

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

**ENVIRONMENTAL ASSESSMENT**

**FOR THE REPLACEMENT OF THE EXISTING  
BRIDGES  
ON WINDMILL BROOK NORTH AND  
WINDMILL BROOK SOUTH  
ROUTE 330**

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**Appendix A: General Project Details**

**PROPONENT:**

**i. Name of Corporate Body**

Department of Transportation and Infrastructure  
Government of Newfoundland & Labrador

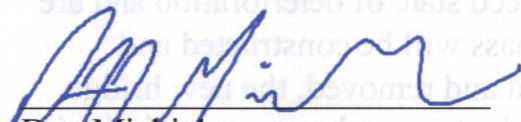
**ii. Address**

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**iii. Chief Executive Officer**

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**iv. Approval for Environmental Assessment Submission**

  
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Date

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## **THE UNDERTAKING:**

### **(i) Name of the Undertaking**

This submission is for the demolition of two current deteriorated bridges on the Route 330. Their locations fall on Windmill Brook North and Windmill Brook South, both of which confluence approximately 250 m downstream forming a pond near sea level held in by a barachois, Windmill Brook North is a scheduled salmon river whereas Windmill Brook South isn't listed as such but is included in this Environmental Assessment Submission (EAS) as it is a tributary of a salmon river. The project location is approximately 3.5 km east of Lumsden, (Fig. 1).

### **(ii) Nature of the Undertaking**

The demolition of Windmill Brook North Bridge and Windmill Brook South Bridge, which cross Windmill Brook North and Windmill Brook South respectively (Fig. 3). The bridges are currently under an advanced state of deterioration and are needing replacement. A 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. The two bridges will be demolished, removed, and disposed of in an environmentally responsible manner.

### **(iii) Purpose / Rationale / Need for the Undertaking**

The purpose of this project is to remove the aged and deteriorated bridges on Windmill Brook North and Windmill Brook South as they have deteriorated and are in need of replacement. Both projects are near each other and will be replaced at the



same time.

There are no additional routing alternatives to replacing the bridge. It is an essential link on Route 330 and any alternative would not be feasible.

## **Description of the Undertaking**

### **Geographic Location**

The project is divided into two locations, one for each structure. Windmill Brook North Bridge is located on Route 330, which crosses Windmill Brook North. The coordinates are 49° 16' 19.4268" N, 53° 34' 13.6128" W.

Windmill Brook South Bridge is also located on Route 330, which crosses Windmill Brook South. The coordinates are 49° 16' 9.0876" N, 53° 34' 11.514" W.

### **Physical Features.**

Windmill Brook Bridge North is located on Route 330 km 139.22 approximately 4 km south east of Lumsden. The existing bridge is a single span 15.2 m double tee concrete bridge on concrete abutments with shallow foundations supported on bedrock.

Windmill Brook Bridge South is located on Route 330 km 139.54 approximately 4 km south east of Lumsden. The existing bridge is a single span 9.1 m double tee concrete bridge on concrete abutments with shallow foundations supported on bedrock.

## **Environment.**

This area is in part of the **Eastern Hyper-Oceanic Barrens Ecoregion**. This small fragmented ecoregion is located on the cold, rocky coastline along the northeastern coastal strips near Bay de Verde, Bonavista, and Cape Freels. The topography is flat to gently rolling, and elevations range from sea level to about 200 meters. Trees here are all stunted and form scattered areas of balsam fir tuckamore. The rest of the ecoregion is almost completely devoid of tree cover. Coastal barrens vegetation is the typical feature of the landscape and is interesting because of its similarity to the vegetation in coastal areas of northern Scotland and southern Norway. This ecoregion is one of the few places in North America where extensive carpets of heath moss occurs. Blanket and plateau bogs are common in areas of low drainage.

The climate of the Eastern Hyperoceanic Barrens ecoregion is strongly influenced by the close proximity of the ocean. Summers are similar to those on the coldest mountains of the west coast of the Island. On well-drained sites heath moss forms extensive, dense carpets where crowberry, lichens, and some arctic-alpine plants can be found. Berry producing vegetation includes bakeapple, blueberry, partridgeberry, marshberry, crowberry.

