

ALBERNI-CLAYOQUOT REGIONAL DISTRICT Parks Linear Asset Assessment & Mapping Alberni Inlet Trail



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



www.heroldengineering.com

PARKS LINEAR ASSET ASSESSMENT & MAPPING

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Prepared by:

Reviewed by:



PERMIT TO PRACTICE: 1000201

Shannon Summersides, P. Eng.
Associate, Project Engineer

Jeff Duncan, P. Eng.
Associate

EXECUTIVE SUMMARY

The scope of the assignment includes an assessment of fifteen bridge structures along the Alberni Inlet Trail. The report includes detailed descriptions of the bridge arrangement, assessment findings, recommended repairs, risk analysis and associated Class D cost estimates. The assessment was conducted in phases on December 5, 2024, March 6, 2025, April 23, 2025, and June 6, 2025. The purpose of the assessment was to document the overall physical condition of the bridges via visual and tactile on-site assessment.

The structures are all remote trail bridges, which do not fully conform to code-based specifications, and are generally constructed by trail users and/or municipalities without professional oversight. Efforts have been made by stakeholders to limit the impact of the structures on the natural environment. Bridge construction would be considered typical for the application; however, it does not conform to standard design codes as follows:

- § Narrow width,
- § Not founded on appropriate engineered fill,
- § No appropriate foundation system,
- § No guarding (handrails) and/or guarding that does not conform to guidelines,
- § Insufficient clearance to stream channel,
- § Structural elements not designed to appropriate occupancy/user loads

Municipalities generally manage risks associated with this type of infrastructure by providing a trail rating system which informs users of the level of difficult/accessibility of the trail and associated bridges. Additionally, risk can be mitigated with “use at your own risk” signage and consistent maintenance/assessment and replacement efforts.

There are three bridges that are aluminum truss structures founded on reinforced concrete abutments. All other bridges are a rudimentary construction of either steel or conventional and/or log timber.

The bridges are generally in serviceable condition, with no failed structures noted. The following general items were noted:

- § Eight bridges have handrail systems that do not conform to specifications,
- § Seven bridges have no guarding installed,
- § All bridges have debris and/or biological growth on structural elements,
- § Ten timber bridges are generally in moist environments with moisture damage to structural elements.
- § Five structures are missing abutments and/or footings under supports
- § Seven structures are founded on timber log abutments
- § None of the structures have significant lateral capacity and are not considered good candidates for seismic analysis.
- § Three aluminum truss bridges are missing plan bracing and have no lateral capacity.

General recommendations are as follows:

- § Upgrade or install handrails on all bridges spanning a height of greater than 610mm,
- § Clean bridges and abutments of vegetation
- § Install abutments on five structures
- § Install plan bracing on aluminum truss bridges

Refer to Appendix B and Section 2-16 for detailed account of the assessment findings and recommendations for the structures.

It is to be noted that our recommendations are in line with efforts to minimally impact the

environment. This philosophy is in line with stakeholder priorities; however, it can be accompanied by an elevated risk to users, and therefore municipalities.

The repairs noted in this report are to Class D standard, in 2025 Canadian dollars. For the immediate repairs, rounded to the nearest hundred dollars, the estimated total cost for all fifteen bridges is \$128,600.00. Replacement of the bridges in kind is estimated as \$421,026.00. Refer to Section 18 for detailed cost estimates.

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1.0 INTRODUCTION

Location: Alberni Inlet Trail, Port Alberni, BC

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

Date: December 5, 2024, March 6, 2025, April 23, 2025, and June 6, 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 are accompanied by a Class D cost estimate, as well as a Class D level estimate of costs associated with complete 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 Limited (Herold Engineering) travelled to the Alberni Inlet Trail on four separate occasions. Herold Engineering personnel walked the trail and located fifteen bridge structures.

The structures were assessed from ground level and the structure deck. The assessment is limited to visual and tactile assessment of the accessible components.

Herold Engineering generated and populated a structural checklist for each bridge 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 the following:

- 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/analysis 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 bridges were reviewed by Herold Engineering from ground, as well as from the deck of the structures. 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, especially damage due to decay and/or borer insect damage.

The assessment included detailed visual and tactile assessment of four bridges located along the Alberni Inlet Trail. The bridges vary in their material type and arrangement. Refer to Sections 2-16 for detailed descriptions of structures.

The condition assessment and residual life estimates were based on previous experience, as well as the reference material noted in Section 1.3. Our recommendations are in line with the philosophy of stakeholders, which is to limit the impact of the structure(s) on the natural environment. This approach does come with elevated risk to users, and potentially to municipalities tasked with management of these areas.

The structures are all remote trail bridges, which do not conform to code-based specifications, and are generally constructed by trail users and/or municipalities without professional oversight. Efforts have been made by stakeholders to erect structures which limit impacts on the natural environment. Bridge construction would be considered typical for the application; however, this philosophy does not conform to standard design codes as follows:

- Narrow width,
- Not founded on appropriate engineered fill,
- No appropriate foundation system,
- No guarding (handrails),
- Insufficient clearance to stream channel,
- Structural elements not designed to appropriate occupancy loads.

Municipalities generally manage risks associated with this type of infrastructure by providing a trail rating system which informs users of the level of difficult/accessibility of the trail and associated bridges. Additionally, risk can be mitigated with “use at your own risk” signage and consistent maintenance, assessment, and replacement efforts.

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 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.

Appendices can be found following the body of this report:

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

1.5 Reference System

The Alberni Inlet Trail system can be accessed from two trailhead locations:

1. The south end of Anderson Avenue in Port Alberni, BC,
2. The China Creek Falls trailhead on Franklin River Road,

There are a total of fifteen small trail bridges located along the trail length. The structures have all been built and maintained by trail users throughout the years.

Refer to the following trail map identifying Bridges 1-15.

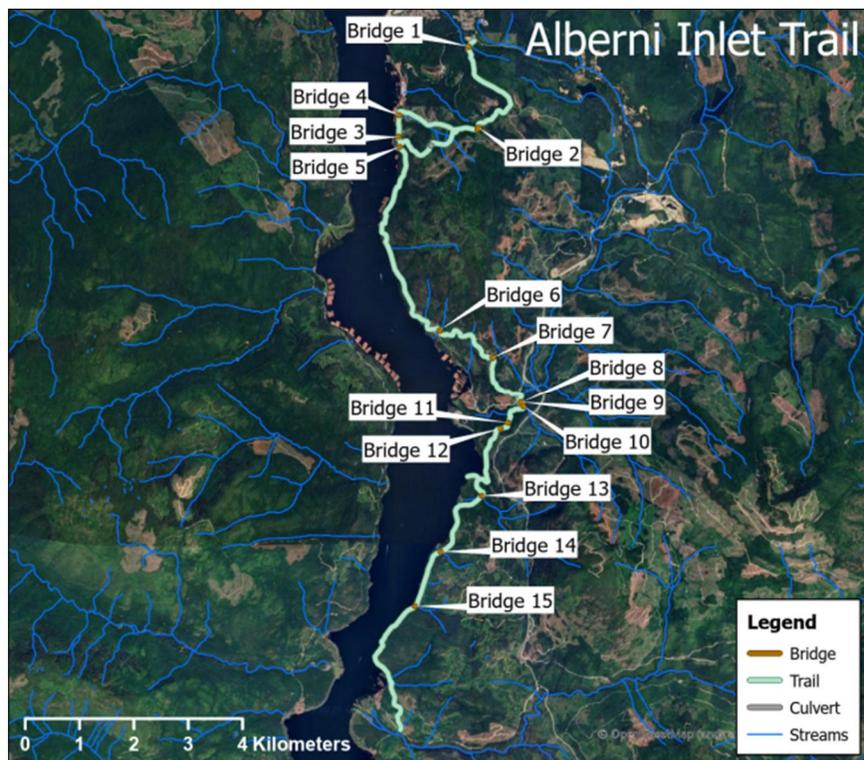


Figure 1: Alberni Inlet Trail Map

1.6 Rating Scale and Risk Rating

The following is an explanation of the assessment rating scale used in Sections 2-16 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 oversteering or structural damage. |
| Fair (F) | - | Element has moderate amounts of damage which may increase rates of deterioration long term. No noted oversteering is observed. Repairs to prolong service life may be applicable. |
| Poor (P) | - | Element has significant amounts of damage or deterioration. No oversteering is observed. The element is nearing the end of its 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 required. |

For timber elements exposed to moisture 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 then correlates to the risk rating based on the associated 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 and associated risk rating.

2.0 BRIDGE 1

2.1 Description and Geometry

Bridge 1 is a sawn timber construction with dimensions as follows:

- Length: 7.47 meters
- Width: 1.22 meters
- Stream Clearance: 1.22 meters

The bridge is guarded by a low-profile vehicle guard (curb) and the deck boards are supported on sawn timber stringers. The stringers are supported on a concrete abutment with concrete wing walls.

