

**REGISTRATION PURSUANT TO CHAPTER E-14.2
OF THE ENVIRONMENTAL PROTECTION ACT,
SNL 2002**

ENVIRONMENTAL ASSESSMENT

**FOR THE DEMOLITION OF THE EXISTING
BRIDGE AND CONSTRUCTION OF A NEW
BRIDGE ON
ASPEN BROOK
ROUTE 1**

August 2, 2021

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PROPONENT:

i. Name of Corporate Body

Department of Transportation and Infrastructure
Government of Newfoundland & Labrador

ii. Address

5th Floor, Confederation Building (West Block)
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A1B 4J6

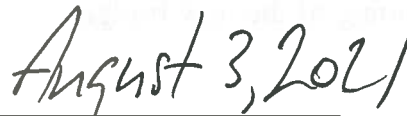
iii. Chief Executive Officer

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iv. Approval for Environmental Assessment Submission



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v. Principal Contacts for the Purpose of Environmental Assessment

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THE UNDERTAKING:

(i) Name of the Undertaking

This submission is for the demolition of the current deteriorated bridge and construction of a new bridge, including a temporary bypass bridge for Route 1. Its location falls on Aspen Brook, a tributary of Exploits River, and falls under scheduled salmon river status approximately 19 km west of Grand Falls-Windsor.

(ii) Nature of the Undertaking

The construction of a permanent bridge and temporary bridge crossing on Aspen Brook on Route 1, km 450.4. The temporary bridge and bypass will be constructed and opened to traffic, the existing bridge will be closed and removed, the new bridge will be constructed, and the temporary bridge will be removed upon commissioning of the new bridge

(iii) Purpose / Rationale / Need for the Undertaking

The purpose of this project is to replace the aged and deteriorated bridge on Aspen Brook.

Description of the Undertaking

Geographic Location

The project location is on Route 1 at Aspen Brook. The coordinates are Latitude 48.95202°, Longitude -55.910578°.

There are no additional routing alternatives to replacing the bridge. It is an essential link on Route 1 and any alternative would not be feasible.

Physical Features.

As Aspen Brook is designated a Scheduled Salmon River, detailed design work and existing environmental conditions determine the type of structure which will be required and what modifications have to be incorporated into the structure to allow for the necessary fish passage and environmental protection.

The existing environment at the site consists of a small stream of mainly rearing habitat for salmonids. It was previously disturbed with the installation of the original bridge although has regenerated naturally with alders, young birch and other small shrubs. It is a small tributary and empties into the Exploits River approximately 700m downstream. It is in part of the Central Newfoundland Forest, North-central Subregion. Fish species include Atlantic salmon, brook trout, three-spined stickleback, and American eel. Moose, snowshoe hare, muskrat, otter, mink, black bear, beaver and lynx occur throughout this subregion.

Potential receptors include travelers on the TCH, Badger ~10.4 km to the west, Grand Falls Golf Club ~14km to the east and the Town of Grand Falls Windsor ~19 km to the east. It is not expected they will be affected by the project any more than any other user of the Trans Canada Highway for transportation purposes. All heavy machinery will be in good running order with functioning exhaust systems. Dust will be at a minimum with a project of this nature where it is excavation and infilling. We don't anticipate dust becoming an issue but if it does, a water truck or other means of containing dust will be implemented. The impact on travelers will be a

temporary reduction of speed through the traffic diversion. TI complies with OHS standards.

The existing bridge was built in 1964 with 11m span and an overall width of 14m. The structure's overall condition is reported as poor requiring immediate repairs. The most recent inspection, along with the evident deterioration of the structure led to the decision to install emergency traffic measures to minimize potential failure. The new bridge will be two span roughly 12m long or greater and 15m wide. The new structure is to be placed in the same location as the existing bridge.

The area needing to be cleared is within the existing Right Of Way and has been previously altered. It consists of young trees and shrubs. The reach of the stream is migration habitat (Beak Type 4) just above the confluence with the Exploits River. The channel width is ~7m with substrate consists of cobble, rubble, and pebbles.

The Department of Transportation and Infrastructure will consult with the Water Resources Division of the Department of Environment and Climate Change to ensure that the best available data is utilized to design the bridge. The Water Resources Division's Environmental Guidelines for work around watercourses will be used during the design and construction phases.

The bridge will be designed and constructed in consultation with Fisheries and Oceans Canada (DFO). A qualitative assessment of fish habitat along upstream and downstream areas adjacent to the crossing will be carried out. The bridge will be designed and constructed to have minimal impact on fish and fish habitat and in accordance with:

- DFO's Guidelines for Protection of Freshwater Fish Habitat in Newfoundland and Labrador (1998);
- DFO's Measures to avoid causing harm to fish and fish habitat (<http://www.dfo-mpo.gc.ca/pnw-ppc/measures-mesures/measures-mesures-eng.html>) and
- fish passage guidelines and other applicable guidelines and Fact Sheets

Construction

The project will encompass two parts:

1) Temporary Diversion:

A temporary diversion is proposed to be constructed parallel to and upstream of the existing bridge. The diversion will be 8 m wide and consist of three 1000mm culverts of 20 m length. One of the culverts will be countersunk to accommodate low flow conditions. Special attention will be given to erosion and scour protection at inlet and outlet control areas.

The diversion shall have a 10.5 meter subgrade width and is to be constructed out of clean rock fill with 1.5:1.0 side slopes. The finished elevation of the temporary structure will be comparable to the existing structure, providing ample hydraulic capacity. Upon completion of the permanent structure the temporary diversion shall be completely removed and any disturbed ground within the existing right of way will be rehabilitated.

2) Existing/Proposed Structure:

The existing structure was built in 1965 and is a two span, pre-stressed concrete girders structure with concrete abutments with a piled foundation in the substructure. The width of the existing travel way is approximately 9.75m. The structure is located on Route 1 12.7 km to the west of the town of Grand Falls-Windsor and 10.4 km east of Badger. The intent of this project is to replace the existing bridge on the same alignment. The horizontal alignment is to remain unchanged. The proposed replacement is comprised of a two span 50m x 14m (overall width) bridge constructed using girders supported by concrete abutments and steel piles. Armor stone will be placed around the abutments for scour protection.

