inspection underwater typically involving nondestructive or partially destructive testing conducted to detect hidden or interior damage, or to evaluate material homogeneity. Typical inspection and testing techniques include the use of ultrasonic, coring or boring, physical material sampling, and in situ hardness testing. Level III testing is generally limited to key structural areas, areas that are suspect or areas that may be representative of the structure or system.

APPENDIX E

TABULATED FIELD DATA

LEGEND

ABBREVIATIONS

BAT	BATTER PILE
AVG	AVERAGE
CCS	CLOSED CORROSION SPALL
CONC	CONCRETE
CORR	CORROSION
CHK	CHECK
DELAM	DELAMINATION OF CONCRETE
E	EAST
EXP	EXPOSED
EXST	EXIST/EXISTING
FP	FENDER PILE
FT	FOOT/FEET
GP	GUIDE PILE
HDPE	HIGH DENSITY POLYETHYLENE
HL	HAIRLINE
HORZ	HORIZONTAL
IN	INCHES
MBA	MARINE BORER ACTIVITY
MD	MODERATE DAMAGE
MECH	MECHANICAL
MID	MIDDLE
MJ	MAJOR DAMAGE
ML	MUDLINE
MLLW	MEAN LOWER LOW WATER
MN	MINOR DAMAGE
MW	MEAN WATER ELEVATION
N	NORTH
ND	NO DAMAGE OBSERVED
NE	NORTHEAST
NW	NORTHWEST
OCS	OPEN CORROSION SPALL
PC	PILE CAP
PL	PLATE
PREV	PREVIOUS
PVMT	PAVEMENT
S	SOUTH
SE	SOUTHEAST
SF	SQUARE FEET
SHK	SHAKE
SOF	SOFFIT OF PILE CAP OR DECK PANEL
SPALL	SPALLED CONCRETE
SPL	SPLIT
STIRR	STIRRUP
SW	SOUTHWEST
SV	SEVERE DAMAGE
TRANS	TRANSVERSE
T/ PILE	TOP OF PILE
TYP	TYPICAL
UHMW-PE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE
UT	ULTRASONIC THICKNESS
W	WEST
W/	WITH
WL	WATERLINE

RECOMMENDED FOR REPAIR

- Major or Severe Deck Overlay Damage
- Major or Severe Bullrail Damage
- Major or Severe Mooring Fitting Damage
- Major or Severe Fender Pile Damage
- Major or Severe Fender Wale & Chock Damage
- Damaged Fender Pile Cable Wrap
- Broken/Missing Guide Pile-Float Chain Connection
- Major to Severe Timber Wale Damage on Float
- Major to Severe Pile Cap Damage
- Major to Severe Fire Wall Damage
- Major to Severe Bulkhead Cap Spall
- Major to Severe Bearing Pile Damage
- Major to Severe Bearing Loss of Bearing Pile
- Major Float Listing

PILE INSPECTION RECORD

LOCATION:	PORT OF TACOMA - WEST HYLEBOS			DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN		
PIER ID:	LOG DOCK			PILE TYPE: x BEARING x FENDER □ SHEET		PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE	
WSP JOB NO:	30902950.006	TIME OF DAY:		TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW	DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE	

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
4	B							X					T/PILE	60	6	6	CAVITY IN PILE ABOVE WATER. 50% SECTION LOSS.	18
7	A	5.14	-30		X													
7	B		-27		X													
7	C		-22		X													
7	D		-20		X													
7	E	5.42	-16		X													
7	F		-13		X												LEVEL II	
7	G		-9		X													
7	H		-7		X													
7	J		-5		X													
7	K	5.69	-3		X													
7	L		-1		X													
7	M		0		X													
7	N		1		X													
8	N		1		X													
8	M		0		X													
8	L		-1		X													

PILE INSPECTION RECORD

LOCATION:	PORT OF TACOMA - WEST HYLEBOS								DATE: 9/11/2023, 9/12/2023, 9/13/2023			DIVERS: AMC/BAP/DRW/GR/AN					
PIER ID:	LOG DOCK								PILE TYPE: x BEARING x FENDER □ SHEET							PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE	
WSP JOB NO:	30902950.006		TIME OF DAY:						TIDE: LOW:		HIGH:	NOTE KEEPER: BAP / DRW				DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE	

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
8	K		-3		X													
8	K					X				X			T/ PILE	24	1/4		DRIFT PIN INSTALLED AT ANGLE. SIDE BLOWOUT ON PILE	
8	J		-5		X													
8	H		-7		X													
8	G		-9		X													
8	F		-13		X													
8	E		-16		X												LEVEL II	
8	D	6.23	-20		X													
8	C		-24		X													
8	B		-28		X													
8	A		-32		X													
9	A	6.5	-32		X													
9	B		-28		X												LEVEL II	
9	C	6.74	-25		X													
9	D		-21		X													
9	E		-17	X														
9	F		-13		X													

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
9	G		-9		X													
9	H	7.25	-8		X													
9	J		-6		X													
9	K		-4		X													
9	L		-3		X													
9	M		-1		X													
9	N		1			X				X			30" ABOVE ML		1/8"		MN CHK, PILE BEARING 90%	
10	N		1		X													
10	M		-1		X													
10	L		-3		X													
10	K		-5		X													
10	J		-6		X													
10	H		-8		X													
10	G		-10		X													
10	F		-13		X													
10	E		-17			X					X		-14	1	1	1	LEVEL II	
10	D	7.49	-21		X													

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
10	C		-25		X													
10	B		-29		X													
10	A		-33		X													
9D		8.2	-37			X							-32	24	12	2	WEST PILE: MBA	
15	DOLPHIN						X										3 BROKEN/MISSING PILE HAT. OBSERVED ABOVE WATER	
16	A						X				X		6' FROM T/PILE	10	1	1	ABOVE WATER OBSERVATION.	
17	E						X				X		5' FROM T/PILE	1/2	1/2	1/4	ABOVE WATER OBSERVATION. 4 HOLES TOTAL	
21	DOLPHIN						X										4 BROKEN/MISSING PILE HAT. OBSERVED ABOVE WATER	
23	A	8.62	-35		X													
23	B		-32		X													
23	C		-28		X													
23	D		-24		X													
23	E		-20		X													
23	F	9.03	-17		X												LEVEL II	
23	G		-13		X													
23	H		-10		X													
23	J		-8		X													