Ecologically, the Eastern Hyperoceanic Barrens ecoregion has immense value for its bird life. The vast majority are located along the seacoast. Rough-legged hawk, snowy owl, Savannah sparrow, Willow ptarmigan and American pipit are all typically found here. 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 Route 330, users of Windmill Bight Provincial Park Reserve just downstream of the two projects, residents adjacent to both bridges, residents of Lumsden (~ 3.5 km to the west) and Cape Freels ~ 6 km to the east. There are also a small number of cabin owners approximately 1.3 km to the west.

## **Habitat at Project Site(s).**

Windmill Brook North.



The reach of the stream under the bridge at Windmill Brook North consists of migration/rearing habitat (Figs. 4 & 5). Pool is ~60 m downstream 30 m upstream. Slope is less than 1%. Substrate consists of 30% boulders, 20% cobble, 20% rubble, 25% pebble and 5% gravel. Velocities are less than 0.1 m/s and depths range from 0.1m to 1.0 m. Riparian vegetation is mainly shrubs and herbaceous plants. Both banks also contain trees in different stages of maturity.

### Windmill Brook South

The habitat above and below Windmill Brook Bridge South consists of a shallow pool making migration/rearing habitat (Figs. 6 & 7). Slope is less than 1%. The substrate consists of 10% boulders, 35% cobble, 25% rubble, 25% pebble and 5% gravel. Velocities are <1m/s. Downstream riparian vegetation is composed mainly of shrubs providing approximately 20% cover. Upstream maturing trees and large shrubs create approximately 80% cover.

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 plan of action is followed for removing the two bridges and minimizing potential deleterious impacts on the existing aquatic habitats. The Water Resources Division's Environmental Guidelines for work around watercourses will be used during the design and construction phases.

- 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-ppe/measures-mesures/measures-mesures-eng.html>) and
- Fish passage guidelines and other applicable guidelines and Fact Sheets

## Construction

The project will encompass three parts:

### 1) Temporary Crossing:



The first phase of the project is install temporary bridges for continuous traffic movement. Both temporary crossings will be placed 20 meters downstream. 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. Total length of the diversions is approximately 125m. The north diversion will contain two 3000mm culverts and the south diversion will contain two 2400mm culverts. 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:**

### **Windmill Brook North**

The existing structure is located on Route 330 at km 139.22. Its coordinates are 49° 16' 19.4268" N, 53° 34' 13.6128" W. It is a single span 15.2 m double tee concrete bridge on concrete abutments with shallow foundations supported on bedrock.

CL625 refers to the design truck loading as specified in the Canadian Highway Bridge Design Code. RCU is the road profile as designated in the Department's Highways Specification Book

The bridge shall be replaced with a single span bridge on the existing alignment with a higher elevation as per the Department supplied grade line. The bridge will be designed to be a semi-integral 900mm concrete I girder bridge of 19 m clear span, with shallow foundations supported on bedrock or structural rock mattress. The hydrological profile will be supplied by the Department. The bridge will be 11.8m wide, RCU 80 road profile, with no sidewalks and no expansion joints. This bridge shall be designed for CL625. The intent of this project is to replace the existing bridge on the same alignment. The horizontal alignment is to remain unchanged.

### **Windmill Brook South**

The existing structure is located on Route 330 km 139.54 approximately 4 km south east of Lumsden. GPS co-ordinates 49° 16' 9.0876" N, 53° 34' 11.514" W. The

existing bridge is a single span 9.1 m double tee concrete bridge on concrete abutments with shallow foundations supported on bedrock.

The bridge shall be replaced with a single span bridge on the existing alignment with a higher elevation as per the Department supplied grade line. The bridge will be designed to be a rigid frame structure of 15 m clear span, with shallow foundations supported on bedrock or structural rock mattress. The hydrological profile will be supplied by the Department. The bridge will be 11.8m wide, RCU 80 road profile, with no sidewalks and no expansion joints. This bridge shall be designed for CL625

The Contractor shall submit a demolition plan for the old bridges 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 RLU 70 (Modified) standard to accommodate traffic. This work will also involve the design and installation of a 496m, 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".

### **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 Owner's Representative will be*



*arranged in advance through the Owner's Representative. Any specific matters relating to environmental protection will be dealt with between the Contractor and the Owner's Representative.*

*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 Owner's Representative. Except in emergency situations, environmental protection measures required by other agencies must be approved by the Owner's Representative prior to implementation by the Contractor.*

It is Owner's policy to protect the environment along the route of the project, in areas adjacent to 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.

### **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 Owner's Representative 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 Owner's Representative at the Contractor's expense (Section 855).