The Contractor shall submit a demolition plan for the old bridge to the Resident Engineer/Senior Environmental Planner for review and approval prior to commencing demolition work. Demolition and removal of the existing structure shall be carried out such that no significant debris enters the river. Busting of the existing structure while in place shall not be permitted. The Contractor shall ensure that all waste material from the bridge demolition is disposed of in accordance with the *Environmental Protection Act, SNL2002 CHAPTER E-14.2* and prior approval by the Department of Environment and Climate Change. The Contractor's

Demolition Plan shall clearly demonstrate that there is compliance with all environmental requirements for the project and adhere to the Contractor's Responsibilities – Regulatory Agencies Section 805.

All work under this item will be in accordance with Section 919.04 of the Departments Specifications Book, MAINTENANCE OF TRAFFIC, except where superseded by the requirements of this or another Supplementary General Conditions. The Contractor shall construct a temporary paved bypass to a RCU 80 (Modified) standard to accommodate traffic. This work will also involve the design and installation of a 420m, two lane temporary diversion upstream of the existing bridge. The temporary bridge and substructure shall be designed in accordance with CAN/ CSA S6-19, "Canadian Highway Bridge Design Code".

Fording or moving equipment through the river, or across any other watercourse, will be strictly prohibited. Temporary culverts or temporary bridging are preferred at such locations where frequent fording would be required.

There are no private wells in the area. Ground water levels won't be changed or altered. The Environmental Protection Plan covers avoidance of putting pollutants in the water, and we have turbidity readings for the water in the unwatering spec to monitor and mitigate water quality.

Bridge construction will meet RAU 100 standards and the design load is CL-625. The Department of Transportation and Infrastructure will be improving upon the hydrology of this crossing by increasing the opening (end area) to allow for 100 year flooding projections. It will be performed by contract forces. The various phases will involve:

- (a) field surveys;
- (b) temporary crossing installation;
- (c) demolition of old bridge
- (d) new bridge construction;
- (e) clean-up and rehabilitation.

The potential sources of pollution during construction would be limited to the possible siltation of the river during subgrade construction. To prevent siltation within the river during construction the contractor shall use the mitigation in the

Specification book, Sections 815, 816, 817, 818 and 845. In addition, the potential exists for hydrocarbon spillage from temporary fuel storage facilities. Contractors will be advised of the environmental requirements for stream crossings and for hydrocarbon spill reporting and the necessity of strict compliance.

The start date currently is unknown but expected as soon as possible and the project is expected to finish June 2022.

Owner's Policy (Division 8, General Specifications Book, 2011)

To ensure protection of the environment, the work at all times shall be subject to inspection by the staff of relevant municipal, provincial and federal agencies. Normally, all inspections other than by the Engineer will be arranged in advance through the Engineer. Any specific matters relating to environmental protection will be dealt with between the Contractor and the Engineer.

Any violations of environmental permits or authorizations or any environmental related incidents which are observed by inspectors representing regulatory agencies are to be reported by them prior to leaving the site to the Engineer. Except in emergency situations, environmental protection measures required by other agencies must be approved by the Engineer prior to implementation by the Contractor.

It is Owner's policy to protect the environment along the route of the project, in areas adjacent the route, and in associated work areas such as pit or quarry sites. DTW is committed to cost-effective environmental protection measures that will prevent serious or irreversible environmental damage through the planning and implementation phases of the project.

Protection of Vegetation and Wetlands

The Contractor shall be made aware that the work required in and around water crossings shall be performed with due care and caution so as to prevent undue disturbance to adjacent vegetation and the environment from construction activities and off Right Of Way travel (Section 850). Immediately following and during some

construction activities, the Engineer may identify areas requiring seeding/sodding or stabilization by a method to prevent erosion. Damage or disturbance of vegetation and/or wetlands outside the ROW shall be re-vegetated and/or restored to the satisfaction of the Resident Engineer at the Contractor's expense (Section 855).

Storage and Handling of Fuels and Other Hazardous, Toxic, or Dangerous Material

All storage tank systems must be registered under and in compliance with Newfoundland Regulation 58/03, The Storage and Handling of Gasoline and Associated Products Regulations, 2003 before commencing operation. Registration does not apply to storage tank systems of a capacity less than 2500 litres that are connected to a heating appliance. Contractors shall supply verification of storage tank registration to the Engineer prior to the commencement of work (Section 820).

Environmental Protection Plan

The Environmental Protection Plan (**EPP**) is produced by TI and forms part of tender documents and conditions of contract. The **EPP** is a concise field usable document that describes environmental protection measures to be implemented during the preconstruction, construction, and post construction phases of the project. It has been prepared to assist TI in the supervision of field activities and as a guide for decision making. The **EPP** will clearly outline the location of any environmentally sensitivities known and specify mitigation needed to prevent adverse effects. Rehabilitation measures will also be clearly outlined.

The **EPP** assists TI with requirements for environmental reporting, auditing, and compliance monitoring. Applicable permits, authorizations, and approvals are required for the project prior to the start of work. The **EPP** facilitates the means by which the contractor and/or sub-contractors will attain permits and comply with environmental legislation. It outlines the responsibilities of the owner and contractor(s) in carrying out work sustainably and in an environmentally responsible manner. It guides management of construction and operation activities with the intent of avoiding or minimizing any adverse effect to the environment of the Province.

Contractor Environmental Mitigation Plan

A Contractor Environmental Mitigation Plan (**CEMP**), completed by the contractor and approved by DTW before work commences, is required for this project. It is important to note this document won't be available until after the tender has been awarded as TI doesn't know which contractor will be doing the construction.

Elements required in a **CEMP** are:

- Pre-construction planning, including the identification project-environmental interactions (e.g., Valuable Ecosystem Components including: public and worker safety, wildlife, habitat, plants, resource users, etc.);
- Detailed environmental mitigation measures to avoid negative or irreversible environmental impacts;
- Contingency plans for unplanned events;
- List of DTW and Contractor contacts and reporting numbers; and
- Decommissioning Plan that includes site rehabilitation measures.

