ALBERNI-CLAYOQUOT REGIONAL DISTRICT
Parks Linear Asset Assessment & Mapping
Grappler St. Wharf

July 29, 2025

Prepared for:

Alberni-Clayoquot Regional District
3008 Fifth Avenue
Port Alberni, BC
V9Y 2E3

Attention: Amy Mayo, Asset Management & Grants Coordinator

Prepared by:

Herold Engineering Limited
Unit 7, 1920 Lyche Road
Ucluelet, BC
V0R 3A0

PARKS LINEAR ASSET ASSESSMENT & MAPPING

GRAPPLER ST. WHARF, BAMFIELD, BC

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Submittal Date: July 29, 2025

Herold Project No.: 6516-001

Prepared by:

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EXECUTIVE SUMMARY

The scope of the assignment includes assessment of the Grappler St. marine infrastructure located on the eastern side of Bamfield, British Columbia. The infrastructure is comprised of a fixed timber approach structure, steel truss gangway, a boathouse float, and several treated timber walkway floats. It is understood that half the floats (Float A, B, C, and D) are provided for public use by the ACRD. Float H and floats used to access the boathouse from Float D are utilized and maintained by the local Fire Department. Refer to Figure 2 in Section 2.3 for general arrangement of the floats.

The assessment was conducted on January 27, 2025, and included visual and tactile review of the components from above water only. The purpose of the assessment was to document the overall physical condition of the approach, gangway and floating structure via visual and tactile on-site assessment. The report includes detailed descriptions of the construction, findings of the assessment, recommended repairs/upgrades, risk analysis and Class D cost estimates for the recommended repairs and full replacement of the structure(s) in kind.

It is to be noted that the assessment was conducted from above water only. It is recommended that a full dive assessment, supervised by an engineer, be conducted to fully capture the structural condition of the floats and mooring piles/chains and anchors. Additionally, any submerged mooring elements were not reviewed, and the structural adequacy of the existing mooring system arrangement is unknown. A mooring study of the configuration and upgrades to the system, if required, are also recommended.

The approach is generally in serviceable condition with minor items noted for repair as follows:

- Clean debris and vegetative growth from the substructure elements
- Replace one cross brace that is deteriorated

The gangway is generally in serviceable condition. The steel elements have large scale coating failures and are significantly corroded. It is recommended that the coating be removed and the steel cleaned and brushed down to competent metal. Once cleaned, it is recommended that an engineering review of the steel elements to confirm structural adequacy. If acceptable the steel is to be re-coated to extend the design life. Additional remedial items are as follows:

- Replace one deck board
- Replace one kick plate and install a second kick plate that is missing
- Install transition plate on seaward end
- Clean and coat angle guides on float deck.

The main public floats (Float A-D) and their associated slips are in overall serviceable condition. Minor remedial recommendations are as follows:

- Replace six bull rails in kind,
- Replace one rub board in kind
- Install appropriate float to float connection brackets on Float A
- Replace damaged cleat on slip D-3.

Float H is in overall serviceable condition. The mooring hoop is significantly corroded and requires cleaning and re-coating.

The Fire Department Walkway Floats Float (E, F, G and associated slips) are no longer in

serviceable condition. The timber superstructure is significantly deteriorated, and the floatation is inconsistent and damaged. The floats list significantly under minor loading and are at the end of their service life. Replacement of the floats is recommended.

The repairs noted in this report are to Class D standard, in 2025 Canadian dollars. For the immediate repairs, the estimated total cost, rounded to the nearest thousand dollars, is $298,000.00. Demolition of the existing infrastructure and full replacement in kind is estimated as $2,433,000.00. Refer to Section 6 for detailed cost estimates.

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1.0 INTRODUCTION

Location: Grappler St. Wharf, Bamfield, BC

Assessment by: Shannon Summersides, P. Eng. (Herold Engineering Ltd.)
Blair Forsyth (Herold Engineering Ltd.)

Date: January 27, 2025

1.1 Purpose of Assignment

The assessment was conducted to identify members either requiring repairs or showing signs of deterioration. The assessment results, detailed in the following report, will provide information regarding maintenance, repair, replacement and health and safety on a ten-year forecasted period, allowing for a prioritized repair and maintenance program to be implemented. Other items noticed during the assessment will be reported only in terms of general overall condition.

All repair/replacement recommendations will be accompanied by a Class D cost estimate, as well as a Class D level estimate of costs associated with complete structure replacement. These estimates are intended to inform maintenance and upgrade budgeting for the ACRD.

Where applicable, recommendations will be made for additional structural assessment in the form of seismic review and/or structural load rating. These recommendations are intended to inform budgeting strategies for future work as required.

1.2 Scope of Work

Herold Engineering travelled to Bamfield to review the Grappler St. wharf on January 27, 2025. The infrastructure was reviewed from above water only.

The assessment included detailed above water visual / tactile inspection of the following components:

- Abutment
- Handrails
- Vehicle Guard
- Deck Planks
- Stringers
- Pile Caps
- Cross Bracing
- Wale Timbers
- Piles

Items assessed specific to floats:

- Gangways and Connections
- Bull Rails and Risers
- Rub Boards
- Deck Boards
- Deck Accessories (mooring cleats, signage, lighting, etc)
- Floatation (where visible)
- Mooring System (anchor chains) (where visible)

§ Mooring System (mooring piles)

Herold Engineering generated and populated a structural checklist for the structure(s) which includes:

- General dimensions (length and width),
- Structural component sizes and lengths,
- Assessment of the existing condition of the elements based on an owner approved rating scale.

Herold Engineering generated the following report which includes:

- Remediation recommendations,
- Risk analysis,
- Residual life estimates
- Class D cost estimate of the repair recommendations
- Class D cost estimate for full replacement of the structure
- General comments on suitability for seismic loads and load rating

1.3 Reference Material

- Procedures for Inspection and Assessment of Fixed Timber Docks – 1994 September – 4th Edition by R.G. Sexsmith Ltd.
- Canadian Highway Bridge Design Code CAN/CSA S6-19.
- ACRD Risk Management Policy
- ACRD Risk Framework Matrix

1.4 Methodology

The infrastructure was reviewed by Herold Engineering Limited (Herold Engineering) from above water only. The assessment included detailed visual and tactile assessment of accessible elements.

The condition assessment and residual life estimates were based on previous experience, as well as the reference material noted in Section 1.3. Although these assessments can verify much of the visible and tactile damage, they are somewhat limited in assessing the severity and extent of internal damage to timber elements, especially damage due to decay and/or borer insect damage.

All recommendations related to health and safety are provided based upon our experience with structures similar in form and function.

Comments on seismic aspects of the structure are in general terms only. Should Herold Engineering locate structure(s) with higher seismic risk a detailed desktop analysis of the structure seismic response will be recommended.

Load rating analysis is considered outside the scope of the assessments; however, structures considered light duty for the intended use will be recommended for future load rating desktop study.

Class D cost estimates are based on current industry construction rates for mobilization, demobilization, and material costs for supply and installation, as well as historical data from similar projects. All costs are high level and considered appropriate for budget projections only.

Construction costs can be challenging to estimate in the current economic climate, and it is to be noted that prices may change often and can differ significantly based on many fluctuating variables (material costs, mobilization costs, etc). Should the ACRD postpone work for more than six months, it is recommended an updated estimate be generated to reflect current construction costs.

A risk analysis was conducted for the infrastructure, using a modified version of the Alberni-Clayoquot Regional District (ACRD) risk framework (provided to Herold Engineering). The risk framework has been generated to evaluate the level of risk of noted deterioration/damage allowing for prioritization of future repairs and their implications on structure use and life safety. All documents were provided by The ACRD and are referenced in Section 1.3 above.

The following appendices can be found at the end of this report:

APPENDIX A	-	Site Photographs
APPENDIX B	-	Damage Table
APPENDIX C	-	Condition Assessment Checklists
APPENDIX D	-	Aerial Map

1.5 Reference System

Grappler St. Wharf is accessed from Grappler Street, located on the eastern side of Bamfield. The marine infrastructure is utilized by the public and the local fire department. The infrastructure is currently maintained by the local Parks Department, Fire Department, and Alberni-Clayoquot Regional District (ACRD) as a collaborative effort.

The approach and gangway generally run north to south, while the floating dock structures run both east to west and north to south. Refer to the following figure for an aerial view of the structure(s).