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Guard	-	50mm x 152mm
Risers	-	102mm x 102mm x 406mm long
Decking	-	52mm x 203mm
Stringers	-	203mm x 305mm

2.2 Assessment Results

The bridge is in good condition. The bridge guarding is not high enough to be considered within code requirements for guarding at heights exceeding 610mm. The bridge decking and guarding are in fair to good condition overall with areas of moisture accumulation and biological damage. The stringers and abutment are in good overall condition with no noted damage.

The following items were noted on-site:

- Superstructure is slippery with moisture and biological accumulation (moss, etc.),
- One guard section is decayed and soft when probed,
- Abutments have vegetative growth around them.

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

2.3 Recommendations

The bridge is in overall serviceable condition. Minor remedial recommendations are as follows:

- Clean bridge surfaces of vegetation,
- Replace one section of vehicle guard,
- Clear abutments of vegetation.

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

3.0 BRIDGE 2

3.1 Description and Geometry

Bridge 2 is a mix of natural timber log and sawn timber construction with dimensions as follows:

- Length: 5.28 meters
- Width: 1.14 meters
- Stream Clearance: 1.53 meters

The bridge is guarded by a high timber log handrail supported by knee braces. The braces form the cross beams under the superstructure of the bridge. The bridge deck is supported by two log stringers with roof material between the two elements. The stringers are supported by a sawn timber ledge on one end and a circular log section at the other.

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Handrail		
Top Rail	-	52mm – 89mm diameter log

Mid Rail	-	52mm – 89mm diameter log
Knee Brace	-	127mm – 89mm diameter log
Posts	-	76mm diameter log x 1.17m high
Decking	-	52mm x VARIES
Cross Beams	-	127mm diameter log
Log Stringers	-	230mm (±) diameter

3.2 Assessment Results

The bridge is in good to fair condition. The bridge guarding is high enough to be considered within CAN/CSA requirements for guarding height; however, the guard spacing (clear gaps in the handrail system) exceed the guidelines of CAN/CSA. The bridge decking and guarding are in fair to good condition. They are weathered with areas of minor biological damage. Some of the spacing between the deck boards is significant. The stringers and abutment are in good to fair condition with significant biological growth (moss).

The following items were noted on-site:

- Superstructure is slippery with moisture and biological accumulation (moss, etc.),
- Log stringers have moderate amount of biological growth (moss),
- Abutments have vegetative growth and are soft when probed.

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

3.3 Recommendations

Based on the overall condition the bridge is in serviceable condition.

Recommended repairs to be completed immediately are as follows:

- Clean surfaces of vegetation,
- Install non-slip surface on the deck boards (e.g.: roofing shingles or profiled metal strips),
- Clear away growth from log stringers.

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

4.0 BRIDGE 3

4.1 Description and Geometry

Bridge 3 is a mix of natural timber log and sawn timber construction, similar to Bridge 2. The bridge has the following dimensions:

- Length: 5.50 meters
- Width: 965 millimeters
- Stream Clearance: < 1.0 meters

The bridge is guarded by a high timber log handrail supported by knee braces. The braces form the cross beams under the superstructure of the bridge. The bridge deck is supported by two log stringers. The stringers are supported by two timber log sections which form the bridge abutments.

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Handrail		
Top Rail	-	52mm – 89mm diameter log
Mid Rail	-	52mm – 108mm diameter log
Knee Brace	-	108mm – 114mm diameter log
Posts	-	108mm diameter x 1.17m high natural log
Decking	-	52mm x VARIES
Cross Beams	-	114mm diameter log at 1600mm spacing
Log Stringers	-	200mm (±) diameter at 500mm spacing
Abutment	-	305mm diameter natural log

4.2 Assessment Results

The bridge is in poor condition with primary structural members requiring replacement. The bridge guarding is high enough to be considered within CAN/CSA requirements for guarding height; however, the guard spacing (clear gaps in the handrail system) exceed the guidelines of CAN/CSA. The bridge decking and guarding are in fair to poor condition. There is significant debris and biological accumulation (moss, etc.) along the entire bridge assembly. The bridge elements have taken on significant moisture and are soft when probed.

The following items were noted on-site:

- Superstructure is slippery with moisture and biological accumulation (moss, etc.),
- Handrails are very soft when probed with significant moisture ingress,
- Knee braces and cross beams are decayed though the connections,
- Log stringers have moderate amount of biological growth (moss),
- Abutments have vegetative growth and are soft when probed.

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

4.3 Recommendations

Based on the overall condition, elements of the bridge are recommended to be replaced within the next year.

Recommended repairs to be completed immediately are as follows:

- Install non-slip surface on the deck boards (e.g.: roofing shingles or profiled metal strips)
- Replace existing knee braces and cross beams,
- Replace existing abutments on both sides,
- Clean surfaces of vegetation,

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

5.0 BRIDGE 4

5.1 Description and Geometry

Bridge 4 is steel construction and appears to have been repurposed from another

application. The bridge has the following dimensions:

- Length: 6.10 meters
- Width: 1.02 meters
- Stream Clearance: 1.5 meters

The bridge is comprised of two steel HSS stringers supporting serrated steel decking. The arrangement has no guarding; however, the stringers appear to have pre-fabricated holes which may have been installed to receive a steel tube handrail system.

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Serrated Decking	-	52mm x 880mm
HSS Stringers	-	69mm x 127mm

5.2 Assessment Results

The bridge is in overall poor condition. The bridge is narrow and does not have any form of guarding. The steel elements have localized areas of coating/protection failure and surface corrosion. The following items were noted on-site:

- General corrosion of steel elements,
- Three areas where the serrated decking is damaged and/or has failed,
- Bridge has no visible abutment and bears on rock on one side of the bridge and organics on the other,
- The bridge is not level.

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

5.3 Recommendations

Based on the overall condition and construction, the bridge is recommended to be replaced within the next year. If structure is replaced in kind, consideration should be given to widening the deck and ensuring a level surface for users. If structure is replaced in kind, consideration should also be given to signage at the trailhead indicating the level of difficulty and accessibility restriction.

Recommended repairs to be completed immediately are as follows:

- Clean steel elements and re-coat,
- Replace three sections of serrated decking,
- Consider installation of abutments and guarding

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

6.0 BRIDGE 5

6.1 Description and Geometry

Bridge 5 is a mix of sawn timber and natural timber construction. The deck is supported on squared log stringers. The stringers are supported at both ends by a log abutment resting on organics. There are asphalt roofing shingles between the deck boards and stringers. The

bridge is a single span elevated above the water. The bridge is a rudimentary structure with no guarding and is utilized by able-bodied hikers/recreators. The bridge has the following dimensions:

- Length: 5.1 meters
- Width: 915 millimeters
- Stream Clearance: 1.32 meters

Refer to Appendix A, for a view of the general arrangement.

The component sizes are as follows:

Decking	-	52mm x VARIES x 915mm (±) long
Log Stringers	-	200mm deep x 150mm wide
Abutments	-	Varied diameter built-up natural log sections

6.2 Assessment Results

The bridge is in overall fair condition. Timber elements are generally weathered with minimal biological damage/decay. The bridge does not have any guarding and has an uneven surface. No significant damage was noted while on-site.

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

6.3 Recommendations

Based on the overall condition and construction, the bridge is recommended to be replaced within the next three to six years. No immediate repairs are required; however, consideration should be given to:

- Installation of a guarding system,

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

7.0 BRIDGE 6

7.1 Description and Geometry

Bridge 6 is a mix of sawn timber and natural timber construction. The deck is supported by three log stringers. The stringers are supported at one end by a log abutment and the other end on organics and a rock outcropping. There are asphalt roofing shingles on the deck to provide a non-slip surface. The bridge is a single span elevated above the water. The bridge is a rudimentary structure with no guarding and is utilized by able-bodied hikers/recreators. Refer to Appendix A for a view of the general arrangement.

The bridge has the following dimensions:

- Length: 4.88 meters
- Width: 790 millimeters
- Stream Clearance: 1.22 meters

The component sizes are as follows:

Decking	-	52mm x 200mm x 790mm (±) long
Log Stringers	-	(3) – 200-250mm diameter (approx.)

Abutments - Varied diameter built-up natural log sections

7.2 Assessment Results

The bridge is in overall fair to poor condition. It is narrow and spans a small stream channel. Timber elements are generally weathered with biological damage and visible decay/vegetative growth. The bridge does not have any guarding and has an uneven surface. The following items were noted on-site:

- Deck and stringers have significant biological growth (moss, etc.) and moisture ingress,
- Abutment stairs are deteriorating due to biological damage.

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

7.3 Recommendations

Based on the overall condition and construction, the bridge is recommended to be replaced within the three to six years. No immediate repairs are required; however, consideration should be given to the following:

- Install guarding system,
- Clean surfaces of vegetation,

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

8.0 BRIDGE 7

8.1 Description and Geometry

Bridge 7 does not qualify as a bridge structure. It is comprised of four logs spanning a small creek. There is no decking, nor any guarding. The stringers are not connected to one another.

The bridge has the following dimensions:

- Length: 4.6 meters
- Width: 610 millimeters
- Stream Clearance: < 1.0 meters

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Log Stringers - 102mm to 200mm diameter (approx.)