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

There is no expected fuel or hydrocarbon storage at the project site. Fuel will be brought in by truck and maintenance will be carried out off-site. In the case of storage within the project site it will fall under GAP regulations as can be seen below.



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 liters that are connected to a heating appliance. Contractors shall supply verification of storage tank registration to the Owner's Representative prior to the commencement of work (Section 820).

### **Contractor Environmental Mitigation Plan**

A Contractor Environmental Mitigation Plan (**CEMP**), completed by the Contractor and approved by DTI before work commences, is required for this project.

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 DTI 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 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 lead 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 installation of the two bridges 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	Type of Permit
The various types of occupations anticipated for this project include:	
(a) Construction Estimators; 2234	
(b) Construction Managers; 0711	
(c) Structural Engineers; 2231	
(d) Heavy Equipment Operators; 7521	
(e) Heavy Equipment Mechanics; 7312	
(f) Labourers; 7621	
(g) Truck Drivers; 7511	
(h) Senior Environmental Planner 2121	
(i) Co-op Engineering Student	



Contract completion is expected to be in the summer months of 2023. There is an estimate of approximately 10-20 general construction workers during the course of building. All of the above could change depending on the Contractor and when tender is awarded. Numbers and duration of employment of individuals can't be determined as the winning bidder, the Contractor, has the responsibility of choosing their own employees. This occurs after the project goes to tender, which takes place only after the project receives approval from the EA process.

**Project-related Documents**

- 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
Fuel storage & handling	Government Service Centre
Stream crossing approval	Dept. of Fisheries and Oceans
Stream crossing approval	Water Resources Division
Solid waste disposal	Government Service Centre
Commercial Cutting	Fisheries, Forestry, and Agriculture

## **SCHEDULE**

The Department of Transportation and Infrastructure would like to complete the requirements of the Environmental Assessment Act and seek approval for the project as soon as possible. A tender call could take place in the fall or winter of 2023 with construction starting shortly after.

## **FUNDING**

The project will be funded by the Provincial Government. Due to the tendering process and competition between contractors with the costs involved the Department of Transportation and Infrastructure isn't in the position to reveal the potential cost of the project.



## SCHEDULE

The Department of Transportation and Infrastructure would like to complete the requirements of the Environmental Assessment Act and seek approval for the project as soon as possible. A tender call could take place in the fall or winter of 2023 with construction starting shortly after.

### Appendix A

#### General Project Details

## FUNDING

The project will be funded by the Provincial Government. Due to the tendering process and competition between contractors with the costs involved the Department of Transportation and Infrastructure is in the position to reveal the potential cost of the project.

