



# MEMORANDUM

November 8, 2022

Reference No.: 20328

**TO:** Jae Park, P.Eng., / Project Engineer / Transportation Construction County of Simcoe, Transportation & Engineering

**FROM:** Blair Rendulich / Fisheries Assessment Specialist / LEA Consulting Ltd.  
Bradley Dufour / Environmental Manager / LEA Consulting Ltd.

**CC:** Julie Scruton, P.Eng. / Manager, Transportation Construction / County of Simcoe, Transportation & Engineering  
Rick Krutzler, M.A.Sc., P.Eng. / Project Manager / LEA Consulting Ltd.

**RE: Aquatic Ecosystem Existing Conditions and Impact Assessment for the Replacement of Old Fort Road (County Road 58) Overhead Bridge (Simcoe Structure #058086), County of Simcoe**

## 1 INTRODUCTION

LEA Consulting Ltd. (LEA) has been retained by the County of Simcoe (the County) to undertake a detail design and Municipal Class Environmental Assessment (MCEA) study for the replacement of the Old Fort Road (Simcoe County 58) Overhead Bridge over the Trans Canada Trail (the trail) (abandoned CN Railway Line). The bridge crossing is approximately 300 m south of Highway 12, in the Township of Tay, near Port McNicoll, Ontario (Figure 1). The existing bridge structure consists of three (3) concrete slab spans (13.6 m, 13.7m, and 12.1 m) on a prestressed voided slab and reinforced concrete piers and abutments. The study is being conducted in accordance with Schedule B of the MCEA (October 2000, as amended in 2007, 2011 and 2015) process. The study will identify alternatives for the replacement of the bridge. The environmental impacts of each alternative will be evaluated and in consultation with the County, the public and external agencies and a technically preferred alternative will be selected for detail design.

The assessment of impacts as presented within this memorandum reflects the technically preferred alternative as described in Section 5.

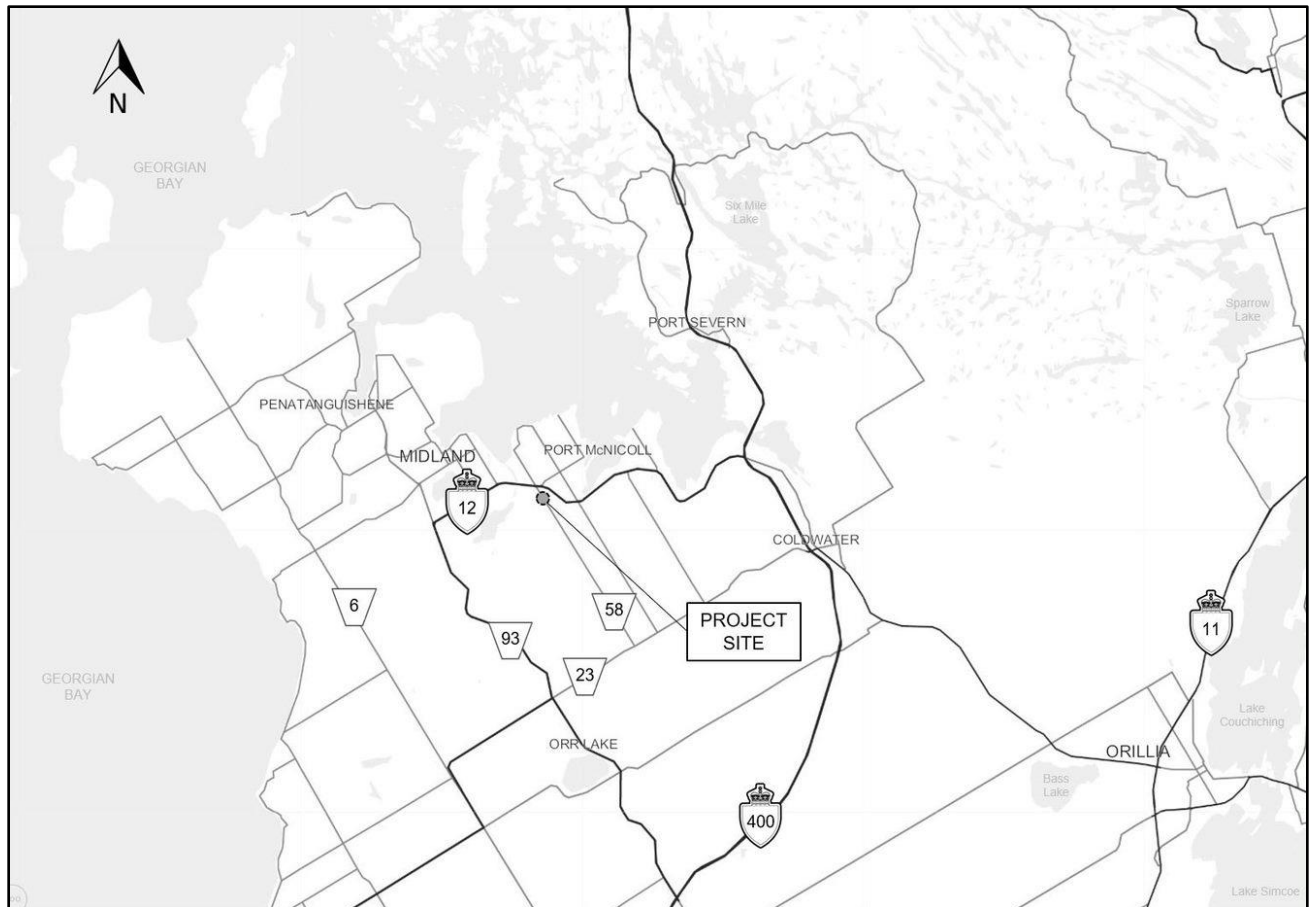


Figure 1. Project Location Key Map

## 2 STUDY AREA

The project study area for this evaluation is 120 m from the centroid of the bridge crossing (Figure 2). The study area is approximately 5.25 hectares (ha) in size and consists of residential properties, cultural meadows, thickets and small woodlots along the Trans Canada trail. The study area is within the jurisdiction of Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNR) Midhurst District. The study area is not within any Conservation Authority jurisdiction; however, the Severn Sound Environmental Association (SSEA) provides functional oversight of work and activities in the watershed. The SSEA is a Joint Service Board under the *Municipal Act* (Section 202). The SSEA “provides continuing support to local municipalities, to sustain environmental quality and to ensure continued protection through wise stewardship of Severn Sound and its tributaries” (SSEA, 2020).

## 3 FIELD INVESTIGATIONS

The characterization and assessment of fish and fish habitat existing conditions was undertaken as per requirements of the MTO Environmental Guide for Fish and Fish Habitat (2020). A multi-season field survey



program was undertaken by LEA staff, with field investigations completed on May 20, 2020, July 31, 2020 and June 8, 2022.

The area of investigation for the field investigation was 50 m upstream from the edge of the Right-of-Way (ROW) to 200 m downstream of the edge of the ROW where watercourse crossed Old Fort Road. The Zone of Detailed Assessment was defined as the length of waterbody from 20 m upstream of the ROW to 50 m downstream of the ROW. The area of investigation beyond the Zone of Detailed Assessment was considered to be the Zone of General Assessment.

Fish community surveys were conducted to augment/confirm previously reported species of fish. The determination of the fish community can confirm direct fish use, define general community structure, provide an indication of potential specialized habitat, confirm spawning or migratory activity (when timing is considered), and identify species with particular habitat dependencies or sensitivities.

Fish community surveys were conducted by two (2) staff through a use of backpack electroshocker (Smith-Root LR24). Fish community surveys were completed using the Screening Approach. The Screening Approach targeted all habitat types and was completed within a 20 to 30 minute timeframe. Fish community sampling was completed under a License to Collects Fish for Scientific Purposes (LCFSP; #123456) obtained from the MNRF. A copy of the LCFSP is provided in **Appendix A**.

A photographic record of existing conditions is provided in **Appendix B**. Field record forms, including aquatic ecosystem habitat mapping, is provided in **Appendix C**.

## 4 EXISTING CONDITIONS

Background information was solicited from the NDMNRF for the study area on July 30, 2020. Copies of relevant agency consultation, including secondary source information/material are provided in **Appendix A**. The NDMNRF identified that in-water for this watercourse is not permitted between **March 15 to July 15**. NDMNRF provided very limited information regarding existing fish communities and the thermal regime for study area watercourses and will require information augmented through field investigations as completed by LEA.

Review of background existing fish community information provided for the downstream Wye River noted recorded occurrences for Brown Bullhead (*Ameiurus nebulosus*), Brown Trout (*Salmo trutta*), Channel Catfish (*Ictalurus punctatus*), Common Carp (*Cyprinus carpio*), Largemouth Bass (*Micropterus salmoides*), Northern Pike (*Esox lucius*), Pumpkinseed (*Lepomis gibbosus*), Rainbow Trout (*Oncorhynchus mykiss*), Rock Bass (*Ambloplites rupestris*), White Sucker (*Catostomus commersonii*) and Yellow Perch (*Perca flavescens*). Available information as reviewed through the Department of Fisheries and Oceans (DFO) Species at Risk online mapping and public registry feature did not identify any federally listed Species at Risk (SAR) or critical habitat within the study area or the Wye River. No occurrence records were reported for provincially protected aquatic SAR in the Natural Heritage Information Centre (NHIC) database.



The study area is located within Severn Sound watershed which is one of four (4) watersheds located in the Southern Georgian Bay Lake Simcoe Source Protection Region. The three (3) other watersheds within the Source Protection Area include in the Lake Simcoe, Nottawasaga Valley and the Black-Severn watersheds. The land portion of the Severn Sound watershed is drained by seven (7) major tributary rivers or streams, accounting for more than 76% of the total drainage area. Miscellaneous drainage directly to the Sound or along the coast of the Township of Tiny and Severn Sound, west of the study area, is drained by smaller tributaries accounting for 24% of the total land drainage. There are four (4) major inland lakes included in the land drainage: Farlain Lake, Little Lake (Midland), Orr Lake and Bass Lake. Major wetlands include: Tiny Marsh, Matchedash Bay and the Wye Marsh which is directly associated with the study area. Contained within the Severn Sound watershed, twenty (20) sub-watersheds have been identified. The Wye River is second largest subwatershed with a total drainage area of 208.15 km<sup>2</sup>. Other noted subwatersheds include the North River with the largest total drainage area of 318.74 km<sup>2</sup> and the Hogg Creek subwatershed, located east of the study area, with a total drainage area of 60 km<sup>2</sup> (SSEA 2009). The watercourse crossing north of Old Fort Road was identified as an Unnamed Tributary to the Wye River with a total drainage area of 2.61 km<sup>2</sup>. Watercourse thermal regimes throughout the Severn Sound watershed are generally considered to be cold to coolwater due to groundwater inputs, however; warmwater watercourses such as the North River have been identified. Information provided by the NDMNRF has designated the Unnamed Tributary to the Wye River as a coldwater thermal regime.

Natural vegetation cover and riparian habitat within the Wye River subwatershed shows somewhat diverse habitats ranging from wetland, wooded wetland, woodland and open water (lake or pond). Vegetated areas of the subwatershed account for 38.8% of land cover while wetland or woodland accounts for 58.7% of the subwatershed land cover. Open water accounts for 2.5% of the total land cover.

Crossing Old Fort Road, approximately 60 m north of the bridge, two (2) 800 mm Corrugated Steel Pipe (CSP) culverts provide east to west flows for the Unnamed Tributary to the Wye River. The tributary is a permanent watercourse which outlets to the Wye Marsh wetland complex approximately 700 m to the southwest. A surface water drainage feature also runs the length of the trail as a lateral ditch through the study area. The surface water drainage feature is on the south side of the trail and has direct hydraulic connectivity to the Unnamed Tributary to Wye River through a CSP culvert crossing approximately 200 m downstream (west) of the bridge.

The following provides details related to the existing fish and fish habitat conditions as assessed through completion of the field survey program. Figure 2 illustrates the location of the aquatic ecosystem resources and identified areas of sensitivity and constraint.

#### **4.1 UPSTREAM OF OLD FORT ROAD**

The Unnamed Tributary to the Wye River is a coldwater watercourse flowing westerly under Old Fort Old through twin 800 mm CSP culverts. The watercourse flows through a mixed deciduous forest before transitioning into a confined floodplain with abundant ferns, grasses and mixed shrubs lining the watercourse floodplain and embankments. Review of the upstream reach of the Unnamed Tributary noted a slow-moving, meandering watercourse with established vascular and woody overhanging cover with





groundwater inputs. Several abrupt meanders were noted upstream of the culvert indicating a possible historic watercourse re-alignment; however, this was not confirmed. Located at the immediate inlet of the culverts, a 300 mm HDPE pipe with constant discharge was noted. Additionally, a second 100 mm HDPE pipe was noted approximately 20 m upstream of the culvert inlet within the northern floodplain with constant discharge. The two (2) noted HDPE may provide sump discharge from adjacent residents. Stream morphology through the upstream reach was generally homogeneous with minimal habitat variance and primarily consisted of runs and pools with limited riffle features. Areas of pooling were noted along the outer meander bends and upstream of the culvert where accumulated sediment, debris and in-stream vascular vegetation has partially blocked flow entrance into the north CSP culvert. Lateral bank erosion was noted throughout the outer meander bands where high flows have eroded bank material and exposed tree roots and woody debris. The mean measured wetted width of the tributary was noted at 0.74 m with some fluctuations within the pool and riffle features. Measured deeps were consistent through the upstream reach with a mean wetted dept of 0.11 m. The underlying substrate showed little variance with muck and detritus comprising the majority of substrate with areas of gravel and sand deposits noted at the culvert inlet area. In-stream cover is limited to isolated accumulations of woody debris, scattered cobble and boulders throughout the channel and undercut banks.

Overhanging woody and vascular vegetation is well established throughout the floodplain with vascular species such as: Sensitive Fern (*Onoclea sensibilis*), Marsh Fern (*Thelypteris palustris*), Common Cattail (*Typha latifolia*), Goldenrod (*Solidago*), Sweet Joe Pye Weed (*Eutrochium purpureum*), Meadow Horsetail (*Equisetum pratense*), Red Osier Dogwood (*Cornus sericea*), Speckled Alder (*Alnus incana*) and concentrations of Staghorn Sumac (*Rhus typhina*) noted along the road embankment. In-stream vascular vegetation was limited; however, a concentration of Watercress (*Nasturtium officinale*) was observed at the culvert inlet area indicating groundwater inputs. Observed in-stream vascular aquatic vegetation included; Common Bladderwort (*Utricularia vulgaris*) and Mermaidweed (*Proserpinaca palustris*). Noted grasses throughout the floodplain and riparian corridor included: Tall Manna Grass (*Glyceria grandis*), Slough Grass (*Beckmannia syzigachne*) and Fowl Manna Grass (*Glyceria striata*).