8.2 Assessment Results

The crossing is in overall very poor condition. It is narrow and spans a small stream channel. The logs are not connected to each other, and they move independently of one another. Additionally, the log cross sections are all different, resulting in differential movement of the elements when loaded. There are significant gaps between the logs.

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

8.3 Recommendations

Based on the overall condition and construction, the structure is recommended to be replaced with a more adequate bridge structure for the crossing.

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

9.0 BRIDGE 8

9.1 Description and Geometry

Bridge 8 is an aluminum truss bridge spanning between two concrete abutments founded on rock.

The bridge has the following dimensions:

- Length: 15.24 meters
- Width: 1.07 meters
- Stream Clearance: 7.62 meters

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Top Chord	-	HSS76x76
Bottom Chord	-	HSS 76x76
End Verticals	-	HSS76x76
Diagonals	-	HSS52x52
Mid Rail	-	L38x38
Bottom Rail	-	102mmx6.4mm Plate
Decking	-	52mm serrated
Cross Beams	-	HSS76x76
Abutment	-	250mm x 915mm x 1730mm

9.2 Assessment Results

The bridge is in overall very good condition. The abutments are in good condition and the bridge structure appears to be newer.

The following items were noted on-site:

- Handrail system does not conform to guarding specifications (CAN/CSA S6-19)
- Moderate debris on abutment
- No plan bracing in place which limits the lateral capacity of the structure

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

9.3 Recommendations

The bridge is in overall serviceable condition with minor items noted and considered expected for a remote trail structure. Recommended repairs to be completed immediately are as follows:

- Consider implementation of appropriate guarding system
- Clear abutments of debris
- Consider installation of plan bracing to increase lateral resistance

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

10.0 BRIDGE 9

10.1 Description and Geometry

Bridge 9 is an aluminum truss bridge spanning between two concrete abutments founded on rock. The assembly is very similar to Bridge 8 and is adjacent to the bridge along the trail.

The bridge has the following dimensions:

- Length: 12.2 meters
- Width: 1.12 meters
- Stream Clearance: 4.88 meters

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Top Chord	-	HSS102x102
Bottom Chord	-	HSS 102x102
End Verticals	-	HSS102x102
Diagonals	-	HSS76x76
Mid Rail	-	102mmx6.4mm Plate
Bottom Rail	-	102mmx6.4mm Plate
Decking	-	52mm anti-slip profile
Cross Beams	-	HSS52x76
Abutment	-	250mm x 915mm x 1730mm

10.2 Assessment Results

The bridge is in overall very good condition. The abutments are in good condition and the bridge structure appears to be newer.

The following items were noted on-site:

- Handrail system does not conform to guarding specifications (CAN/CSA S6-19)
- Moderate debris on abutment
- No plan bracing in place which limits the lateral capacity of the structure

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

10.3 Recommendations

The bridge is in overall serviceable condition with minor items noted and considered expected for a remote trail structure. Recommended repairs to be completed immediately are as follows:

- Consider implementation of appropriate guarding system

- Clear abutments of debris
- Consider installation of plan bracing to increase lateral resistance

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

11.0 BRIDGE 10

11.1 Description and Geometry

Bridge 10 is an aluminum truss bridge spanning between one concrete abutment and one timber abutment. There is a set of access stairs at the north end of the structure. The assembly is very similar to Bridge 8 and 9.

The bridge has the following dimensions:

- Length: 7.62 meters
- Width: 1.04 meters
- Stream Clearance: 3.0 meters

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Top Chord	-	HSS76x76
Bottom Chord	-	HSS 76x76
End Verticals	-	HSS76x76
Diagonals	-	HSS38x52
Mid Rail	-	L38x38
Bottom Rail	-	102mmx6.4mm Plate
Decking	-	52mm serrated
Cross Beams	-	HSS76x76
Abutment	-	305mm x 305mm timber sill

11.2 Assessment Results

The bridge is in overall very good condition. The abutments are in good condition and the bridge structure appears to be newer.

The following items were noted on-site:

- Handrail system does not conform to guarding specifications (CAN/CSA S6-19)
- Moderate debris on abutment
- No plan bracing in place which limits the lateral capacity of the structure
- One deck board is bent midspan

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

11.3 Recommendations

The bridge is in overall serviceable condition with minor items noted and considered expected for a remote trail structure. Recommended repairs to be completed immediately are as follows:

- Consider implementation of appropriate guarding system
- Clear abutments of debris
- Consider installation of plan bracing to increase lateral resistance

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

12.0 BRIDGE 11

12.1 Description and Geometry

Bridge 11 does not qualify as a bridge structure. It is a section of metal grating which spans a crossing over a small creek. There is no abutment and the ends of the structure rest in the mud. The structure appears light duty for the application and looks to have been placed as a temporary crossing which has remained.

The bridge has the following dimensions:

- Length: 12.2 meters
- Width: 635 millimeters
- Stream Clearance: 610 millimeters

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Decking	-	38mm deep steel grating
Stringers	-	HSS38x38

12.2 Assessment Results

The structure is in overall very poor condition and is missing several key elements that qualify a structure as a bridge.

The following items were noted on-site:

- No abutments present on bridge. The deck section is resting in the mud.
- Handrail system does not conform to guarding specifications (CAN/CSA S6-19)
- No plan bracing in place which limits the lateral capacity of the structure
- Span has deflected permanently and is significantly bent

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

12.3 Recommendations

The bridge is no longer in serviceable condition. It is recommended that the structure be replaced with a more conventional bridge structure.

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

13.0 BRIDGE 12

13.1 Description and Geometry

Bridge 12 is a steel construction. It is a section of metal grating which spans a crossing over a small creek. The grating rests on a small concrete abutment at one end and bears on a root on the other end. There is an intermediate support comprised of steel posts. There is a modified handrail on one side of the structure. The structure appears light duty for the application, and may have been repurposed from another location and/or application.

The bridge has the following dimensions:

- Length: 12.2 meters
- Width: 635 millimeters
- Stream Clearance: 915 millimeters

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Stringers	-	HSS38x38
Handrail End Posts	-	12.7mm x 64mm plate
Handrail Interim Posts	-	12.7mm diameter tube
Concrete Abutment	-	203mm sill
Intermediate Support Posts	-	45mm x 45mm perforated steel tube

13.2 Assessment Results

The structure is in overall poor condition and is missing several key elements that qualify a structure as a bridge.

The following items were noted on-site:

- No consistent abutments are present on bridge. The deck section is resting in the mud at one end.
- Handrail system does not conform to guarding specifications (CAN/CSA S6-19)
- No plan bracing in place which limits the lateral capacity of the structure
- Grating welded connections have failed and the deck deflects locally under minimal loading
- Intermediate support posts do not appear to have a foundation

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

13.3 Recommendations

The bridge is in overall serviceable condition; however, it is light duty for the application and does not conform to specifications for bridge structures in Canada. It is recommended that the structure be replaced with a more conventional bridge structure in the future.

Recommended repairs to be completed immediately are as follows:

- Consider implementation of appropriate guarding system
- Consider installation of appropriate abutment system
- Consider installation of plan bracing to increase lateral resistance

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer

to Section 18 for cost estimates for repair and replacement of the bridge structure.

14.0 BRIDGE 13

14.1 Description and Geometry

Bridge 13 is a mixed timber construction. There is no guarding on the structure. The timber deck boards are supported by log stringers that rest on log abutments at either end. The bridge spans a small creek.

The bridge has the following dimensions:

- Length: 3.76 meters
- Width: 815 millimeters
- Stream Clearance: 1.02 meters

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Deck Boards	-	76mm x 406mm x 815mm long
Stringers	-	127mm to 152mm diameter log
Abutments	-	Various diameter log sections

14.2 Assessment Results

The bridge is in overall poor condition and is a rudimentary construction.

The following items were noted on-site:

- The handrail system is not present,
- Deck boards are generally weathered with biological growth,
- The log stringers are weathered with visible checking,
- The abutments are decayed and at the end of their service life.

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

14.3 Recommendations

The bridge is in overall serviceable condition with minor items noted and considered expected for a remote trail structure. Recommended repairs to be completed immediately are as follows:

- Consider implementation of appropriate guarding system,
- Monitor deck boards and stringers, consider for replacement within three years,
- Replace abutments in kind.

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

15.0 BRIDGE 14

15.1 Description and Geometry

Bridge 14 is an A-frame style timber structure. The handrails, A-frame compression elements, and stringers are timber logs of varying diameter. The decking is dimensional lumber. There is an access staircase on the southern end. The bridge is supported by timber abutments comprised of built-up log elements. The southern abutment has built-up log cribbing with river rock in the interior. The north abutment is two log half-sections.

The bridge has the following dimensions:

- Length: 10.8 meters
- Width: 915 millimeters
- Stream Clearance: 3.7 meters

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Handrail Posts	-	76mm – 102mm diameter log
Handrail Rails	-	76mm – 102mm diameter log
A-frame Compression Elements	-	150mm diameter log
Decking	-	52mm x varies
Stringers	-	two 150mm diameter logs
Abutments	-	varied diameter natural logs

15.2 Assessment Results

The bridge is in overall good condition but appears light duty for the span and application. The handrail system deflects when loaded, and the bridge bounces significantly when loaded mid-span.