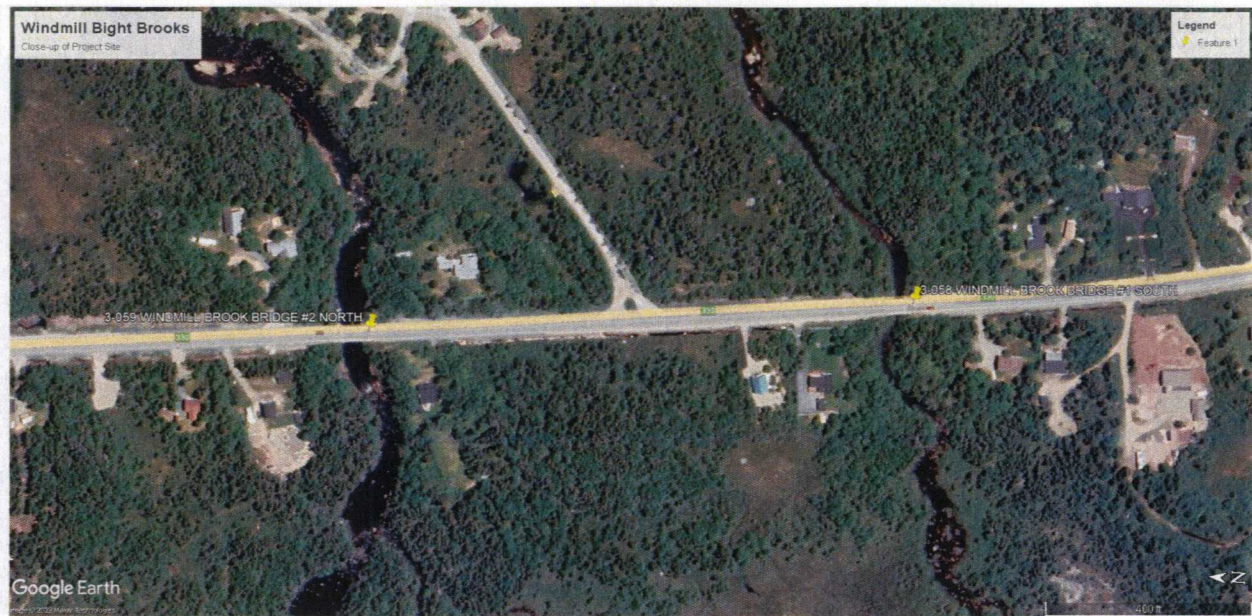


**Fig. 1: Provincial Location of Project**

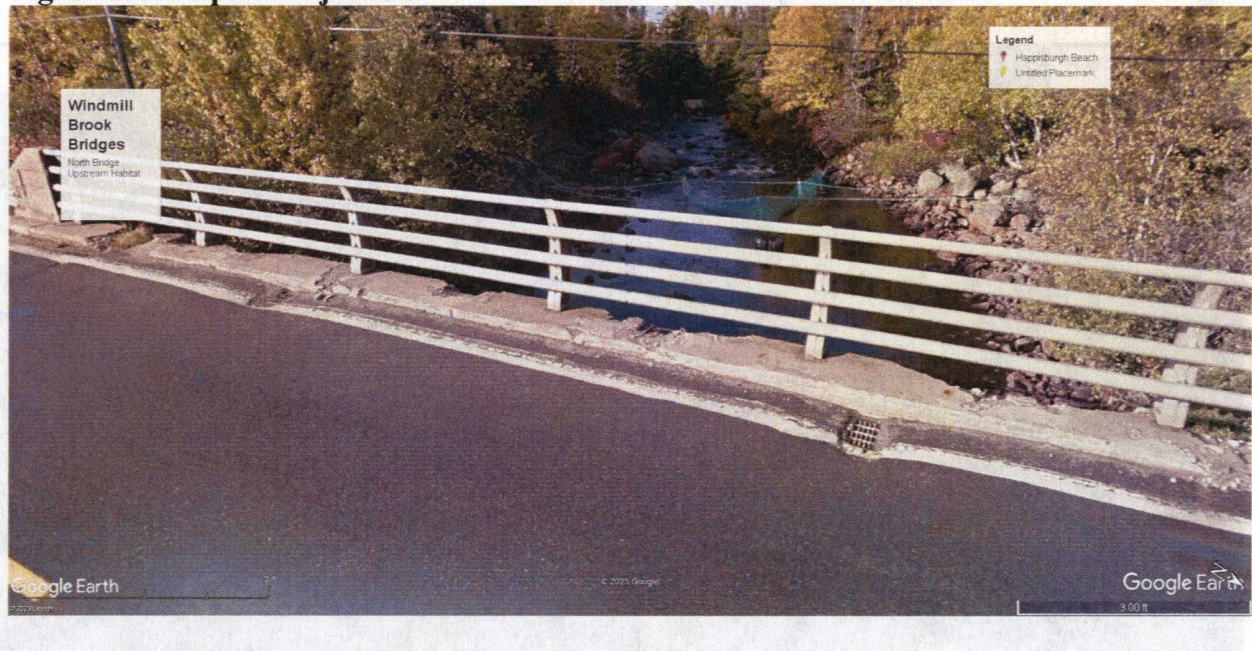


**Fig. 2: Broad View of Project Site**



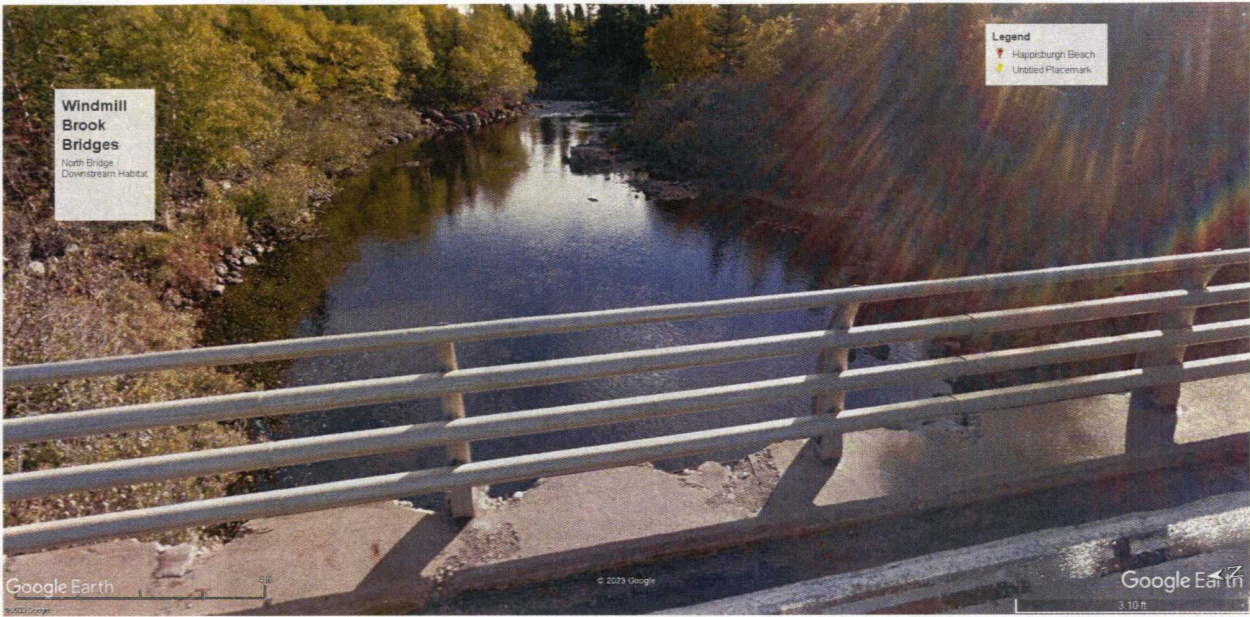


**Fig. 3: Close Up of Project Site**



**Fig. 4: Windmill Brook