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
23	K		-6		X													
23	L		-4		X													
23	M		-1		X													
23	N		1		X													
24	N		1		X													
24	M		-1			X					X		53" ABOVE ML	<1	<1	<1		
24	L	9.23	-4		X													
24	K		-6		X													
24	J		-8		X													
24	H		-10		X													
24	G		-13		X												LEVEL II	
24	F		-17		X													
24	E		-21			X					X		-13	<1	<1	<1		
24	D	9.62	-26			X					X		-22	<1	<1	<1		
24	C		-29			X					X		-28	12	8	1		
24	C					X					X		-10	<1	<1	<1		
24	B		-33															

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
24	A		-37			X					X		-37	<1	<1	<1	MULTIPLE PINHOLES @ ML	
24	A					X					X		-32	<1	<1	<1	MULTIPLE	
24	A					X					X		-26	<1	<1	<1	MULTIPLE	
25	A	10.13	-37		X													
25	B		-33			X					X		-26	<1	<1	<1		
25	B					X					X		-21	<1	<1	<1		
25	B					X					X		-11	12	12	2		
25	B							X									PILE 85% BEARING	
25	C		-30		X													
25	D		-27								X		-27	<1	<1	<1	LEVEL II. MULTIPLE PINHOLES AROUND CIRCUMFERENCE @ ML	
25	D					X							-16	3	3	<1		
25	D					X							-13	<1	<1	<1		
25	E		-22			X							-12	<1	<1	<1		
25	E					X							-15	<1	<1	<1		
25	F		-18		X													
25	G		-15		X													
25	H		-12		X													

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
25	J		-9		X													
25	K		-8		X													
25	L		-5		X													
25	M		-3			X					X		40" ABOVE ML	<1	<1	<1	AROUND CIRCUMFERENCE	
25	N		0		X													
26	N		0		X													
26	M		-3			X					X		40" ABOVE ML	<1	<1	<1	AROUND CIRCUMFERENCE	
26	M					X					X		46" ABOVE ML	<1	<1	<1	AROUND CIRCUMFERENCE	
26	L		-6		X													
26	K		-8		X													
26	J		-11		X													
26	H		-12		X													
26	G		-14		X													
26	F		-18		X												LEVEL II. TYP PHOTO TAKEN	17
26	E		-23			X					X		-17	<1	<1	<1	AROUND CIRCUMFERENCE	
26	E					X					X		-21	<1	<1	<1	AROUND CIRCUMFERENCE	
26	D		-27			X					X		-27	<1	<1	<1		

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
26	D					X					X		-23	<1	<1	<1		
26	D					X					X		-18	<1	<1	<1		
26	C	10.83	-31		X													
26	B		-35			X					X		-35	<1	<1	<1		
26	A		-38								X		-29	<1	<1	<1		
26	A					X					X		-19	<1	<1	<1		
26	A					X				X							MN ABRASION ON PILE FACE ABOVE WL	
26	J						X			X			T/PILE	60	1/2	1/2	SPL OBSERVED ABOVE WATER	
28	K						X			X			24" ABOVE ML	36	2	1.5	SPL OBSERVED ABOVE WATER	
33	DOLPHIN						X										5 BROKEN/MISSING PILE HAT. OBSERVED ABOVE WATER	
35	A	11.48	-38		X													
35	B		-35		X													
35	C		-30		X													
35	D		-27			X					X		-14	<1	<1	<1		
35	D					X					X		-19	<1	<1	<1		
35	E		-25			X					X		-23	<1	<1	<1		
35	E					X					X		-17	<1	<1	<1		

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
35	F		-20		X													
35	G	11.64	-17			X					X		-1	6	6	<1	LEVEL II	
35	H		-13		X						X		ML TO WL	<1	<1	<1	MBA THROUGHOUT	
35	J		-13															
35	K		-11		X													
35	L	11.67	-10		X												LEVEL II	
35	M		-6		X													
35	N		-4		X													
36	N		-4		X													
36	M		-6		X													
36	L		-10		X													
36	K		-12		X													
36	K					X				X			T/ PILE	36	1/4	1/4	SPLIT. PILE INSPECTED ABOVE WATER	
36	J	11.66	-14			X					X		ML TO -8	<1	<1	<1	MBA THROUGHOUT	
36	H		-16			X					X		WL	1	1	1		
36	H					X					X		-8	1	1	1		
36	G	11.65	-22			X					X		-18	<1	<1	<1		

PILE INSPECTION RECORD

LOCATION:	PORT OF TACOMA - WEST HYLEBOS									DATE: 9/11/2023, 9/12/2023, 9/13/2023			DIVERS: AMC/BAP/DRW/GR/AN					
PIER ID:	LOG DOCK									PILE TYPE: x BEARING x FENDER □ SHEET						PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE		
WSP JOB NO:	30902950.006			TIME OF DAY:						TIDE: LOW:		HIGH:	NOTE KEEPER: BAP / DRW			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE		
					PILE CONDITION					TYPE DAMAGE				DIMENSIONS OF DAMAGE (IN)				
BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	ND	MN	MD	MJ	SV	MECH	BORER	FUNGI	DAMAGE ELEV (FT) (WL = 0)	HEIGHT	WIDTH	DEPTH	COMMENTS	Appendix A Photo Number
36	F	11.62	-23		X													
36	E		-25			X					X		-21	<1	<1	<1		
36	E					X					X		-16	<1	<1	<1		
36	D		-28		X													
36	C	11.59	-31			X					X		ML	<1	<1	<1	LEVEL II	
36	B		-36		X													
36	B					X											PILE ABRASION. PILE INSPECTED ABOVE WATER	
36	A	11.5	-41		X													
37	A	0.45	-29		X													
37	B		-25		X													
37	C		-22		X													
37	D		-18		X												LEVEL II	
37	E		-14			X							-14	<1	<1	<1		
37	F		-11			X							ML TO -7	<1	<1	<1		
37	G		-6		X													
37	H		-4		X													
37	J		-2		X													