#### 4.2 DOWNSTREAM OF OLD FORT ROAD

Observations of the downstream reach of the Unnamed Tributary showed a sharp contrast as to conditions noted within the upstream reach. Conditions noted within the downstream area are consistent with watercourses that receive a rapid influx of high velocity, short sustained, high flow events resulting in significant bank erosion and displacement of the underlying substrate. Located on the west side of the Old Fort Road the downstream reach flows through a dense mixed deciduous forest before transitioning to an open floodplain approximately 300 m downstream of the culvert outlet. Review of the culvert outlet area noted flow discharge through the south culvert and perching of both culverts approximately 100 mm above the watercourse substrate. Stream morphology consisted of a series of isolated pool and riffle features with runs providing a hydraulic connection. Due to the isolation of the various morphological features, water levels were significantly lower than the upstream reach. The mean measured wetted depth was noted at 0.09 m with a wetted width of 0.98 m. The substrate also showed variance with boulders, cobble, gravel and sand comprising the majority of the noted substrate with isolated areas of silt and detritus deposits.



Additionally, areas of clay hard pan were noted just downstream of the culvert outlet area. In-stream cover is abundant with undercut banks and large amounts of woody debris, boulders and cobble providing cover within areas of pooling. However, due to low water levels and the isolation of pools, multiple, seasonal impassable barriers to fish were noted through the downstream study area.

Overhanging cover is also abundant but is primarily limited to woody species such as Red Osier Dogwood, Speckled Alder, Eastern White Cedar (*Thuja occidentalis*), Red Maple (*Acer rubrum*) and White Birch (*Betula papyrifera*). Vascular species were limited to the watercourse and back interface where species such as Horsetail, Jewelweed (*Impatiens capensis*) and Goldenrod were observed. In-stream vascular species were not observed within the downstream reach.

Water quality sample collection completed during field investigations noted the water temperature at 15.2 °C, conductivity at 1060 us/cm and pH at 8.02 on June 8, 2022.

Fish community sampling was completed through both reaches of the study area but only resulted in the capture of fish within the upstream reach. Use of a use of backpack electroshocker and dip nets resulted in the capture of Brook Stickleback (*Culaea inconstans*), Juvenile Bluegill (*Lepomis macrochirus*), Creek Chub (*Semotilus atromaculatus*) and Central Mudminnow (*Umbra limi*).

Results of completed field investigations have confirmed that the Unnamed Tributary to the Wye River is a permanent, coolwater, watercourse providing direct habitat for commonly found bait and forage fish species through the study area. Field investigations confirmed that the study area provides foraging habitat for the noted fish species; however, habitat for other life cycles such as, spawning and nurseries was not observed and is most likely occurring in other reaches of the tributary. Aquatic conditions observed within the study area are common within the surrounding watersheds and is not considered to be rare, critical or sensitive habitat.

## 5 SUMMARY OF PROPOSED WORKS

The purpose of this project is to address the deterioration of existing bridge components such as the concrete girders, pier caps, expansion joints, handrails and barrier walls. Technical observations indicate severe structural deficiencies, particularly bearing cracks of the girders. Additionally, the project will also include the replacement of twin 800 mm CSP culverts located under Old Fort Road on the north side of the bridge. The culverts will be a 'like-for-like' replacement and will include riverstone erosion protection at the inlet and outlet.

The preferred alternative is for the replacement of the existing 26 m span bridge with a 30 m span bridge. The new bridge will have a concrete deck on steel girders and semi-integral abutments supported on spread footings. The bridge replacement alternative was selected as it minimizes environmental factors and constructability issues, has a relatively short construction period, and minimizes the potential for property/entrance impacts.

The new bridge structure will incorporate the following details:



- ▶ 30 m single-span bridge, with 32° skew to the centreline of the Trans Canada Trail;
- ▶ The new profile consists of a -2.59% grade;
- ▶ The vertical profile is lowered by 0.9 m to reduce the clearance over the Trans Canada Trail;
- ▶ Two (2) x 3.5 m wide traffic lanes with 1.5 m wide shoulders between inside faces of the parapet walls on the replacement bridge;
- ▶ 300 mm wide parapet walls with steel railing on the outside of the shoulders;
- ▶ Superstructure consists of four (4) lines of steel girders made composite with a 225 mm thick cast-in-place reinforced concrete deck slab, and 90 mm waterproofing and asphalt overlay;
- ▶ Semi-integral abutments, each consisting of 1.2 m reinforced concrete wall;
- ▶ Each abutment will be supported on spread footings founded on the very dense shallow till layer;
- ▶ 5.5 m and 6 m long wingwalls/approach slabs on the north and south approach respectively;
- ▶ Embankment slopes will be constructed at 2:1; and
- ▶ Guide rail replacement and safety improvements will be undertaken.

Within the project limits, no entrances will be re-graded as a result of the profile lowering. Roadside safety improvements include the elimination of the crest curve at the bridge to improve sight line distances and upgrades to guiderails. With the exception of the culvert replacements under Old Fort Road north of the bridge, existing drainage will be maintained, with no modifications to the lateral ditches along the Trans Canada Trail under the bridge.

Construction staging will be provided within the existing Old Fort Road roadway with a complete road closure in effect. Traffic will be temporarily detoured for the duration of construction.

## 6 ASSESSMENT OF IMPACTS AND MITIGATION

The assessment of project related impacts was undertaken utilizing the DFO Risk Management Framework (RMF) (DFO, 2005), the MTO/MNRF/DFO Fisheries Protocol (Interim, 2020), DFO's Fish and Fish Habitat Protection Policy (August 2019) and following review of avoidance and mitigation measures as provided by the DFO on their website. The RMF is decision-making processes of which applies a risk management approach to evaluate project impacts with habitat protection provisions of the *Fisheries Act*. The RMF identifies Pathways of Effects (PoE) diagrams that are used to describe development project in terms of the activities that are involved, the type of cause-effect relationships that are known to exist, and the mechanisms by which stressors ultimately lead to effects in the aquatic environment.

On the PoE diagrams, cause-and-effect pathways connect the activity to a potential stressor, and a stressor to an ultimate effect on fish and fish habitat. Each pathway provides the opportunity to apply mitigation measures of which can reduce or eliminate a potential effect. If mitigation measures cannot be implemented or if the mitigation measures do not fully address an identified stressor, then the effects are



considered to be residual. The series of PoE diagrams provided by DFO include common land-based and in-water activities associated with a broad range of development projects (DFO, 2014).

Identified residual effects are then determined on their likelihood to result the death of fish (Section 34.4) and the Harmful Alteration, Disruption or Destruction (HADD) of fish habitat (Section 35) as defined under the *Fisheries Act*. DFO defines a HADD as:

a **permanent alteration** to fish habitat of a spatial scale, duration or intensity that limits or diminishes the ability of fish to use such habitats as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes;

the **destruction of fish habitat** of a spatial scale, duration, or intensity that fish can no longer rely upon such habitats for use as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes.

The evaluation of impacts includes an assessment of both temporary and permanent impacts. Impacts can either be direct or indirect and related to physical construction activities or works related to staging and/or access. Temporary impacts include those that through the application of mitigation measures or implementation of operational constraints during active construction are of short duration and not expected to result in any residual long-term negative impacts. The severity of these impacts is anticipated to be further minimized following restoration, where such initiatives are fully intended to restore post-construction conditions to near or better than conditions as evaluated for this project.

Permanent impacts include those that directly alter the environment, primarily through footprint encroachment. These footprint impacts results from the enlargement of the transportation facility and associated bridge infrastructure.

The assessment of impacts as presented below largely reflect anticipated footprint impacts for the twin CSP culvert replacement relative to the interpreted sensitivity of the impacted area.

## 6.1 BRIDGE REPLACEMENT

The replacement of the bridge will require the removal of a few select trees immediately adjacent to the existing bridge to facilitate access, erection of temporary protection systems, demolition of the existing bridge and for construction of the new bridge. Additionally, several trees, shrubs, grasses and other herbaceous species will be removed to provide appropriate access to the culvert to accommodate its replacement. All proposed works will take place within the ROW.

Temporary protection systems will be implemented to prevent debris from entering the watercourse under the bridge during the removal operation. The watercourse under the bridge will not be altered as part of the work and is not anticipated to be impacted as part of the bridge replacement.



## 6.2 CULVERT REPLACEMENT

During the complete road closure for the bridge replacement, the existing twin CSP culverts will be replaced through open-cut construction methodologies. The proposed operation will limit requirements for access to the culvert inlet and outlet areas and will minimize disturbances and impacts compared to more typical staged construction. Watercourse flows will be maintained using temporary cofferdams to direct flow to one culvert while the other is being replacement. The operation will be reversed for replacement of the second culvert. Riverstone erosion protection will similarly be placed in stages in line with the replacement of the culverts.

Identified temporary impacts will be minimal in duration as the work is anticipated to be completed during a continuous operation during the approved in-water timing window. Impacts will be further reduced by completing work 'in the dry' and through the capture and relocation of any entrapped fish prior to complete dewatering of the work area. Appropriate controls will be incorporated into the design to prevent sediment entry into the watercourse during and after construction. Requirements for restoration has been included in the design to provide a stable vegetative cover in areas where existing vegetation is removed to complete the specific works. Restoration will include the placement of topsoil and the applicable of a specialized seed mix.

The placement of riverstone erosion protection at the culvert inlet and outlet was identified as a permanent alteration to fish habitat. Riverstone placement will cover an area of 4.5 m x 2.5 m at both the inlet and outlet. Observed conditions in these areas as described above note ongoing erosion and general instability, thus reducing its functional value to the fish community. As noted above, this area was considered to be low sensitivity and did not serve as critical habitat. The application of riverstone is considered to be an improvement to existing conditions as it will provide stability and potentially increase or promote fish passage through the culvert. The placement of the riverstone will ensure that the top of the riverstone matches with the invert of the new culverts with a smooth transition to existing to ensure unforeseen barrier to fish passage are eliminated, particularly during low flow conditions.

## 6.3 PROPOSED MITIGATION

The following mitigation measures are abbreviated from the MTO Environmental Guide for Fish and Fish Habitat (MTO 2020), the MTO Environmental Guide for Erosion and Sediment Control During Construction of Highway Projects (MTO 2015) and Ontario Provincial Standard Specification (OPSS.MUNI) 182. Referenced municipal OPSS and Ontario Standard Provincial Drawings (OPSD) are noted when applicable.

### *Erosion and Sediment Control*

- ▶ Design and implement standard Erosion and Sediment control (ESC) measures, consistent with OPSS and OPSD, to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment. ESC measures will be implemented prior to commencement of works, and maintained through all phases of the project, until vegetation is re-established, and/or disturbed ground is permanently stabilized.
- ▶ ESC measures will include:



- Implementation of cofferdams to isolate the in-water work area and to contain sediment laden water during culvert replacements. Cofferdams to be monitored for isolation effectiveness and scouring and erosion of the underlying streambed.
- Silt fence will be installed along the toe of slope and/or around the perimeter of the work area to prevent the mobilization and intrusion of any sediment into watercourses. Silt fence will be installed as per OPSS.MUNI 805 and OPSD 219.110.
- Restoration of disturbed areas through topsoil placement and application of a specialized seed mix. Seed mix to be utilized is "Simcoe Country Mix" (OSC Catalogue #6850). An annual nurse crop will also be included to promote rapid re-vegetation. Restoration to be completed as per requirements of OPSS.MUNI.804.

#### *Fish and Fish Habitat*

- ▶ To protect the local fish community during critical life stages (i.e. spawning and rearing), in-water work is not permitted between **March 15 to July 15** in any given year. The proposed undertakings will be completed within the appropriate timing window to protect local fish species during critical life stages.
- ▶ Cofferdams will be installed in a manner to exclude fish from the isolated area. After the installation of temporary cofferdams, a fish salvage operation will be undertaken to capture and remove any fish species from the work area. The fish salvage will be undertaken under a Licence to Collect Fish for Scientific Purposes (LCFSP) from the NDMNRF. As per expected conditions of the LCFSP, all fish will be identified to species, enumerated and live released outside of the work area. Reporting will be provided to NDMNRF following the fish salvage operation. A combination of methods will be utilized to complete the fish salvage operation and may include electrofishing, seine netting, minnow traps and/or dip netting. Cofferdams to meet requirements of OPSS.MUNI 182 and 517 and as applicable to any dewatering specification.

#### *General Protection*

- ▶ Construct cofferdam system to provide a physical isolation of the work area from watercourse flows. The height of the cofferdams is to be consistent with expected water levels during the period of implementation (i.e. 2-year storm event).
- ▶ Ensure protection of all watercourses during construction works. Operate, store, and maintain equipment, vehicles, and associated materials in a manner that prevents the entry of any deleterious substance from entering the watercourse.
- ▶ With the exception of the work operations as described above, prohibit or limit additional access to banks or areas adjacent to waterbodies, to the extent required.
- ▶ Any dewatering discharge to be directed to measures to removed and filter sediment. Such measures shall be placed at least 30 m from any watercourse and within vegetated and stable areas. The discharge path from the measure to the receiving waterbody shall be monitored for erosion. Additional measures to be implemented as required should erosion develop, or sediment laden water require additional filtration/settlement.
- ▶ Temporarily store, handle and dispose of all materials used or generated (e.g. organics, soils, construction waste and debris, etc.) during site preparation, construction, and clean-up in a manner that prevents their entry to the watercourse.





- ▶ Ensure a Spill Management Plan (including spill kit materials, instructions regarding their use, education of staff, and emergency contact numbers) is present on-site at all times for implementation in the event of an accidental spill. All spills are to be reported to the MECP Spills Action Centre (SAC) at 1-800-268-6060.
- ▶ Keep clearing of riparian vegetation to a minimum and undertake vegetation removals in compliance with all project timing constraints.

#### 6.4 RESIDUAL IMPACTS

Any effect that remains after the application of environmental protection and mitigation measures is referred to as a residual effect and can include positive and negative residual effects. In the context of assessing the potential for the death of fish or HADD of fish habitat, only negative residual effects are considered; positive residual effects cannot be considered as a counterbalance to any negative residual effects.

Once all residual effects have been determined, an evaluation of the severity of those effects is undertaken. This evaluation process considers four (4) attributes: Spatial Scale (size), Duration, Intensity, and Fish and Fish Habitat Features.

Through this assessment the residual impact resulting from the placement of the riverstone erosion protection at the twin CSP culverts was determined to be negligible. The results of the assessment are as follows:

The spatial scale of the alteration was considered to be **small** (~22.5 m<sup>2</sup>).

The duration of the alteration was considered to be **high** as the alteration will be permanent.

The intensity of the alteration was considered to be **low** and will likely to result in an overall net benefit.

The sensitivity of the identified habitat features was considered to be **low** as the area was undergoing erosion and was in a transitional fluvial geomorphological state.