Figure 1: Aerial Photograph of the Marine Infrastructure

1.6 Rating Scale and Risk Rating

The following is an explanation of the assessment rating scale used in Sections 2 through 5 as it relates to the estimated time before the next required repair to a specific item.

Very Good (VG) - Element is in serviceable condition with no notable deterioration. No

repairs are required.

Good (G)	-	Element has minor amounts of superficial deterioration with no noted overstressing or structural damage.
Fair (F)	-	Element has moderate amounts of damage which may increase rates of deterioration long term. No noted overstressing is observed. Repairs to prolong service life may be applicable.
Poor (P)	-	Element has significant amounts of damage or deterioration. No overstressing is observed. The element is nearing the end of its service life.
Very Poor (VP)	-	Element is no longer in serviceable condition with significant amounts of damage or loss of structural capacity. Immediate repair or replacement is likely required.

For timber elements exposed to moisture such as the deck boards on the bridge, the assessment rating scale corresponds to an estimated remaining service life as follows:

Very Good (VG)	-	10 years
Good (G)	-	6 to 10 years
Fair (F)	-	3 to 6 years.
Poor (P)	-	1 to 3 years
Very Poor (VP)	-	0 years

The assessment rating scale correlates to the risk rating based on the structural consequences associated with element deterioration and/or failure. The consequence rating scale is as follows:

Negligible (N)	-	Element failure has no effect on structural capacity, nor usage/performance (e.g.: coating failures)
Minor (M)	-	Element failure results in no effect on structural capacity and has a minor effect on usage/performance (e.g.: damage to guarding, signage etc.)
Moderate (Mod)	-	Element failure leads to local failure only. This can impact usage (e.g.: settlement of abutments, listing of the structure, loose decking)
Significant (S)	-	Element failure probably does not lead to total collapse due to continuity and/or multiple load paths. Other main structural members in the system may become overloaded due to the failure. This includes main load carrying members (e.g.: girder in a multi-girder system)
Collapse (C)	-	Element failure leads to total collapse of the structure. This includes failure of main members with no benefit from continuity or multiple-load paths (e.g.: simply supported girder in a two-girder system)

The assessment and consequence rating scales are combined to create a risk rating matrix as follows:

		Assessment Rating				
		VG	G	F	P	VP
Consequence Rating	N	1	2	3	4	5
	M	2	4	6	8	10
	Mod	3	6	9	12	15
	S	4	8	12	16	20
	C	5	10	15	20	25

Refer to Appendix B for damage table risk rating for individual items.

2.0 DESCRIPTION AND GEOMETRY

The marine infrastructure is generally composed of an approach trestle, gangway and various floating structures including walkway floats, slips and a boathouse float.

2.1 Approach

The approach is a fixed treated timber structure. The superstructure is comprised of treated timber guarding (handrails and vehicle guards), deck boards, and stringers. The superstructure is supported by a substructure of treated timber pile caps and bearing piles. Intermittent cross bracing spans the bearing piles providing lateral support.

The component sizes are as follows:

Handrails	-	102mm x 102mm (posts)
	-	38mm x 140mm (top and bottom rail)
	-	38mm x 89mm (mid rail)
Vehicle Guard	-	102mm x 152mm
Deck Boards	-	52mm x 152mm
Stringers	-	89mm x 242mm
Pile Caps	-	305mm x 242mm
Bearing Piles	-	305mm diameter (size 36)
Cross Braces	-	89mm x 140mm and 140mm x 191mm

2.2 Gangway

The gangway is a coated steel truss structure, typical for legacy facilities of this nature. The truss is comprised of top and bottom chords, vertical members, and diagonal members. The gangway is supported by drop hinges on the approach structure. The gangway lands on the float (Float A) and articulates with the float through the tidal range via a steel roller assembly. There is a landing pad and guide angles mounted to the float to guide the roller and protect the float deck where the gangway touches down.

The gangway has treated timber decking and a kick plate on one side of the handrail.

The component sizes are as follows:

Top Chord	-	L89mm x 64mm steel angle
Bottom Chord	-	C76 steel channel
Verticals	-	L25x25 steel angle
Diagonals	-	L25x25 steel angle
Deck Boards	-	38mm x 292mm treated timber
Kick Plate	-	38mm x 140mm treated timber

2.3 Floats

The floating docks are all a similar construction.

The superstructure is typically timber bull rails and decking, which are supported by a substructure of timber joists and flanges. The floats are buoyed by mixed floatation types including encased billet floatation, raw polystyrene billet floatation, foam filled tires, and/or log floatation.

Refer to the following aerial sketch for float designations and arrangement.

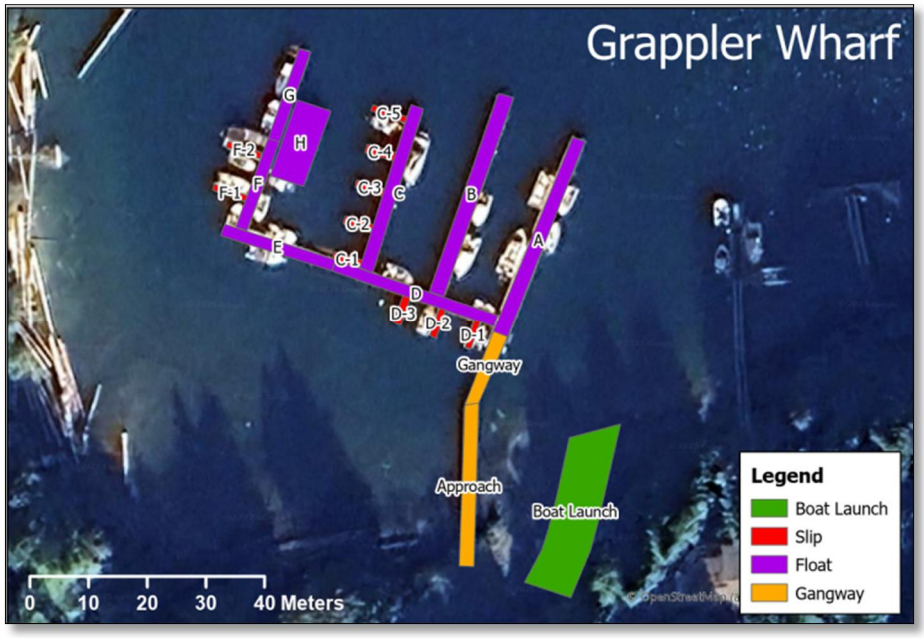


Figure 2: Aerial Sketch of Float Arrangement

2.3.1 Float A

Float A is a treated timber construction with two distinct floating sections. One section is an older float located at the seaward end and the other section is a newer construction located on the shoreward end. There is a compact mooring dolphin at the junction between the two float sections, comprised of four mooring piles in an internal mooring well. There is a spread mooring dolphin at the shoreward end comprised of two groups of two piles.

The component sizes are as follows:

Deck Boards	-	38mm x 292mm
Rub Board	-	38mm x 292mm (shoreward)/ 51x254/150mm (seaward)
Bull Rail	-	89mm x 140mm (shoreward)/ 102mm x 102mm (seaward)
Floatation	-	log floatation
	-	tire floatation
Mooring Piles	-	305mm diameter (size 36)

2.3.2 Float B

Float B is a treated timber construction similar to Float A. There is an older float section at the seaward end of the float and a newer section at the shoreward end. There is a single mooring pile at the northeast corner of the float.

The component sizes are as follows:

Deck Boards	-	38mm x 190mm (new)/ 38mm x 140mm (old)
Rub Board	-	38mm x 241mm (new)/ 38mm x 292mm (old)
Bull Rail	-	102mm x 152mm (new)/ 89mm x 140mm (old)

Floatation	-	1.52m x 1.22m encased billet floatation (only type verified)
Mooring Piles	-	305mm diameter (size 36)

2.3.3 Float C

Float C is a treated timber construction with five float slips extending west from along the float length. The slips are outfitted with mooring cleats and are of similar construction to the adjacent floats. There is a compact mooring dolphin on the east edge of the float, approximately in line with slip C-3. The dolphin is comprised of two mooring piles.

The component sizes are as follows:

Deck Boards	-	38mm x 190mm
Rub Board	-	38mm x 241mm
Bull Rail	-	102mm x 152mm
Joists	-	102mm x 102mm
Floatation	-	1.52m x 1.22m encased billet floatation (only type verified)
Mooring Piles	-	305mm diameter (size 36)

2.3.4 Float D

Float D is similar in construction to Float C. It is a treated timber construction with a compact mooring dolphin located on the southern edge approximately aligned with Float C. The mooring dolphin is comprised of three mooring piles. There are three slips extending from the south edge of Float D.