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
37	K		-1		X													
37	L		2			X					X		60" ABOVE ML	<1	<1	<1		
37	M		3		X													
37	N		5		X													
38	N		5		X													
38	M		3		X													
38	L		2			X							78" ABOVE ML	<1	<1	<1	FULL CIRCUMFERENCE	
38	K		-1		X													
38	J		-2		X													
38	H		-4		X													
38	G		-8			X							-2	<1	<1	<1		
38	G					X							-6	<1	<1	<1		
38	F		-12		X													
38	E		-16										-7	<1	<1	<1		
38	D		-20		X													
38	C		-23			X							-15	<1	<1	<1	LEVEL II	
38	B		-26		X													

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
38	A		-30			X							-26	<1	<1	<1	FULL CIRCUMFERENCE	
38	A					X							-14	<1	<1	<1	FULL CIRCUMFERENCE	
38	A					X							-9	<1	<1	<1		
38	A					X							-6	<1	<1	<1		
39	DOLPHIN								X								CENTER PILE MISSING	
40	A					X											MN ABRASION ABOVE WATER	
40	B					X											MN ABRASION ABOVE WATER	
40	L					X				X			T/PILE	36	1/4	1/4	PILE SPLIT ABOVE WATER	
45	DOLPHIN						X						T/PILE				4 BROKEN/MISSING PILE HAT. OBSERVED ABOVE WATER	
47	A					X				X							MN ABRASION ABOVE WATER	
47	F					X				X			T/PILE	24	1/4	1/4	PILE SPLIT ABOVE WATER	
49	A						X			X			T/PILE				T/PILE DRIFT 12" DRIFT PIL BENT. PC HAS FULL BEARING ON PILE	
51	DOLPHIN					X											CENTER PILE 10' SHORTER THAN CLUSTER	
57	DOLPHIN		-33			X											BROKEN/MISSING PILE HAT. OBSERVED ABOVE WATER	
57	DOLPHIN								X	X			T/ PILE				NW PILE IN CLUSTER BROKEN AT TOP.	10
57	A		-31		X													
57	B	1.29	-29		X													

PILE INSPECTION RECORD

LOCATION:	PORT OF TACOMA - WEST HYLEBOS									DATE: 9/11/2023, 9/12/2023, 9/13/2023			DIVERS: AMC/BAP/DRW/GR/AN					
PIER ID:	LOG DOCK									PILE TYPE: x BEARING x FENDER □ SHEET						PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE		
WSP JOB NO:	30902950.006		TIME OF DAY:							TIDE: LOW:		HIGH:	NOTE KEEPER: BAP / DRW			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE		
					PILE CONDITION					TYPE DAMAGE				DIMENSIONS OF DAMAGE (IN)				
BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	ND	MN	MD	MJ	SV	MECH	BORER	FUNGI	DAMAGE ELEV (FT) (WL = 0)	HEIGHT	WIDTH	DEPTH	COMMENTS	Appendix A Photo Number
57	C		-25		X													
57	D		-22			X					X		-18	<1	<1	<1		
57	E		-19		X													
57	F		-15			X					X		-11	<1	<1	<1		
57	G		-10		X													
57	H		-6		X													
57	J		-4		X													
57	K		-2		X													
57	L		0		X													
57	M		2			X					X		38" ABOVE ML	<1	<1	<1		
57	M					X							T/PILE				LOOSE SHIM PLATE AT T/ PILE	
57	N		4		X													
58	N		4		X													
58	M		2		X													
58	L		0		X													
58	K		-1		X													
58	J		-3		X													

PILE INSPECTION RECORD

LOCATION:	PORT OF TACOMA - WEST HYLEBOS									DATE: 9/11/2023, 9/12/2023, 9/13/2023			DIVERS: AMC/BAP/DRW/GR/AN					
PIER ID:	LOG DOCK									PILE TYPE: x BEARING x FENDER □ SHEET							PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE	Appendix A Photo Number
WSP JOB NO:	30902950.006		TIME OF DAY:							TIDE: LOW:		HIGH:	NOTE KEEPER: BAP / DRW				DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE	
BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
58	H		-5		X													
58	G		-11		X													
58	F		-14		X												LEVEL II	
58	E		-17		X													
58	D		-20		X												LEVEL II	
58	C		-25			X					X		-7	<1	<1	<1		
58	B		-28			X					X		-24	<1	<1	<1		
58	B					X					X		-20	<1	<1	<1		
58	A		-32			X					X		-22	<1	<1	<1		
59	A		-32			X					X		-30	<1	<1	<1		
59	B		-24		X													
59	C		-24			X					X		-9, -11	<1	<1	<1		
59	D		-22		X													
59	E		-17		X													
59	F		-14		X													
59	G	3.53	-10		X												LEVEL II	
59	H		-6		X													

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
59	J		-4		X													
59	K		-2		X													
59	L		0		X													
59	M		1		X													
59	N		3		X													
60	N		3		X													
60	M		1		X													
60	L		0		X													
60	K		-2		X													
60	J		-3		X													
60	H		-5		X													
60	G		-10			X					X		-6	<1	<1	<1		
60	F		-13		X												LEVEL II	
60	E		-16		X													
60	D		-20								X		-4	<1	<1	<1		
60	C		-25		X													
60	B		-25		X												LEVEL II	

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
60	A		-33								X		-1	<1	<1	<1	LEVEL II	
63	DOLPHIN						X										BROKEN/MISSING PILE HAT. OBSERVED ABOVE WATER	
63	DOLPHIN					X				X			T/PILE				CRUSHING OF S PILE IN CLUSTER	
67	P					X				X			T/PILE	72	1/4	1	PILE SPLIT ABOVE WATER. PREVIOUSLY REPAIRED WITH THRU BOLTS	
70	K						X			X			T/PILE	48	1/2	1/2	PILE SPLIT ABOVE WATER.	
74	DOLPHIN						X										BROKEN/MISSING PILE HAT. OBSERVED ABOVE WATER	
75	A	1.93	-31															
75	B		-27			X							ML TO -5		0.25	0.25	CHK	
75	C		-23			X				X			-12 TO -19		2	1	SHK	
75	D		-20		X													
75	E		-17		X													
75	F		-13		X													
75	G		-9		X													
75	H		-6		X													
75	J		-4		X													
75	K		-3		X												LEVEL II	
75	L		-1		X													