#### 6.5 COMPLIANCE WITH THE *FISHERIES ACT*

Through the review of the project scope of work, potential impacts, it is recognized that a HADD to fish and fish habitat will not result from the proposed project for the watercourse under the bridge or the watercourse being conveyed through the existing twin CSP culvert. This conclusion was based on the fact that the watercourse under the bridge will remain unaltered from the work and the replacement of the existing culvert has a limited footprint of alteration impacts resulting from the placement of riverstone erosion protection. The riverstone erosion protection can be considered an addition and benefit to the aquatic ecosystem as it will serve to provide stability at the culvert inlet and outlet where typical transitional fluvial geomorphological processes are observed. The application of mitigation measures as presented above will provide the necessary protection of fish and fish habitat during construction and as such project



review or approval from DFO is not required to ensure compliance under the *Fisheries Act* and for the project to proceed.

## 7 CLOSURE

We trust that this *memorandum* provides a level of detail and technical documentation to meet the requirements of the *Fisheries Act*. Should you have any questions or concerns regarding information presented in this report please contact the undersigned.

Should you have any questions or concerns related to the information provided above, please do not hesitate to contact the undersigned.

Yours truly,

**LEA CONSULTING LTD.**

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Enclosure:

- Figure 2 – Aquatic Ecosystem Resources
- Appendix A – MNDMNRF Licence to Collect Fish for Scientific Purposes
- Appendix B – Photographic Record
- Appendix C – Aquatic Ecosystem Mapping



## 8 REFERENCES

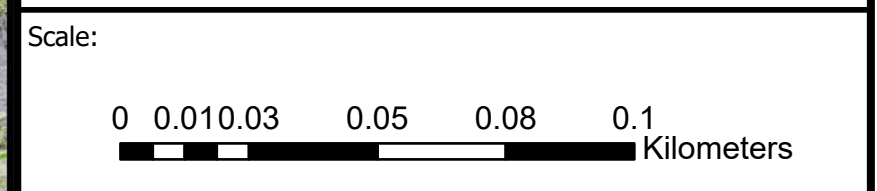
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- Legend**
- Watercourse
  - Study Area
  - Photo Location
  - Ditch/Watercourse

Maxar, Microsoft, Esri, NASA, NGA, USGS, Esri Community Maps Contributors, Province of Ontario, Esri Canada, Esri,



Title:

**Fish Habitat Mapping:  
Old Fort Road**

Project No.:	Drawing No.:
<b>20122</b>	<b>1</b>
Department:	Date:
<b>Environmental</b>	<b>2022-09-27</b>





# APPENDIX A

## **Agency Consultation**



July 30, 2020

Reference Number: [20328]

**Ministry of Natural Resources and Forestry**

Midhurst District Office  
Government Complex  
2284 Nursey Rd.,  
Midhurst, ON  
L9X 1N8

**Attention: Jodi Benvenuti, Management Biologist ([jodi.benvenuti@ontario.ca](mailto:jodi.benvenuti@ontario.ca))**

**RE: Detail Design Services for Old Fort Road (County Road 58) Overhead Bridge Replacement (Simcoe Structure #058086) – Municipal Class Environmental Assessment Request for Information**

LEA Consulting Ltd. (LEA) has been retained by the County of Simcoe to undertake the detailed design for the replacement of Old Fort Road Overhead Bridge on County Road 58 near Port McNicoll, Ontario. A project location map has been provided as Figure 1.

With this letter, we are requesting background information on fisheries and aquatic resources within the project study area. The project study is within the Wye River watershed. To facilitate this request please find attached summary Table 1.

If you should have any questions regarding this submittal or require further information, please contact the undersigned.

Yours truly,

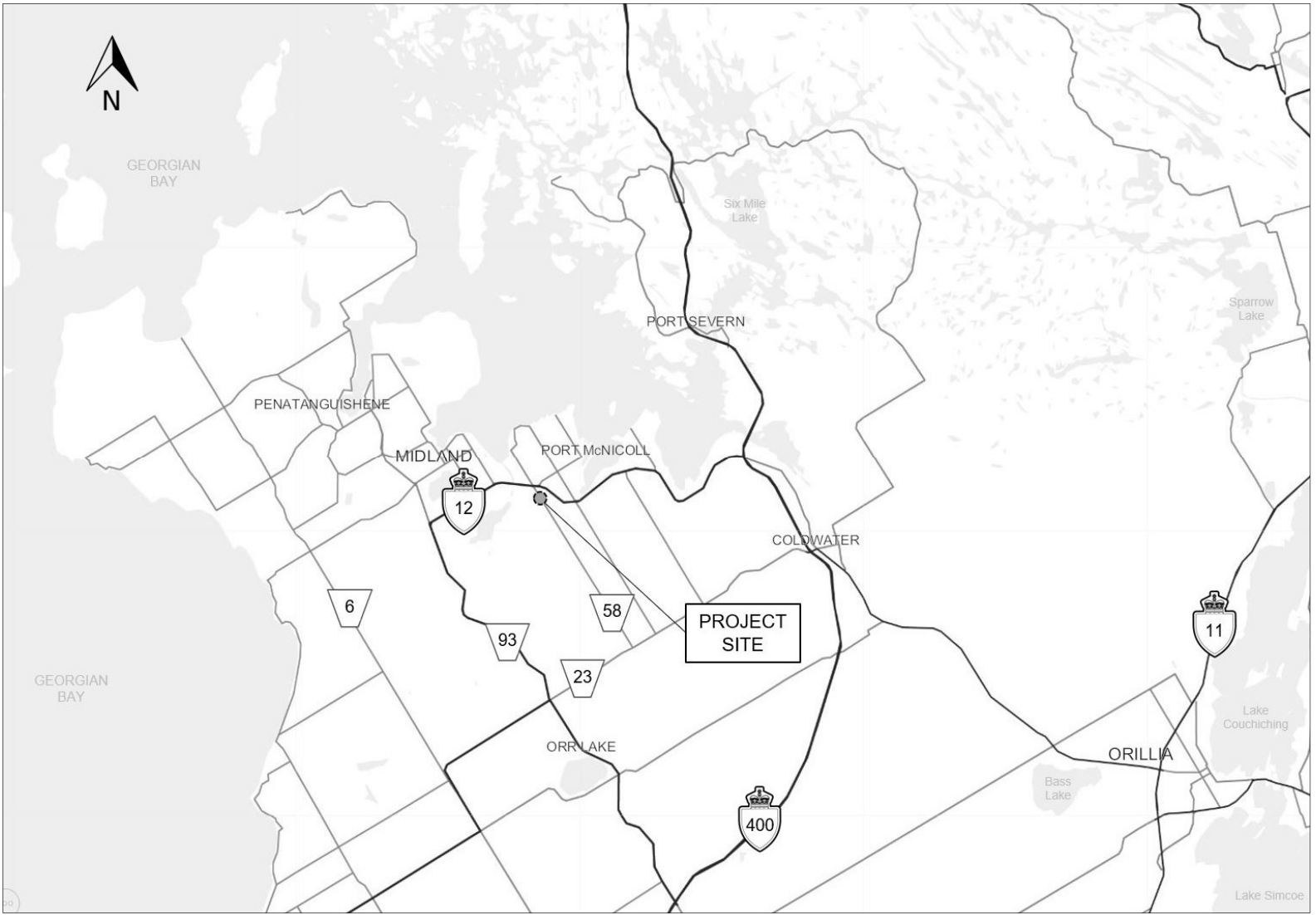
**LEA CONSULTING LTD.**

Blair Rendulich, CAN-CISEC, rcji  
Senior Environmental Specialist

Enclosure - Figure 1 – Project Location Key Map  
- MNRF Information Request Table







Legend:

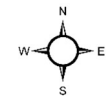
Notes:



**Old Fort Road Bridge Replacement**

**Project Location Key Map**

Datum: NAD 83  
Projection: UTM Zone 17N



Project N°.: 20328

Figure: 1

Scale: NTS

Date: April 2020

Created By: BR

Checked By: BD





**MNRF Information Request Table**

**Design Services for Old Fort Road Overhead Bridge Replacement – County of Simcoe RFP – 2019B058086-900-02**

Watercourses / Waterbodies (UTM Location)	Crossing Structure Type	Watercourse Classification (i.e. warmwater, coldwater)	Habitat Information (Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.)	Historical Data (Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species.)	MNRF Fisheries Management Objectives (if applicable)	In-water Timing Windows for Construction
Unnamed Tributary to Wye River (17T 592481 m E, 4954001 m N)	Twin Corrugated Steel Pipe (CSP) Culverts					

## Blair Rendulich

---

**From:** Benvenuti, Jodi (MNRF) <jodi.benvenuti@ontario.ca>  
**Sent:** August 7, 2020 11:27 AM  
**To:** Blair Rendulich  
**Subject:** Request for Information - Detailed Design - County of Simcoe RFO 2019-B058086-900-01 County Rd 58 -Old Fort Road Overhead Bridge Rehab

Hello Blair,

Thank you for your information request.

While the Midhurst District office does have fisheries information for the Wye River, we do not have specific fisheries and thermal regime information for this unnamed tributary. This could be informed through associated fieldwork. If you are in need of an application for a License to Collect Fish for Scientific Purposes to facilitate any future fieldwork please let me know.

Additionally, since there are known species at risk (SAR) in the area, we would also recommend contacting the Ministry of the Environment, Conservation and Parks at SAROntario@ontario.ca for any pertinent SAR information related to your project.

Thank you.

Jodi Benvenuti  
Management Biologist  
Ministry of Natural Resources and Forestry  
Midhurst District

---

**From:** Blair Rendulich <BRendulich@lea.ca>  
**Sent:** Thursday, July 30, 2020 5:57 PM  
**To:** Benvenuti, Jodi (MNRF) <jodi.benvenuti@ontario.ca>  
**Subject:** Request for Information - Detailed Design - County of Simcoe RFO 2019-B058086-900-01 County Rd 58 -Old Fort Road Overhead Bridge Rehab

**CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.**

Hi Jodi,

Please find attached a request for Information for County of Simcoe RFP-2019-B058086-900-01 County Road 58 Bridge Rehab located on Old Fort Road in Port McNicoll.

Feel free to contact me with any questions or concerns

**Blair Rendulich, CAN-CISEC**  
Senior Environmental Specialist

**LEA Consulting Ltd.**

617 Duoro Street | Stratford, ON | N5A 6W4

T: 519-276-8075 M: 519-274-5669 E: [blendulich@lea.ca](mailto:blendulich@lea.ca) W: [www.LEA.ca](http://www.LEA.ca)

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## Blair Rendulich

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**From:** Benvenuti, Jodi (MNRF) <jodi.benvenuti@ontario.ca>  
**Sent:** August 7, 2020 3:18 PM  
**To:** Blair Rendulich  
**Subject:** Re: Request for Information - Detailed Design - County of Simcoe RFO 2019-B058086-900-01 County Rd 58 -Old Fort Road Overhead Bridge Rehab

My *hunch* would be a spring timing restriction (no in water work between Mar 15 - July 15) but I can't confirm that.

Jodi

---

**From:** Blair Rendulich <BRendulich@lea.ca>  
**Sent:** Friday, August 7, 2020 1:46 PM  
**To:** Benvenuti, Jodi (MNRF) <jodi.benvenuti@ontario.ca>  
**Subject:** RE: Request for Information - Detailed Design - County of Simcoe RFO 2019-B058086-900-01 County Rd 58 -Old Fort Road Overhead Bridge Rehab

**CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.**

Hi Jodi,

Thanks for response. We have already applied and received the LCFSP and have completed some of the field work.

For purposes of preliminary design only, would you have any idea what thermal regime might be? We would like to provide some indications as to what the in-water work window might be.

Have great weekend,

Blair

---

**From:** Benvenuti, Jodi (MNRF) [mailto:jodi.benvenuti@ontario.ca]  
**Sent:** August 7, 2020 11:27 AM  
**To:** Blair Rendulich <BRendulich@lea.ca>  
**Subject:** Request for Information - Detailed Design - County of Simcoe RFO 2019-B058086-900-01 County Rd 58 -Old Fort Road Overhead Bridge Rehab

Hello Blair,

Thank you for your information request.

While the Midhurst District office does have fisheries information for the Wye River, we do not have specific fisheries and thermal regime information for this unnamed tributary. This could be informed through associated fieldwork. If you are in need of an application for a License to Collect Fish for Scientific Purposes to facilitate any future fieldwork please let me know.

Additionally, since there are known species at risk (SAR) in the area, we would also recommend contacting the Ministry of the Environment, Conservation and Parks at [SAROntario@ontario.ca](mailto:SAROntario@ontario.ca) for any pertinent SAR information related to your project.

Thank you.

Jodi Benvenuti  
Management Biologist  
Ministry of Natural Resources and Forestry  
Midhurst District

---

**From:** Blair Rendulich <[BRendulich@lea.ca](mailto:BRendulich@lea.ca)>  
**Sent:** Thursday, July 30, 2020 5:57 PM  
**To:** Benvenuti, Jodi (MNRF) <[jodi.benvenuti@ontario.ca](mailto:jodi.benvenuti@ontario.ca)>  
**Subject:** Request for Information - Detailed Design - County of Simcoe RFO 2019-B058086-900-01 County Rd 58 -Old Fort Road Overhead Bridge Rehab

**CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.**

Hi Jodi,

Please find attached a request for Information for County of Simcoe RFP-2019-B058086-900-01 County Road 58 Bridge Rehab located on Old Fort Road in Port McNicoll.

Feel free to contact me with any questions or concerns

**Blair Rendulich, CAN-CISEC**  
Senior Environmental Specialist

**LEA Consulting Ltd.**

617 Duoro Street | Stratford, ON | N5A 6W4

T : 519-276-8075 M : 519-274-5669 E : [brendulich@lea.ca](mailto:brendulich@lea.ca) W : [www.LEA.ca](http://www.LEA.ca)

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## Blair Rendulich

---

**From:** Blair Rendulich  
**Sent:** April 16, 2020 4:24 PM  
**To:** shari.haak@ontario.ca  
**Subject:** LCFSP Application - LEA Consulting - Old Fort Overhead Bridge  
**Attachments:** LCFSP Application - LEA Consulting -Old Fort Rd Bridge and Culvert Replacment 2020-04-16.pdf

Good Afternoon Shari,

Please find attached LEA Consulting's Licence to Collect Fish for Scientific Purposes (LCFSP) Application for use in an environmental assessment works for an upcoming bridge and culvert replacement project located on Old Fort Rd (County Rd 58) within the Township of Port McNicoll.

Feel free to contact me with any questions or concerns.

Regards,

Blair

**Blair Rendulich, CAN-CISEC**  
Senior Environmental Specialist

### **LEA Consulting Ltd.**

617 Duoro Street | Stratford, ON | N5A 6W4

T: 519-276-8075 M: 519-274-5669 E: [brendulich@lea.ca](mailto:brendulich@lea.ca) W: [www.LEA.ca](http://www.LEA.ca)

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April 14, 2020

**Reference Number:** 20328

**Ministry of Natural Resources and Forestry**

Midhurst District Office  
2nd Floor, 145 Government Rd. W.,  
Kirkland Lake, ON  
P2N 2E8

**Attention:** Shari Haak, Resources Clerk ([shari.haak@ontario.ca](mailto:shari.haak@ontario.ca))

**RE: Detail Design Services for Old Fort Road (County Road 58) Overhead Bridge Replacement (Simcoe Structure #058086) –Application for a Licence to Collect Fish for Scientific Purposes**

Ms. Haak,

Please accept this application for a Licence to Collect Fish for Scientific Purposes (LCFSP). This LCFSP will support the completion of an aquatic features existing conditions assessment for a future bridge and culvert replacement project. Should you require any additional project information, please do not hesitate to contact the undersigned. Please find below a completed application form and a Project Location Map.