The component sizes are as follows:

Deck Boards	-	38mm x 190mm
Rub Board	-	38mm x 241mm
Bull Rail	-	102mm x 152mm
Mooring Piles	-	305mm diameter (size 36)

2.3.5 Float H

Float H is a treated timber construction with a conventional single storey wood-framed structure mounted on the float deck. The float is u-shaped to accommodate a vessel within the house.

The component sizes are as follows:

Deck Boards	-	52mm x 152mm
Rub Board	-	52mm x 305mm
Stringers	-	127mm x 305mm at 1.219m on center
Floatation	-	encased billet floatation

2.3.6 Fire Department Floats (Floats E, F, G and Slips F-1 and F-2)

The fire department floats include Floats E, F, G and slips F-1 and F-2. The floats and slips are a mixed timber construction. It is understood that the floats have been relocated and used to be the only floating infrastructure. During a major upgrade, new floats and slips were

installed and the older floats were repurposed for this location. The member sizing and floatation types are varied throughout the floats.

The floats are secured to the walkway float and Float C via ropes. It is understood that some chain and anchor systems moor the floats, but this was not verifiable during the assessment.

The component sizes are as follows:

Deck Boards	-	(mixed) 38mm x 292mm
Rub Board	-	(mixed) 38mm x 241mm
Bull Rail	-	(mixed) 89mm x 89mm
Floatation	-	(mixed) exposed polystyrene observed

3.0 ASSESSMENT RESULTS

The following section summarizes the results of the findings on-site. Refer to Appendix B for a detailed breakdown of element damage type, severity and location.

3.1 Approach

The approach is in serviceable condition. There is moderate weathering and biological growth to the superstructure and substructure, which is typical of structures of this form and function.

The following items were noted while on-site:

- Approach stringers and pile caps have biological growth along surfaces, wood section is competent when probed.
- Pile caps generally have bolts penetrating their section, with notable checking on the underside of the elements. This compromises the treatment layer. Pile caps are competent when probed.
- One cross brace cut end is decayed with visible deterioration of the cross section.

3.2 Gangway

The gangway is in overall serviceable condition. There are localized, but widespread, coating failures on the steel elements. These locations have significant surface corrosion and are beginning to delaminate. Without intervention, the gangway is nearing the end of its service life.

The following items were noted while on-site:

- One deck board is decayed and missing a portion of the cross section at the connection point.
- Kick plate is decayed at cut end.
- Kick plate is missing on the west side of gangway
- Drop hinges and steel truss elements have notable coating failures and surface corrosion.

- Cross beams of steel truss are beginning to delaminate with corrosion penetrating the surface of the members.
- The seaward transition plate is missing, which is a possible tripping hazard.
- Angle guides on landing pad are visibly corroded with delamination of the steel.

3.3 Floats

The new floats (Float A, B, C and D) and associated slips are in overall fair to poor serviceable condition.

The older floats utilized by the fire department (Float E, F, G and associated slips) are in very poor condition and are at the end of their service life. See Section 3.3.5 and Appendix B for details.

Float H is in overall good serviceable condition.

Generally, all the floats have a mix of mooring types. A mooring study of the floats is recommended to ensure the infrastructure is appropriately anchored within the marina basin.

All floats were reviewed from above water. A detailed dive assessment is recommended, in conjunction with the mooring study, to confirm the condition of submerged elements are the site. This would include float substructure, floatation, mooring piles and mooring chain and anchor.

3.3.1 Float A

Float A is in overall poor serviceable condition. The following items were noted while on-site:

- Deck boards below the gangway and in select locations along the float length are decayed with loss of cross section in some areas.
- There are two bull rails which are missing on the float, as well as two sections of rail that are significantly decayed.
- One section of rub board has failed on the float.
- The float-to-float connection at the junction between the old and new sections is secured with chain to the existing bull rails. This connection is not typical, and the bull rails are in poor condition.
- Visible areas of the substructure are decayed with vegetative growth present where accessible.
- Floatation is a mix of log and foam filled tire floatation. The float is somewhat listing.

Float freeboard measurements were taken around the perimeter and are as follows:

Location	*Measurement (mm)*
Northwest Corner	381
Northeast Corner	406
Mid-float West	387
Mid-float East	406
Southwest Corner	431

Location	*Measurement (mm)*
Southeast Corner	330

The float freeboards are within acceptable tolerances except for the southeast corner. It is evident that the timber elements have taken on water and that floatation may be missing at this location.

3.3.2 Float B

Float B is in overall fair serviceable condition. The following items were noted while on-site:

- One deck board is loose and not secured to the substructure.
- One riser is missing.
- One bull rail and one riser are decayed with visible deterioration of the cross section.
- There is a check in the mooring pile which penetrates the creosote layer.

Float freeboard measurements were taken around the perimeter and are as follows:

Location	*Measurement (mm)*
Northwest Corner	292
Northeast Corner	228
Mid-float West	362
Mid-float East	330
Southwest Corner	457
Southeast Corner	438

The float freeboards are no longer within acceptable tolerances. The north end of the float is listing significantly, likely due to the older age of the section and anticipated increases in floatation deterioration and substructure aging.

3.3.3 Float C

Float C and associated slips are in overall fair to poor serviceable condition. The following items were noted while on-site:

- The bull rail is missing at the end of the float.
- Moderate mechanical damage due to abrasion on the mooring piles.

Float freeboard measurements were taken around the perimeter and are as follows:

Location	*Measurement (mm)*
Northwest Corner	432
Northeast Corner	419
Mid-float East	387
Southwest Corner	438
Southeast Corner	482
Slip C-5	381
Slip C-4	368
Slip C-3	362
Slip C-2	381

Location	*Measurement (mm)*
Slip C-1	356

The float freeboards are within acceptable tolerance and there are no concerns with the floatation performance.

3.3.4 Float D

The Float D and associated slips are in overall good to fair serviceable condition. The following items were noted while on-site:

- Moderate mechanical damage due to abrasion on the mooring piles.
- One cleat on Slip D-3 has sheared off.

Float freeboard measurements were taken around the perimeter and are as follows:

Location	*Measurement (mm)*
Northwest Corner	406
Northeast Corner	445
Mid-float North	457
Mid-float South	445
Southwest Corner	425
Southeast Corner	445
Slip D-3	508
Slip D-2	508
Slip D-1	533

The float freeboards are within acceptable tolerance and there are no concerns with the floatation performance.

3.3.5 Float H

The Float H is in overall good serviceable condition. The structure appears to be in good condition and the float is relatively new.

The following items were noted on-site:

- Deck board fasteners do not consistently have sufficient edge distance to the cut end of the deck board elements. Some boards have cracked through the hardware locations.

- Deck board fasteners are loose in localized areas.

- Mooring pile hoop and bracket are significantly corroded.

Float freeboard measurements were taken around the perimeter and are as follows:

Location	*Measurement (mm)*
Northwest Corner	560
Northeast Corner	560
Southwest Corner	560

Southeast Corner	560

The float freeboards are within acceptable tolerance and there are no concerns with the floatation performance.

3.3.6 Fire Department Floats (Floats E, F, G and Slips F-1 and F-2)

The fire department floats are at the end of their service life and are in overall poor to very poor condition. The superstructure is significantly weathered with areas of cross section loss and decay. Deck boards and bull rails are missing in select areas.

The substructure has evidence of biological decay and water ingress, with floats listing significantly. Floatation is missing, has failed, and/or has taken on water in several locations. Float freeboards are inconsistent, and float stability is unpredictable in several locations.

The float-to-float connections are not typical, several floats are secured with rope to adjacent floats using bull rails and/or cleats. These connections are not considered structurally reliable.

Float freeboard measurements were taken around the perimeter of the floats and average 275mm, with freeboards as low as 127mm. This is well below a typical design freeboard for floats of this form and function. Some floats are missing floatation and list significantly when loaded. This is indicative of failures/damage to the substructure and floatation and is typical of floats nearing the end of their service life.

4.0 RECOMMENDATIONS

4.1 Approach

The following remedial activities are recommended within the next year:

- Cleaning of the stringers and pile caps to remove vegetative growth,
- Ongoing monitoring of the pile cap sections damage by thru-bolts,
- Replace one cross brace.