PILE INSPECTION RECORD

LOCATION:	PORT OF TACOMA - WEST HYLEBOS			DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN		
PIER ID:	LOG DOCK			PILE TYPE: x BEARING x FENDER □ SHEET		PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE	
WSP JOB NO:	30902950.006	TIME OF DAY:		TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW	DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE	

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
75	M		0		X													
75	N		2		X													
76	N		2		X													
76	M		0			X				X			20" ABOVE ML		1/8		MN CHK	
76	L		-1		X													
76	K		-2		X													
76	J		-4		X													
76	H		-7		X													
76	G		-10		X													
76	F		-13		X													
76	E		-17		X													
76	D		-20		X													
76	C		-24		X													
76	B		-27		X												LEVEL II	
76	A		-31		X													
77	A		-32		X													
77	B	3.15	-28		X													

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
77	C		-24		X													
77	D		-22		X													
77	D.1		-22		X													
77	E		-18			X					X		-2 TO ML	<1	<1	<1		
77	F		-15		X													
77	G		-11		X													
77	H		-7			X					X		ML TO +4	<1	<1	<1		
77	J		-4		X												LEVEL II	
77	K		-2		X													
77	L		0		X													
77	M		1			X					X		48" ABOVE ML	<1	<1	<1		
77	M					X					X		58" ABOVE ML	<1	<1	<1		
77	N		2		X													
78	N		2		X													
78	M		1		X													
78	L		0		X													
78	K		-1		X													

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
78	J	3.38	-3		X													
78	H		-6		X													
78	G		-11		X													
78	F		-14		X													
78	E		-19		X													
78	D		-22			X				X			-15	36	1.5	1		
78	D																	
78	D.1		-20			X					X		ML TO WL (+4)	<1	<1	<1		
78	C		-24			X					X		ML TO WL (+4)	<1	<1	<1		
78	B		-28		X													
78	A	3.9	-31		X												LEVEL II	
80	DOLPHIN		-34			X				X			-23	24	4	0.75	SOUTH FACE CENTER PILE, SHK	
86	DOLPHIN					X											2 BROKEN/MISSING PILE HATS. OBSERVED ABOVE WATER	
103	A					X				X			T/PILE				PILE DRIFT AT TOP. EXST REPAIR INEFFECTIVE	
103	M					X							T/PILE				LOOSE SHIM PLATE AT T/ PILE	
104	DOLPHIN	6.94	-38		X													
106	A	7.19	-34		X													

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
106	B		-31			X					X		-25	<1	<1	<1		
106	C		-28		X													
106	D		-24			X					X		-16	<1	<1	<1		
106	E	7.44	-20			X					X		-15	<1	<1	<1		
106	F		-17			X					X		-14	<1	<1	<1		
106	G		-14		X													
106	H		-10		X												LEVEL II	
106	J		-8		X													
106	K		-6		X													
106	L		-5		X													
106	M		-2		X													
106	N		0		X													
107	N		0		X													
107	M		-2		X													
107	L	8.17	-3		X													
107	K		-6		X													
107	J		-8		X													

PILE INSPECTION RECORD

LOCATION:	PORT OF TACOMA - WEST HYLEBOS									DATE: 9/11/2023, 9/12/2023, 9/13/2023			DIVERS: AMC/BAP/DRW/GR/AN					
PIER ID:	LOG DOCK									PILE TYPE: x BEARING x FENDER □ SHEET						PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE		
WSP JOB NO:	30902950.006			TIME OF DAY:						TIDE: LOW:		HIGH:	NOTE KEEPER: BAP / DRW			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE		
BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
107	H		-10		X													
107	G		-14		X													
107	F		-17			X					X		-12	<1	<1	<1		
107	E		-21			X					X		-12	<1	<1	<1		
107	D		-25			X					X		-15	<1	<1	<1	LEVEL II	
107	D					X					X		-17	<1	<1	<1		
107	D					X					X		-20	<1	<1	<1		
107	D					X					X		-24	<1	<1	<1		
107	D					X					X		-11	<1	<1	<1		
107	C		-30		X													
107	B		-34								X		-33	<1	<1	<1		
107	B										X		-28	<1	<1	<1		
107	B										X		-21	<1	<1	<1		
107	A		-38								X		-29	<1	<1	<1		
107	A										X		-35	<1	<1	<1		
107	A										X		-30	<1	<1	<1		
107	A										X		-27	<1	<1	<1		

PILE INSPECTION RECORD

LOCATION:	PORT OF TACOMA - WEST HYLEBOS									DATE: 9/11/2023, 9/12/2023, 9/13/2023			DIVERS: AMC/BAP/DRW/GR/AN					
PIER ID:	LOG DOCK									PILE TYPE: x BEARING x FENDER □ SHEET						PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE		
WSP JOB NO:	30902950.006		TIME OF DAY:							TIDE: LOW: HIGH:			NOTE KEEPER: BAP / DRW			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE		
					PILE CONDITION					TYPE DAMAGE				DIMENSIONS OF DAMAGE (IN)				
BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	ND	MN	MD	MJ	SV	MECH	BORER	FUNGI	DAMAGE ELEV (FT) (WL = 0)	HEIGHT	WIDTH	DEPTH	COMMENTS	Appendix A Photo Number
108	A		-38			X					X		-10	6	2	2		
108	A					X					X		-16	<1	<1	<1		
108	A					X					X		-24	<1	<1	<1		
108	A					X					X		-32	<1	<1	<1		
108	A					X					X		-37	<1	<1	<1		
108	B	9.68	-34			X					X		-21	<1	<1	<1		
108	C		-30		X													
108	D		-27		X													
108	E		-23			X					X		-12	<1	<1	<1		
108	E					X					X		-15	<1	<1	<1		
108	E					X					X		-19	<1	<1	<1		
108	E.5	10.04	-21			X					X		-21	<1	<1	<1		
108	F		-20			X					X		-10	<1	<1	<1		
108	G		-17		X													
108	H	10.06	-13		X													
108	J		-11		X													
108	K		-8		X													

