

SCHEDULE "C" - Scope of Work

INSTRUCTIONS TO BIDDERS

LOCATION OF WORK

1. The site of the work is Spirit Lake Trail in Skidegate, on Haida Gwaii, BC.

GENERAL INSTRUCTIONS

2. Work under this Contract must comply with the following:
 - a) The work to be executed by the Contractor is described on Drawings 1811-S01 to 1811-S06 and in these specifications. The structures to be replaced that do not have a specific drawing available will conform with the standard design drawing provided and be replaced with structures of the same length and width. All materials, tools, equipment necessary to complete the work are to be supplied by the contractor, except as noted.
 - b) All work shall comply with provincial WCB regulations.
 - c) All work near streams shall be done in accordance with requirements of Fisheries and Oceans Canada. Emergency equipment shall be available to treat any accidental spills.
 - d) Contractor is responsible for design and installation of any temporary supports required for the work, and removal after work is complete. Trail is to remain accessible to the public throughout the construction.
 - e) Care shall be taken not to damage existing structures (inclusive of gravel trail) during execution of the work. Any damage done to existing structures or property must be repaired by the Contractor, to the satisfaction of SBC. Care shall be taken not to damage existing trees and to disturb vegetation as little as possible.
 - f) Notify Project Manager of any discrepancies in the drawings or changes in site conditions before proceeding. There may be changes in the scope and details work as construction progresses. Obtain approvals from Project Manager before proceeding with any changes or additions to the work.
 - g) Contractor must keep site clean. Waste must be disposed of off-site.

DESCRIPTION OF EXISTING BOARDWALK

- A survey of the existing boardwalk was done by McElhanney Consulting Services Limited in the fall of 2018. The rehab map of the trail is provided by Pioneer Forest Consulting Ltd. The existing trail has been divided into 4 sections: Green, Blue, Orange, Red. A section of wide flat gravel trail leads from the parking lot to the start of the Green section, leading into the Blue section. All structures to be replaced are located on the Blue section:

Demolition and construction of boardwalks located on Spirit Lake trail; the list below shows the size of each structure, see Rehab Map on page 4 for location of each structure.

Structure ID	Structure Type	Length (m)	Width (m)	Design Drawing	Plan
B1-E8	low elevation boardwalk	20	1.5	Standard	
B1-E9 and B1-E10	low elevation boardwalk	150	1.7	Standard	
B1-E11	elevated boardwalk, built with two half log stringers	7.35	1.9	1811-S01	
B1-E12	elevated boardwalk crossing a beaver dam and swampy conditions	26	5	1811-S02 and 1811-S03	
B1-E13	low elevation boardwalk	6.2	1.65	Standard	
B1-E14	elevated boardwalk with an uneven running surface	26	1.65	1811-S04	
B1-E15	slightly elevated boardwalk	22.7	1.65	Standard	
B1-E16	low elevation boardwalk	5.2	1.65	Standard	
B1-E17	low elevation boardwalk	4.3	1.65	Standard	
B1-E18	low elevation boardwalk	4.2	1.65	Standard	
B1-E19	low elevation boardwalk	3.7	1.65	Standard	
B1-E20	low elevation boardwalk	4.9	1.65	Standard	
B1-E21	low elevation boardwalk	5.9	1.65	Standard	
B1-E22	low elevation boardwalk	4.7	1.65	Standard	
B1-E23	low elevation boardwalk	3.2	1.65	Standard	
B1-E24	low elevation boardwalk	5.35	1.65	Standard	
B1-E25	low elevation boardwalk	6.1	1.65	Standard	
B1-E26	low elevation boardwalk	4.7	1.65	Standard	
B1-E27	low elevation boardwalk with rails on grade	4.7	1.65	1811-S05	
B1-E40	slight elevation boardwalk with 16' long timber	4.2	1.65	Standard	

Proponents are asked to provide a fixed cost for each structure, as well as a total fixed cost for the entire project.

SUMMARY OF WORK

The work shall include, but not be limited to:

4. Mobilization:
 - a) Transport of all materials, equipment and labour to the site.
 - b) Preparatory work.
5. Supply of the following to site:
 - a) Lumber (yellow cedar #2 grade or better) for sleepers along boardwalks.
 - b) Local (if possible) yellow cedar #2 grade or better for sill logs, cribbing, and stringers. Wood framing and heavy timber construction shall conform to CAN/CSA 086-09.
 - c) Local (if possible) yellow **or red** cedar #2 grade or better for decking and railings.
 - d) Recreation Sites and Trails BC located at the Haida Gwaii Forest District Office in Queen Charlotte, BC has cedar lumber available to be used for this project to reduce bid costs as follows:

Size	Number of Lumber Pieces
6" x 6" x 8'3"	59
2" x 10" x 5'7"	70
2" x 10" x 8'	40
2" x 10" x 10'	16
2" x 10" x 4-5'	138

- e) Hot-dip galvanized hardware and fasteners. Nail size table:

Size	1 1/2" – 10d	1 1/2" – 10d	2 1/2" – 8d	2 1/2" – 16d	3" – 10d	3 1/2" – 16d
DIA	0.131"	0.148"	0.131"	0.162"	0.148"	0.162"

- f) Screws shall be self-tapping; generic deck screws are not acceptable. Install according to manufacturer’s recommendations, avoid splitting wood by pre-drilling if required. Approved screws include:
 - GRK fasteners: R4 multi-purpose screw, #12 min.
 - SFS INTEC: SFS WFR 5 mm0.
- g) Sanded asphalt roll roofing shingle material for non-slip surface. Secure roofing to decking to each board with 3 rows of galvanized roofing nails 6" o/c.
- h) Aluminum angle clips for timber sill logs.

- i) Non-woven geo-textile fabric to be placed in excavated areas under gravel, before installing sill logs may be required based on site conditions. Recreation Sites and Trails BC will provide the fabric.
 - j) Aggregate to be installed as per drawing specifications. Note: B1-E12 includes a section of new aggregate path.
 - k) All structural steel material shall conform to CSA G40.20/G40.21 with the following material grades:
 - Bolts: A325M unless noted otherwise.
 - Plates, bars, and angles: 300W.
6. Demolition of existing boardwalks, steps, stairs, etc. Removal from site of all demolition material.
7. Installation to replace 19 existing low elevation boardwalks and 2 existing elevated boardwalks as per section 3 above.
8. All materials and installation to conform with drawings and specifications.
9. Demobilization:
- a) Dismantle and ship out all excess materials and equipment from the site.
 - b) Removal of temporary services and restoration of the site.
 - c) Clean-up of the site.

CONSTRUCTION GUIDELINES

1. Cut out roots and stumps impeding structures but do not fell or damage living trees.
2. Keep boardwalk off of ground where possible and detail as far as possible so water drains off timber and it can dry out; this will reduce the rate of deterioration.
3. Where terrain is uneven, contractor responsible for additional supports to maintain an even grade.
4. Where areas are relatively dry, build boardwalk on sleepers. Keep various size cedar timbers on hand for blocking and shimming, to make even grade for boardwalk. All blocking and shims must be fastened together with drifts to prevent shifting.

5. Materials:

- a) All timber to be rough-cut local yellow cedar with tight knots only (equivalent to grade #2 lumber or better). Red cedar grade #2 or better may be used for decking and railings.
- b) All boardwalk surfaces to be covered with sanded asphalt roll roofing strips. Secure roofing to decking with 3 rows of roofing nails 6" o/c.
- c) All hardware and fasteners to be hot dip galvanized.
- d) Cribbing timbers to be notched and secure timber at corners with rebar pin driven in a pre-drilled hole.
- e) Aluminum angle clips to be installed at timber.
- f) Wood sills to be replaced over excavated area, minimum 100mm in all directions beyond sill with non-woven geotextile fabric placed in excavated area. Do not cut into or otherwise destabilize existing bank.
- g) 100 mm layer of compacted aggregate is to be placed before installing sill log. Backfill and compact remaining excavation with aggregate to level all pads. If the required depth for the aggregate leveling exceeds 300 mm, use timber cribbing. See cribbing detail on drawing 1811-S03.
- h) Secure posts to stringers with 2 long bolts with malleable iron washers on both sides, tighten securely.

6. Notes:

- a) Decking to have 25 mm gap between boards with six nails per board.
- b) Continuous railings to be nailed into end grain of each post with 3 – 4 nails with radius edges as per drawings.
- c) Top rails of railings must be planed smooth.
- d) Elevated boardwalks to be installed where creek crosses the trail.
- e) B1-E11 (7.3 m) and B1-E12 (26 m) elevated boardwalks to have railings on both side of elevated boardwalk.
- f) Use ramps as necessary to provide smooth transition from trail to elevated boardwalk. Keep ramp slope max 8 %.

- g) Maintain approximately 0.5% cross slope towards the creek for drainage/drying of planks.
- h) For details of B1-E11, B1-E12, B1-E14, and B1-E27 rehabilitation and support, see McElhanney drawings. All other boardwalks to conform to standard drawing provided by RSTBC.
- i) The contractor shall compare all related drawings prior to beginning construction. The Project Manager shall be notified immediately if any discrepancies or inconsistencies are found.
- j) Quality control of the work is the contractors responsibility. The number of inspections will be at the discretion of the SBC to determine general conformance with the design intent. Additional inspections required due to deficient or incomplete work will be at the expense of the contractor.