4.2 Gangway

The following remedial activities are recommended within the next year:

- Replace one deck board,
- Replace one kick plate and install a second kick plate,
- Clean drop hinges and steel elements of all delaminated, corroded steel and have the elements reviewed by an engineer registered to practice in British Columbia to ensure the remaining section is sufficient.
- Recoat cleaned steel elements or replace steel truss elements where appropriate,
- Install a transition plate at seaward transition to Float A,
- Clean corrosion off angle guides and evaluate remaining thickness. Replace or re-

coat guides as appropriate.

4.3 Floats

Generally, it is recommended that a dive assessment be conducted to determine the existing condition of the submerged float elements, as well as to complete a mooring study of the float arrangement and ensure the structures are adequately moored.

4.3.1 Float A

The following remedial activities are recommended within the next year:

- Replace five deck boards in kind,
- Install two missing bull rails,
- Replace two decayed bull rails in kind,
- Replace rub board in kind,
- Replace float-to-float connections with engineered chain and mounting bracket connections,
- Ongoing monitoring of floatation via freeboard measurement.

4.3.2 Float B

The following remedial activities are recommended within the next year:

- Re-secure deck boards to substructure,
- Replace one bull rail in kind,
- Install one riser to match existing,
- Replace one riser in kind,
- Ongoing monitoring of damage to mooring pile creosote layer.

4.3.3 Float C

The following remedial activities are recommended within the next year:

- Install bull rail to match existing,
- Ongoing monitoring of damage to mooring pile creosote layer.

4.3.4 Float D

The following remedial activities are recommended within the next year:

- Replace one cleat on slip D-3.

4.3.5 Float H

The following remedial activities are recommended within the next year:

- Secure loose hardware on deck,
- Ongoing monitoring of deck boards, replace as elements fail through connection points,
- Ongoing monitoring of the mooring hoop, consider cleaning and re-coating during remediation of the gangway steel.

4.3.6 Fire Department Floats (Floats E, F, G and Slips F-1 and F-2)

The floats and slips are at the end of their service life. Most of the structural elements require replacement, and most of the floats need all new floatation. It is likely more cost effective to replace the floats in kind or with a floating configuration that is better suited to the service requirements of the fire department.

5.0 RESIDUAL LIFE ESTIMATES

The residual life estimates are based on the rating scale defined in Section 1.6 above. These estimates represent the worst-case members inspected in any member group. For this reason, the overall condition of the member group is not necessarily reflected by the following residual life estimates.

See Appendix B to determine which members the residual life estimate applies to.

5.1 Approach

Handrails	6-10 years based on overall condition
Vehicle Guard	6-10 years based on overall condition
Deck Boards	3-6 years based on overall condition and exposure
Stringers	3-6 years based on overall condition and exposure
Pile Caps	3-6 years based on one pile cap with damage
Bearing Piles	6-10 years based on overall condition and exposure
Cross Bracing	1-3 years based on one cross brace to be replaced

5.2 Gangway

Kick Plate	0-1 year based on missing and deteriorated elements
Deck Boards	0-1 year based on one board requiring replacement

5.3 Float A

Bull Rails	0 years based on two bull rails requiring replacement
Deck Boards	0 years based on several boards requiring replacement

Rub Boards	0 years based on one rub board requiring replacement
Mooring Piles*	3-6 years based on overall condition and exposure

5.4 Float B

Bull Rails	0 years based on one bull rail condition
Deck Boards	1-3 years based on one loose deck board
Rub Boards	3-6 years based on overall condition and exposure
Mooring Piles*	3-6 years based on overall condition and exposure

5.5 Float C

Bull Rails	0 years based on one missing bull rail
Deck Boards	3-6 years based on overall condition and exposure
Rub Boards	3-6 years based on overall condition and exposure
Mooring Piles*	3-6 years based on overall condition and exposure

5.6 Float D

Bull Rails	6-10 years based on overall condition
Deck Boards	3-6 years based on overall condition and exposure
Rub Boards	3-6 years based on overall condition and exposure
Mooring Piles*	3-6 years based on overall condition and exposure

5.7 Float H

Deck Boards	6-10 years based on overall condition and exposure
Rub Boards	6-10 years based on overall condition and exposure
Mooring Piles*	3-6 years based on overall condition and exposure

5.8 Fire Department Floats (Floats E, F, G and Slips F-1 and F-2)

Bull Rails	0-1 years based on overall condition
Deck Boards	0-1 years based on overall condition
Rub Boards	0-1 years based on overall condition
Substructure	0-1 years based on overall condition

* Note: mooring piles were only observed from above water. The residual life estimate may not be accurate if the submerged condition was known. A dive assessment is recommended within the next year.

6.0 COST ESTIMATES

The repairs noted in this report are estimated to Class D standard, in 2025 Canadian dollars. They are based on historical data, current industry rates, as well as our experience with projects of this nature.

The following cost estimate assumes that a construction crew has mobilized one time to

repair/replace all four bridges. It is to be noted that construction costs fluctuate significantly in the current economic climate. It is recommended that if repairs are delayed more than six months, a revised estimate be generated. Additionally, should detailed design of replacement structures occur, costing should be redone to ensure accuracy for budgeting and maintenance projections.

It is to be noted that the submerged elements of the assets were not reviewed as part of the scope of work. A detailed dive assessment is recommended and included in the estimate below (Table 6.1). Additionally, the float moorage configuration and adequacy are unknown. A mooring study is recommended and included in the estimate below.

Neither estimate (Table 6.1 nor 6.2) accounts for additional float moorage that may be present other than the mooring piles observed on-site. This includes any existing chain and anchor or alternate moorage not visible at the time of the assessment.

Table 6.1 Cost Estimate for Recommended Repairs

ITEM	LOCATION	RECOMMENDATION	COST ($)
Mobilization/Demobilization			$25,000.00
Underwater Assessment of Assets			$15,000.00
Float Mooring Study			$5,000.00
Approach			
Stringers/ Pile Caps	General	Clean substructure	$500.00
Cross Brace	Bent 2	Ongoing monitoring. Replace cross brace within the next three years.	$1,000.00
Gangway			
Deck Board	Southeast corner	Replace deck board	$170.00
Kick Plate	East side	Replace first section of kick plate	$850.00
Kick Plate	West side	Provide kick plate on west side	$850.00
Drop Hinges	South End	Clean off surface corrosion and re-coat hinges and associated hardware	$2,000.00
Struss Elements	General	Clean off surface corrosion and scaling. Have an engineer evaluate the remaining condition. If acceptable, re-coat gangway steel elements and associated hardware	$10,000.00
Seaward Transition	At Float	Provide transition plate.	$2,500.00
Angle Guides	At Float	Clean angle guides. Coat the guides to prolong life. If the remaining thickness is less than 6mm, replace angle guides in kind.	$1,750.00
Float A			
Deck Boards	Under gangway at 0m	Replace affected deck boards in kind.	$1,300.00
Deck Board	At 35.3m	Replace the deck board in kind.	$275.00
Bull Rail	At 0m on west edge	Install bull rail to match existing.	$950.00
Bull Rail	At 7.0m on east edge	Replace two affected lengths of bull rail.	$1,900.00
Bull Rail	At 28m on west edge	Install bull rail to match existing.	$950.00
Rub Board	At 11m on west edge	Replace the rub board in kind.	$350.00

ITEM	LOCATION	RECOMMENDATION	COST ($)
Connection	Mid float between sections (east and west)	Replace connections with engineered chain connections with mounting plates or equivalent.	$5,000.00
Float B			
Deck Boards	at 0m	Re-secure deck boards to the substructure	$50.00
Bull Rail	At 12.2m on east side	Install riser to match existing.	$50.00
Bull Rail	At 23.1m on west side	Replace affected bull rail in kind.	$950.00
Bull Rail	At 32.9m on west side	Replace riser in kind.	$50.00
Float C			
Bull Rail	North end	Install bull rail to match existing.	$375.00
Float D			
Cleat	D-3	Replace damaged cleat	$500.00
Float H			
Mooring Pile Hoop	General	Clean surface rust and re-coat hoop	$1,000.00
Fire Department Floats (Floats E, F, G and Slips F-1 and F-2)			
Deck Boards	General	Float is at or nearing the end of its service life. Replacement of float structures in their entirety is recommended. It is also recommended that new moorage be explored that is sufficient for the loading and exposure.	$170,000.00
Bull Rails	General		
Rub Boards	General		
Substructure	General		
Floatation	General		
Connections	General		