The potential for adverse environmental impacts during construction will be minimized as all construction activities will be undertaken in accordance with the environmental requirements of the Department of Transportation Specification Book for transportation projects.

Prohibitions

The following are directives for the Owner and Contractor in carrying out this project. Reference is also provided to the Section where this prohibition is located in Division 8.

- Contractors, subcontractors and their personnel shall not harass wildlife or waterfowl or unduly disturb fish (Section 805);
- No pesticides or other products shall be used without prior approval of the Owner and the Department of Environment and Climate Change (Section 810);
- The Contractor shall not wash equipment or containers, nor dump herbicides in or near any fresh or salt water bodies, or at any location where the herbicide may enter a body of water (Section 810);

- No person shall discharge into a body of water any sewage or effluent (Section 815);
- The use of equipment or machinery in a watercourse or water body is not permitted (Section 815);
- The contractor shall not ford a watercourse without prior approval from the Resident Engineer (Section 815);
- Silted or muddy water is not permitted to be released into any watercourse or water body or into any ditch or areas that leads directly to a watercourse or waterbody (Section 815.07);
- Smoking shall be prohibited within 10 m of a fuel storage area or during refueling operations (Section 820.03);
- Fueling or servicing of mobile equipment shall not be allowed within 100 m of a watercourse, water body, or designated wetlands (Section 820.03);
- The Contractor shall ensure that no servicing or washing of heavy equipment occurs adjacent to watercourses and designated wetlands. Fueling, servicing or washing of equipment shall not be allowed within 100 m of a watercourse (Section 820.04);
- No waste material shall be deposited in any watercourse or wetland (Section 825.01);
- There shall be no open burning of waste material, slash or grubbing material onsite. Rubber tires, waste oil, or similar material shall not be used to ignite slash or used to maintain the burning operation (Section 835);
- Unnecessary cutting of trees is to be avoided. Care will be taken during construction to prevent damage to trees and shrubs adjacent to the flagged clearing limits which are to remain after construction (Section 850);
- The Contractor shall not use living trees as survey marks and shall not cut blazes or otherwise mark live trees except with removable surveyor's tape and/or tags (Section 850);
- The Contractor shall limit equipment travel to the surveyed right-of-way and existing municipal and provincial roads. Use of equipment of any type is not permitted outside the clearing limits of the right of way without prior approval (Section 850); and
- Should any archaeological remains be encountered, such as stone, bone or iron tools, concentrations of bone, fireplaces, house pits and/or foundations, work in the area of the find shall cease immediately in accordance with the Historic Resources Act (RSNL1990 CHAPTER H-4) (Section 860).

Operation

The bridge is a permanent operation. Winter maintenance will consist of snow clearing and the application of sand and salt for ice control.

The temporary bridge will serve to allow traffic to continue during the construction of the new bridge. It will be removed once the new bridge is open to traffic.

Occupations

The various types of occupations anticipated for this project include:

- (a) Civil Engineers;
- (b) Structural Engineers; 2231
- (c) Engineering Technicians; 2231
- (d) Road Surveyors; 2154
- (e) Heavy Equipment Operators; 7521
- (f) Drillers and Blasters; 7372
- (g) Carpenters; 7271
- (h) Heavy Equipment Mechanics; 7312
- (i) Labourers; 7621
- (j) Truck Drivers; 7511
- (k) Concrete Finishers; 7282
- (l) Concrete Technicians; 7282
- (m) Material Technicians and Engineers; 2231
- (n) Steel Erectors. 7236
- (o) Senior Environmental Planner 2121

Contract completion is expected to be June 30, 2022. There is an estimate of approximately 50-100 general construction workers during the course of building. Specialties may include 1-2 welders (2 weeks estimated), 5-10 rebar tiers (1 month estimated), 1-2 crane drivers (2 months estimated). All of the above could change depending on the contractor and when tender is awarded.

TI projects do not require any project specific hiring. TI will contract the work through a tender as a typical road construction tender. The work does not justify any dedicated project hiring and is a routine project with no extended dedicated

project resource:

- TI will manage the contractor using existing internal resources. There is no expected/required hiring.
- The Contractor will manage with their normal and existing organizational resources. There is no expected incremental resourcing to what would be in their normal crews/organization.

As such, there is no expected “recruitment/hiring” by either TI or the Contractor.

Project-related Documents

- Environmental Protection Plan.
- Contractor Environmental Mitigation Plan.
- Department of Transportation and Infrastructure Specifications Manual

APPROVAL OF THE UNDERTAKING

The following is a list of the permits, licences, approvals that may be necessary for this project:

MAJOR REGULATORY APPROVALS BY TYPE AND AGENCY

Type of Permit	Agency
1. Stream crossing approvals	Dept. of Fisheries & Oceans
3. Stream crossing approval	Water Resources
4. Fuel storage & handling	Government Service Centre
5. Solid waste disposal	Government Service Centre
6. Commercial Cutting	Fisheries and Land Resources
7. Environmental Assessment	Municipal Affairs and Environment

SCHEDULE

The Department of Transportation and Infrastructure would like to complete the requirements of the Environmental Assessment Act and seek approval for the project by 2021 08 24. A tender call could take place in late summer/fall of 2021 with construction starting shortly after.

COST ESTIMATE

The anticipated cost of the project is \$2 million.