The following items were noted on-site:

- The access stairs have significant biological growth on the treads and around the area,
- Handrail system does not conform to guarding specifications (CAN/CSA S6-19),
- The hardware has moderate surface corrosion and is undersized,
- Decking is weathered and has biological growth on the surfaces and cut ends,
- One stringer is decayed at the cut end and is soft when probed,
- The north abutment cribbing has biological growth along the elements,
- The A-frame compression elements appear to have no dedicated foundation system.

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

15.3 Recommendations

The bridge is in overall serviceable condition with minor items noted and considered expected for a remote trail structure. Recommended repairs to be completed immediately are as follows:

- Clear access stairs of debris and biological growth,
- Consider implementation of appropriate guarding system,
- Replace hardware with hot dipped galvanized hardware. Consideration should be given to upsizing hardware where possible/appropriate,
- Clean decking of biological growth,
- Clean abutment of biological growth,

- Monitor compression elements for movement.

Future recommendations as follows:

- Replace stringer within five years

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

16.0 BRIDGE 15

16.1 Description and Geometry

Bridge 15 is a mixed timber construction. There is no guarding on the structure. The timber deck boards are supported by log stringers that rest on log abutments at either end. The bridge appears to have had replacement stringers installed at some point in the service life.

The bridge has the following dimensions:

- Length: 4.60 meters
- Width: 915 millimeters
- Stream Clearance: 1.04 meters

Refer to Appendix A for a view of the general arrangement.

The component sizes are as follows:

Deck Boards	-	38mm x VARIES x 915mm long
Stringers	-	(2) - 152mm diameter log
Abutments	-	Various diameter log sections

16.2 Assessment Results

The bridge is in overall poor condition and is a rudimentary construction.

The following items were noted on-site:

- The handrail system is not present,
- Deck boards are generally weathered with biological growth,
- One deck board has failed at the abutment due to decay of the substructure,
- The log stringers are weathered with visible checking,
- The abutments are decayed and at the end of their service life.

Refer to Appendix A for photographs of the reported damage. Refer to Appendix B for detailed locations, observations and repair recommendations.

16.3 Recommendations

The bridge is in overall serviceable condition with minor items noted and considered expected for a remote trail structure. Recommended repairs to be completed immediately are as follows:

- Consider implementation of appropriate guarding system,
- Clean deck boards,
- Remove failed deck board and replace,

- Replace existing abutments.

Refer to Appendix B for detailed locations, observations and repair recommendations. Refer to Section 18 for cost estimates for repair and replacement of the bridge structure.

17.0 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.

17.1 Bridge 1

Deck Boards	3-6 years (based on the overall condition of the elements)
Vehicle Guard	3-6 years (based on one section needing replacement)
Stringers	6-10 years (based on the overall condition of the elements)
Abutments	3-6 years (based on the overall condition of the elements)

17.2 Bridge 2

Deck Boards	3-6 years (based on the overall condition of the elements)
Handrails	6-10 years (based on the overall condition of the elements)
Stringers	6-10 years (based on the overall condition of the elements)
Abutments	3-6 years (based on the overall condition of the elements)

17.3 Bridge 3

Deck Boards	3-6 years (based on the overall condition of the elements)
Handrails	0 years (based on two posts with high deflection)
Cross Beam	0 years (based on overall condition of the elements)
Stringers	3-6 years (based on the overall condition of the elements)
Abutments	1-3 years (based on level of deterioration at one end)

17.4 Bridge 4

No timber elements in assembly. No life estimate is possible for this structure.

17.5 Bridge 5

Deck Boards	3-6 years (based on the overall condition of the elements)
Stringers	3-6 years (based on the overall condition of the elements)
Abutments	3-6 years (based on the overall condition of the elements)

17.6 Bridge 6

Deck Boards	3-6 years (based on the overall condition of the elements)
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Stringers	3-6 years (based on the overall condition of the elements)
Abutments	3-6 years (based on the overall condition of the elements)

17.7 Bridge 7

Crossing is not conventional. Residual life estimates of the log sections are not possible.

17.8 Bridge 8

The bridge elements are outside the scope of residual estimates as defined by the reference material in Section 1.3. However, the truss spans appear to be a relatively new installation with minor defects/damage. The estimated residual life is likely between 25 and 35 years with regular assessment and maintenance.

17.9 Bridge 9

The bridge elements are outside the scope of residual estimates as defined by the reference material in Section 1.3. However, the truss spans appear to be a relatively new installation with minor defects/damage. The estimated residual life is likely between 25 and 35 years with regular assessment and maintenance.

17.10 Bridge 10

Access Stairs	3-6 years (based on the overall condition of the elements)
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The bridge elements are outside the scope of residual estimates as defined by the reference material in Section 1.3. However, the truss spans appear to be a relatively new installation with minor defects/damage. The estimated residual life is likely between 25 and 35 years with regular assessment and maintenance.

17.11 Bridge 11

Crossing is not conventional. Residual life estimates of the log sections are not possible.

17.12 Bridge 12

Crossing is not conventional. Residual life estimates of the log sections are not possible.

17.13 Bridge 13

Deck Boards	1-3 years (based on the overall condition of the elements)
Stringers	1-3 years (based on the overall condition of the elements)
Abutments	0 years (based on the overall condition of the elements)

17.14 Bridge 14

Access Stairs	3-6 years (on the overall condition of the elements)
Deck Boards	3-6 years (on the overall condition of the elements)
Handrails	3-6 years (on the overall condition of the elements)
Stringers	3-6 years (on the overall condition of the elements)
Abutments	3-6 years (on the overall condition of the elements)
A-Frame Compression Elements	1-3 years (based on lack of observed foundation)

17.15 Bridge 15

Deck Boards	1-3 years (on the overall condition of the elements)
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Stringers	3-6 years (based on the overall condition of the elements)
Abutments	0 years (on the overall condition of the elements)

18.0 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.

Costing associated with full replacement includes removal and appropriate disposal of existing bridge structures.

Table 18.1 Cost Estimate for Recommended Repairs

ITEM	LOCATION	RECOMMENDATION	COST (\$)
Mobilization/Demobilization			\$35,000.00
Bridge 1			
Deck Boards	General	Clean decking of debris	\$200.00
Vehicle Guard	At 2.26m	Ongoing monitoring. Consider for replacement within the next three years.	\$1,500.00
Abutments	General	Clear abutments of biological growth	\$150.00
Bridge 2			
Deck Boards	General	Install non-slip material such as roofing shingles or profiled metal traction strips.	\$500.00
Abutments	General	Clear abutments of biological growth	\$150.00
Bridge 3			
Deck Boards	General	Install non-slip material such as roofing shingles or profiled metal traction strips.	\$500.00
Cross Beam	At 0m	Replace cross beam and posts at this location	\$1,500.00
Cross Beam	At 5.5m	Replace cross beam and posts at this location	\$1,500.00
Abutments	General	Clear abutments of biological growth.	\$150.00
Bridge 4			
Guarding	General	Installation of guarding is recommended if feasible.	\$1,500.00
Steel Stringers	General	Re-coat elements	\$1,000.00
Serrated Decking	General	Re-coat elements	\$1,000.00
Serrated Decking	At 0.915m	Replace deck section	\$500.00
Serrated Decking	At 3.2m	Replace serrated grating section	\$500.00

ITEM	LOCATION	RECOMMENDATION	COST (\$)
Serrated Decking	At 1.68m, 2.0m and 2.3m	Replace serrated grating section	\$500.00
Abutments	General	Consideration should be given to founding the bridge on abutments.	\$5,000.00
Bridge 5			
Guarding	General	Installation of guarding is recommended if feasible.	\$2,000.00
Bridge 6			
Deck Boards	General	Clean structure of biological accumulation	\$200.00
Abutment	General	Clear abutments of biological growth.	\$150.00
Bridge 7			
General	General	Consideration should be given to installing a proper structure in this location	\$20,000.00
Bridge 8			
General	General	Clean around bridge bearings	\$200.00
Plan Bracing	General	Ongoing monitoring. Consideration should be given to installing plan bracing.	\$3,000.00
Bridge 9			
General	General	Clean around bridge bearings .	\$200.00
Plan Bracing	General	Ongoing monitoring. Consideration should be given to installing plan bracing.	\$3,000.00
Bridge 10			
General	General	Clean around bridge bearings.	\$200.00
Plan Bracing	General	Ongoing monitoring. Consideration should be given to installing plan bracing.	\$3,000.00
Bridge 11			
General	General	Consideration should be given to installing a proper trail bridge in this location.	\$15,000.00
Bridge 12			
Handrail	General	Consideration should be given to installing appropriate guarding at this location	\$1,000.00
Intermediate Supports	Foundation	Install appropriate footings to limit bridge settling.	\$2,000.00
Bridge 13			
Abutments	General	Replace abutment logs.	\$1,500.00
Bridge 14			
Access Stairs	General	Clear access point and clean stairs	\$250.00
Handrails	General	Install an appropriate handrail system on bridge	\$1,500.00
Handrails	General	Replace hardware with hot dipped galvanized hardware. Consider up-sizing hardware where possible.	\$500.00
Decking	General	Clean decking of overgrowth. Ongoing monitoring of condition.	\$250.00
Bridge 15			
Deck Boards	General	Clean decking and monitor.	\$250.00