North Bridge Upstream**





**Fig. 5: Windmill Brook North Bridge Downstream**

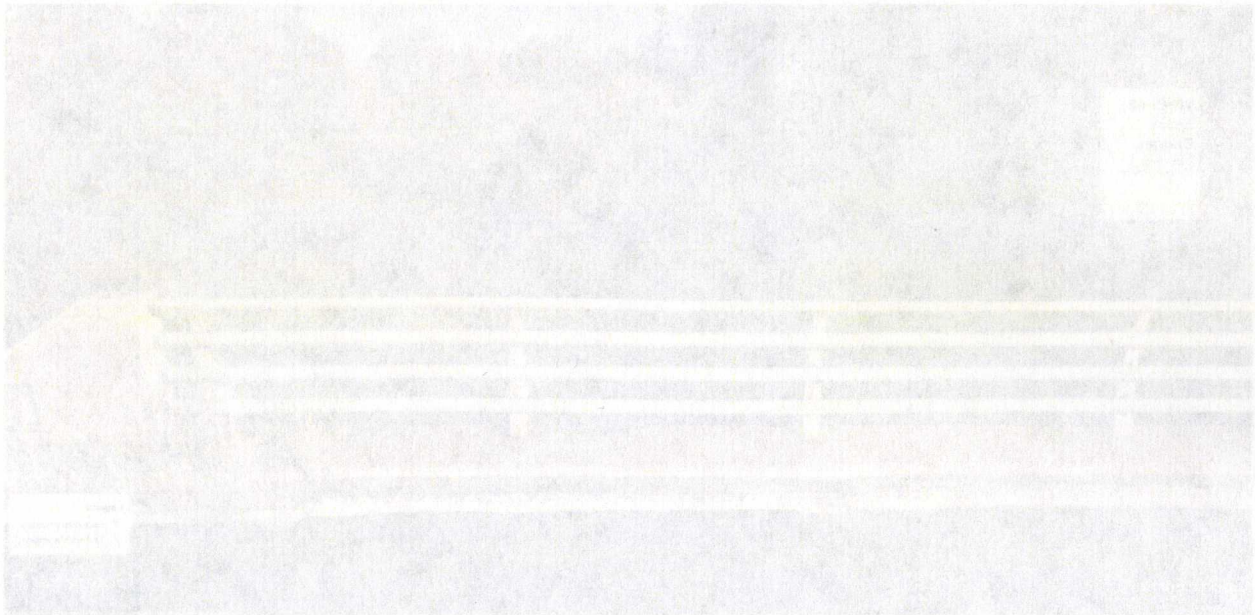


**Fig. 6: Windmill Brook South Bridge Upstream**





**Fig. 6: Windmill Brook South Bridge Upstream**



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