Subtotal ($)	$248,320.00
Contingency (20%)	$49,664.00
TOTAL ($)	$297,984.00

Table 6.2 Cost Estimate for Full Replacement
(NOTE: l.s. = lump sum, l.m. = lineal meter, m^2 = square meter)

ITEM	SIZE	UNITS	QUANTITY	UNIT RATE	COST ($)
Mobilization/Demobilization		l.s.	1	$500,000.00	$500,000.00
Demolition		l.s.	1	$295,000.00	$295,000.00
Approach					
Handrails	varies	l.m.	58	$750.00	$43,500.00
Vehicle Guard	varies	l.m.	58	$200.00	$11,600.00
Deck Boards	52mm x 152mm	l.m.	350	$175.00	$61,250.00
Stringers	89mmx241mm	l.m.	116	$250.00	$29,000.00
Pile Caps	305mm x 241mm	l.m.	16	$300.00	$4,800.00

ITEM	SIZE	UNITS	QUANTITY	UNIT RATE	COST ($)
Bearing Piles	305mm diameter	each	16	$8,000.00	$128,000.00
Cross Bracing	140mm x 190mm	l.m.	48	$250.00	$12,000.00
Gangway					
Steel Truss Gangway, Roller and Drop Hinges	11m long x 1.372m wide	l.s.	1	$65,000.00	$65,000.00
Deck Boards	38mm x 292mm	l.m.	55	$125.00	$6,875.00
Drop Hinges	N/A	l.s.	1	$2,500.00	$2,500.00
Transition Plates	N/A	each	2	$3,000.00	$6,000.00
Landing Pad and Guide Angles		l.s.	1	$4,500.00	$4,500.00
Float A					
Timber Float	2.8m x 38.6m	m^2	108.1	$1,375.00	$148,637.50
Timber Mooring Pile	305mm diameter	each	8	$7,000.00	$56,000.00
Float B					
Timber Float	2.13m x 36m	m^2	76.7	$1,375.00	$105,462.50
Timber Mooring Pile	305mm diameter	each	1	$7,000.00	$7,000.00
Float C					
Timber Float	1.83m x 30.6m	m^2	56	$1,375.00	$77,000.00
Timber Mooring Pile	305mm diameter	each	2	$7,000.00	$14,000.00
Timber Float Slips	(5)- 1.22m x 4.93m	m^2	30	$1,375.00	$41,250.00
Float D					
Timber Float	1.74m x 22.7m	m^2	40	$2,000.00	$80,000.00
Timber Mooring Pile	305mm diameter	each	3	$7,000.00	$21,000.00
Timber Float Slips	(3) - 1.22m x 4.83m	m^2	17.7	$1,375.00	$24,337.50
Float H					
Custom Timber Float	6.1m x 12.2m	m^2	45.7	$1,375.00	$62,837.50
Wood-Frame Structure	6.1m x 12.2m	m^2	50	$2,000.00	$100,000.00
Timber Mooring Pile	305mm diameter	each	1	$7,000.00	$7,000.00
Fire Department Floats (Floats E, F, G and Slips F-1 and F-2)					
Timber Float	1.524m x 33.6m and 1.524m x 20.2m	m^2	82	$1,375.00	$112,750.00

Subtotal ($)	$2,2027,300.00
Contingency (20%)	$405,460.00
TOTAL ($)	$2,432,760.00

Appendix A
Site Photographs

#7 1920 Lyche Road, Ucluelet BC, V0R 3A0
mail@heroldengineering.com

Photograph 1: Grappler St. Wharf, note: general arrangement looking northwest

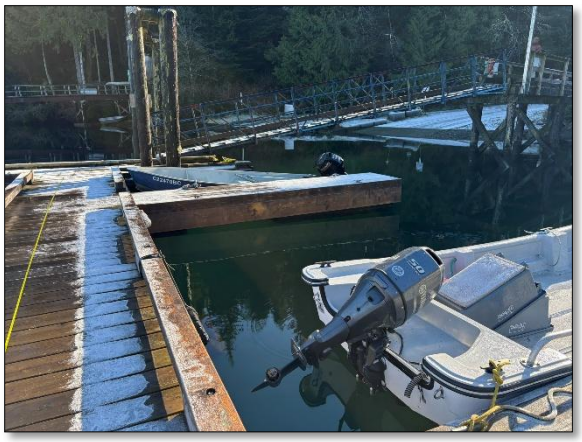
Photograph 2: Approach, note: general arrangement looking north

Photograph 3: Approach, note: general arrangement looking west

Photograph 4: Approach stringers and pile cap, note: biological growth on surfaces of elements

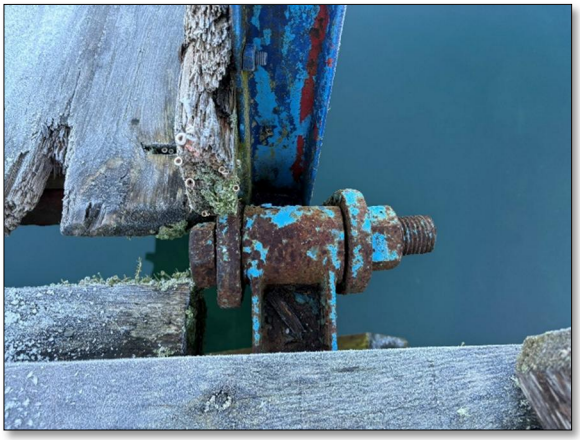
Photograph 5: Pile Cap at Bent 2, note: check in underside where stringer hardware penetrates section. Loss of treatment layer

Photograph 6: Cross Brace at Bent 2, note: decay at cut end



Photograph 7: Gangway, note: general arrangement looking east

Photograph 8: Gangway deck board and kick plate, note: mechanical damage



Photograph 7: Gangway drop hinges, note: coating failures and surface rust

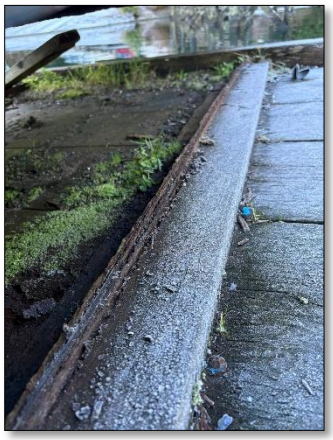
Photograph 8: Gangway top chord, note: coating failures and surface rust

Photograph 9: Gangway steel elements, note: coating failures and surface rust

Photograph 10: Gangway cross beams, note: failed coating and significant corrosive damage.

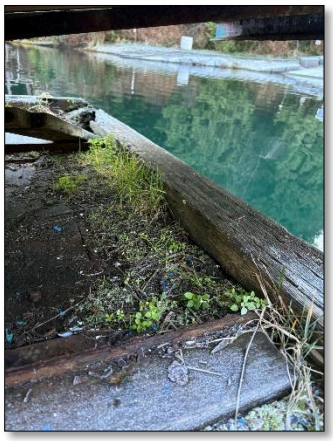
Photograph 11: Gangway roller, note: roller pin significantly corroded and delaminating

Photograph 12: Gangway transition, note: no transition plate to float



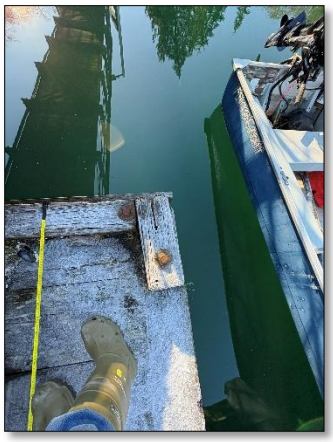
Photograph 13: Gangway angle guides, note: scaling and corrosion to steel guides

Photograph 14: Float A, note: general arrangement looking northeast

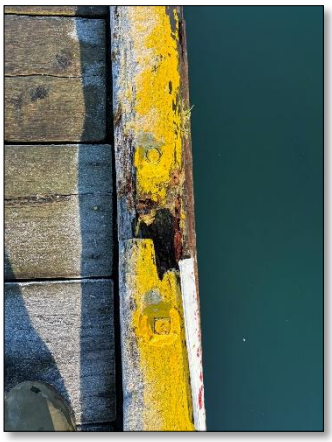


Photograph 15: Float A deck boards under gangway, note: biological decay

Photograph 16: Float A deck boards under gangway, note: biological decay and cross section failure