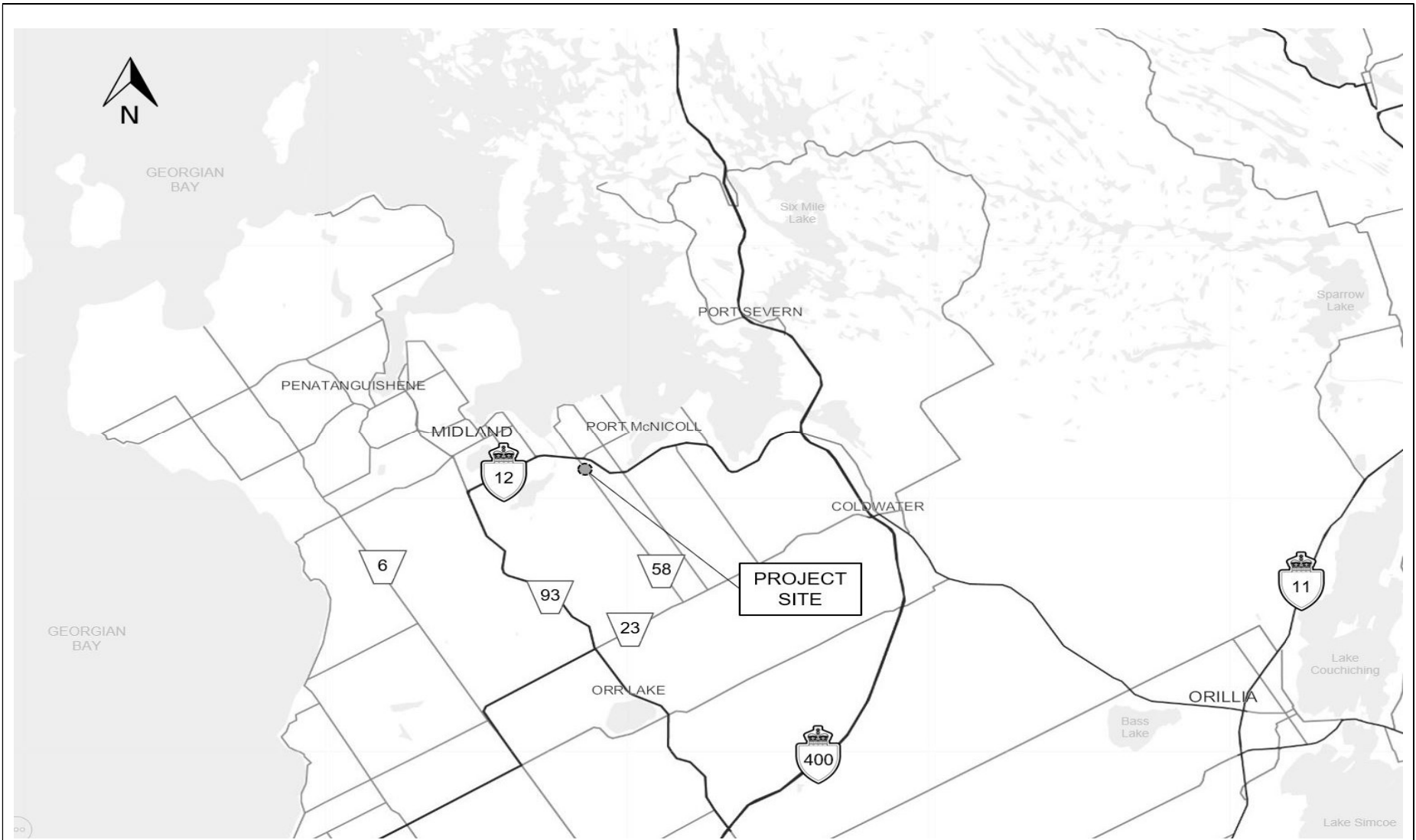
Yours truly,

**LEA CONSULTING LTD.**

Blair Rendulich, CAN-CISEC, rcji  
Senior Environmental Specialist

ENCLOSURE

- Application for a Licence to Collect Fish for Scientific Purposes
- Project Location Map
- VHS Questionnaire



Legend:

Notes:



**Old Fort Road Bridge Replacement**

**Project Location Key Map**

Project N°.: 20328

Figure: 1

Scale: NTS

Date: April 2020

Created By: BR

Checked By: BD

Datum: NAD 83  
Projection: UTM Zone 17N



Personal information contained on this form is collected under the authority of the *Fish and Wildlife Conservation Act, 1997* and will be used for the purpose of licensing, identification, enforcement, resource management and customer service surveys. Please direct further enquiries to the District Manager of the MNRF issuing district.

New Licence Application

Licence Renewal      Current Licence Number \_\_\_\_\_

### Applicant Information

Last Name <b>Rendulich</b>	First Name <b>Blair</b>	Middle Initial
-------------------------------	----------------------------	----------------

Name of Business/Organization/Affiliation  
**LEA Consulting Ltd**

### Mailing Address of Applicant

Unit Number <b>Suite 900</b>	Street Number <b>625</b>	Street Name <b>Cochrane Drive</b>	PO Box
City/Town <b>Markham</b>	Province <b>ON</b>	Postal Code <b>L3R 9R9</b>	

### Physical Address of Applicant (if different from mailing address) If address is same as above

Unit Number	Street Number	Street Name	PO Box
City/Town	Province	Postal Code	

Telephone Number ext.	Business Telephone Number ext.	Fax Number ext.
--------------------------	-----------------------------------	--------------------

Assistant Last Name	Assistant First Name	Assistant Middle Initial
<b>Disher</b>	<b>Alexa</b>	
<b>Dufour</b>	<b>Bradley</b>	

### Gear to be Used

1. **Backpack Electroshocker (Smith-Root LR24)**
2. **Chest waders**
3. **Dip nets**
4. **Gloves**
5. **Buckets/Pails**

### Collection Information

Collection Period Start Date (yyyy/mm/dd) <b>2020/04/16</b>	Collection Period End Date (yyyy/mm/dd) <b>2020/12/31</b>
----------------------------------------------------------------	--------------------------------------------------------------



## Transfer of Viral Hemorrhagic Septicemia (VHS) Risk Assessment Questionnaire

**Note:** The Best Management Practices for Collection of Fish for Scientific Purposes (FPS Bulletin 2011-01 July 29, 2011) should be reviewed before completing this questionnaire.

Subject to a risk assessment conducted by MNR, a Licence to Collect Fish for Scientific Purposes **may be issued** for:

- Live fish to be collected from inside the VHS or Lake Simcoe Management Zones and transported to facilities outside the Zone of Capture, and/or
- Collection activities that will occur both inside and outside the VHS or Lake Simcoe Management Zones with the same equipment.

Ministry staff will conduct the risk assessment based on this questionnaire and ensure appropriate control measures are agreed to before authorizing scientific collection activities inside and outside of the VHS or Lake Simcoe Management Zones. The appropriate control measures, including the requirement to adhere to the practices outlined in the Best Management Practices for Collection of Fish for Scientific Purposes (FPS Bulletin 2011-01 July 29, 2011), will be added as a condition of licence.

### Definitions:

**VHS Positive Waters in the VHS Management Zone:** the waters of Lakes Ontario, Erie, Huron (including Georgian Bay), their connecting waterways and adjacent tributaries up to the first impassable barrier for all fish species. (Note: Where fish are manually transferred over barriers or pass through a fishway, that barrier will not be considered to be impassable. Low head lamprey weirs or dams that do not normally stop salmonid passage also are not considered impassable.)

**VHS Management Zone:** includes the area bounded by the provincial road network which encompasses the waters defined as VHS Positive Waters in the VHS Management Zone.

**Lake Simcoe Management Zone:** includes the area bounded by the provincial road network which encompasses the waters around Lake Simcoe (based on fish movement, water flow and watershed boundaries).

Maps depicting the VHS Management Zone and Lake Simcoe Management Zone can be viewed at: <http://www.mnr.gov.on.ca/239480.pdf>.



**Questions:**

1. Location of collections.

Unnamed Tributary to Wye River, located on Old Fort Road (County Rd 58)  
17 T 592481 E, 4954001 N

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a. Are any of the collection locations identified on the Application for a Licence to Collect Fish for Scientific Purposes in the VHS or Lake Simcoe Management Zones?

- i. YES  (high risk)
- ii. NO

b. Will collections occur both inside the VHS or Lake Simcoe Management Zones and outside of that Management Zone (including the other Management Zone)?

- i. YES  (high risk)
- ii. NO

2. Equipment (including clothing) used to collect and handle fish.

Electrofisher, waders, gloves, net, and bucket \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

a. Will equipment or clothing used to collect fish be in contact with water from either Management Zone and then used in waters not in the Management Zone where the collections took place (including the other Management Zone)?

- i. YES  (high risk, should be avoided)
- ii. NO

b. If yes, will the equipment and clothing be disinfected prior to collecting in waters not in the Management Zone? N/A

- i. YES
- ii. NO  (higher risk - licence will not normally be issued unless suitable measures to mitigate the risk are put in place).

c. If yes, describe planned disinfection method, particularly if different from that outlined in the BMP.

N/A \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Note: Ideally the same equipment and clothing should not be used to collect**

**fish inside a Management Zone and then outside the Management Zone.**

3. Live transport of fish across the Management Zone boundaries.

a. Will any live fish collected from either of the Management Zones be transported through an area not in the Management Zone?

i. YES \_\_\_\_\_

ii. NO

b. Describe the route to be followed to the research facility?

\_\_\_\_N/A\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. What measures will be put in place to ensure that live fish and the water in which they are being carried will be contained during transport and not accidentally deposited near any waters (e.g., closed container)?

\_\_\_\_N/A\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Source of water used to transport live fish.

\_\_\_\_N/A\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

a. Is the source of water from either of the Management Zones or waters connected to VHS Positive Waters? N/A

i. YES \_\_\_\_\_ (Licence will not be issued)

ii. NO \_\_\_\_\_

b. Will the water to be used for transporting the live fish be treated (e.g., UV, ozone, municipally treated)? N/A

i. YES \_\_\_\_\_ (lower risk)

ii. NO \_\_\_\_\_

6. What is the source of the water?

\_\_\_N/A\_\_\_\_\_

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a. Will any of the fish collected be transported live to a research facility? N/A

- i. YES \_\_\_\_\_ (higher risk)
- ii. NO \_\_\_\_\_

b. Is the research facility in either of the Management Zones? N/A

- i. YES \_\_\_\_\_
- ii. NO \_\_\_\_\_ (higher risk)

c. Does the facility use treated water? N/A

- i. YES \_\_\_\_\_
- ii. NO \_\_\_\_\_ (higher risk)
- iii. If yes, describe how the water is treated

\_\_\_N/A\_\_\_\_\_

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d. Describe how the fish will be held (e.g., aquaria, tanks with water, recirculation, closed or open system - i.e., drains to municipal sewer, etc.).

\_\_\_N/A\_\_\_\_\_

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e. Describe effluent treatment.

\_\_\_N/A\_\_\_\_\_

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f. Describe how the fish will be disposed of.

\_\_\_N/A\_\_\_\_\_

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7. Please describe any other measures that will be put in place to mitigate the risk of spreading VHS through the fish collection activities or the movement of live fish.

\_\_\_All gear and equipment is thoroughly washed and dried between uses\_\_\_\_\_

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**Ministry of Natural  
Resources and Forestry**

Midhurst District Office  
2284 Nursery Road  
Midhurst, ON, L9X 1N8  
Tel: 705-725-7500  
Fax: 705-725-7584

**Ministère des Richesses naturelles  
et des Forêts**

Bureau de district Midhurst  
2284 rue Nursery  
Midhurst, ON, L9X 1N8  
Tél: 705-725-7500  
Télé: 705-725-7584

---

June 18, 2020

LEA Consulting Ltd.  
625 Cochrane Drive, Suite 900  
Markham, ON L3R 9R9

**Attention:** Blair Rendulich  
**Subject:** Licence to Collect Fish for Scientific Purposes #1095807

Dear Blair:

Please find enclosed your Licence to Collect Fish for Scientific Purposes as requested. Please sign the Licence and the Conditions page immediately upon receipt and scan/email to [midhurstinfo@ontario.ca](mailto:midhurstinfo@ontario.ca) a signed copy of the Licence and Conditions.

As per condition # 5, mandatory report forms documenting the sampling conducted under this licence must be submitted to the licence issuer within 30 days of the termination date, but in no case later than January 31 next following the year of issue. **Condition # 5 now requires you to submit the Mandatory Report (Part 1), the Site Collection Reports (Part 2) and site maps electronically by email to [midhurstinfo@ontario.ca](mailto:midhurstinfo@ontario.ca).** The most recent electronic report form is attached in this email for your use. Please ensure you use this form.

The electronic report form attached includes Part 1 and Part 2. Please make sure to complete all mandatory fields indicated on the form. In addition to those indicated with an \*, please include "Sampling Date" and "Gear Type". Although not indicated as mandatory on the form, this information is required. Also included is a tool to embed (or electronically attach) a map to the collection record (Part 2).

If you have any questions, please send an email to [midhurstinfo@ontario.ca](mailto:midhurstinfo@ontario.ca).

Yours truly,

Shari Haak  
Resources Clerk – Midhurst District

Please call ahead to make an appointment with our staff.  
The local Ministry office is open by appointment only.



Ministry of  
Natural Resources

Ministère des  
Richesses naturelles

# Licence to Collect Fish for Scientific Purposes

## Permis pour faire la collecte de poissons à des fins scientifiques

Licence No. N° de permis	1095807
Local Reference No. N° de référence local	MH2020-4712
Issuer Account No. N° de compte du délivreur de permis.	10003100

This licence is issued under Part I of the Fish Licensing Regulation made under the Fish and Wildlife Conservation Act, 1997 to:

Ce permis est délivré en vertu de la Partie I du règlement sur la délivrance de permis de pêche formulé conformément à la Loi sur la protection du poisson et de la faune de 1997 à:

<b>Name of Licencee</b> Nom du titulaire du permis	Last Name / Nom de famille Mr. Rendulich	First Name / Prénom Blair	Middle Name / Second Prénom
Name of Business/Organization/Affiliation (if applicable) / Nom de l'entreprise/de l'organisme/de l'affiliation (le cas échéant) LEA Consulting Inc.			
<b>Mailing address of Licencee</b> Adresse postale du titulaire du permis	Street Name & No./PO Box/RR#/Gen. Del./ N° rue/C.P./R.R./poste restante 625 Cochrane Drive, Suite 900		Province/State Province/État ON
	City/Town/Municipality / Ville/village/municipalité Markham		Postal Code/Zip Code Code Postal/Zip L3R 9R9

to collect the species, size and quantities of fish from the waters as set out below.  
Pour faire la collecte des espèces suivantes (stade et nombre indiqués ci-dessous):

Species Espèces	Eggs Oeuf	Juvenile Fretin	Adults Adulte	Numbers Nombre	Name of Waterbody Nom de l'étendue d'eau
All Species Present	X	X	X		Wye River Tributary- Old Fort Road, Simcoe County.
					UTM- 17 T 592481 E, 4954001 N - refer to map.