PILE INSPECTION RECORD

LOCATION:	PORT OF TACOMA - WEST HYLEBOS			DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN		
PIER ID:	LOG DOCK			PILE TYPE: x BEARING x FENDER □ SHEET		PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE	
WSP JOB NO:	30902950.006	TIME OF DAY:		TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW	DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE	

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
108	L		-6		X													
108	M		-3		X													
108	N		-1		X													
109	N		-1		X													
109	M		-4		X													
109	L		-6		X													
109	K		-8		X													
109	J		-10		X													
109	H		-14		X													
109	G		-17		X													
109	F		-19		X													
109	E		-24			X					X		-12	<1	<1	<1		
109	E					X					X		-18	<1	<1	<1		
109	E					X					X		-23	<1	<1	<1		
109	D		-24			X					X		-25	<1	<1	<1		
109	D					X					X		-23	<1	<1	<1		
109	D					X					X		-18	<1	<1	<1		

PILE INSPECTION RECORD

LOCATION:	PORT OF TACOMA - WEST HYLEBOS									DATE: 9/11/2023, 9/12/2023, 9/13/2023			DIVERS: AMC/BAP/DRW/GR/AN					
PIER ID:	LOG DOCK									PILE TYPE: x BEARING x FENDER □ SHEET						PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE		
WSP JOB NO:	30902950.006			TIME OF DAY:						TIDE: LOW:		HIGH:	NOTE KEEPER: BAP / DRW			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE		
					PILE CONDITION					TYPE DAMAGE				DIMENSIONS OF DAMAGE (IN)				
BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	ND	MN	MD	MJ	SV	MECH	BORER	FUNGI	DAMAGE ELEV (FT) (WL = 0)	HEIGHT	WIDTH	DEPTH	COMMENTS	Appendix A Photo Number
109	D					X					X		-14	<1	<1	<1		
109	C	10.36	-31		X													
109	B		-36			X					X		-36	<1	<1	<1	LEVEL II	
109	B					X					X		-31	<1	<1	<1		
109	B					X					X		-26	<1	<1	<1		
109	B					X					X		-24	6	2	1		
109	A	10.5	-39			X					X		-18	<1	<1	<1		
109	A					X					X		-20	<1	<1	<1		
109	A					X					X		-24	<1	<1	<1		
109	A					X					X		-30	<1	<1	<1		
109	A					X					X		-35	<1	<1	<1		
109	A					X					X		-37	<1	<1	<1		
109	A					X					X		-39	<1	<1	<1		
109	A					X					X		-33	<1	<1	<1		
109	A					X					X		-20	<1	<1	<1		
109	A					X					X		-17	<1	<1	<1		
109	A					X					X		-14	<1	<1	<1		

PILE INSPECTION RECORD

LOCATION: PORT OF TACOMA - WEST HYLEBOS		DATE: 9/11/2023, 9/12/2023, 9/13/2023	DIVERS: AMC/BAP/DRW/GR/AN
PIER ID: LOG DOCK		PILE TYPE: x BEARING x FENDER □ SHEET	PILE MATERIAL: x TIMBER □ STEEL □ CONCRETE
WSP JOB NO: 30902950.006	TIME OF DAY:	TIDE: LOW: HIGH:	NOTE KEEPER: BAP / DRW
			DEPTH OF DAMAGE: □ DATUM x GAUGE □ TIDE

BENT	PILE	WL ELEV (FT) (MLLW = 0)	ML ELEV (FT) (WL = 0)	NI	PILE CONDITION					TYPE DAMAGE			DAMAGE ELEV (FT) (WL = 0)	DIMENSIONS OF DAMAGE (IN)			COMMENTS	Appendix A Photo Number
					ND	MN	MD	MJ	SV	MECH	BORER	FUNGI		HEIGHT	WIDTH	DEPTH		
GP-2	A	9.36	-26						X			X	1	+1 TO WL (+9)			20% SECTION REMAINING	19
GP-2	B		-27		X													
GP-2	C		-26		X												LEVEL II	
GP-4	A	8.97	-26		X													
GP-4	B		-26		X													
GP-4	C		-25		X												LEVEL II	
GP-8	A	7.05	-22		X													
GP-8	B		-21		X													
GP-8	C		-22		X												LEVEL II	