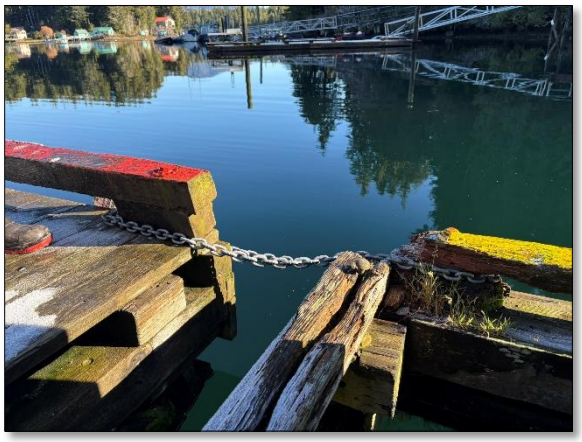
Photograph 17: Float A at 0m, note: bull rail missing



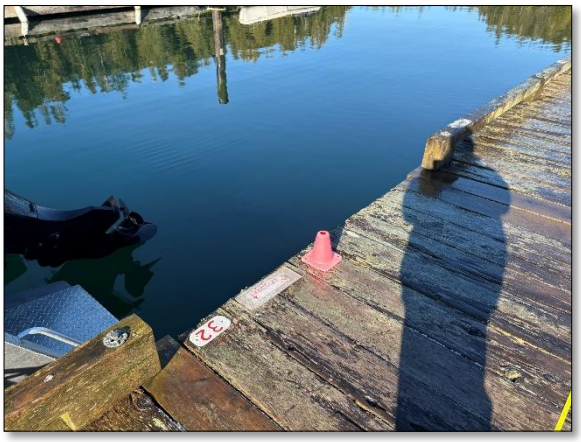
Photograph 18: Float A bull rail at 7.0m east side, note: decayed bull rail at connections

Photograph 19: Float A Rub board at 11m, note: failed section

Photograph 20: Float A connection west, note: secured to bull rail



Photograph 21: Float A connection east, note: secured to bull rail



Photograph 22: Float A bull rail at 28m on west side, note: missing

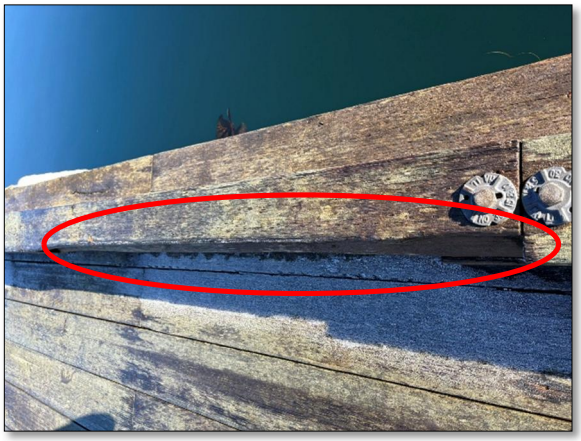
Photograph 23: Float A deck board at 35.3m, note: failed section through connection to float

Photograph 24: Float A substructure, note: decayed substructure elements with visible biological growth

Photograph 25: Float A, note: mixed floatation including rubber tires

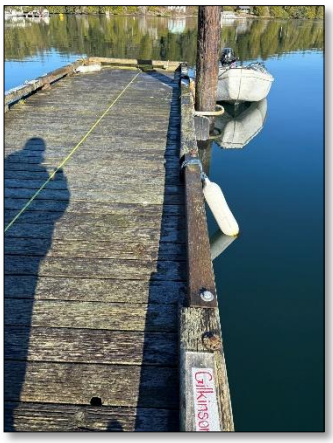
Photograph 26: Float B, note: general arrangement looking north

Photograph 27: Float B bull rail, note: missing riser at 12.2m.



Photograph 28: Float B bull rail note: check in element at 14.8m

Photograph 29: Float B bull rail at 23.1m, note: decayed through section

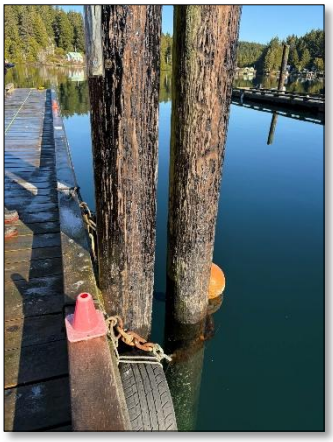


Photograph 30: Float B bull rail, note: new section of bull rail is smaller than other sections

Photograph 31: Float B bull rail at 32.9m, note: decayed riser

Photograph 32: Float mooring pile, note: mechanical damage through creosote layer

Photograph 33: Float C, note: general arrangement looking north



Photograph 34: Float C mooring piles, note: abrasion damage to creosote layer

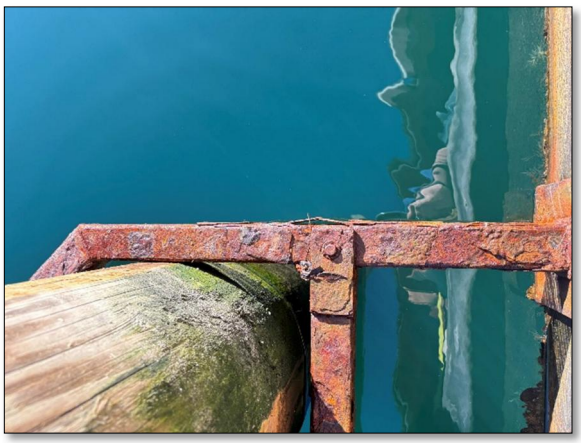
Photograph 35: Float C, note: no guarding at north end of float

Photograph 36: Slips C-1 to C-5, note: general arrangement looking south

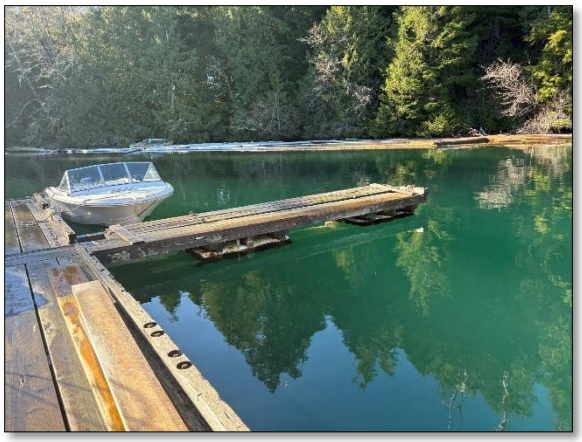
Photograph 37: Float H, note: general arrangement looking northwest

Photograph 38: Float H decking, note: check through hardware

Photograph 39: Float H decking, note: loose hardware

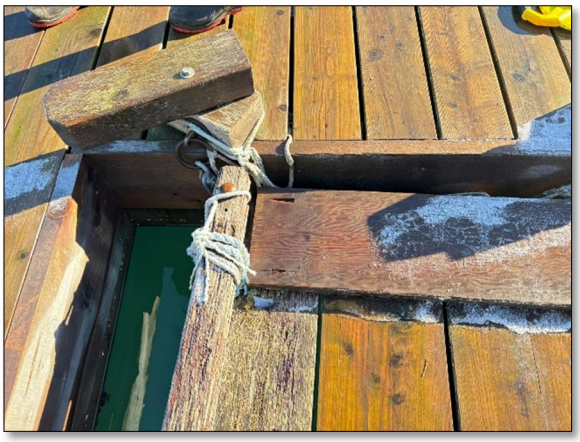


Photograph 40: Float H mooring pile, note: coating failures and corrosion to bracket



Photograph 41: Slip F-1, note: exposed Styrofoam floatation and listing superstructure

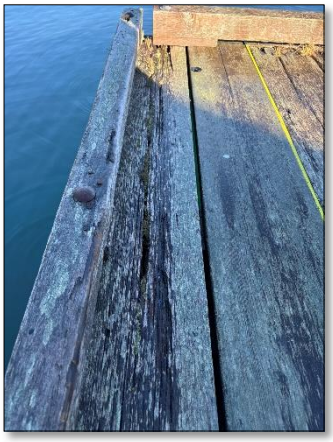
Photograph 42: Fire Department Float, note: decayed float elements



Photograph 43: Float E, note: insufficient connection to adjacent structures

Photograph 44: Fire Department Floats, note: decayed bull rails and decking

Photograph 45: Fire Department Floats, note: decay and weathering to deck and other structural members