Yes/Oui  Additional species/Waterbody list attached / Liste d'espèces/d'étendue d'eau additionnelles ci-jointe

**Purpose of collection**  
**But de la collecte**  
To support an EIS for future bridge and culvert replacement. There is no data available for this tributary of the Wye River.

<b>Licence Dates</b> <b>Dates du permis</b>	Effective Date / Date d'entrée en vigueur (YYYY-MM-DD) 2020-06-17	Expiry Date / Date d'expiration (YYYY-MM-DD) 2020-12-31
------------------------------------------------	-------------------------------------------------------------------------	---------------------------------------------------------------

**Licence conditions** This licence is subject to the conditions contained in Schedule A if included. / Ce permis doit respecter les conditions de l'annexe A si celle-ci est jointe.

**Conditions du permis**  
Yes/Oui  No/Non  Schedule A included. / Annexe A ci-jointe

Issued by (please print) Délivré par (veuillez écrire en caractères d'imprimerie) Suzanne Robinson - Resource Mgmt Supervisor	Signature of issuer / Signature du délivreur 	Date of Issue/Date de délivrance (YYYY-MM-DD) 2020-06-17
Signature of Licencee / Signature du titulaire du permis 		Date (YYYY-MM-DD) 2020-06-17

Personal information contained on this form is collected under the authority of the Fish and Wildlife Conservation Act, 1997 and will be used for the purpose of licencing, identification, enforcement, resource management and customer service surveys. Please direct further inquiries to the District Manager of the MNR issuing district.

Les renseignements personnels dans ce formulaire sont recueillis conformément à la Loi sur la protection du poisson et de la faune, 1997, et ils seront utilisés aux fins de délivrance de permis, d'identification, d'application des règlements, de gestion des ressources et de sondage sur les services à la clientèle. Veuillez communiquer avec le chef du district du MRN qui délivré le permis si vous avez des questions.

**Licence to Collect Fish for Scientific Purposes**  
**Schedule A - Licence Conditions**

**Licence No.: 1095807**

**This licence is subject to the conditions listed below.**

1. This licence is valid only for the persons, species, numbers, areas and calendar year indicated.
2. Licensee may collect fish in the following location(s): Wye River Tributary- Old Fort Road, Simcoe County – Refer to attached map.

UTM- 17 T 592481 E, 4954001 N

3. Licensee may be assisted by: Blair Rendulich, Alexa Disher and Bradley Dufour. Any changes to assistants must be confirmed in writing.
4. A signed copy of the original licence shall be carried by the licensee(s) or designated assistant(s) and be on the permitted site(s) at all times.

**COLLECTION:**

5. Licensee may collect with the following gear: Backpack electrofisher, chest waders, dipnets, gloves, buckets and pails.
6. All collection gear shall be inspected regularly and live holding traps must be inspected at least once daily.
7. All field equipment must be de-contaminated prior to use on each water body in order to prevent the spread of exotic species and disease.
8. Any collection gear left unattended at the end of each sampling day at the designated site(s) shall be clearly marked with the licensee's contact information. If blocker nets are used, they shall be removed from the watercourse immediately following completion of in-water work.
9. The licensee shall follow the best management practices for the collection, handling, transportation and holding of fish identified in the Fisheries Policy Section Technical Bulletin, Best Management Practices (December 15, 2011) included with the licence to minimize the risk of spreading aquatic invasive species and diseases.
10. Due to potential spawning activity by spawning salmonids visual inspection of all sampling areas should be done prior to sampling with the electrofisher or seine nets. Should spawning activity or redds be observed all sampling must be stopped in order to prevent disturbance to the fish and habitats.
11. Subject to Condition 12 regarding Invasive Species, the licensee shall release all specimens live at the capture site with the exception of any specimens required for identification purposes.

**Signature of Licensee**

  
\_\_\_\_\_

**Date**

June 18, 2020  
\_\_\_\_\_

## Licence to Collect Fish for Scientific Purposes

### Schedule A - Licence Conditions

Licence No.: 1095807

#### INVASIVE SPECIES

12. Any person acting under the authority of this licence, shall immediately report the capture of any invasive species (e.g. ruffe, tubenose goby, round goby, rusty crayfish, Asian carp, etc.) found outside its previously known range (as determined by the distribution information available at: [www.invadingspecies.com](http://www.invadingspecies.com)) to the Midhurst District MNR by emailing [MIDHURSTINFO@ontario.ca](mailto:MIDHURSTINFO@ontario.ca) . Any such specimens captured outside of their established range (not already naturalized) **shall be euthanized** (not returned to the water) **and kept for identification purposes**.

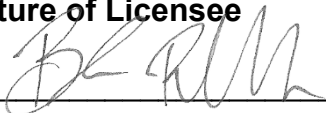
#### SPECIES AT RISK

13. Unless specifically authorized by a separate Endangered Species Act (ESA) authorization (i.e. Registry or permit) and/or Federal Species at Risk Act (SARA) permit, no person shall attempt to catch a Species at Risk.
14. Unless specifically authorized by a separate Endangered Species Act (ESA) authorization (i.e. Registry or permit) and/or Federal Species at Risk Act (SARA) permit, sampling must cease immediately in an area when a Species at Risk is caught.
15. Unless specifically authorized by a separate *Endangered Species Act, 2007*, authorization (i.e. Registry or permit) and/or *Federal Species at Risk Act, 2002*, permit, any species at risk that are incidentally captured must be photographed and immediately released alive at the point of capture. The photographs, including capture coordinates and date caught, must be forwarded to the Ministry of the Environment, Conservation and Parks at [SAROntario@ontario.ca](mailto:SAROntario@ontario.ca).
  - a. All aquatic species at risk records and data must also be reported to the Ministry of Natural Resources and Forestry Natural Heritage Information Centre on the appropriate form at: <https://www.ontario.ca/environment-and-energy/natural-heritage-information-centre>.

#### REPORTING

16. Sampling locations must be reported using GPS location data using: Projection: Universal Transverse Mercator (UTM); Datum: North American 1983 (NAD83), Canadian Transformation (CNT); Zone: 17N; Units: Metres.
17. A Mandatory Report documenting the sampling conducted under this licence must be submitted to the Midhurst District MNR by emailing [MIDHURSTINFO@ontario.ca](mailto:MIDHURSTINFO@ontario.ca), within 30 days of the termination date, but in no case later than January 31 next following the year of issue. The report shall include:
  - a. The Mandatory Report form (Part 1), completed for each sampling program and the site;
  - b. For each collection site, a digital Site Collection Report (Part 2) and an accompanying map clearly indicating the location of the collection site.

Signature of Licensee



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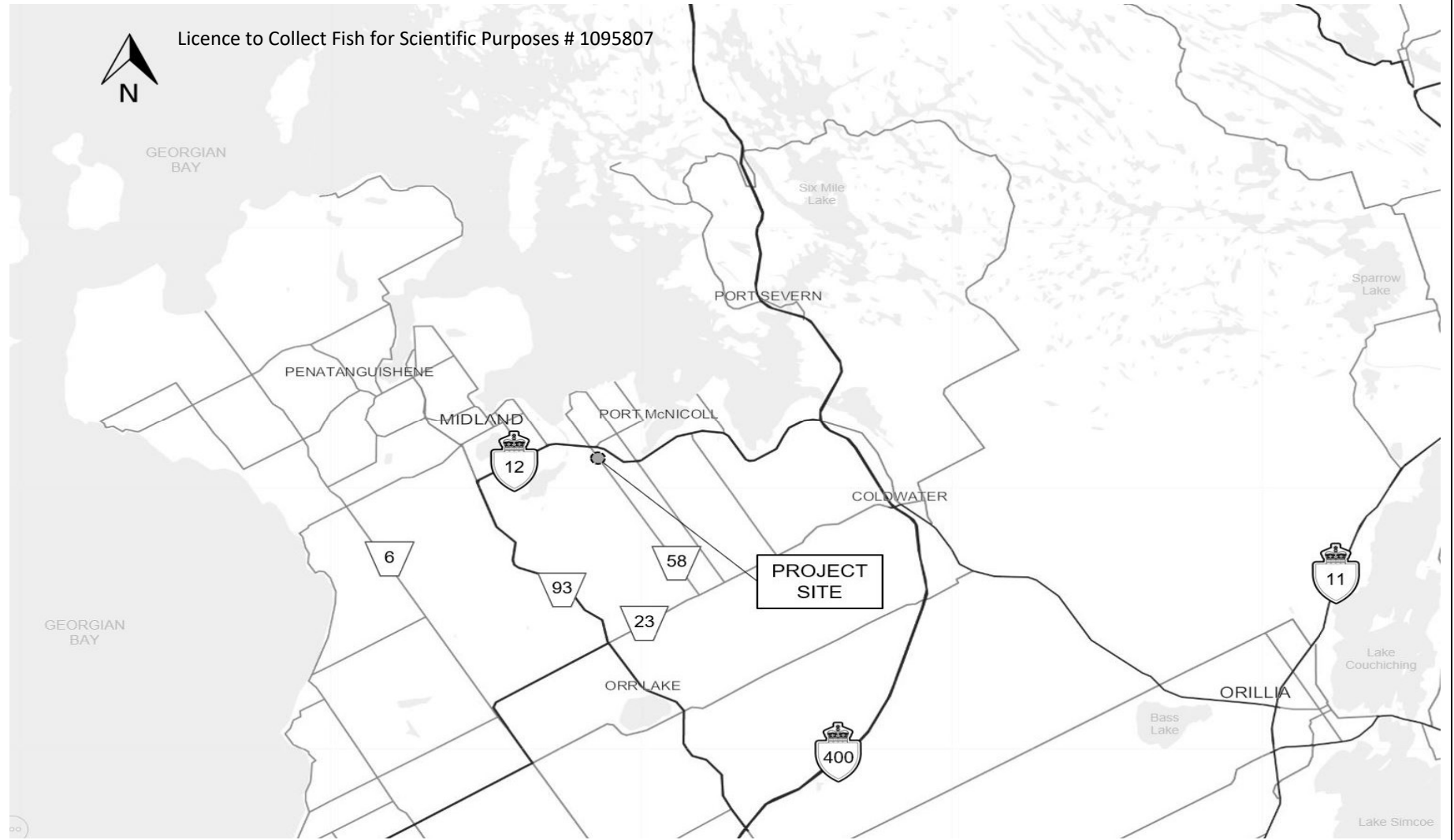
Date

June 18, 2020

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Licence to Collect Fish for Scientific Purposes # 1095807



Legend:

Notes:



**Old Fort Road Bridge Replacement**

**Project Location Key Map**

Project N°.: 20328

Figure: 1

Scale: NTS

Date: April 2020

Created By: BR

Checked By: BD

Datum: NAD 83  
Projection: UTM Zone 17N







# APPENDIX B

## Photographic Record

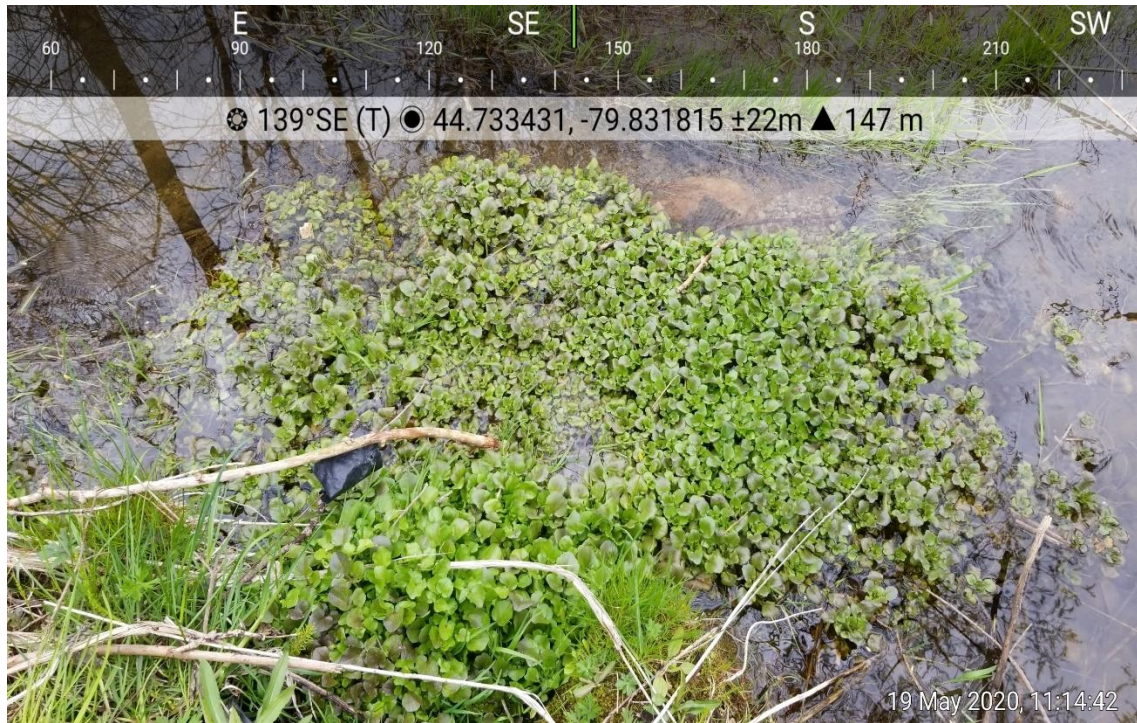


**Photo 1:** Twin csp inlet with discharging HDPE pipe and sediment accumulation.

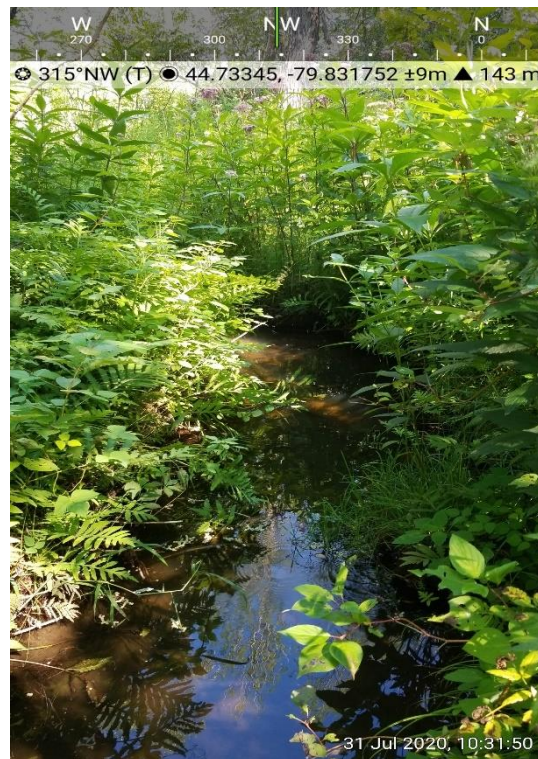


**Photo 2:** Looking upstream from culvert inlet.





**Photo 3:** Noted Watercress at culvert inlet area.



**Photo 4:** Abundant vascular vegetation lining the watercourse banks and floodplain.





**Photo 5:** Vascular overhanging vegetation providing cover through the upstream reach.



**Photo 6:** Abundant woody and vascular overhanging vegetation providing shade and cover.





**Photo 7:** Perched culvert outlet with cobble and gravel accumulation.

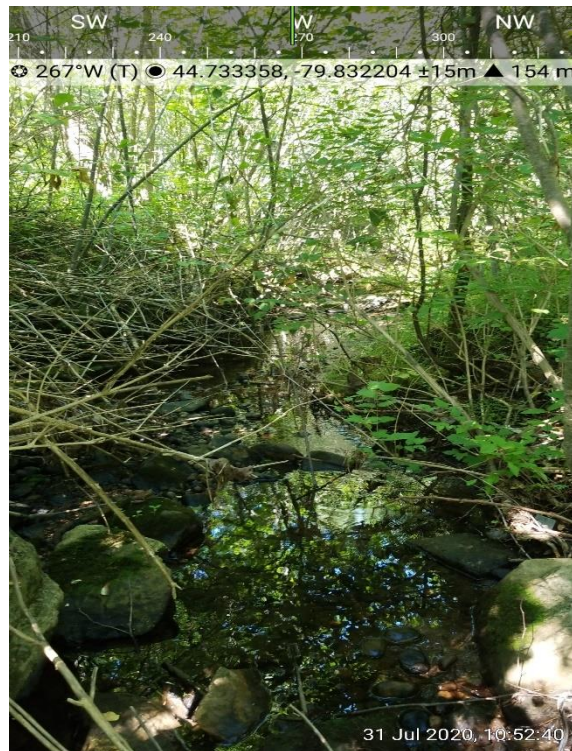


**Photo 8:** Continued bank erosion at the culvert outlet due top high flow events.





**Photo 9:** Continued bank erosion at the downstream meander feature.

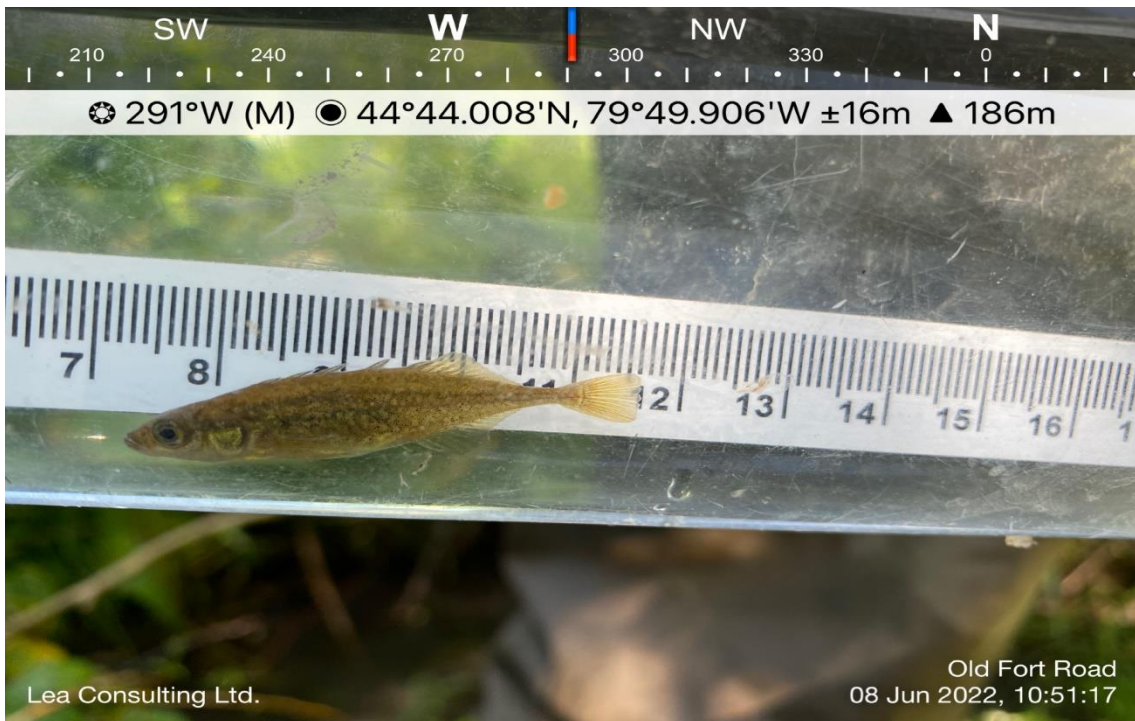


**Photo 10:** Cobble, gravel and boulders comprise the downstream substrate.



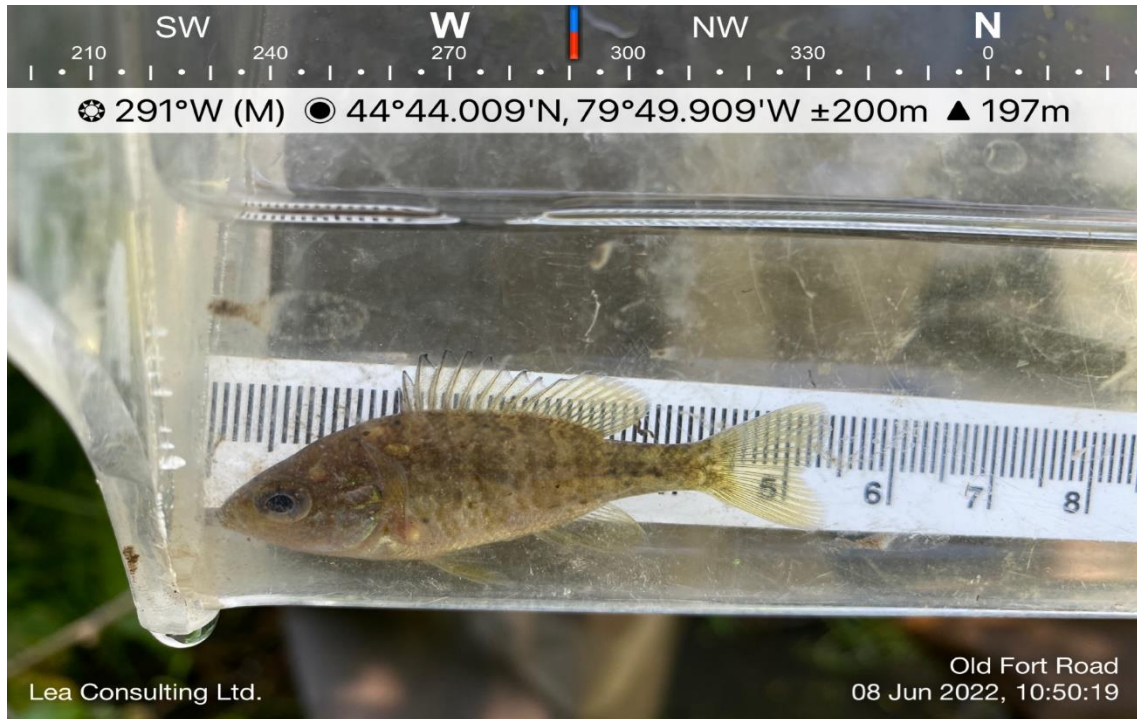


**Photo 11:** Multiple woody debris dams were noted within the downstream, impeding fish passage.



**Photo 12:** Captured and live released Brook Stickleback.





**Photo 13:** Captured and live released juvenile Bluegill.



**Photo 14:** Captured and live released Creek Chub.





**Photo 15:** Captured and live released Central Mudminnow.



# APPENDIX C

## Aquatic Habitat Mapping

US/1

**WATERCOURSE FIELD COLLECTION FORM**

**GENERAL INFORMATION**

Project # <b>20328</b>	Project Description: <b>OLD FORT ROAD BRIDGE</b>	Date: <b>MAY 19, 2020</b>
---------------------------	-----------------------------------------------------	------------------------------

Is Stream Realignment required for this section:  
 Yes       No       Unknown

Collectors: <b>B. RENDUICE / A. DISMICK</b>	Time Started: <b>10:50</b>	Time Finished: <b>13:45</b>
------------------------------------------------	-------------------------------	--------------------------------

Weather Conditions:  
**OVERCAST**

Air Temp (°C): <b>15</b>	Water Temp (°C): <b>12.1</b>	Conductivity (µS/cm): <b>1034</b>	Velocity (m/s): <b>pH 8.16</b>
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Photos Numbers And Descriptions:

**LOCATION**

Name of Waterbody: <b>UNNAMED TRIBUTARY TO WYE RIVER</b>	Drainage System: <b>WYE RIVER</b>	Crossing #: <b>SIMCOE STRUCTURE # 058086</b>	Station #:
-------------------------------------------------------------	--------------------------------------	-------------------------------------------------	------------

Location Of Crossing:  
**ON HWY 88, APPROX 300 m SOUTH OF HWY 12**

GPS Coordinates: <b>44.733006, -79.831424</b>	MTO Chainage:
--------------------------------------------------	---------------

Township: <b>Port McNicoll</b>	MNRF District: <b>MIDHURST</b>
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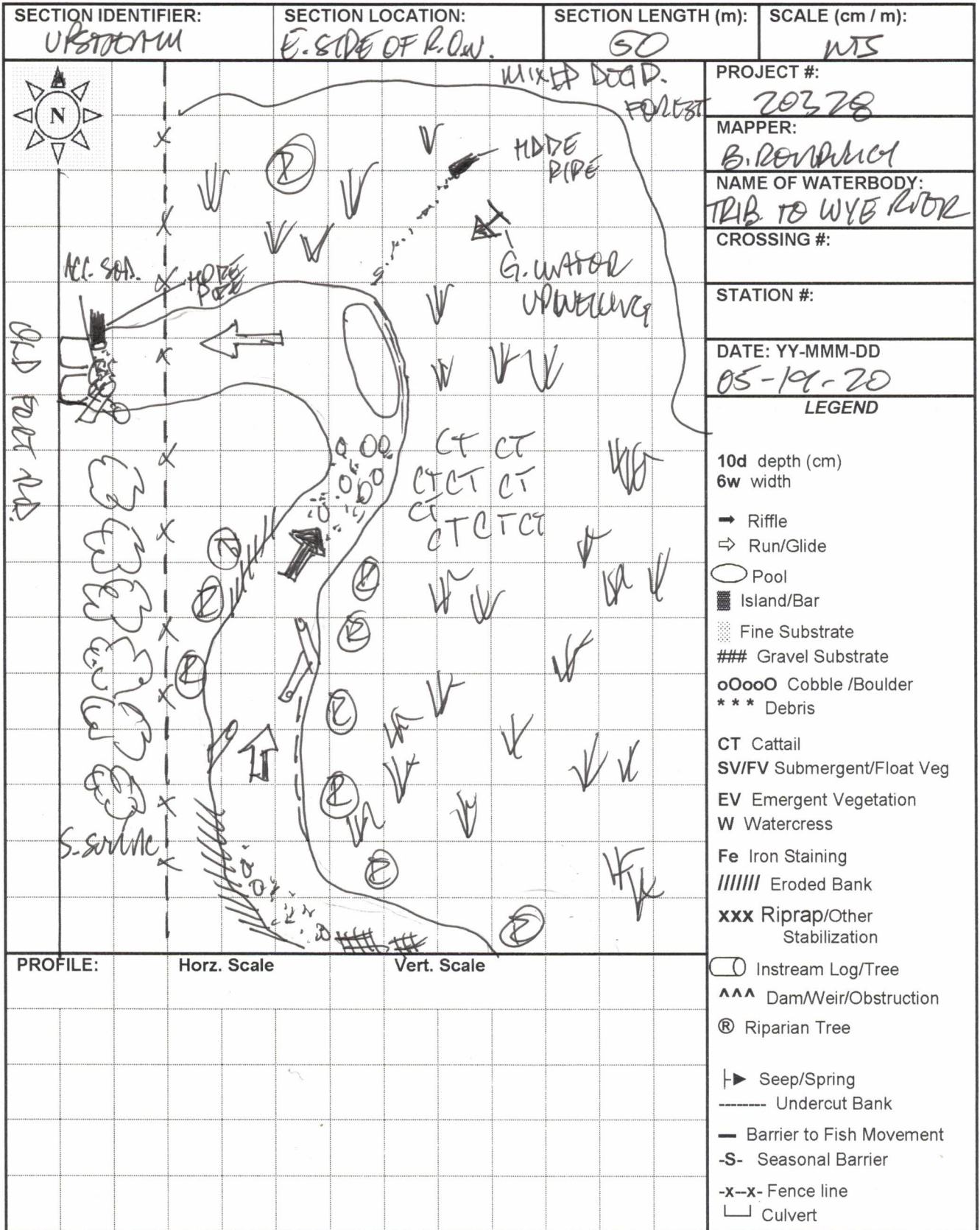


LAND USE AND POLLUTION									
Surrounding Land Use: RURAL RESIDENTIAL, AGRICULTURAL					Sources of Pollution: ROAD + AGRIC. RUNOFF / LITTER				
EXISTING STRUCTURE TYPE									
Bridge <input type="radio"/>		Box Culvert <input type="radio"/>		Open Foot Culvert <input type="radio"/>		CSP <input checked="" type="radio"/>		N/A <input type="radio"/>	
Other <input type="radio"/> (Describe)					Size: (w x h) m <sup>2</sup> TWIN 800 mm				
SECTION TYPE AND MORPHOLOGY									
Section (Reach) Identifier: UPSTREAM					Section Location: (Include On Habitat Map) E. OF R.O.W.				
Associated Wetland NO									
Stream / River <input type="radio"/>		Channelized <input type="radio"/>		Permanent <input checked="" type="radio"/>		Intermittent <input type="radio"/>		Ephemeral <input type="radio"/>	
Total Section (Reach) Length (m): 50									
Sub-Sections:	Run <input checked="" type="radio"/>	Pool <input checked="" type="radio"/>	Riffle <input checked="" type="radio"/>	Flats <input type="radio"/>	Culvert <input type="radio"/>	Other <input type="radio"/>			
Percentage of Area:	40	50	10						
Mean wetted depth (m)	0.13	0.17	0.07						
Mean wetted width (m)	0.69	1.40	0.22						
Mean bankfull depth (m)	0.26	0.29	0.24						
Mean bankfull width (m)	1.16	1.73	1.75						
Substrate (type & %)	GR, SA, SI	DET, SI, GR	GR, SA						
Bedrock (Br)	Boulder (Bo)	Cobble (Co)	Gravel (Gr)	Sand (Sa)	Silt (Si)	Clay (Cl)	Muck (Mu)	Detritus (D)	