WEST HYLEBOS - WHARF FACE APPURTENANCES

BERTH	ASSET INFORMATION				DAMAGE INFORMATION					COMMENTS	Appendix A, See Photo
	ASSET TYPE	MATERIAL	BENT	GRIDLINE	DAMAGE DESCRIPTION	ORIENTATION	FROM	TO	DAMAGE RATING		
W HYLEBOS	BULLRAIL	CONCRETE	ALL		MECH SPALL				MD	TYP MECH SPALLING, TYP FULL BULLRAIL UNLESS OTHERWISE NOTED	
W HYLEBOS	BOLLARD	STEEL	ALL		CORROSION				MN	ALL BOLLARDS MN WEAR AND CORROSION	
W HYLEBOS	BULLRAIL	CONCRETE	1	K	SPALL				MN	12" LONGx3"x3"	
W HYLEBOS	BULLRAIL	CONCRETE	2	A	SPALL				MJ	EXPOSED REBAR. 36"x12"x2" DEEP. AT CLEAT	
W HYLEBOS	CLEAT	STEEL	2	A	CORROSION				MJ	>25% SECTION LOSS AT NECK. LOOSE SCALE	
W HYLEBOS	BULLRAIL	CONCRETE	4	A	SPALL				MJ	EXPOSED REBAR. 18"x6"x2". AT CLEAT	
W HYLEBOS	LADDER	STEEL	4	A	BENT				MN	STILL USABLE	
W HYLEBOS	CLEAT	STEEL	10	A	BROKEN EAR				SV	BROKEN EAR OF CLEAT. MD PL CORROSION BELOW PC	5
W HYLEBOS	BULLRAIL	CONCRETE	14	A	SPALL				MJ	EXPOSED REBAR. 26"x10"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	16	A	SPALL				MJ	EXPOSED REBAR. 24"x12"x2". AT CLEAT	
W HYLEBOS	CLEAT	STEEL	18	A	CORROSION				MJ	>25% SECTION LOSS AT NECK. LOOSE SCALE	
W HYLEBOS	BULLRAIL	CONCRETE	25	A	SPALL				MJ	EXPOSED REBAR. DEFORMED BAR 60"x10"x2"	3
W HYLEBOS	BULLRAIL	CONCRETE	26	A	SPALL				MJ	EXPOSED REBAR. 30"x12"x2". AT CLEAT	
W HYLEBOS	CLEAT	STEEL	26	A	CORROSION				MJ	>25% SECTION LOSS AT NECK. LOOSE SCALE.	
W HYLEBOS	BULLRAIL	CONCRETE	30	A	SPALL				MJ	EXPOSED REBAR. 22"x16"x2". AT CLEAT	
W HYLEBOS	CLEAT	STEEL	30	A	CORROSION				MJ	>25% SECTION LOSS AT NECK. LOOSE SCALE.	
W HYLEBOS	LADDER	STEEL	31	A	BENT				MN	STILL USABLE	
W HYLEBOS	BULLRAIL	CONCRETE	34	A	SPALL				MJ	EXPOSED STIRR AT CORNER. POOR COVER. 12"x2"x2". AT CLEAT	
W HYLEBOS	CLEAT	STEEL	34	A	CORROSION				MJ	>25% SECTION LOSS AT NECK. LOOSE SCALE	

WEST HYLEBOS - WHARF FACE APPURTENANCES

BERTH	ASSET INFORMATION				DAMAGE INFORMATION					COMMENTS	Appendix A, See Photo
	ASSET TYPE	MATERIAL	BENT	GRIDLINE	DAMAGE DESCRIPTION	ORIENTATION	FROM	TO	DAMAGE RATING		
W HYLEBOS	BULLRAIL	CONCRETE	35.5	A	SPALL				MJ	EXPOSED REBAR. 16"x14"x2"	
W HYLEBOS	CLEAT	STEEL	43	A	MISSING				SV	CLEAT MISSING	6
W HYLEBOS	LIFE RING		43.5	A	BROKEN				MN	LIFE RING CONTAINER BROKEN. STILL USABLE	
W HYLEBOS	UTILTIY VAULT COVER	STEEL	46.5	A	CORROSION				MN		
W HYLEBOS	BULLRAIL	CONCRETE	49	A	SPALL				MD	16"x14"x3"	
W HYLEBOS	CLEAT	STEEL	52	A	CORROSION				MJ	>25% SECTION LOSS AT NECK. LOOSE SCALE	
W HYLEBOS	BULLRAIL	CONCRETE	52.5	A	SPALL				MJ	EXPOSED REBAR. 32"x9"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	54	A	SPALL				MJ	EXPOSED REBAR. 16"x10"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	55	A	SPALL				MJ	EXPOSED REBAR. 36"x12"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	56	A	SPALL				MJ	EXPOSED REBAR. 108"x7"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	58	A	SPALL				MD	20"x8"	
W HYLEBOS	BULLRAIL	CONCRETE	61	A	SPALL				MD	CCS AT CLEAT. 36"x4"x2"	
W HYLEBOS	CLEAT	STEEL	61	A	CORROSION				MJ	>25% SECTION LOSS AT NECK. LOOSE SCALE	
W HYLEBOS	BULLRAIL	CONCRETE	64	A	SPALL				MJ	EXPOSED REBAR. 20"x12"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	66.5	A	SPALL				MJ	EXPOSED REBAR. 12"x12"x2"	
W HYLEBOS	CLEAT	STEEL	70	A	CORROSION				MJ	>25% SECTION LOSS AT NECK. LOOSE SCALE	
W HYLEBOS	BULLRAIL	CONCRETE	71.5	A	SPALL				MJ	EXPOSED REBAR. 9"x12"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	75.5	A	SPALL				MJ	EXPOSED REBAR. 5"x10"x2"	

WEST HYLEBOS - WHARF FACE APPURTENANCES

BERTH	ASSET INFORMATION				DAMAGE INFORMATION					COMMENTS	Appendix A, See Photo
	ASSET TYPE	MATERIAL	BENT	GRIDLINE	DAMAGE DESCRIPTION	ORIENTATION	FROM	TO	DAMAGE RATING		
W HYLEBOS	CLEAT	STEEL	79	A	CORROSION/MISSING NUT				MJ	MJ CORROSION. 1 ANCHOR THROUGH BULLRAIL MISSING. MN CORROSION OF STRAP PLATE BENEATH CAP	4
W HYLEBOS	BULLRAIL	CONCRETE	81	A	SPALL				MJ	EXPOSED REBAR. 8"x10"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	83	A	SPALL				MJ	AT LADDER. EXPOSED REBAR. 11"x10"x2"	
W HYLEBOS	LADDER	STEEL	83	A	CORROSION				MN		
W HYLEBOS	BULLRAIL	CONCRETE	85	A	SPALL				MJ	EXPOSED REBAR. 14"x12"x2"	
W HYLEBOS	CLEAT	STEEL	87	A	CORROSION				MJ	>25% SECTION LOSS AT NECK. LOOSE SCALE	
W HYLEBOS	BULLRAIL	CONCRETE	89	A	SPALL				MJ	EXPOSED REBAR. 12"x12"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	92	A	SPALL				MJ	EXPOSED REBAR. 8"x12"x2"	
W HYLEBOS	CLEAT	STEEL	95	A	CORROSION				MD		
W HYLEBOS	BULLRAIL	CONCRETE	96	A	SPALL				MJ	EXPOSED REBAR. 9"x14"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	97	A	SPALL				MJ	EXPOSED REBAR. 14"x15"x2"	
W HYLEBOS	BULLRAIL	CONCRETE	100	A	SPALL				MJ	EXPOSED REBAR. 5"x8"x2"	
W HYLEBOS	CLEAT	STEEL	101	A	CORROSION				MJ	>25% SECTION LOSS AT NECK. LOOSE SCALE	7
W HYLEBOS	BULLRAIL	CONCRETE	106.5	A	SPALL				MJ	EXPOSED REBAR. 13"x10"x2"	
W HYLEBOS	UTILTIY VAULT COVER	STEEL	112	C					ND		
WEST FLOAT	FLOAT	TIMBER			LISTING				MJ	FREEBOARD HEIGHT. SE: 6". NE: 7", SW: 10". NW: 10"	
WEST FLOAT	GP-2 CHAIN	STEEL			CORROSION				SV	90% SECTION LOSS	
WEST FLOAT	GP-4 CHAIN	STEEL			CORROSION				MD	50% SECTION LOSS	