Appendix A

General Project Details



Map 1: Location on Island



Map 2: Close up of Nearest Receptors



Map 3: Close-up of Bridge Site



Photo 1: Bridge View Top



Photo 2: Bridge Deterioration



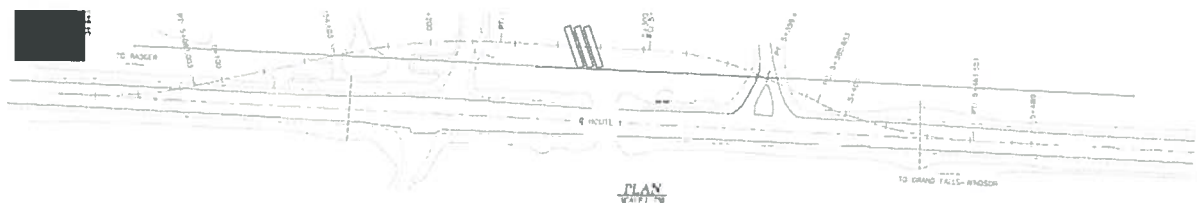
Photo 3: Bridge Deterioration



Photo 4: Upstream View of Aspen Brook



Photo 5: Downstream View of Aspen Brook



Drawing: Showing Proposed Upstream Temporary Crossing Location in Relation to Bridge

Environmental Protection Plan
Appendix B



Appendix B

Environmental Protection Plan

Environmental Protection Plan

Environmental Protection Plan

Environmental Protection Plan



DEPARTMENT OF TRANSPORTATION AND
INFRASTRUCTURE
HIGHWAY DESIGN AND CONSTRUCTION DIVISION

ENVIRONMENTAL PROTECTION PLAN

ASPEN BROOK BRIDGE

**Bridge Construction
Aspen Brook
Route 1 - KM 450.4**

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1.0 Project Overview

The Department of Transportation and Infrastructure (DTI) is issuing a tender to construct a new single span pre-stressed concrete girder bridge and associated road grading work at Aspen Brook on Route 1, KM 450.4.

The Environmental Protection Plan (EPP) pertains to the demolition of the current bridge and the construction of a concrete girder bridge across Aspen Brook. The permanent crossing will be located at station 450+400. The project will involve the installation and removal of a temporary diversion approximately 20m upstream.

This section is also referred to as Station 450+400 within the contract documents. The coordinates are Latitude 48.95202°, Longitude -55.910578°.

2.0 Purpose of Environmental Protection Plan

The Environmental Protection Plan (EPP) is produced by DTI and forms part of tender documents and conditions of contract. The EPP is a concise field usable document that describes environmental protection measures to be implemented during the preconstruction, construction, and post construction phases of the project. It has been prepared to assist DTI in the supervision of field activities and as a guide for decision making.

The EPP assists DTI with requirements for environmental reporting, auditing, and compliance monitoring. Applicable permits, authorizations, and approvals are required for the project prior to the start of work. The EPP facilitates the means by which the contractor and/or sub-contractors will attain permits and comply with environmental legislation. It outlines the responsibilities of the owner and contractor (s) in carrying out work sustainably and in an environmentally responsible manner. It guides management of construction and operation activities with the intent of avoiding or minimizing any adverse effect to the environment of the Province.

The use of "Owner" in this document is synonymous with DTI as this facilitates the direct incorporation of specific environmental protection measures in contract documents.

Environmental protection measures highlight the Owner's policy on environmental protection. It includes a regulatory overview which describes permitting and approval requirements and clarifies the Owner and Contractor responsibilities in this regard. Site specific conditions determine the level of Federal, Provincial and Municipal approval processes that applies.

3.0 DTI Environmental Policy

Owner's Policy (Division 8, General Specifications Book, 2011)

To ensure protection of the environment, the work at all times shall be subject to inspection by the staff of relevant municipal, provincial and federal agencies. Normally, all inspections other than by the Engineer will be arranged in advance through the Engineer. Any specific matters relating to environmental protection will be dealt with between the Contractor and the Engineer.

Any violations of environmental permits or authorizations or any environmental related incidents which are observed by inspectors representing regulatory agencies are to be reported by them prior to leaving the site to the Engineer. Except in emergency situations, environmental protection measures required by other agencies must be approved by the Engineer prior to implementation by the Contractor.

It is Owner's policy to protect the environment along the route of the project, in areas adjacent the route, and in associated work areas such as pit or quarry sites. DTI is committed to cost-effective environmental protection measures that will prevent serious or irreversible environmental damage through the planning and implementation phases of the project.

4.0 Regulatory Overview

Bridge and culvert replacement involves stream crossing work over and around Aspen Brook Bridge. **Table 1** gives an overview of the Federal and Provincial regulators and legislation that the Owner and Contractor shall adhere to. It is a contractor responsibility for day-to-day operations to comply with municipal zoning and by-laws.

Consistent with DTI Environmental Policy, any observed violations of environmental permits or authorizations by inspectors representing regulatory agencies are to be reported prior to leaving the site to the Owner's Representative of the DTI.

Table 1: Applicable legislation

Legislation	Sections / Parts	How it applies
Federal		
<i>Fisheries Act</i>	34-39	Fish protection and pollution prevention.
<i>Navigable Waters Protection Act¹</i>	15,21	No obstructions or impairments of navigable waters.

¹ Not applicable to all waterways. Only applies to those navigable waters identified in Schedule of *Navigation Protection Act, R.S.C., 1985, c N-22*.

<i>Migratory Birds Convention Act, 1994</i>	4, 5	Protection of migratory birds and their nests.
Provincial		
<i>Environmental Protection Act, SNL2002 CHAPTER E-14.2</i>	Part III	Release of substances
	Part IV	Waste disposal and litter
	Part X	Environmental Assessment
	Part XI	Approvals under regulations
	Part XII	Rights of inspectors
<i>Water Resources Act, SNL2002 CHAPTER W-4.01</i>		
Municipal		
Municipal zoning and bylaws		Noise, construction times, parking and equipment storage

Table 2 provides a specific list of regulatory permits which the owner and contractor must have in place prior to construction. Please note the footnotes that identify permits that the owner are responsible for and ones that the Contractor is responsible.

ALL PERMITS MUST BE IN PLACE PRIOR TO CONSTRUCTION. DTI Owner's Representative is responsible for keeping a record of all permits. DTI Owner's Representative has a responsibility to monitor construction activities to ensure compliance with environmental permit conditions. DTI may designate an Environmental Monitor, Environmental Scientist or Engineering Technician for this purpose as well.

Similarly, the contractor is expected to assign a site superintendent, environmental manager or designated staff to monitor environmental compliance issues. Reporting requirements will be clarified at Construction Startup meeting.