ITEM	LOCATION	RECOMMENDATION	COST (\$)
Deck Board/ Step	At South End	Re-instate decking or remove board.	\$300.00
Abutments	General	Replace log abutments in kind.	\$1,500.00

Subtotal (\$) \$107,150.00
 Contingency (20%) \$21,430.00
 TOTAL (\$) \$128,580.00

Table 18.2 Cost Estimate for Full Replacement
 (NOTE: l.s. = lump sum, l.m. = lineal meter, m² = square meter)

ITEM	SIZE	UNITS	QUANTITY	UNIT RATE	COST (\$)
Mobilization/Demobilization					\$75,000.00
Bridge 1					
Deck Boards	52mm x 203mm	l.m.	45	\$100	\$4,500
Vehicle Guard	52mm x 152mm	l.m.	15	\$150	\$2,250
Stringers	203mm x 305mm	l.m.	15	\$200	\$3,000
Abutment	Varies	each	2	\$1,000	\$2,000
Bridge 2					
Deck Boards	52mm x Varies	l.m.	40	\$100	\$4,000
Handrails	in kind	l.m.	11	\$300	\$3,300
Stringers	in kind	each	2	\$500	\$1,000
Abutment	in kind	each	2	\$500	\$1,000
Bridge 3					
Deck Boards	52mm x Varies	l.m.	40	\$100	\$4,000
Handrails	in kind	l.m.	11	\$300	\$3,300
Stringers	in kind	each	2	\$500	\$1,000
Abutment	in kind	each	2	\$500	\$1,000
Bridge 4					
Serrated Decking	in kind	m ²	7	\$500	\$3,500
Steel Stringers	in kind	l.m.	12.2	\$200	\$2,440
Bridge 5					
Deck Boards	52mm x Varies	m ²	4.7	\$650	\$3,055
Stringers	150mm x 200mm	l.m.	10.2	\$250	\$2,550
Abutments	in kind	each	2	\$500	\$1,000

ITEM	SIZE	UNITS	QUANTITY	UNIT RATE	COST (\$)
Bridge 6					
Deck Boards	52mm x 203mm	l.m.	20	\$150	\$3,000
Stringers	200-250mm diameter	l.m.	15	\$300	\$4,500
Abutment	in kind	each	2	\$500	\$1,000
Bridge 7					
New Bridge	General	l.s.	1	\$20,000	\$20,000
Bridge 8					
Truss Bridges	General	l.m.	15.24	\$4,000	\$60,960
Abutments	in kind	each	2	\$750	\$1,500
Bridge 9					
Truss Bridges	General	l.m.	12.2	\$4,000	\$48,800
Abutments	in kind	each	2	\$750	\$1,500
Bridge 10					
Truss Bridges	General	l.m.	7.62	\$4,000	\$30,480
Abutments	in kind	each	2	\$750	\$1,500
Bridge 11					
Structure	in kind	each	1	\$7,500	\$7,500
Bridge 12					
Structure	in kind	each	1	\$10,000	\$10,000
Bridge 13					
Deck Boards	76mm x 406mm	l.m.	8.2	\$200	\$1,640
Stringers	127mm to 152mm diameter	l.m.	7.5	\$300	\$2,250
Abutments	in kind	each	2	\$750	\$1,500
Bridge 14					
Handrails	in kind	l.m.	22	\$400	\$8,800
Decking	52mm x Varies	m ²	10	\$600	\$6,000
Stringers	150mm diameter	l.m.	22	\$500	\$11,000
A-Frame Compression Elements	in kind	each	4	\$750	\$3,000
Abutments	in kind	each	2	\$750	\$1,500
Bridge 15					
Deck Boards	38mm x varies	m ²	4.3	\$500	\$2,150

ITEM	SIZE	UNITS	QUANTITY	UNIT RATE	COST (\$)
Stringers	152mm diameter	l.m.	9.6	\$300	\$2,880
Abutments	in kind	each	2	\$750	\$1,500

Subtotal (\$) \$350,855.00
Contingency (20%) \$70,171.00
TOTAL (\$) \$421,026.00

Appendix A

Site Photographs



Photograph 1: Alberni Inlet Trail Signage



Photograph 2: Bridge 1, general arrangement



Photograph 3: Bridge 1 Decking, note: soft at cut ends with significant growth



Photograph 4: Bridge 1 Abutment Wingwall, note: biological growth



Photograph 5: Bridge 1 stringers and underside of decking, note: biological growth



Photograph 6: Bridge 2, note: general arrangement



Photograph 7: Bridge 2, general arrangement



Photograph 8: Bridge 2, note: biological growth on abutment and stringers



Photograph 9: Bridge 3 note: general arrangement



Photograph 10: Bridge 3 cross beam, note: decayed ends



Photograph 11: Bridge 3 substructure, note: significant biological growth and moisture ingress



Photograph 12: Bridge 3 cross beam, note: decayed section



Photograph 13: Bridge 3 abutment, note: moisture and biological growth



Photograph 14: Bridge 4, note: general arrangement



Photograph 15: Bridge 4, note: coating failure and surface corrosion



Photograph 16: Bridge 4, note: failed grating



Photograph 17: Bridge 4, note: bent grating



Photograph 18: Bridge 4, note: bent grating over rock outcropping



Photograph 19: Bridge 5, note: general arrangement



Photograph 20: Bridge 5, note: weather to timbers and roofing shingles between deck and stringers



Photograph 21: Bridge 5, note: substructure arrangement



Photograph 22: Bridge 6, note: general arrangement



Photograph 23: Bridge 6, note: abutment stair significantly deteriorated.



Photograph 24: Bridge 6, note: substructure



Photograph 25: Crossing 7, note: general arrangement



Photograph 26: Crossing 7, note: spacing between stringers with no connection



Photograph 27: Bridge 8 and 9, note: general arrangement



Photograph 28: Bridge 8, note: vegetative growth around bridge bearings



Photograph 29: Bridge 8, note: concrete abutment on rock



Photograph 30: Bridge 8, note: lack of plan bracing



Photograph 31: Bridge 9, note: general arrangement



Photograph 32: Bridge 9, note: lack of plan bracing



Photograph 33: Bridge 9, note: corroded anchor bolts



Photograph 34: Bridge 10, note: general arrangement



Photograph 35: Bridge 10 Access Stairs



Photograph 36: Bridge 10, note: lack of plan bracing



Photograph 37: Bridge 10, note: vegetative growth through deck



Photograph 38: Bridge 11, note: general arrangement



Photograph 39: Bridge 11, note: deflected and permanently deformed section



Photograph 40: Bridge 11, note: no abutment



Photograph 41: Bridge 12, note: general arrangement



Photograph 42: Bridge 12, note: failed welds on grating



Photograph 43: Bridge 12, note: intermediate supports appear to have no foundation



Photograph 44: Bridge 13, note: general arrangement



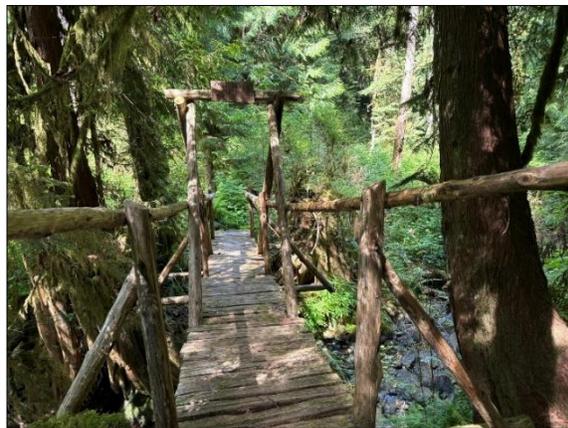
Photograph 45: Bridge 13, note: weathered and checked stringers



Photograph 46: Bridge 13, note: decayed abutment



Photograph 47: Bridge 13, note: decayed abutment and decking



Photograph 48: Bridge 14, note: general arrangement



Photograph 49: Bridge 14 Access Stairs, note: decayed decking and overgrown access