Photograph 46: Fire Department Floats, note: decayed bull rails and decking

Appendix B
Damage Table

#7 1920 Lyche Road, Ucluelet BC, V0R 3A0
mail@heroldengineering.com

Table B1 Damage Table

**Note: all locations measured from zero datum at the end closest to the shore access point*

ITEM	LOCATION	DAMAGE	CONDITION	COMMENTS	RECOMMENDATION	RISK	REMEDIAL YEAR
Approach							
Stringers	General	Biological	Fair	Stringers have visible biological growth along surfaces. Competent when probed (where accessible)	Clean substructure	3	2025/2026
Pile Cap	General	Mechanical	Fair	Stringer bolts are driven through the pile cap section and have caused checking to the underside. This has compromised the treatment layer.	Ongoing monitoring.	3	-
Pile Cap	Bent 1	Biological	Fair to Poor	Pile cap has visible biological growth along surfaces. Competent when probed.	Clean substructure	12	2025/2026
Cross Brace	Bent 2	Mechanical/ Biological	Fair to Poor	Cut end is beginning to decay.	Ongoing monitoring. Replace the cross brace within the next three years.	12	2028/2029
Gangway							
Deck Board	Southeast corner	Mechanical/ Biological	Poor	Deck board has lost part of the section due to mechanical damage. There is visible decay to the cut end	Replace deck board	12	2025/2026
Kick Plate	East side	Mechanical/ Biological	Poor	Section at cut end is deteriorated with visible decay.	Replace first section of kick plate	4	2025/2026
Kick Plate	West side	Missing	Very Poor	Missing kick plate.	Provide kick plate on west side	5	2025/2026
Drop Hinges	South End	Corrosion	Poor to Fair	Significant coating failures and surface corrosion	Clean off surface corrosion and re-coat hinges and associated hardware	16	2025/2026
Struss Elements	General	Corrosion	Poor	Significant and extensive coating failures and surface corrosion	Clean off surface corrosion and scaling. Re-coat gangway steel elements and associated hardware	16	2025/2026
Seaward Transition	At Float	Missing	Very Poor	No transition plate from gangway to float at seaward end. This is a tripping hazard.	Provide transition plate.	10	2025/2026
Angle Guides	At Float	Corrosion	Poor	Angle guides are visibly corroded with delamination and scaling	Clean angle guides. Coat the guides to prolong life. If the remaining thickness is less than 6mm, replace angle guides in kind.	10	2025/2026
Float A							

ITEM	LOCATION	DAMAGE	CONDITION	COMMENTS	RECOMMENDATION	RISK	REMEDIAL YEAR
Deck Boards	Under gangway at 0m	Biological	Very Poor	Deck boards are decaying with vegetative growth that likely affects substructure below	Replace affected deck boards in kind.	15	2025/2026
Deck Board	At 35.3m	Mechanical/ Biological	Poor	Section is visibly decayed at the cut end. The section has deteriorated through connection point to float substructure.	Replace the deck board in kind.	15	2025/2026
Bull Rail	At 0m on west edge	Missing	Very Poor	Bull rail is missing.	Install bull rail to match existing.	15	2025/2026
Bull Rail	At 7.0m on east edge	Biological	Poor	Bull rail is decayed through connection to float. Decay penetrates in section	Replace two affected lengths of bull rail.	12	2025/2026
Bull Rail	At 28m on west edge	Missing	Very Poor	Bull rail is missing.	Install bull rail to match existing.	15	2025/2026
Rub Board	At 11m on west edge	Mechanical/ Biological	Very Poor	Section has failed and float substructure is exposed.	Replace the rub board in kind.	10	2025/2026
Connection	Mid float between sections (east and west)	-	Fair to Poor	Heavy chain connects two floats. Chain is secured to bull rails. There is visible decay and the connection is uncertain	Replace connections with engineered chain connections with mounting plates or equivalent.	16	2025/2026
Substructure	General	Biological	Fair to Poor	Localized areas of substructure decay with visible vegetative growth and softness when probed.	Conduct detailed dive assessment to confirm the substructure condition. Otherwise, consider for replacement within 3 years.	16	2025/2026
Floatation	General	-	-	Floatation appears to of mixed construction, indicative of intermittent repair/ piecemeal replacement.	Ongoing monitoring for listing and/or missing floatation	-	-
Float B							
Deck Boards	at 0m	Mechanical/ Biological	Very Poor	One deck board is loose.	Re-secure deck boards to the substructure	15	2025/2026
Bull Rail	At 12.2m on east side	Missing	Very Poor	Bull rail is missing riser at this location.	Install riser to match existing.	15	2025/2026
Bull Rail	At 14.8m on east side	Mechanical	Fair	Moderate check in bull rail length.	Ongoing monitoring.	9	-
Bull Rail	At 23.1m on west side	Biological	Very Poor	Bull rail section is decayed at the connection with 75% of cross section gone.	Replace affected bull rail in kind.	15	2025/2026
Bull Rail	At 32.9m on west side	Biological	Poor	Riser is significantly decayed.	Replace riser in kind.	12	2025/2026
Bull Rail	General	-	-	Bull rails appear to be replaced in random locations. The newer sections are smaller than the previous elements.	Ongoing monitoring. Moving forward, the best practice would be to have all bull rails of the same sectional dimensions.	-	-

ITEM	LOCATION	DAMAGE	CONDITION	COMMENTS	RECOMMENDATION	RISK	REMEDIAL YEAR
Mooring Pile	Seaward end of Float B	Mechanical	Good	Check in pile that penetrates the creosote layer. The damage is above higher high water.	Ongoing monitoring.	8	-
Float C							
Bull Rail	North end	Missing	Very Poor	Bull rail is missing at the end of the float. This is typical for sea plane floats, but this float does not have correct signage for seaplane use.	Install bull rail to match existing.	15	2025/2026
Mooring Piles	Mid float	Mechanical	Fair to Good	Abrasive damage to piles from float structure through tidal cycles. Creosote layer is intact.	Ongoing monitoring.	8	
Float H							
Deck Boards	General	Mechanical	Fair to Good	Edge distance for hardware insufficient and select boards are cracking and checking at hardware locations.	Ongoing monitoring.	9	
Deck Boards	General	Mechanical	Fair to Good	Hardware is loose in a few locations.	Ongoing monitoring.	9	
Mooring Pile Hoop	General	Corrosive	Fair	Bracket and hoop have significant surface corrosion and evidence of steel scaling.	Clean mooring hoop and re-coat	12	2025/2026
Fire Department Floats (Floats E, F, G and Slips F-1 and F-2)							
Deck Boards	General	Mechanical/ Biological	Poor to Very Poor	Significant weathering and localized areas of decay. Boards are missing in areas.	Float is at or nearing the end of its service life. Replacement of float structures in their entirety is recommended.	25	2025/2026
Bull Rails	General	Mechanical/ Biological	Poor to Very Poor				
Rub Boards	General	Mechanical/ Biological	Poor to Very Poor				
Substructure	General	Mechanical/ Biological	Poor to Very Poor	Evidence of biological damage and water ingress			
Floatation	General	Mechanical/ Biological	Very Poor	Floats are listing significantly, missing floatation in areas, and no longer have freeboards within acceptable tolerances.			
Connections	General	Mechanical/ Biological	Very Poor	Connection to other floating structures is unconventional and places stress on adjacent structures (floats).			

Appendix C
Marine Infrastructure Checklist

HEROLD ENGINEERING
MARINE STRUCTURAL ASSESSMENT REPORT

BRIDGE NAME GRAPPLER WHARF **LOCATION** BAMFIELD, BC

LENGTH N/A **ROADWAY WIDTH** N/A **CLEARANCE** N/A
No. SPANS N/A **SPAN TYPE** N/A **MAX. SPAN** N/A
POSTED LOAD N/A **YEAR BUILT** 2000–2023 **UTILITIES** N/A

ITEM	CONSTRUCTION	25												
ABUTMENTS	NOT ACCESSIBLE	N/A												
APPROACH	1.83 METERS X 29.0 METERS	G												
DECKING	52 X 152	G												
VEHICLE GUARD	102 X 152	G												
HANDRAILS	VARIES	G												
STRINGERS	89 X 242	F												
PILE CAPS	241 X 305	F												
BEARING PILES	SIZE 36 (305MM DIA.)	G												
CROSS BRACING	89 X 140 AND 140 X 191	F–P												
GANGWAY	1.37 METERS X 11.05 METERS	P												
FLOAT A	2.79 METERS X 38.56 METERS	G–F												
FLOAT B	2.13 METERS X 36.0 METERS	G–F												
FLOAT C	1.83 METERS X 30.65 METERS	G–F												
FLOAT C SLIPS	1.03 METERS X 4.93 METERS	G												
FLOAT D	1.74 METERS X 22.71 METERS	G–F												
FLOAT D SLIPS	1.03 METERS X 4.83 METERS	G												
FLOAT H	6.1 METERS X 12.2 METERS	G												
FLOATS E, F, G	VARIES	VP												
MOORING PILES	SIZE 36 (305MM DIA.)	G–F												

RATING SCALE

VERY GOOD (VG) – ELEMENT IS IN SERVICEABLE CONDITION WITH NO NOTABLE DETERIORATION. NO REPAIRS ARE REQUIRED.