Table 2: Major Regulatory Approvals

Type	Agency	Contact Number
Department Designed Stream Crossings – Letter of Advice ²	Fisheries and Oceans Canada (DFO)	709-772-6072
Permit to Alter a Body of Water ²	Department of Municipal Affairs and Environment, Water Resources Management Division	709-729-2563
Contractor Designed Stream Crossings / Infilling		
Navigable Waters Protection Act Approvals ²	Canada Coast Guard, Transport Canada (CCG)	709-772-7563
Wood Cutting and Burning	Department of Natural Resources – Forestry	709-729-4180

² Approvals to be attained by Department of Transportation and Infrastructure.

Permits	Division	
Quarry or Pit Operations	Department of Natural Resources – Mineral Lands Division	709-729-6447
Fuel Storage and Handling	Service NL	709-729-2008
Solid Waste and Sewage Disposal		
Water Supply		

5.0 Prohibitions

The following are directives for the Owner and Contractor in carrying out this project. Reference is also provided to the Section where this prohibition is located in Division 8 of DTI Specifications.

- Contractors, subcontractors and their personnel shall not harass wildlife or waterfowl or unduly disturb fish (Section 805);
- No pesticides or other products shall be used without prior approval of the Owner and the Department of Environment and Conservation (ENVC) (Section 810);
- The Contractor shall not wash equipment or containers, nor dump herbicides in or near any fresh or salt water bodies, or at any location where the herbicide may enter a body of water (Section 810);
- No person shall discharge into a body of water any sewage or effluent (Section 815);
- The use of equipment or machinery in a watercourse or water body is not permitted (Section 815);
- The contractor shall not ford a watercourse without prior approval from the Owner’s Representative (Section 815);
- Silted or muddy water is not permitted to be released into any watercourse or water body or into any ditch or areas that leads directly to a watercourse or waterbody (Section 815.07);
- Smoking shall be prohibited within 10 m of a fuel storage area or during refueling operations (Section 820.03);
- Fueling or servicing of mobile equipment shall not be allowed within 100 m of a watercourse, water body, or designated wetlands (Section 820.03);
- The Contractor shall ensure that no servicing or washing of heavy equipment occurs adjacent to watercourses and designated wetlands. Fueling, servicing or washing of equipment shall not be allowed within 100 m of a watercourse (Section 820.04);
- No waste material shall be deposited in any watercourse or wetland (Section 825.01);
- There shall be no open burning of waste material, slash or grubbing material onsite. Rubber tires, waste oil, or similar material shall not be used to ignite slash or used to maintain the burning operation (Section 835);

- Unnecessary cutting of trees is to be avoided. Care will be taken during construction to prevent damage to trees and shrubs adjacent to the flagged clearing limits which are to remain after construction (Section 850);
- The Contractor shall not use living trees as survey marks and shall not cut blazes or otherwise mark live trees except with removable surveyor's tape and/or tags (Section 850);
- The Contractor shall limit equipment travel to the surveyed right-of-way and existing municipal and provincial roads. Use of equipment of any type is not permitted outside the clearing limits of the right of way without prior approval (Section 850); and
- Should any archaeological remains be encountered, such as stone, bone or iron tools, concentrations of bone, fireplaces, house pits and/or foundations, work in the area of the find shall cease immediately in accordance with the Historic Resources Act (RSNL1990 CHAPTER H-4) (Section 860).

Project Environmental Interactions

5.1. Valued Ecosystem Components

Within the project area, the following Valued Ecosystem Components (VEC) should be noted:

5.1.1. Habitat

The project area is within the Central Newfoundland Forest ecoregion, specifically the North-central Subregion. It is composed of dense forest. The terrain is gently rolling with hills ranging from 150 meters above sea level to 200 meters. Bogs are a common landscape feature with domed bogs being the most common type. Forests consist mostly of Black Spruce and White Birch due to a fire-driven ecosystem.

5.1.2. Wildlife and Birds

Migratory birds are found throughout the eco-region. Several migratory breeders (birds that breed here but migrate elsewhere for winter) are also present. This region is populated by species such as yellow-rumped warbler, black-throated green warbler, redstart warbler, black-and-white warbler, Wilson's Tree swallow, pine siskin, yellow-bellied flycatcher, sharp-shinned hawk, and several species of woodpeckers. Migratory breeders in wetland habitats include swamp sparrow, song sparrow, American bittern, Lincoln's sparrow, mourning warbler, common snipe, red-breasted merganser, common merganser, green-winged teal, black duck, and common goldeneye.

Wildlife potentially inhabiting this region are: moose, mink snowshoe hare, black bear, red fox, beaver, muskrat, squirrel, brown bat, meadow vole, shrew and otter. There is a small population of Newfoundland martin (pine martin) found in this area as well.

5.1.3. Fish Species

Fish in this region include Atlantic salmon, brook trout, American eel and three-spine stickleback.

5.1.4. Sensitive Species

There are Atlantic salmon in this river.

5.1.5. Other Resource Users

Aspen Brook may be used by anglers.

5.2. Anticipated Project Interactions

For each valued ecosystem component identified, there is a potential interaction with planned activities. The Contractor Environmental Mitigation Plan (CEMP), (Section 7.3 herein) is expected to identify project interactions and provide detailed mitigations to ensure project activities do not cause irreversible harm to any VEC. If proper planning is in place, this project shall avoid long-term adverse effect to the environment or ecosystem of Aspen Brook.

5.3. Climate Change

Projects undertaken by DTI consider climate change. This includes a projects influence on climate change indicators (e.g., greenhouse gases); and climate change effects on the projects (e.g., extreme weather events, increased flows).

6.0 Required Mitigations and Planning

6.1. Role of Owner

It is the role of the owner to carry out a project in a safe manner on time and on budget. Project activities must comply with Federal, Provincial and Municipal regulations and laws respecting environmental protection.

To ensure protection of the environment, the work at all times shall be subject to inspection by the Owner and staff of relevant, provincial and federal agencies. Normally, all inspections other than by the Owner will be arranged in advance through the Owner. Any specific matters relating to environmental protection will be dealt with between the Contractor and Owner. The EPP will be included as a Supplementary General Condition (SGC) of the Owner's Tender Book. During the full construction period of the project, DTI will monitor and record any incidents pertaining to wildlife, migratory birds, and fish and any incidents or matters pertaining to soil and water contamination.