Photograph 50: Bridge 14 Stringer, note: decayed stringer through section



Photograph 51: Bridge 14, note: corroded and undersized hardware



Photograph 52: Bridge 14, note: abutment arrangement



Photograph 53: Bridge 14, note: compression members not founded on a foundation



Photograph 54: Bridge 15, note: general arrangement



Photograph 55: Bridge 15, note: biological damage and growth on elements



Photograph 56: Bridge 15, note: failed step at access



Photograph 57: Bridge 15, note: abutment is decayed and beginning to compress

Appendix B Damage Table

Table B1 Damage Table

**Note: all locations measured from zero datum at entry to the bridge*

ITEM	LOCATION	DAMAGE	CONDITION	COMMENTS	RECOMMENDATION	RISK	REMEDIAL YEAR
Bridge 1							
Deck Boards	General	Biological	Fair to Good	Boards have significant biological accumulation and moisture	Clean decking of debris	9	2025/2026
Vehicle Guard	At 2.26m	Biological	Fair	Guard is decayed and the section is soft when probed.	Ongoing monitoring. Consider for replacement within the next three years.	6	2028/2029
Abutments	General	Biological	Fair to Good	Significant biological accumulation around abutments	Clear abutments of biological growth	3	2025/2026
Bridge 2							
Deck Boards	General	Biological	Fair	Deck boards are slippery	Install non-slip material such as roofing shingles or profiled metal traction strips.	3	2025/2026
Handrails	General	-	-	Handrail height is sufficient, spacing of pickets exceeds recommendations per CAN/CSA.	Ongoing monitoring. As a trail bridge, this is not urgent; however, it does not conform to the best practices and guidelines for guarding.	-	-
Abutments	General	Biological	Fair to Good	Significant biological accumulation around abutments	Clear abutments of biological growth	9	2025/2026
Bridge 3							
Deck Boards	General	Missing	Fair	Deck boards are slippery	Install non-slip material such as roofing shingles or profiled metal traction strips.	3	2025/2026
Handrail Post	At 0m	Biological	Poor	Post deflects significantly with loading. Likely due to the condition of the cross beam at this location.	Replace cross beam and posts at this location	8	2025/2026
Handrail Post	At 5.5m	Biological	Poor	Post deflects significantly with loading. Likely due to the condition of the cross beam at this location.	Replace cross beam and posts at this location	8	2025/2026
Cross Beam	At 0m	Biological	Poor to Very Poor	Cross beam is decayed through connection.	Replace cross beam and posts at this location	15	2025/2026
Cross Beam	At 5.5m	Biological	Poor to Very Poor	Cross beam is decayed through connection.	Replace cross beam and posts at this location	15	2025/2026
Abutments	General	Biological	Fair to Poor	Significant biological accumulation around abutments	Clear abutments of biological growth. Consider replacing abutments within the next one to three years	9	2028/2029

ITEM	LOCATION	DAMAGE	CONDITION	COMMENTS	RECOMMENDATION	RISK	REMEDIAL YEAR
Bridge 4							
Guarding	General	Missing	Poor	There is no guarding on this structure. It appears there may be locations for steel tube handrail.	Installation of guarding is recommended if feasible.	10	2025/2026
Steel Stringers	General	Corrosive	Fair	Coating is failing and surface corrosion is moderate	Re-coat elements	12	2025/2026
Serrated Decking	General	Corrosive/ Mechanical	Fair	Coating is failing and the surface corrosion is moderate.	Re-coat elements	9	2025/2026
Serrated Decking	At 0.915m	Mechanical	Fair to Poor	Decking is bent and raised. This may be a tripping hazard	Replace deck section	12	2025/2026
Serrated Decking	At 3.2m	Mechanical	Poor	Serrated section has failed.	Replace serrated grating section	12	2025/2026
Serrated Decking	At 1.68m, 2.0m and 2.3m	Mechanical	Poor to Fair	Grating is bent	Replace serrated grating section	12	2025/2026
Abutments	General	Missing	Poor	The bridge sits on organics and a rock outcropping on one end and a log section at the other. Bridge is not level, and rocks are damaging the deck	Consideration should be given to founding the bridge on abutments. At a minimum the bridge is to be mechanically connected to either bank.	20	2025/2026
Bridge 5							
Guarding	General	Missing	Poor	There is no guarding on this structure. It appears there may be locations for steel tube handrail.	Installation of guarding is recommended if feasible.	10	2025/2026
Deck Boards	General	Mechanical	Fair	Decking is moderately weathered	Ongoing monitoring	6	-
Bridge 6							
Deck Boards	General	Mechanical/ Biological	Fair	Decking is soft with biological growth and moisture ingress	Clean structure of biological accumulation	6	2025/2026
Guarding	General	Missing	Poor	There is no guarding on this structure. It appears there may be locations for steel tube handrail.	Installation of guarding is recommended if feasible.	10	2025/2026
Abutment	General	Biological	Fair to Good	Significant biological accumulation around abutments	Clear abutments of biological growth. Consider replacing abutments within the next one to three years	15	2028/2029
Bridge 7							

ITEM	LOCATION	DAMAGE	CONDITION	COMMENTS	RECOMMENDATION	RISK	REMEDIAL YEAR
General	General	-	Very Poor	The crossing is not a bridge structure. It is (4) logs beside one another with no deck, nor abutments.	Consideration should be given to installing a proper structure in this location	25	2025/2026
Bridge 8							
General	General	-	Fair	The structure has moderate amounts of debris and overgrowth.	Clean around bridge bearings	3	2025/2026
Guarding	General	Missing	Poor	There is no guarding on this structure. It appears there may be locations for steel tube handrail.	Installation of guarding is recommended if feasible.	10	2025/2026
Plan Bracing	General	Missing	Very Poor	The truss bridge does not have any plan bracing and is considered to have nominal lateral resistance.	Ongoing monitoring. Consideration should be given to installing plan bracing.	20	
Bridge 9							
General	General	-	Fair	The structure has moderate amounts of debris and overgrowth.	Clean around bridge bearings .	3	2025/2026
Abutment	General	Corrosive	Fair	The anchor bolts have significant surface corrosion	Ongoing monitoring.	3	
Plan Bracing	General	Missing	Very Poor	The truss bridge does not have any plan bracing and is considered to have nominal lateral resistance.	Ongoing monitoring. Consideration should be given to installing plan bracing.	20	
Bridge 10							
General	General	-	Fair	The structure has moderate amounts of debris and overgrowth.	Clean around bridge bearings.	3	2025/2026
Serrated Decking	Midspan	Mechanical	Fair	One section of decking is bent.	Ongoing monitoring.	3	
Plan Bracing	General	Missing	Very Poor	The truss bridge does not have any plan bracing and is considered to have nominal lateral resistance.	Ongoing monitoring. Consideration should be given to installing plan bracing.	20	
Bridge 11							
General	General	-	Very Poor	There is no guarding, no abutment and the section is not appropriate for the span.	Consideration should be given to installing a proper trail bridge in this location.	25	2025/2026
Span	Midspan	Mechanical	Very Poor	Span has deflected permanently	Replace bridge in its entirety	25	2025/2026
Bridge 12							

ITEM	LOCATION	DAMAGE	CONDITION	COMMENTS	RECOMMENDATION	RISK	REMEDIAL YEAR
Handrail	General	-	Very Poor	The guarding is not in conformance with guarding requirements. It is also missing from one side of the structure.	Consideration should be given to installing appropriate guarding at this location	10	
Decking	General	Mechanical	Poor	Wire decking has failed at welded connections.	Ongoing monitoring.	4	
Intermediate Supports	Foundation	-	Missing	There appears to be no foundation below the intermediate supports.	Install appropriate footings to limit bridge settling.	9	2025/2026
Bridge 13							
Decking	General	Biological	Fair-Poor	Decking has biological growth and soft cut ends.	Ongoing monitoring. Consider replacing the decking within three years	3	2028/2029
Guarding	General	Missing	Poor	There is no guarding on this structure. It appears there may be locations for steel tube handrail.	Installation of guarding is recommended if feasible.	10	2025/2026
Stringers	General	Biological	Fair	Moderate weathering and visible checking.	Ongoing monitoring. Consider replacing all the stringers within three years.	12	2028/2029
Abutments	General	Biological	Poor-Very Poor	Significant decay and soft timber are beginning to compress.	Replace abutment logs.	25	2025/2026
Bridge 14							
Access Stairs	General	Biological	Fair-Poor	Biological growth on stair treads and overgrowth at the access point	Clear access point and clean stairs	3	2025/2026
Handrails	General	-	-	The handrail system does not conform to guidelines for appropriate guarding.	Install an appropriate handrail system on bridge	10	2025/2026
Handrails	General	Corrosive	Fair to Poor	Hardware has significant surface corrosion and is undersized	Replace hardware with hot dipped galvanized hardware. Consider up-sizing hardware where possible.	12	2025/2026
Decking	General	Mechanical/ Biological	Fair	Decking is weathered with moderate amounts of vegetative growth.	Clean decking of overgrowth. Ongoing monitoring of condition.	3	2025/2026
Stringers	Cut Ends	Biological	Fair to Poor	Cut ends of log stringers are decayed with visible biological growth.	Ongoing monitoring. Consider replacing the stringers within five years.	12	2030/2031