GOOD (G) – ELEMENT HAS MINOR AMOUNTS OF SUPERFICIAL DETERIORATION WITH NO NOTED OVERSTRESSING OR STRUCTURAL DAMAGE.

FAIR (F) – ELEMENT HAS MODERATE AMOUNTS OF DAMAGE WHICH MAY INCREASE RATES OF DETERIORATION LONG TERM. NO NOTED OVERSTRESSING IS OBSERVED. REPAIRS TO PROLONG SERVICE LIFE MAY BE APPLICABLE.

POOR (P) – ELEMENT HAS SIGNIFICANT AMOUNTS OF DAMAGE OR DETERIORATION. HOWEVER NO OVERSTRESSING IS OBSERVED. THE ELEMENT IS NEARING THE END OF SERVICE LIFE.

VERY POOR (VP) – ELEMENT IS NO LONGER IN SERVICEABLE CONDITION WITH SIGNIFICANT DAMAGE OR LOSS OF STRUCTURAL CAPACITY. IMMEDIATE REPAIR OR REPLACEMENT IS LIKELY.

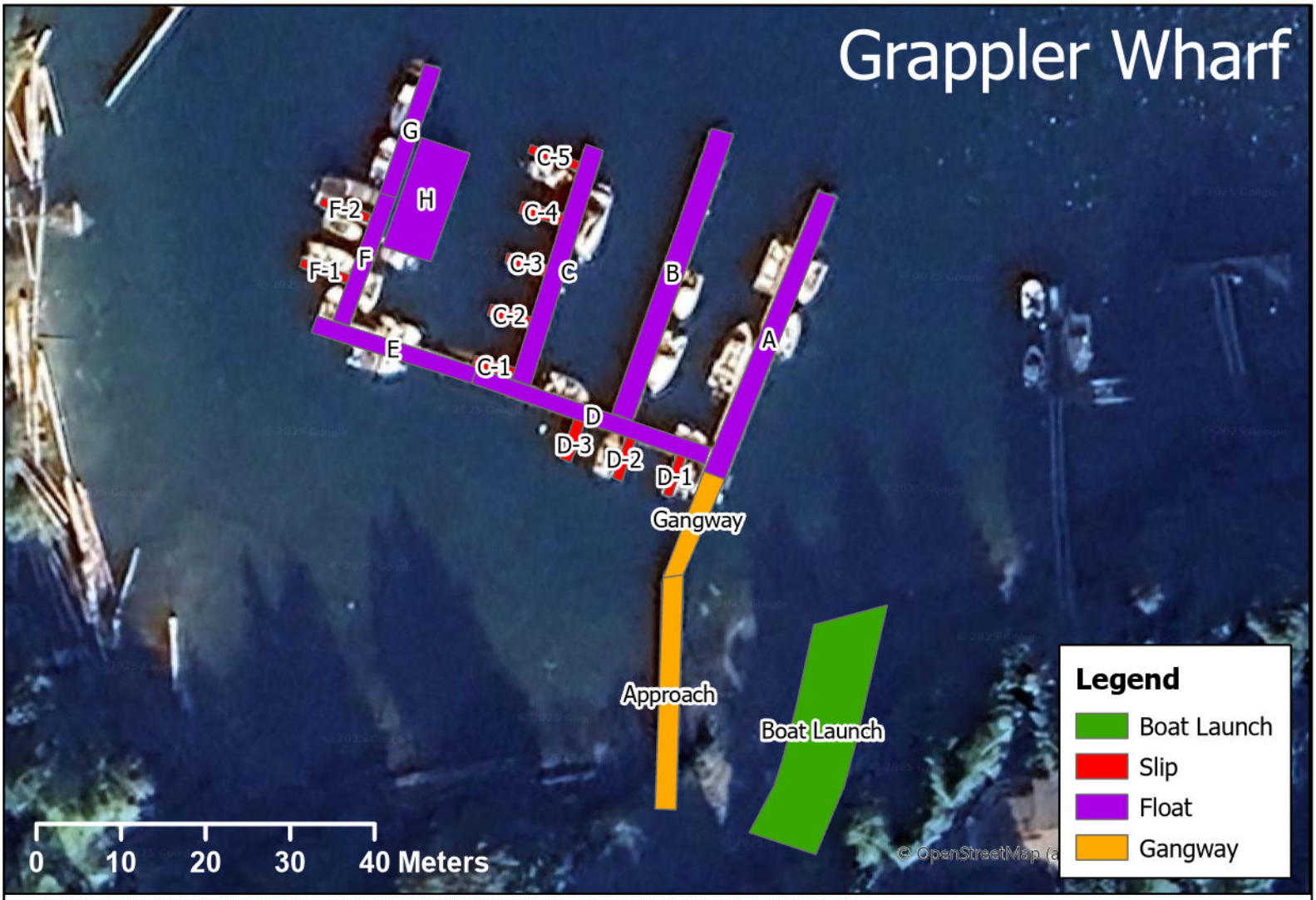
REMARKS

2025 LARGE FACILITY. REFER TO APPENDIX B OF ASSESSMENT REPORT FOR DETAILS.

HEROLD
ENGINEERING
LIMITED
Consulting Structural Engineers

Appendix D
Aerial Map

#7 1920 Lyche Road, Ucluelet BC, V0R 3A0
mail@heroldengineering.com



LIST OF OF WHARF COMPONENTS AT GRAPPLER WHARF

'Condition' & 'Risk' columns evaluate all of the bridge components and displays the worst condition value and highest risk value.

UniqueID	Name	Asset Type	Surface	Condition	Risk	MaintainedBy
070100001	A	Float	Treated Timber	Poor	16	Bamfield Parks Commission
070101001	Approach	Gangway	Treated Timber	Fair	12	Bamfield Parks Commission
070100002	B	Float	Treated Timber	Fair	15	Bamfield Parks Commission
07051001	Boat Launch	Boat Launch	Pre-cast Concrete Panels	Fair	9	Bamfield Parks Commission
070100003	C	Float	Treated Timber	Poor	15	Bamfield Parks Commission
07099001	C-1	Slip	Treated Timber	Fair	0	Bamfield Parks Commission
07099002	C-2	Slip	Treated Timber	Fair	0	Bamfield Parks Commission
07099003	C-3	Slip	Treated Timber	Fair	0	Bamfield Parks Commission
07099004	C-4	Slip	Treated Timber	Fair	0	Bamfield Parks Commission
07099005	C-5	Slip	Treated Timber	Fair	0	Bamfield Parks Commission
070100004	D	Float	Treated Timber	Fair	0	Bamfield Parks Commission
07099006	D-1	Slip	Treated Timber	Good	0	Bamfield Parks Commission
07099007	D-2	Slip	Treated Timber	Good	0	Bamfield Parks Commission
07099008	D-3	Slip	Treated Timber	Fair	6	Bamfield Parks Commission
030100005	E	Float	Treated Timber	Very Poor	12	Bamfield Fire Department
030100006	F	Float	Treated Timber	Very Poor	25	Bamfield Fire Department
03099009	F-1	Slip	Treated Timber	Very Poor	25	Bamfield Fire Department
03099010	F-2	Slip	Treated Timber	Very Poor	25	Bamfield Fire Department
030100007	G	Float	Treated Timber	Very Poor	25	Bamfield Fire Department
070101002	Gangway	Gangway	Treated Timber	Poor	16	Bamfield Parks Commission
030100008	H	Float	Treated Timber	Good	12	Bamfield Fire Department