For the purpose of this Environmental Protection Plan, the Owner is represented by an Environmental Monitor that includes, but is not limited to the Owner's Representative, Senior Environmental Planner, Environmental Scientist and all other departmental staff who are designated for this purpose.

7.1.1 Compliance Monitoring

This is a process whereby DTI will conduct visual monitoring to ensure compliance with the EPP, CEMP, regulatory requirements, conditions of approvals, permits, letters of advice, authorizations, and environmental commitments through regular inspections of construction and operational activities.

The Owner shall ensure that all environmental protection measures which are part of this contract are adhered to by the Contractor. The Owner shall ensure the Contractor obtains all necessary regulatory permits and approvals prior to specific work activities and that the terms and conditions of all regulatory permits and approvals are followed. Compliance will be ensured through regular inspections of construction sites by the Environmental Monitor. Non-compliance could result in legal action against the Contractor by regulatory agencies and/or hold back of payment owing by the Owner.

The overall responsibility for DTI's compliance monitoring will rest with the Owner's Representative. The Owner's Representative (or designated Environmental Monitor) will be responsible for the day to day field monitoring and for ensuring that the EPP specifications are enforced and implemented by the Contractor.

7.1.2 Environmental Reporting

The Owner's Representative will act as the liaison between DTI and regulatory bodies responsible for environmental protection. Normally, the Senior Environmental Planner (SEP) will liaise between the Regulatory bodies and the Owner's Representative to whom the contractor will report.

The role of the DTI Environmental Monitor will be to evaluate the environmental activities of DTI and the contractor, as well as to assess and interpret environmental protection measures as outlined in the EPP, regulations, guidelines, permits, approvals, letters of advice, and authorizations. The EM will advise construction management of environmental procedures and requirements, participate in project meetings, conduct environmental reviews of drawings and play a major role in the development and revision of the EPP.

7.1.3 Contractor Education

The Contractor is responsible to ensure all staff and sub-contractors are aware of this EPP, the CEMP, which shall include a review of the environmental protection measures outlined in the EPP, Division 8, DFO requirements, and other related mitigations.

7.2 Role of Contractor – Subcontractors

As stated in Division 8, Section 805:

“The Contractor shall ensure that its employees, Sub-contractors and their employees, machinery and equipment operators, and truckers comply with the conditions of the contract and with all applicable environmental laws, regulations, permits, and requirements of federal, provincial and municipal authorities, and such other rules and regulations as the Owner may establish.”

The Contractor is expected to comply with all aspects of the EPP and prohibitions stated herein. The Contractor shall acquire all regulatory approvals stated in Table 2. The Contractor shall attain approval from the owner and advise of any change in plans **no less than 3 days** prior to implementing changes on site. The Contractor shall report issues of non-compliance or non-conformance immediately to the Owner’s Representative. The Contingency plan for unplanned events will address required contact numbers and required reporting to the major regulatory authorities.

Environmental training of the Contractor's and subcontractor's personnel coming on staff after the environmental awareness session will be the responsibility of the Contractor. DTI Owner’s Representative will monitor this provision.

7.3 Contractor Environmental Mitigation Plan

A Contractor Environmental Mitigation Plan (CEMP) **is required** for this project. A template of what is expected in the CEMP is in **Appendix B**. Some elements required in a CEMP are:

- Pre-construction planning, including the identification project-environmental interactions (e.g., VECs including: public and worker safety, wildlife, habitat, plants, resource users, etc.);
- Detailed environmental mitigation measures to avoid negative or irreversible environmental impacts;
- Contingency plans for unplanned events;
- List of DTI and Contractor contacts and reporting numbers; and
- Decommissioning Plan that includes site rehabilitation measures.

7.4 Required Documentation

In accordance with Form 805 of the 2011 General Specifications Book; the following documents shall be submitted to the Owner's Representative prior to construction. The Owner's Representative, SEP and/or designated staff will review and approve these plans prior to commencement of construction.

- 2 copies of Contractor Environmental Mitigation Plan.
- 2 Copies of all environmental permits identified in Table 2, page 6.
- Contingency Plan for environmental incidents/unplanned events.

7.0 General Construction Practices

7.1. Protection of Watercourses and Waterbodies

Construction of a permanent bridge across Aspen Brook has the potential of causing siltation within the water course. To mitigate this, DTI has consulted closely with DFO to determine the appropriate mitigation procedures to minimize environmental disturbance. The Contractor shall be aware of the environmental sensitivities associated with the new crossing construction and the demolition and removal of the existing bridge. The contractor shall therefore be required to strictly follow the environmental requirements (Division 8) of the Department's Specification Book and of the special environmental requirements of the contract documents.

The Contractor shall submit a demolition plan to the Owner's Representative/SEP for review and approval prior to commencing demolition work. Demolition and removal of existing structure shall be carried out so no significant debris enters Aspen Brook. Busting of the existing structure while in place shall not be permitted. The Contractor shall ensure that all waste material from the bridge demolition is disposed of in accordance with the *Environmental Protection Act, SNL2002 CHAPTER E-14.2* and prior approval by the Department of Environment and Conservation. The Contractor's Demolition Plan shall clearly demonstrate that there is compliance with all environmental requirements for the project and adhere to the Contractor's Responsibilities – Regulatory Agencies Section 805.

If a significant amount of demolition debris from the existing structure enters Aspen Brook the contractor's bid price for removal of existing structure shall be reduced by 50 percent.

8.1.1 Siltation Mitigation

There is a single crossing in this project. The Contractor shall note that fording or moving equipment through the river, or across any other watercourse, will be prohibited. Temporary

culverts or temporary bridging are preferred at such locations where frequent fording would be required.

To prevent siltation within Aspen Brook during construction the contractor shall use the mitigation in the Specification book, Sections 815, 816, 817, 818 and 845.