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Right Bank	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Right Bank	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
HABITAT				
In-Stream Cover (% surface area):				
Undercut banks: 10	Boulders: /	Cobbles: 5	Organic Debris: /	None 20 <input type="radio"/>
Vascular Macrophytes: Instream: 5 Overhanging:		Woody Debris: Instream: 20 Overhanging: 20 S. SUMAC, P.O.D		
Shore Cover (% stream shaded):				
100-90% <input type="radio"/>	89-60% <input type="radio"/>	59-30% <input checked="" type="radio"/>	29-1% <input type="radio"/>	None <input type="radio"/>
Vegetation Type:				
Vegetation Type (%)	Submergent: 5	Floating:	Emergent:	None 95 <input type="radio"/>
Predominant Species:	ALGAE.	/	/	



MIGRATORY OBSTRUCTIONS		
Permanent - Acc. sds + woody debris @ inlet	Seasonal - LOW FLOW CONDITIONS	None
POTENTIAL CRITICAL HABITAT		
Spawning none	Groundwater - UPWELLING @ NORTH BANK - WATERCROSS @ INLET	Other
POTENTIAL ENHANCEMENT OPPORTUNITIES		
REMOVAL OF HDPE PIPE		
ADDITIONAL COMMENTS		
- HDPE x 2 - DISCARDED @ INLET & NORTH BANK - WATER UPWELLING ALONG NORTHERN RIP. CORNER - W/C FLOWS THROUGH MIXED FOREST → HOODPUM W/ VAS. VEG. - FLOW THROUGH S. CORNER - PARTIALLY UNIMPAIRED - sds + woody debris acc. @ inlet. - PRESENT. B. STICKLEBACK C.C., C.M.M.		
Additional Notes Appended? <input checked="" type="radio"/> No <input type="radio"/> Yes		Number of Pages _____





DS/1

**WATERCOURSE FIELD COLLECTION FORM**

**GENERAL INFORMATION**

Project #  20328	Project Description:  OLD FORT ROAD BRIDGE	Date:  MAY 19, 2020
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Is Stream Realignment required for this section:  
 Yes       No       Unknown

Collectors:  B. RENDULICH / A. DISNER	Time Started:  10:50	Time Finished:  13:45
---------------------------------------------	----------------------------	-----------------------------

Weather Conditions:  
  
OVERCAST

Air Temp (°C):  15	Water Temp (°C):  12.1	Conductivity (µS/cm):  1034	Velocity (m/s):  pH 8.16
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Photos Numbers And Descriptions:

**LOCATION**

Name of Waterbody: UNNAMED TRIBUT TO WYE RIVER	Drainage System: WYE RIVER	Crossing #: SIMILAR STRUCTURE # 058086	Station #:
------------------------------------------------------	-------------------------------	----------------------------------------------	------------

Location Of Crossing:  
HWY 50, APPROX 300m SOUTH OF HWY 12

GPS Coordinates: 44.733006, -79.831424	MTO Chainage:
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Township: PORT Mc NEILL	MNRF District: MIDHURST
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**LAND USE AND POLLUTION**

Surrounding Land Use: *RURAL RESIDENTIAL, AGRICULTURE* Sources of Pollution: *ROAD + AREA REMOTE / LITTER*

**EXISTING STRUCTURE TYPE**

Bridge <input type="radio"/>	Box Culvert <input type="radio"/>	Open Foot Culvert <input type="radio"/>	CSP <input checked="" type="radio"/>	N/A <input type="radio"/>
Other <input type="radio"/> (Describe)		Size: (w x h) m <sup>2</sup> <i>TWIN 600mm</i>		

**SECTION TYPE AND MORPHOLOGY**

Section (Reach) Identifier: *DOWNSTREAM* Section Location: (Include On Habitat Map)  
*W. SIDE OF R.O.W.*

Associated Wetland  
*NO*

Stream / River <input type="radio"/>	Channelized <input type="radio"/>	Permanent <input checked="" type="radio"/>	Intermittent <input type="radio"/>	Ephemeral <input type="radio"/>
-----------------------------------------	--------------------------------------	-----------------------------------------------	---------------------------------------	------------------------------------

Total Section (Reach) Length (m): *200*

Sub-Sections:	Run <input checked="" type="radio"/>	Pool <input checked="" type="radio"/>	Riffle <input checked="" type="radio"/>	Flats <input type="radio"/>	Culvert <input type="radio"/>	Other <input type="radio"/>
Percentage of Area:	<i>15</i>	<i>75</i>	<i>20</i>			
Mean wetted depth (m)	<i>0.09</i>	<i>0.12</i>	<i>0.08</i>			
Mean wetted width (m)	<i>0.88</i>	<i>1.01</i>	<i>0.82</i>			
Mean bankfull depth (m)	<i>0.41</i>	<i>0.47</i>	<i>0.33</i>			
Mean bankfull width (m)	<i>3.7</i>	<i>1.50</i>	<i>3.6</i>			
Substrate (type & %)	<i>GR, SA, CO, BO</i>	<i>GR, SA, SI, MU</i>	<i>GR, CO, BO</i>			

Bedrock (Br)	Boulder (Bo)	Cobble (Co)	Gravel (Gr)	Sand (Sa)	Silt (Si)	Clay (Cl)	Muck (Mu)	Detritus (D)

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Right Bank	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Right Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
HABITAT				
In-Stream Cover (% surface area):				
Undercut banks: 30	Boulders: 10	Cobbles: 15	Organic Debris:	None <input type="radio"/>
Vascular Macrophytes:  Instream:  Overhanging: 10		Woody Debris:  Instream: 30  Overhanging: 10		
Shore Cover (% stream shaded):				
100-90% <input type="radio"/>	89-60% <input checked="" type="radio"/>	59-30% <input type="radio"/>	29-1% <input type="radio"/>	None <input type="radio"/>
Vegetation Type:				
Vegetation Type (%)	Submergent: 5	Floating:	Emergent:	None <input checked="" type="radio"/>
Predominant Species:	ALGAE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	95



**MIGRATORY OBSTRUCTIONS**

Permanent MULTIPLE WOOLLY DEBRIS BAMS - FORMED WHORL	Seasonal - LOW FLOW CONDITION	None
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**POTENTIAL CRITICAL HABITAT**

Spawning NONE	Groundwater NONE	Other
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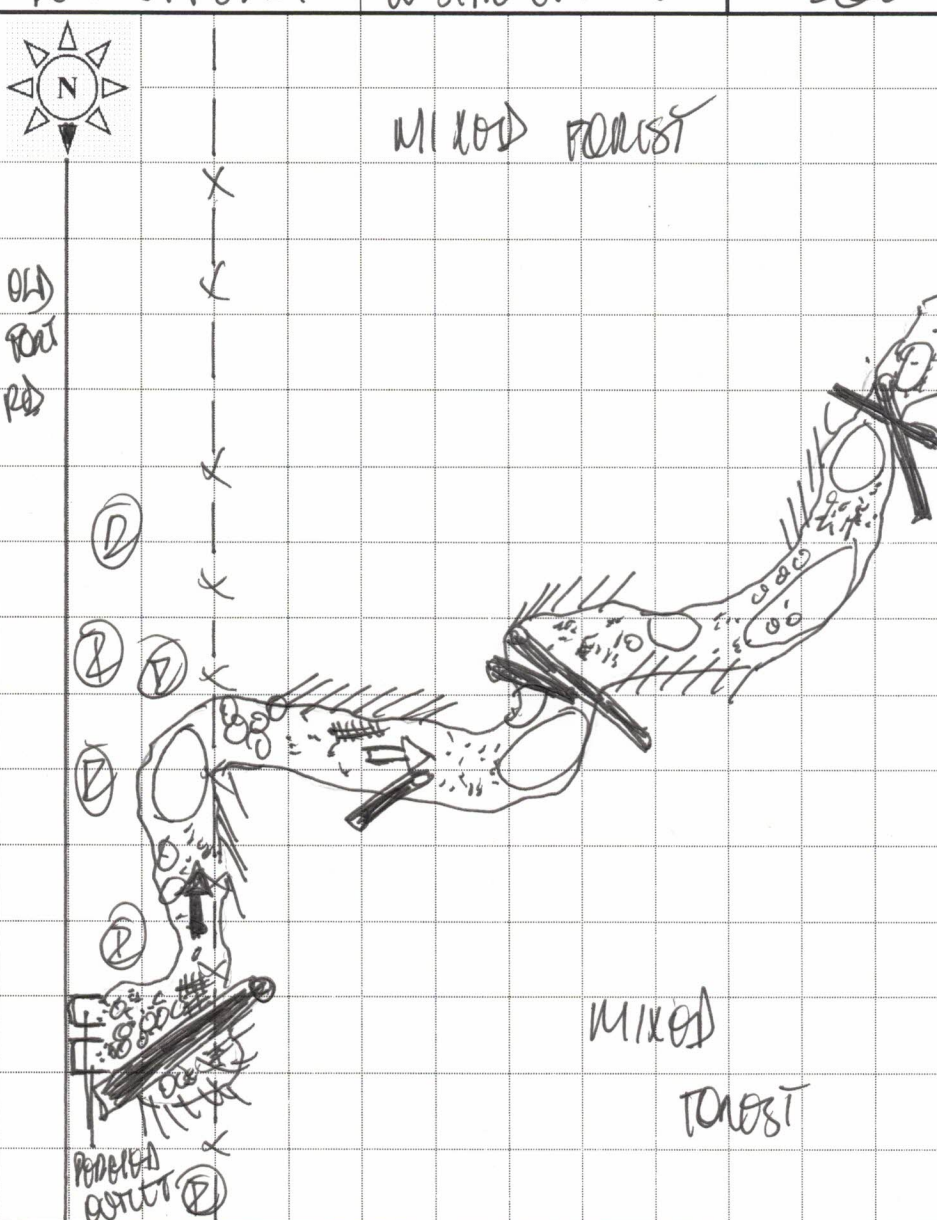
**POTENTIAL ENHANCEMENT OPPORTUNITIES**

EMBODIMENT OF CULVERT OUTLET TO MITIGATE AGAINST  
POACHING  
- STABILIZE OUTLET AREA

**ADDITIONAL COMMENTS**

- EVIDENCE OF EROSION DUE TO HIGH, RAPID FLOWS
- MULTIPLE BARRIERS TO FISH - WOOD/LOG STUMPS / DEEP POOLS
- ISOLATE POOL / RIFFLE FEATURES, LITTLE HYDRAULIC CONNECTION
- RECEIVED CULVERT APPROX. 10cm ABOVE SUB.
- GRAIN DEPOSIT @ OUTLET.
- SUBSTRATE - BOULDER, COBBLE, GRAVEL.
- NO FISH CAUGHT.

Additional Notes Appended?  No  Yes      Number of Pages \_\_\_\_\_

SECTION IDENTIFIER: Downstream		SECTION LOCATION: W-SIDE OF R.O.W		SECTION LENGTH (m): 200	SCALE (cm / m): NTS
				PROJECT #: 20328	
				MAPPER: B. Remond	
				NAME OF WATERBODY: TRIS WYE RIVER	
				CROSSING #:	
				STATION #:	
DATE: YY-MMM-DD 05-19-20				LEGEND	
PROFILE:                      Horz. Scale                      Vert. Scale				10d depth (cm) 6w width → Riffle ⇨ Run/Glide ○ Pool ■ Island/Bar ∙ Fine Substrate ### Gravel Substrate oOooO Cobble /Boulder * * * Debris CT Cattail SV/FV Submergent/Float Veg EV Emergent Vegetation W Watercress Fe Iron Staining // // // Eroded Bank xxx Riprap/Other Stabilization ○ Instream Log/Tree ^^^ Dam/Weir/Obstruction ® Riparian Tree  ▶ Seep/Spring ----- Undercut Bank — Barrier to Fish Movement -S- Seasonal Barrier -x-x- Fence line ┌ Culvert	



**WATERCOURSE FIELD COLLECTION FORM**

**GENERAL INFORMATION**

Project # <i>20328</i>	Project Description: <i>OLD FORT ROAD BRIDGE</i>	Date: <i>JULY 31, 2020</i>
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Is Stream Realignment required for this section:  
 Yes       No       Unknown

Collectors: <i>B. RENDULICH / A. DISHEK</i>	Time Started: <i>10:10</i>	Time Finished: <i>12:55</i>
------------------------------------------------	-------------------------------	--------------------------------

Weather Conditions:  
*SUNNY*

Air Temp (°C): <i>24</i>	Water Temp (°C): <i>16.9</i>	Conductivity (µS/cm): <i>1201</i>	Velocity (m/s): <i>pH 8.13</i>
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Photos Numbers And Descriptions:

**LOCATION**

Name of Waterbody: <i>UNNAMED TR. B. TO WVE RIVER</i>	Drainage System: <i>WVE RIVER</i>	Crossing #: <i>SIMILAR STRUCTURE # 058086</i>	Station #:
----------------------------------------------------------	--------------------------------------	--------------------------------------------------	------------

Location Of Crossing:  
*OLD FORT RD, APPROX 200 m SOUTH OF HWY 12*

GPS Coordinates: <i>44.733006 -79.831424</i>	MTO Chainage:
-------------------------------------------------	---------------

Township: <i>Port McNicoll</i>	MNRF District: <i>WINDHAMST</i>
-----------------------------------	------------------------------------



LAND USE AND POLLUTION								
Surrounding Land Use: RURAL RESIDENTIAL, AGRICULTURE					Sources of Pollution: ROADS + AG. RUNOFF / LITTER			
EXISTING STRUCTURE TYPE								
Bridge <input type="radio"/>		Box Culvert <input type="radio"/>		Open Foot Culvert <input type="radio"/>		CSP <input checked="" type="radio"/>		N/A <input type="radio"/>
Other <input type="radio"/> (Describe)				Size: (w x h) m <sup>2</sup> TWIN 9000 MM				
SECTION TYPE AND MORPHOLOGY								
Section (Reach) Identifier: UPSTREAM					Section Location: (Include On Habitat Map)			
Associated Wetland NO					EAST SIDE OF R.O.W.			
Stream / River <input type="radio"/>		Channelized <input type="radio"/>		Permanent <input checked="" type="radio"/>		Intermittent <input type="radio"/>		Ephemeral <input type="radio"/>
Total Section (Reach) Length (m): 50								
<b>Sub-Sections:</b>		Run <input type="radio"/>	Pool <input type="radio"/>	Riffle <input type="radio"/>	Flats <input type="radio"/>	Culvert <input type="radio"/>	Other <input type="radio"/>	
<b>Percentage of Area:</b>		30	60	10				
<b>Mean wetted depth (m)</b>		0.09	0.10	0.07				
<b>Mean wetted width (m)</b>		0.70	1.40	0.20				
<b>Mean bankfull depth (m)</b>		0.21	0.20	0.17				
<b>Mean bankfull width (m)</b>		1.10	1.5	1.45				
<b>Substrate (type &amp; %)</b>		Gr, S, S, L, M, C, F, SA		DET, M, V, SA	Gr, S, CO			
<b>Bedrock (Br)</b>	<b>Boulder (Bo)</b>	<b>Cobble (Co)</b>	<b>Gravel (Gr)</b>	<b>Sand (Sa)</b>	<b>Silt (Si)</b>	<b>Clay (Cl)</b>	<b>Muck (Mu)</b>	<b>Detritus (D)</b>