ITEM	LOCATION	DAMAGE	CONDITION	COMMENTS	RECOMMENDATION	RISK	REMEDIAL YEAR
Abutment	South End	Biological	Fair	The timber cribbing used to create the abutment is moderately weathered with some vegetative growth.	Ongoing monitoring.	9	
A-Frame Compression Members	At Base	Missing	Poor	A-frame compression members do not appear to have an appropriate foundation.	Ongoing monitoring. Consider installing an appropriate footing system if displacement of the structure occurs.	12	
Bridge 15							
Deck Boards	General	Mechanical/ Biological	Fair to Poor	Decking is weathered with moderate vegetative growth and moisture ingress to the cut ends.	Clean decking and monitor. Consider replacing all deck boards within three years.	3	2028/2029
General	General	-	Very Poor	There is no guarding, no abutment and the section is not appropriate for the span.	Consideration should be given to installing a proper trail bridge in this location.	25	2025/2026
Deck Board/ Step	At South End	Mechanical	Very Poor	Decking has failed where abutment has decayed.	Re-instate decking or remove board.	15	2025/2026
Stringers	General	Biological	Fair	Biological growth along stringers. Timber is competent when probed.	Ongoing monitoring.	12	
Abutments	General	Biological	Very Poor	Abutment logs are decayed and beginning to compress. One end has caused failure of the decking above.	Replace log abutments in kind.	25	2025/2026

Appendix C

Bridge Checklist

HEROLD ENGINEERING

BRIDGE ASSESSMENT REPORT

BRIDGE NAME BRIDGE 3 **LOCATION** ALBERNI INLET TRAIL

LENGTH 5.5m **ROADWAY WIDTH** 0.965m **CLEARANCE** <1.0m
No. SPANS 1 **SPAN TYPE** SIMPLY SUPPORTED **MAX. SPAN** N/A
POSTED LOAD N/A **YEAR BUILT** N/A **UTILITIES** N/A

ITEM	CONSTRUCTION	24							
DECK	52mm x VARIES x 965mm LONG	F							
STRINGERS	NATURAL LOG STRINGERS 200mm DIA.	F							
ABUTMENTS	NATURAL LOG SECTION 305mm DIA.	F-P							
GUARDING	NATURAL LOG SECTIONS 52mm-89mm DIA.	P							
STREAM CHANN.	CLEAR	G							

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

2024 - DECK AND ABUTMENTS HAVE SIGNIFICANT BIOLOGICAL GROWTH
 HANDRAILS DO NOT CONFORM TO ENGINEERING GUIDELINES
 ELEMENTS ARE DETERIORATING DUE TO MOISTURE INGRESS AND ACCUMULATION

HEROLD ENGINEERING

BRIDGE ASSESSMENT REPORT

BRIDGE NAME BRIDGE 6 **LOCATION** ALBERNI INLET TRAIL

LENGTH 4.88m **ROADWAY WIDTH** 0.790m **CLEARANCE** 1.22m
No. SPANS 1 **SPAN TYPE** SIMPLY SUPPORTED **MAX. SPAN** N/A
POSTED LOAD N/A **YEAR BUILT** N/A **UTILITIES** N/A

ITEM	CONSTRUCTION	24							
DECK	52mm x 200mm X 790mm LONG	F							
STRINGERS	(3) - 200-250mm DIAMETER LOG SECTION	F							
ABUTMENTS	BUILT-UP NATURAL LOG SECTION	F-G							
GUARDING	NONE	VP							
STREAM CHANN.	CLEAR	G							

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 - NO GUARDING PRESENT
 ABUTMENT STAIRS ARE DETERIORATING FROM BIOLOGICAL DAMAGE AND MOISTURE



HEROLD ENGINEERING

BRIDGE ASSESSMENT REPORT

BRIDGE NAME BRIDGE 7 **LOCATION** ALBERNI INLET TRAIL

LENGTH 4.6m **ROADWAY WIDTH** 0.610m **CLEARANCE** 1.0m
No. SPANS 1 **SPAN TYPE** SIMPLY SUPPORTED **MAX. SPAN** N/A
POSTED LOAD N/A **YEAR BUILT** N/A **UTILITIES** N/A

ITEM	CONSTRUCTION	24													
DECK	NONE	VP													
STRINGERS	(4) LOG SECTION	VP													
ABUTMENTS	NONE	VP													
GUARDING	NONE	VP													
STREAM CHANN.	CLEAR	G													

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 - NO BRIDGE STRUCTURE PRESENT. FOUR LOGS HAVE BEEN LAID DOWN TO PROVIDE A CROSSING



HEROLD ENGINEERING

BRIDGE ASSESSMENT REPORT

BRIDGE NAME BRIDGE 8 **LOCATION** ALBERNI INLET TRAIL

LENGTH 15.24m **ROADWAY WIDTH** 1.07m **CLEARANCE** 7.62m
No. SPANS 1 **SPAN TYPE** SIMPLY SUPPORTED **MAX. SPAN** N/A
POSTED LOAD N/A **YEAR BUILT** 2013 **UTILITIES** N/A

ITEM	CONSTRUCTION	25												
DECK	52mm SERRATED ALUMINUM GRATING	G												
TOP CHORD	HSS76x76 ALUMINUM	G												
BOTTOM CHORD	HSS76x76 ALUMINUM	G												
DIAGONALS	HSS52x52 ALUMINUM	G												
END VERTICALS	HSS76x76 ALUMINUM	G												
MID RAIL	L38x38 ALUMINUM	G												
CROSS BEAMS	HSS76x76 ALUMINUM	G												
ABUTMENT	250mm x 915mm x1730mm CONCRETE BLOCK	G												
STREAM CHANN.	CLEAR	VG												
PLAN BRACING	NONE	VP												

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 – BRIDGE IS MISSING PLAN BRACING
 DEBRIS AND OVERGROWTH OF VEGETATION ON BRIDGE



HEROLD ENGINEERING

BRIDGE ASSESSMENT REPORT

BRIDGE NAME BRIDGE 9 **LOCATION** ALBERNI INLET TRAIL

LENGTH 12.2m **ROADWAY WIDTH** 1.12m **CLEARANCE** 4.88m
No. SPANS 1 **SPAN TYPE** SIMPLY SUPPORTED **MAX. SPAN** N/A
POSTED LOAD N/A **YEAR BUILT** 2013 **UTILITIES** N/A

ITEM	CONSTRUCTION	25												
DECK	52mm PERFORATED ALUMINUM GRATING	G												
TOP CHORD	HSS102x102 ALUMINUM	G												
BOTTOM CHORD	HSS102x102 ALUMINUM	G												
DIAGONALS	HSS76x76 ALUMINUM	G												
END VERTICALS	HSS102x102 ALUMINUM	G												
MID RAIL	6.4mm x 102mm ALUMINUM PLATE	G												
BOTTOM RAIL	6.4mm x 102mm ALUMINUM PLATE													
CROSS BEAMS	HSS52x76 ALUMINUM	G												
ABUTMENT	250mm x 915mm x1730mm CONCRETE BLOCK	G												
STREAM CHANN.	CLEAR	VG												
PLAN BRACING	NONE	VP												

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 – BRIDGE IS MISSING PLAN BRACING
 DEBRIS AND OVERGROWTH OF VEGETATION ON BRIDGE
 SURFACE CORROSION ON ANCHOR BOLTS



HEROLD ENGINEERING

BRIDGE ASSESSMENT REPORT

BRIDGE NAME BRIDGE 10 **LOCATION** ALBERNI INLET TRAIL

LENGTH 7.62m **ROADWAY WIDTH** 1.04m **CLEARANCE** 3.0m
No. SPANS 1 **SPAN TYPE** SIMPLY SUPPORTED **MAX. SPAN** N/A
POSTED LOAD N/A **YEAR BUILT** 2016 **UTILITIES** N/A

ITEM	CONSTRUCTION	25												
DECK	52mm SERRATED ALUMINUM GRATING	F												
TOP CHORD	HSS76x76 ALUMINUM	G												
BOTTOM CHORD	HSS76x76 ALUMINUM	G												
DIAGONALS	HSS38x52 ALUMINUM	G												
END VERTICALS	HSS76x76 ALUMINUM	G												
MID RAIL	L38x38 ALUMINUM	G												
BOTTOM RAIL	6.4mm x 102mm ALUMINUM PLATE													
CROSS BEAMS	HSS52x76 ALUMINUM	G												
ABUTMENT	305mmx305mm TIMBER SILL ON CONCRETE	G												
STREAM CHANN.	CLEAR	VG												
PLAN BRACING	NONE	VP												

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 – BRIDGE IS MISSING PLAN BRACING
 DEBRIS AND OVERGROWTH OF VEGETATION ON BRIDGE
 ONE DECK SECTION IS BENT



HEROLD ENGINEERING

BRIDGE ASSESSMENT REPORT

BRIDGE NAME BRIDGE 12 **LOCATION** ALBERNI INLET TRAIL

LENGTH 12.2 **ROADWAY WIDTH** 0.635m **CLEARANCE** 0.915
No. SPANS 2 **SPAN TYPE** CONTINUOUS **MAX. SPAN** N/A
POSTED LOAD N/A **YEAR BUILT** N/A **UTILITIES** N/A

ITEM	CONSTRUCTION	25																
DECK	GRATING	P																
STRINGERS	HSS38x38 STEEL	VP																
HANDRAILS	12.7mm X 64mm PLATE OR 12.7 DIAMETER TUBE	VP																
ABUTMENT	NONE ON ONE SIDE, CONCRETE SILL ON OTHER	VP																
STREAM CHANN.	CLEAR	VG																