8.1.1.1 Silt Fence:

This specification deals with the requirements for the provision, maintenance, and eventual removal of silt fence. Intended for reducing the amount of silt present in run off from highway projects during the construction process (Section 816).

8.1.1.2 Check Dam Sediment Trap

This specification deals with the requirements for the provision, maintenance, and eventual disposal of a check dam sediment trap. Intended for reducing the amount of silt present in run off from highway cuts during the construction process (Section 817).

In all exposed ditches directing drainage flows into or toward watercourses, check dams need to be installed. The slope of the ditch will dictate the number of check dams to be used.

Where the slope is greater than 1% the distance between check dams shall be 15m minus (1.5 X slope in %) or as determined by specific site conditions. Where the soil is highly erodible as in sandy conditions, efforts will be made to maintain the effectiveness of the check dam by periodic cleaning to maximize the sediment retention characteristics of the dams. In most instances check dams may be left in the ditch permanently to encourage natural stabilization. On flat grades a minimum distance between check dams of 15 m (each side of the watercourse) will be used; however, as grades increase the distance between check dams will be decreased by using the following rule:

**NS Distance between Check Dams (m) will be 15m Minus
 1.5 X Slope Gradient (%)**

Or as specific site conditions dictate.

8.1.1.3 Floating Silt Curtain/Turbidity Barrier:

This specification covers the supply, installation, and operation of a floating silt curtain or turbidity barrier. To be used around the leading edge of the advancing fill for construction operations to control any silt that may be generated from the bottom of the fill or other materials

that may be used in construction of the road or other structure in a submerged portion of a water body (Section 818).

8.1.1.4 Take Off Ditches

In areas where it is possible, take off ditches should be used to direct sediment laden water into the adjacent vegetation so as to prevent soils or silt from entering the watercourse.

8.1.1.5 Sediment Basins

These shall be used to settle out sediment laden water where necessary or where so directed by the Owner's Representative. The sedimentation basins shall be constructed in accordance with the Tender Book, or instructions from the Owner's Representative. The Contractor is also referred to the water quality standards set forth in the Environmental Control Water and Sewage Regulations

8.1.1.6 Equipment Operation and Prevention of Erosion and Siltation

The Contractor is responsible for storm water and drainage management during the period of the contract. This includes the collection, channeling, containment, settling, discharge and any other operation to effectively control storm runoff and prevent problems of erosion or siltation of adjacent or downstream areas (Section 845).

8.1.2 Buffer Zones

8.1.2.1 Permanent Buffer Zones at Watercourse Crossings

Permanent buffer zones of undisturbed vegetation will be retained either side of the construction zone at designated watercourses up to the toe of fill. On flat grades a minimum buffer zone width of 30 m (each side of the watercourse) will be used; however, as grades increase the width of the buffer will be increased by using the following rule:

NS Width of Buffer Zone (m) will be 30m Plus

1.5 X Slope Gradient (%)

Or as specific site conditions dictate.

8.1.2.2 Temporary Buffer Zones at Watercourse Crossings

The temporary and permanent buffer zones at these stream crossing locations shall be clearly flagged with blue flagging tape in the field by DTI and the Contractor notified prior to the Contractor's operations proceeding into these areas.

NS An ungrubbed temporary buffer zone of **30 m**, on each side of watercourses and wetlands shall be maintained until such time that the crossing structure is ready for installation.

8.1.2.3 Buffer Zones Between Road & Adjacent Water bodies

A permanent buffer zone of undisturbed vegetation shall be maintained between the highway cutting limits and the edge of adjacent water bodies wherever possible.

NS In areas where the side slope is greater than 30% the buffer shall be:

20m + (1.5 X Slope Gradient (%))

Or as specific site conditions dictate.

Where it is not possible to achieve this buffer, such as when the soil is highly erodible as in sandy conditions, efforts will be made to reduce clearing limits to maximize the buffer.

8.2 Protection of Vegetation and Wetlands

The Contractor shall be aware that the work required in and around water crossings shall be performed with due care and caution so as to prevent undue disturbance to adjacent vegetation and wetlands from construction activities and off Right Of Way travel (Section 850). Immediately following and during some construction activities, the Engineer will identify areas requiring seeding/sodding or stabilization by a method to prevent erosion. Damage or disturbance of vegetation and/or wetlands outside the ROW shall be re-vegetated and/or restored to the satisfaction of the Owner's Representative at the Contractor's expense (Section 855).

8.3 Storage and Handling of Fuels and Other Hazardous, Toxic, or Dangerous Material

All storage tank systems must be registered under and in compliance with Newfoundland Regulation 58/03, The Storage and Handling of Gasoline and Associated Products Regulations, 2003 before commencing operation. Registration does not apply to storage tank systems of a capacity less than 2500 litres that are connected to a heating appliance. Contractors shall supply

verification of storage tank registration to the Engineer prior to the commencement of work (Section 820).

8.3.1 Marshalling Yards and Temporary Work Camps

Equipment or material storage yards and temporary work camps shall be located at least 100 m from any watercourse or designated wetland. The Contractor is responsible for obtaining all appropriate permits from government agencies with legislation and regulations relevant to camp facilities.

8.4 Waste Management

The Contractor shall collect and dispose of all waste produced by its employees and those of its Subcontractors in a manner approved by the Engineer, and in accordance with the Newfoundland and Labrador Environmental Protection Act, 2002. Through the placement of suitable containers at the site, the Contractor shall collect and dispose of rubbish and domestic garbage generated by employees. During the progress of the work, the Contractor shall keep the areas occupied by it and access to such areas in a neat, clean, and safe condition, and free from the accumulation of all waste materials including crating materials, rubbish, drink containers, cigarette cartons, and all other waste. All solid waste shall be removed from the job site and recycled or disposed of at an Approved Waste Disposal Site, with the permission of the municipal authority. No waste material shall be deposited in any watercourse or wetland (Section 825).

8.5 Other Environmental Requirements

8.5.1 Use of Herbicides for Brush Control

This specification covers the supply and application of herbicide to broadleaf brush and trees. Specific locations to be sprayed, and areas to be omitted, shall be designated by the Engineer (Section 810).