WEST HYLEBOS - WHARF FACE APPURTENANCES

BERTH	ASSET INFORMATION				DAMAGE INFORMATION					COMMENTS	Appendix A, See Photo
	ASSET TYPE	MATERIAL	BENT	GRIDLINE	DAMAGE DESCRIPTION	ORIENTATION	FROM	TO	DAMAGE RATING		
WEST FLOAT	WALE	TIMBER			ROT				MJ	NORTH UNDERWATER WALE, 3'x4'	
WEST FLOAT	WALE	TIMBER			ROT				SV	NORTHEAST UNDERWATER WALE	
WEST FLOAT		STEEL			CORROSION				MD	TYPICAL CORROSION ON HARDWARE	
WEST FLOAT	SURFACE				MOSS/DECAY				MD	WIDESPREAD MOSS ON FLOAT DECK WITH MD DECAY	
EAST FLOAT	FLOAT	TIMBER			LISTING				MJ	FREEBOARD HEIGHT. SE: 10". NE: 6", SW: 7". NW: 10". E MID: 7", W MID: 10"	12
EAST FLOAT	GUIDE PILE-8 CHAIN	STEEL			CORROSION				MD	CORROSION ON CHAIN CONNECTING FLOAT TO PILES.	
EAST FLOAT	GUIDE PILE-7 CHAIN	STEEL			DETACHED				SV	CHAIN CONNECTING FLOAT TO PILES DISCONNECTED. FLOAT ONLY CONNECTED TO PILES ON S END	
EAST FLOAT	WALE	TIMBER			ROT				MJ	30% WALE REMAINING, S FACE NEAR GP-8	
EAST FLOAT	SURFACE				MOSS/DECAY				MD	WIDESPREAD MOSS ON FLOAT DECK WITH MD DECAY	

WEST HYLEBOS - WHARF FRAMING MEMBERS

BERTH	ASSET INFORMATION				DAMAGE INFORMATION									COMMENTS	Appendix A, See Photo
	ASSET TYPE	MATERIAL	BENT	GRIDLINE	DAMAGE DESCRIPTION	SIZE (in)	ORIENTATION	FROM	TO	FACE	FACE	FACE	DAMAGE RATING		
W HYLEBOS	FLASHER	STEEL	1	J	MISSING	9' LONG							MD	FLASHER PROTECTING DECK BOARD ENDS MISSING.	
W HYLEBOS	PILE CAP	TIMBER	5	J	SPLIT	24"X1/4"							MN	SUBCAP SOFFITT SPLIT	
W HYLEBOS	PILE CAP	TIMBER	5	J	SPLIT	24"X1/4"	VERTICAL			S			MD	SUBCAP SOFFITT SPLIT	
W HYLEBOS	FIREWALL	TIMBER	7	A	ROT								MN		
W HYLEBOS	FENDER	TIMBER	21	A	DETACHMENT								MJ	FENDER PILES DETACHED FROM WHARF	9
W HYLEBOS	BULKHEAD	SLOPE	24	P	EROSION	12" TALL							MD	EXPOSED BATTER PILES. 9' WIDE	
W HYLEBOS	CONDUIT		25	M	DAMAGED CONDUIT								MN	CONDUIT HANGING IN WATER	
W HYLEBOS	PILE CAP	TIMBER	25	A	ABRASION					N			MN	ABRASION ON FACE OF PC	
W HYLEBOS	BULKHEAD	SLOPE	32	P	EROSION	6" TALL							MN	36' WIDE	
W HYLEBOS	FIREWALL	TIMBER	33	A	LOOSE	3' WIDE							MJ	FIRE WALL PARTIALLY DISCONNECTED	
W HYLEBOS	FIREWALL	TIMBER	33	H	MISSING								MJ	5' FIREWALL SEGMENT MISSING	
W HYLEBOS	DOLPHIN-WALE	TIMBER	34	A	BROKEN								MJ		8
W HYLEBOS	DOLPHIN-CHOCK	TIMBER	39	A	MISSING								MJ	MISSING CHOCK	
W HYLEBOS	DOLPHIN-CABLE	STEEL	39	A	LOOSE								MJ	LOOSE CABLE WRAP	
W HYLEBOS	CONDUIT		44	P	DAMAGED CONDUIT								MN	CONDUIT HANGING IN WATER	
W HYLEBOS	BULKHEAD	SLOPE	45	P	EROSION	24" TALL							MD	27' LONG EXPOSED BATTER PILES	
W HYLEBOS	DOLPHIN	HDPE	45	A	LOOSE								MD	HDPE RUB STRIP PATRIALLY DETATCHED	
W HYLEBOS	FIREWALL	TIMBER	49	A	LOOSE	3' WIDE							MJ	1' FIREWALL SEGMENT MISSING	
W HYLEBOS	FIREWALL	TIMBER	49	C	LOOSE								MN	LOOSE HARDWARE	
W HYLEBOS	FIREWALL	TIMBER	49	C	LOOSE								MN	LOOSE HARDWARE	
W HYLEBOS	PILE CAP	TIMBER	57	A	ABRASION					E			MN		