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 - GUARDING NOT IN CODE COMPLIANCE
 GRATING WELDED CONNECTIONS ARE FAILING WITH LOCAL DEFLECTIONS
 INTERMEDIATE SUPPORTS DO NOT APPEAR TO HAVE A FOUNDATIONS



HEROLD ENGINEERING

BRIDGE ASSESSMENT REPORT

BRIDGE NAME BRIDGE 13 **LOCATION** ALBERNI INLET TRAIL

LENGTH 3.76m **ROADWAY WIDTH** 0.815m **CLEARANCE** 1.02m
No. SPANS 1 **SPAN TYPE** CONTINUOUS **MAX. SPAN** N/A
POSTED LOAD N/A **YEAR BUILT** N/A **UTILITIES** N/A

ITEM	CONSTRUCTION	25												
DECK	76mmx406mm TIMBER	F-P												
STRINGERS	127mm - 152mm LOG SECTIONS	F												
HANDRAILS	NONE	VP												
ABUTMENT	BUILT-UP NATURAL LOG SECTIONS	P-VP												
STREAM CHANN.	CLEAR	VG												

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 - NO GUARDING PRESENT
 DECK HAS BIOLOGICAL GROWTH AND MOISTURE DAMAGE
 ABUTMENTS ARE SOFT WHEN PROBED WITH VISIBLE DECAYED AREAS



HEROLD ENGINEERING

BRIDGE ASSESSMENT REPORT

BRIDGE NAME BRIDGE 14 **LOCATION** ALBERNI INLET TRAIL

LENGTH 10.8m **ROADWAY WIDTH** 0.915m **CLEARANCE** 3.7m
No. SPANS 1 **SPAN TYPE** CONTINUOUS **MAX. SPAN** N/A
POSTED LOAD N/A **YEAR BUILT** N/A **UTILITIES** N/A

ITEM	CONSTRUCTION	25													
DECK	52mmx VARIES x 915mm LONG	F													
STRINGERS	(2)-150mm DIAMETER LOG SECTIONS	F													
HANDRAILS	76mm-102mm DIAMETER LOG SECTIONS	P													
COMP. ELEMENT	150mm DIAMETER LOG SECTIONS	P													
ABUTMENT	BUILT-UP NATURAL LOG SECTIONS	F													
STREAM CHANN.	CLEAR	VG													

RATING SCALE

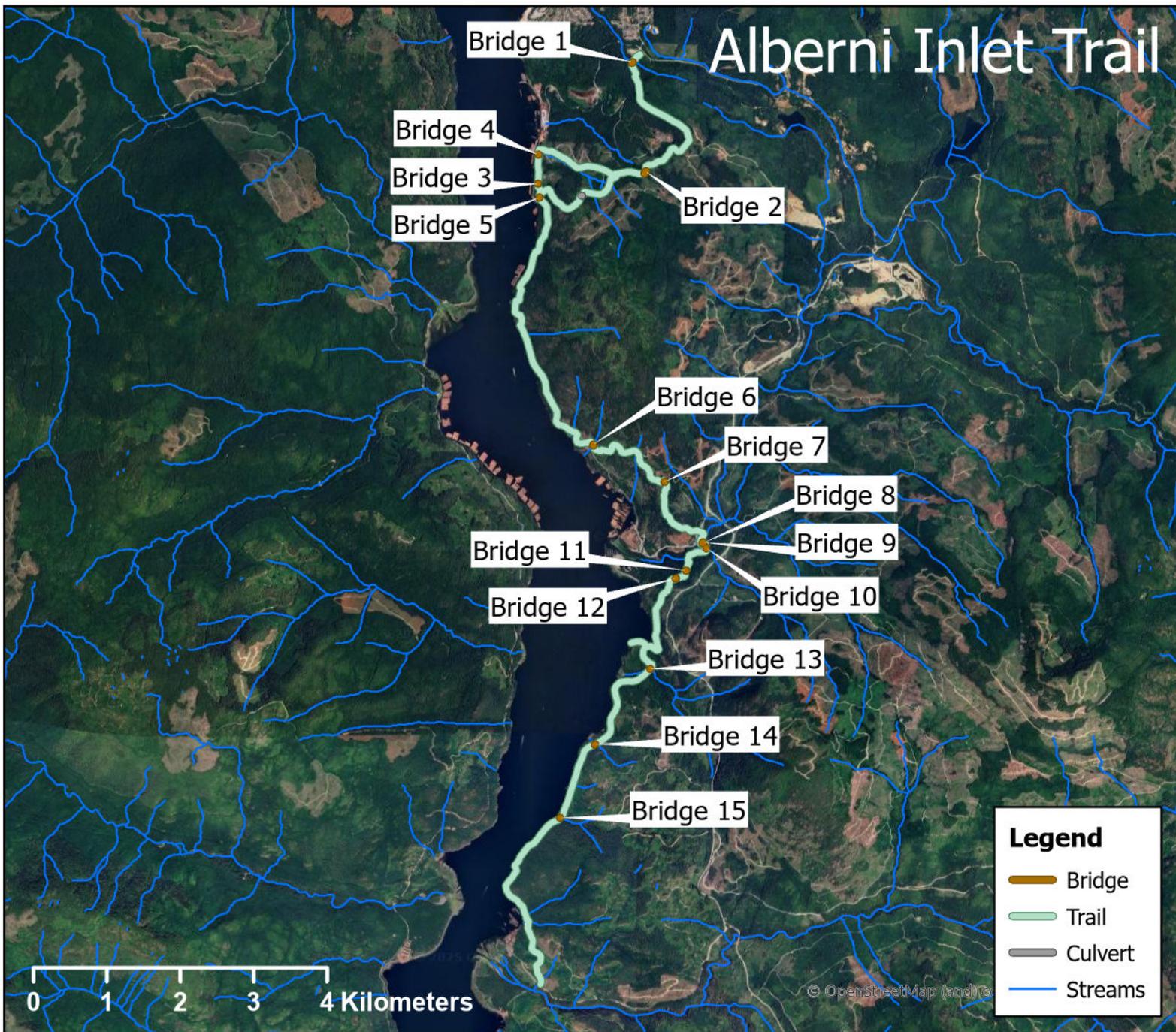
- VERY GOOD (VG) - ELEMENT IS IN SERVICEABLE CONDITION WITH NO NOTABLE DETERIORATION. NO REPAIRS ARE REQUIRED.
- GOOD (G) - ELEMENT HAS MINOR AMOUNTS OF SUPERFICIAL DETERIORATION WITH NO NOTED OVERSTRESSING OR STRUCTURAL DAMAGE.
- FAIR (F) - ELEMENT HAS MODERATE AMOUNTS OF DAMAGE WHICH MAY INCREASE RATES 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 - GUARDING IS NOT CODE COMPLIANT
 BRIDGE IS LIGHT-DUTY FOR THE SPAN. SIGNIFICANT MOVEMENT WHEN LOADED.
 A-FRAME COMPRESSION ELEMENTS DO NOT APPEAR TO HAVE A FOUNDATION SYSTEM
 CORRODED AND UNDERSIZED HARDWARE
 ACCESS STAIRS AND ABUTMENTS ARE OVERGROWN



Appendix D Aerial Map



LIST OF OF BRIDGES WITHIN THE ALBERNI INLET TRAIL

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

UniqueID	Name	Surface	Description	Length (m)	Width (m)	Condition	Risk
08740001	Bridge 1	Timber	Sawn timber	7.47	1.2	Poor	9
08740002	Bridge 2	Timber	Natural timber log and sawn timber	5.28	1.1	Poor	9
08740003	Bridge 3	Timber	Natural timber and sawn timber	5.5	0.965	Poor	15
08740004	Bridge 4	Steel	Follinsbee Creek, steel construction, repurposed from another place	6.1	1.02	VeryPoor	20
08740005	Bridge 5	Timber	Scout Beach, sawn timber, asphalt roofing shingles	5.1	0.915	VeryPoor	10
08740006	Bridge 6	Timber	Sawn timber, asphalt roofing shingles	4.88	0.79	VeryPoor	15
08740007	Bridge 7	None	Does not qualify as a bridge structure, four logs spanning a creek	4.6	0.61	VeryPoor	25
08740008	Bridge 8	Aluminum	China Creek, Aluminum truss, two concrete abutments on rock	15.24	1.07	VeryPoor	20
08740009	Bridge 9	Aluminum	Small China Creek tributary, aluminum truss, concrete abutments	12.2	1.12	VeryPoor	20
08740010	Bridge 10	Aluminum	Small China Creek tributary	7.62	1.04	VeryPoor	20
08740011	Bridge 11	Aluminum	Does not qualify as a bridge structure, metal grating over a creek	12.2	0.635	VeryPoor	25
08740012	Bridge 12	Steel	East side of China Creek Park Road before Marina Trail	12.2	0.635	VeryPoor	10
08740013	Bridge 13	Timber	Mixed timber construction, no guarding on structure	3.76	0.815	VeryPoor	25
08740014	Bridge 14	Timber	A-frame style timber structure, access staircase on southern end	10.8	0.915	Poor	12
08740015	Bridge 15	Timber	Mixed timber, no guarding	4.6	0.915	VeryPoor	25