8.5.2 Forest Fire Protection

The Contractor shall take all precautions necessary to prevent fire hazards when working at the job site and shall keep the job site free of all flammable waste. All slash and waste timber shall be mulched and not burned (Section 835).

8.5.3 Dust Control

The Contractor shall ensure that dust does not become a problem for adjacent property owners or construction site personnel or a hazard to vehicular traffic. When required, or as directed by the Engineer, water or an acceptable dust suppressant such as calcium chloride shall be used by the Contractor on haul routes or other locations on the project to control dust (Section 840).

8.5.4 Protection of Historic Resources

The Contractor shall be aware that the Historic Resources Act (1985) requires the protection of archaeological sites and artifacts, and sets forth procedures to be followed in the event that either are found (Section 860).

8.5.5 Additional Environmental Requirements

The Contractor shall be aware that other environmental requirements are contained in other sections. The attention of the Contractor is directed to Section 865.

Appendix A

Maps



Image 1: Project Location on Island

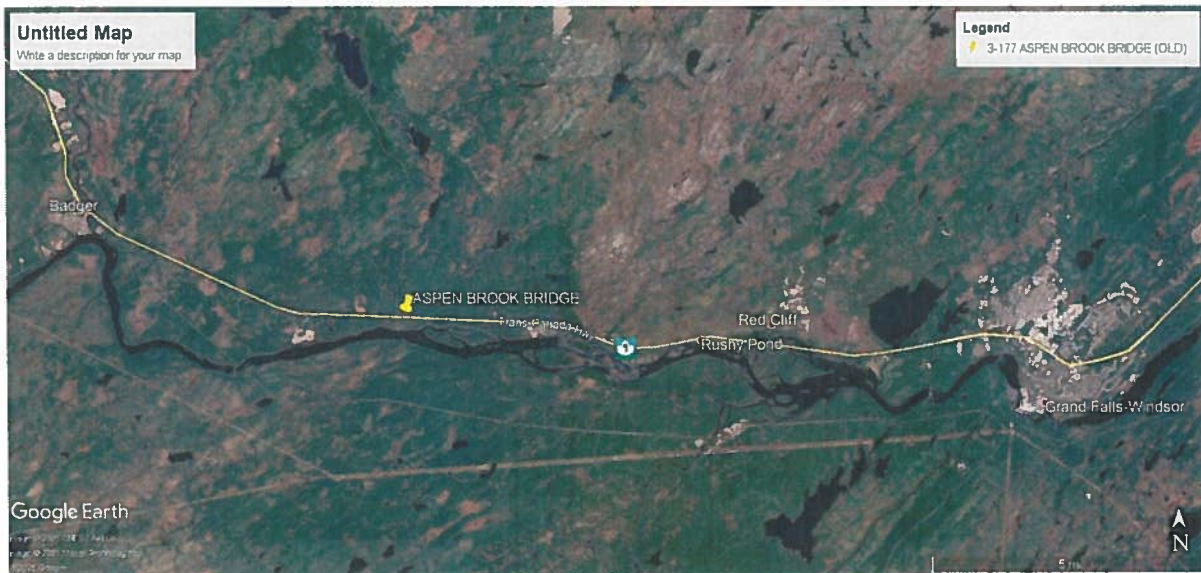


Image 2: Nearest Receptors to Project



Image 3: Close Up of Aspen Brook Bridge

Appendix B

Contractor Environmental Mitigation Plan (CEMP)

TEMPLATE

Contractor Environmental Mitigation Plan (CEMP)

Template/Requirements for Submissions

All submissions should be presented in report style manner with proper formatting including a cover page and a table of contents. The cover page should state the project number, project description and company name with contact information.

Section 1: Project Location & Description

- This section should clearly identify the exact project location identifying all project limits (a map would be recommended for clarification).
- The project description should summarize the tendered scope of work

Section 1.1 Job Procedure & Schedule.

- A step by step process is preferred to ensure order of tasks are clearly understood.
- For those projects with separate parts, it is recommended to provide a separate step by step process for each part.
- A schedule indicating proposed start date and length of each task, thereby, identifying the critical path for the project and estimated completion date.

Section 2: Potential Environmental Sensitivities and Impacts

- This section should clearly state the relevant construction activity and the potential environmental impact that those activities will have on the Valuable Ecosystem Components (VEC's). A clear understanding of the project VEC's would come from the 'Project Environmental Interaction' section in the Environmental Protection Plan (EPP) and the supplementary general condition.
 - For clarity and formatting it is suggested this section be presented in a table format.

Section 3: Mitigation Strategies

- This section should identify and explain the proposed mitigation strategies that would be used throughout the entirety of the project including the correct procedures to follow for any unplanned events.
 - This section should include a drawing/legible sketch showing a detailed plan view of the proposed worksite highlighting the mitigation strategies (settling ponds, pump placement, hose discharge location, silt fence and/or hay bales, check dam sediment traps, coffer dams, etc.) This could be included as an Appendix if so desired.

Section 4: Permits & Authorizations

- Identify any required permits, authorizations and approvals required to carry out the scope of work.

Section 5: Monitoring & Reporting

- Explain how the contractor plans to ensure that the worksite is abiding by the CEMP
- An explanation of the reporting process showing a clear chart indicating the appropriate reporting process complete with specific names and contact information

Section 6: Communication & Document Control

- Training session for environmental awareness explaining how the CEMP will be communicated to all those involved in site activities and documentation indicating this training occurred at a preconstruction meeting and any time it is required.

Section 7: Decommissioning

This section should include a clear & concise plan on all measures that will be taken to ensure proper rehabilitation of the construction site once the scope of work has been completed.

Suggested Appendices:

Map of Project Location (referenced in Section 1)

Drawings or sketch(es) of Mitigation Strategies

DTW Environmental Protection Plan

DTW Highways Specifications Book - Division 8: General Environmental Requirements

Permits & Approvals: As identified/explained in Section 2

Any relevant sections and templates from the contractor Site Specific Safety Manual (ex. Job procedures related to any environmental considerations, incident/accident/near miss reporting, emergency response procedure with appropriate contacts)