WEST HYLEBOS - WHARF FRAMING MEMBERS

BERTH	ASSET INFORMATION				DAMAGE INFORMATION									COMMENTS	Appendix A, See Photo
	ASSET TYPE	MATERIAL	BENT	GRIDLINE	DAMAGE DESCRIPTION	SIZE (in)	ORIENTATION	FROM	TO	FACE	FACE	FACE	DAMAGE RATING		
W HYLEBOS	BULKHEAD	CONCRETE	57	P	SPALL	12x6x4							MN	SPALL IN CAP	
W HYLEBOS	DOLPHIN-CHOCK	TIMBER	57	A	MISSING								MJ	MISSING CHOCK	
W HYLEBOS	DOLPHIN-CHOCK	TIMBER	69	A	SPLIT								MN		
W HYLEBOS	PILE CAP	TIMBER	70	C	SPLIT	12"x3/4"x3/4"							MN	SUB CAP SOFFIT	
W HYLEBOS	DECKING	TIMBER	70	E	SPLIT	1" DEEP							MN	2 BOARDS TOTAL	
W HYLEBOS	DOLPHIN	TIMBER	74	A	BROKEN								MD	CHOCK AND WALE BROKEN, LOAD PATH STILL INTACT	
W HYLEBOS	PILE CAP	TIMBER	75	D	LOOSE HARDWARE								MN	BOLTS DO NOT FULLY ENGAGE NUT (X4) AT PC SPLICE	
W HYLEBOS	PILE CAP	TIMBER	88	A	SPLIT	3"WIDEx102" LONG				S			MJ		14
W HYLEBOS	BULKHEAD	SLOPE	90	P	EROSION	18" TALL							MN	50' LONG	
W HYLEBOS	DOLPHIN-CHOCK	TIMBER	92	A	SPLIT								MD	SPLIT CHOCK. LOOSE CABLES	
W HYLEBOS	FIREWALL	TIMBER	97	A	MISSING								MJ	3' FIREWALL SEGMENT MISSING	
W HYLEBOS	DOLPHIN-CHOCK	TIMBER	98	A	SPLIT								MJ	SPLIT CHOCK	
W HYLEBOS	BULKHEAD	SLOPE	100	P	EROSION	18" TALL							MN	30' LONG	
W HYLEBOS	DOLPHIN-CHOCK	TIMBER	104	A	SPLIT								MJ	SPLIT CHOCK	8
W HYLEBOS	DOLPHIN	TIMBER	104	A	LEANING PILES								MD	PILE CLUSTER NOT PLUMB	8
W HYLEBOS	PILE CAP	TIMBER	108	J	MISSING HARDWARE								MN	SUBCAP ANCHOR MISSING NUT	
W HYLEBOS	BULKHEAD-CAP	CONCRETE	110	P	SPALL	18"x8"x2"							MJ	OPEN CORROSION SPALL. EXPOSED REBAR	16
W HYLEBOS	PILE CAP	TIMBER	112	A	MISSING HARDWARE								MN	MISSING ANCHOR IN PC FROM PILE TO PC CONNECTION	
W HYLEBOS	PILE	TIMBER	112	K	CORROSION								MD	PILE TO PC CONNECTOR PLATE AND ANCHORS CORRODED.	

WEST HYLEBOS - WHARF FRAMING MEMBERS

BERTH	ASSET INFORMATION				DAMAGE INFORMATION									COMMENTS	Appendix A, See Photo
	ASSET TYPE	MATERIAL	BENT	GRIDLINE	DAMAGE DESCRIPTION	SIZE (in)	ORIENTATION	FROM	TO	FACE	FACE	FACE	DAMAGE RATING		
W HYLEBOS	PILE CAP	TIMBER	112.5	A	LOOSE HARDWARE								MN	BOLTS DO NOT FULLY ENGAGE NUT AT PC SPLICE	
W HYLEBOS	FASCIA BOARD	TIMBER	112.5	A	ROT								MD	ROT ON OUTER FACE OF FASCIA BOARD. MISSING SECTION	
W HYLEBOS	BULKHEAD	SLOPE		P	EROSION	12" TALL							MD	EXPOSED BATTER PILES.9' WIDE	

WEST HYLEBOS - PAVEMENT OVERLAY

BERTH	ASSET INFORMATION					DAMAGE INFORMATION					COMMENTS	Appendix A, See Photo
	ASSET TYPE	MATERIAL	BENT	BENT	GRIDLINE	DAMAGE DESCRIPTION	SIZE (in)	FROM	TO	DAMAGE RATING		
W HYLEBOS	DECK	CONCRETE	11	16	L-M	CLOSED SPALL			1.5	MD		
W HYLEBOS	DECK	CONCRETE	25	26	M	OPEN SPALL	48	9	2	MJ	EXPOSED REBAR (1 TOTAL)	
W HYLEBOS	DECK	CONCRETE	27	28	C.5	OPEN SPALL	20	24	2	MJ	EXPOSED REBAR (2 TOTAL)	
W HYLEBOS	DECK	CONCRETE	33		D	OPEN SPALL	24	12	2	MJ	EXPOSED REBAR (1 TOTAL)	
W HYLEBOS	DECK	CONCRETE	34	35	M	OPEN SPALL	540	225	2.5	MJ	EXPOSED REBAR (5+)	2
W HYLEBOS	DECK	CONCRETE	39		K	OPEN SPALL	216	72	2	MJ	EXPOSED REBAR (5+)	
W HYLEBOS	DECK	CONCRETE	47	54	K	OPEN SPALL	756	348	2	MJ	EXPOSED REBAR (10+). FAILED REPAIR	
W HYLEBOS	DECK	CONCRETE	84	86	L	OPEN SPALL	48	36	2	MJ	EXPOSED REBAR (10+)	
W HYLEBOS	DECK	ASPHALT	TYP			CRACKING				MN	ALLIGATOR CRACKING ON ALL ASPHALT PORTION	1
W HYLEBOS	DECK	CONCRETE	97		G	OPEN SPALL	72	72	2	MJ	EXPOSED REBAR (1 TOTAL)	