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Right Bank	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Right Bank	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
HABITAT				
In-Stream Cover (% surface area):				
Undercut banks: 10	Boulders: /	Cobbles: 5	Organic Debris: 10	None <input type="radio"/> 15
Vascular Macrophytes:		Woody Debris:		
Instream: 10		Instream: 20		
Overhanging: 30		Overhanging: 15		
S. POIN. G. Red.				
Zoster wood CT.				
Shore Cover (% stream shaded):				
100-90% <input checked="" type="radio"/>	89-60% <input type="radio"/>	59-30% <input type="radio"/>	29-1% <input type="radio"/>	None <input type="radio"/>
Vegetation Type:				
Vegetation Type (%)	Submergent: 10	Floating:	Emergent: 15	None <input type="radio"/>
Predominant Species:	ALGAE SPHAGNUM		CATTAILS WATER CRESS HORSETAIL	









### WATERCOURSE FIELD COLLECTION FORM

#### GENERAL INFORMATION

Project # <p>20328</p>	Project Description: <p>OLD FORT ROAD BRIDGE</p>	Date: <p>JUNY 31, 2020</p>
---------------------------	-----------------------------------------------------	-------------------------------

Is Stream Realignment required for this section:  
 Yes       No       Unknown

Collectors: <p>B. PENNULIG / A. DISMER</p>	Time Started: <p>10:10</p>	Time Finished: <p>12:55</p>
-----------------------------------------------	-------------------------------	--------------------------------

Weather Conditions:  

SUNNY

Air Temp (°C): <p>24</p>	Water Temp (°C): <p>16.9</p>	Conductivity (µS/cm): <p>1201</p>	Velocity (m/s): <p>pH. 8.13</p>
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Photos Numbers And Descriptions:

#### LOCATION

Name of Waterbody: <p>UNNAMED TRB TO WVE RIVER</p>	Drainage System: <p>WVE RIVER</p>	Crossing #: <p>SIM10E #058086</p>	Station #:
-------------------------------------------------------	--------------------------------------	------------------------------------------	------------

Location Of Crossing:  

OLD FORT RD, APPROX 200m SOUTH OF HWY 12

GPS Coordinates: <p>44.733006, 79.831424</p>	MTO Chainage:
-------------------------------------------------	---------------

Township: <p>PORT McNICOLL</p>	MNRF District: <p>WINDHURST</p>
-----------------------------------	------------------------------------

LAND USE AND POLLUTION								
Surrounding Land Use: RURAL RESIDENTIAL, Ag.					Sources of Pollution: ROAD + R. RUNOFF			
EXISTING STRUCTURE TYPE								
Bridge <input type="radio"/>		Box Culvert <input type="radio"/>		Open Foot Culvert <input type="radio"/>		CSP <input checked="" type="radio"/>		N/A <input type="radio"/>
Other <input type="radio"/> (Describe)					Size: (w x h) m <sup>2</sup> TWIN 800 mm			
SECTION TYPE AND MORPHOLOGY								
Section (Reach) Identifier: DOWNSTREAM					Section Location: (Include On Habitat Map) W-SIDE R.O.W.			
Associated Wetland NO								
Stream / River <input type="radio"/>		Channelized <input type="radio"/>		Permanent <input checked="" type="radio"/>		Intermittent <input type="radio"/>		Ephemeral <input type="radio"/>
Total Section (Reach) Length (m): 200								
Sub-Sections:		Run <input type="radio"/>	Pool <input type="radio"/>	Riffle <input type="radio"/>	Flats <input type="radio"/>	Culvert <input type="radio"/>	Other <input type="radio"/>	
Percentage of Area:		15	65	20			/	
Mean wetted depth (m)		0.07	0.09	0.07				
Mean wetted width (m)		0.80	1.00	0.82				
Mean bankfull depth (m)		0.37	0.42	0.30				
Mean bankfull width (m)		3.7	1.45	3.5				
Substrate (type & %)		GA, CA, CO 100	CO, GA, SI 100	CO, SI, SD				
Bedrock (Br)	Boulder (Bo)	Cobble (Co)	Gravel (Gr)	Sand (Sa)	Silt (Si)	Clay (Cl)	Muck (Mu)	Detritus (D)


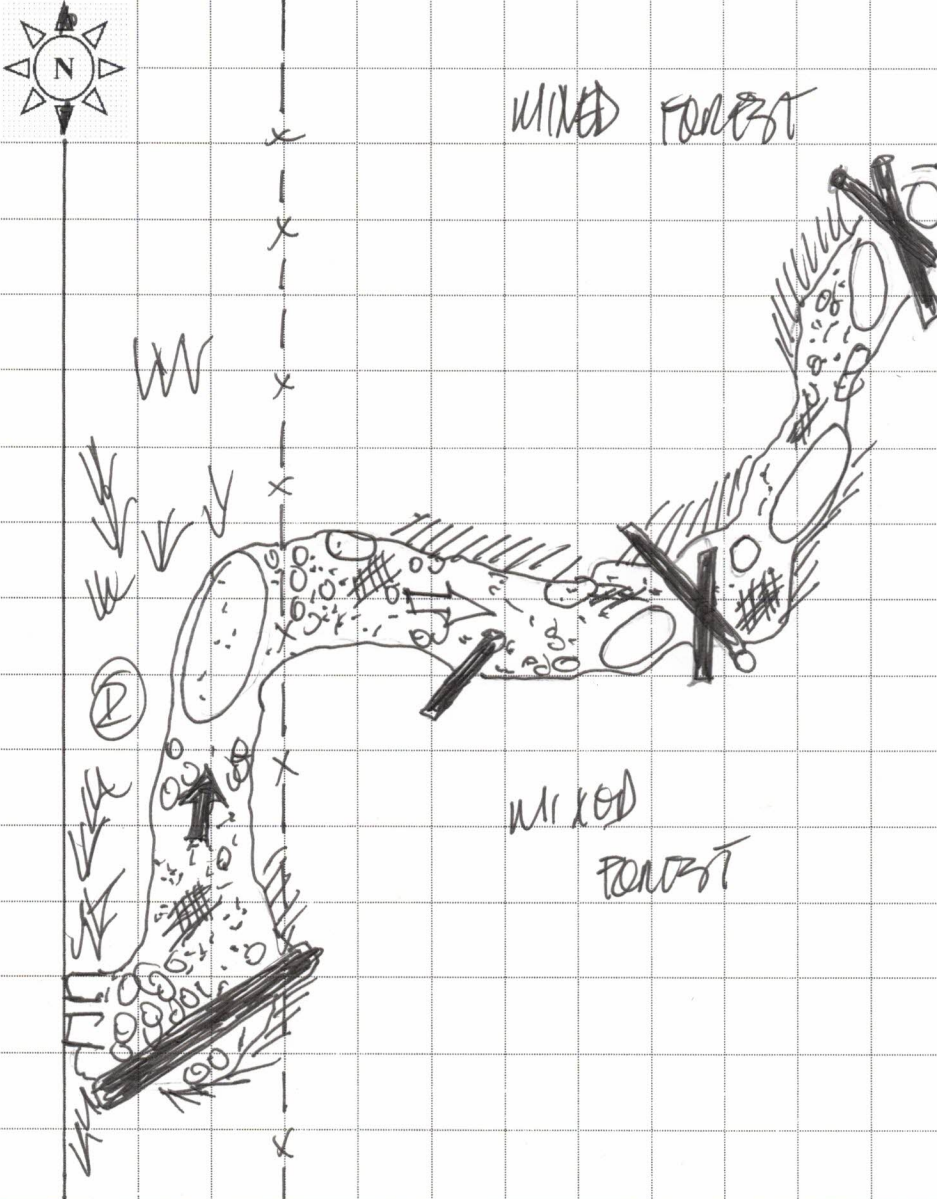


BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Right Bank	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Right Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
HABITAT				
In-Stream Cover (% surface area):				
Undercut banks: 30	Boulders: 10	Cobbles: 15	Organic Debris:	None <input type="radio"/>
Vascular Macrophytes:  Instream:  Overhanging: 10  GORDON NET		Woody Debris:  Instream: 30  Overhanging: 10  MAPLE, BIRCH, ASPEN		
Shore Cover (% stream shaded):				
100-90% <input checked="" type="radio"/>	89-60% <input type="radio"/>	59-30% <input type="radio"/>	29-1% <input type="radio"/>	None <input type="radio"/>
Vegetation Type:				
Vegetation Type (%)	Submergent: 5	Floating:	Emergent:	None <input type="radio"/>
Predominant Species:	Rowan	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	



MIGRATORY OBSTRUCTIONS		
Permanent - WOOLLY DEBRIS RAFTS W/ DEEP POOLS	Seasonal - LOW FLOW	None
POTENTIAL CRITICAL HABITAT		
Spawning /	Groundwater /	Other
POTENTIAL ENHANCEMENT OPPORTUNITIES		
- EMBODIMENT OF CURRENT - STABILIZE outlet area		
ADDITIONAL COMMENTS		
- CONTINUED EROSION OF OUTLET AREA + DIS - CAN HARD DIS NOTED DIS - ISOLATED POOLS W/ RIFLES - LITTLE CONNECTION - EXTENSIVE BANK EROSION / OUBANKMENT - SUBSTRAT. GR, BO, LO, SA, SI - NO FISH CATCHMENT / OBSERVED!		
Additional Notes Appended? <input checked="" type="radio"/> No <input type="radio"/> Yes		Number of Pages _____

DS/2

SECTION IDENTIFIER: <i>DOWNSTREAM</i>		SECTION LOCATION: <i>W. SIDE OF ROW.</i>		SECTION LENGTH (m): <i>200</i>	SCALE (cm / m): <i>N/S</i>
 	PROJECT #: <i>20828</i>				
	MAPPER: <i>B. DONALD</i>				
	NAME OF WATERBODY: <i>TRIB OF WYE RIVER</i>				
	CROSSING #:				
	STATION #:				
	DATE: YY-MMM-DD <i>20-07-31</i>				
<p style="text-align: center;"><b>LEGEND</b></p> <p>10d depth (cm) 6w width</p> <p>→ Riffle ⇨ Run/Glide ○ Pool ■ Island/Bar ••• Fine Substrate ### Gravel Substrate oOooO Cobble /Boulder *** Debris</p> <p>CT Cattail SV/FV Submergent/Float Veg EV Emergent Vegetation W Watercress Fe Iron Staining ///// Eroded Bank xxx Riprap/Other Stabilization</p> <p>○ Instream Log/Tree ^^^ Dam/Weir/Obstruction Ⓜ Riparian Tree  ▶ Seep/Spring ----- Undercut Bank — Barrier to Fish Movement -S- Seasonal Barrier -x-x- Fence line ┌└ Culvert</p>					
PROFILE:	Horz. Scale	Vert. Scale			

**WATERCOURSE FIELD COLLECTION FORM**

<b>GENERAL INFORMATION</b>			
Project #	Project Description:		Date:
Is Stream Realignment required for this section: <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown			
Collectors:	Time Started:	Time Finished:	
Weather Conditions:			
Air Temp (°C):	Water Temp (°C):	Conductivity (µS/cm):	Velocity (m/s): n/a
Photos Numbers And Descriptions: n/a			
<b>LOCATION</b>			
Name of Waterbody:	Drainage System:	Crossing #:	Station #:
Location Of Crossing: n/a			
GPS Coordinates:	MTO Chainage: n/a		
Township:	MNR District:		



LAND USE AND POLLUTION								
Surrounding Land Use:				Sources of Pollution:				
EXISTING STRUCTURE TYPE								
Bridge <input type="radio"/>		Box Culvert <input type="radio"/>		Open Foot Culvert <input type="radio"/>		CSP <input type="radio"/>		N/A <input type="radio"/>
Other <input type="radio"/> (Describe)				Size: (w x h) m <sup>2</sup>				
SECTION TYPE AND MORPHOLOGY								
Section (Reach) Identifier: upstream				Section Location: (Include On Habitat Map)				
Associated Wetland								
Stream / River <input type="radio"/>		Channelized <input type="radio"/>		Permanent <input type="radio"/>		Intermittent <input type="radio"/>		Ephemeral <input type="radio"/>
Total Section (Reach) Length (m):								
<b>Sub-Sections:</b>	Run <input type="radio"/>	Pool <input type="radio"/>	Riffle <input type="radio"/>	Flats <input type="radio"/>	Culvert <input type="radio"/>	Other <input type="radio"/>		
<b>Percentage of Area:</b>								
<b>Mean wetted depth (m)</b>								
<b>Mean wetted width (m)</b>								
<b>Mean bankfull depth (m)</b>								
<b>Mean bankfull width (m)</b>								
<b>Substrate (type &amp; %)</b>								
<b>Bedrock (Br)</b>	<b>Boulder (Bo)</b>	<b>Cobble (Co)</b>	<b>Gravel (Gr)</b>	<b>Sand (Sa)</b>	<b>Silt (Si)</b>	<b>Clay (Cl)</b>	<b>Muck (Mu)</b>	<b>Detritus (D)</b>

<b>BANK STABILITY</b>				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Right Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Right Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>HABITAT</b>				
<b>In-Stream Cover (% surface area):</b>				
Undercut banks:	Boulders:	Cobbles:	Organic Debris:	None <input type="radio"/>
Vascular Macrophytes:		Woody Debris:		
Instream:		Instream:		
Overhanging:		Overhanging:		
<b>Shore Cover (% stream shaded):</b>				
100-90% <input type="radio"/>	89-60% <input type="radio"/>	59-30% <input type="radio"/>	29-1% <input type="radio"/>	None <input type="radio"/>
<b>Vegetation Type:</b>				
Vegetation Type (%)	Submergent:	Floating:	Emergent:	None <input type="radio"/>
Predominant Species:				

<b>MIGRATORY OBSTRUCTIONS</b>		
Permanent	Seasonal	None
<b>POTENTIAL CRITICAL HABITAT</b>		
Spawning	Groundwater	Other
<b>POTENTIAL ENHANCEMENT OPPORTUNITIES</b>		
<b>ADDITIONAL COMMENTS</b>		
Fish Habitat:		
Additional Notes Appended? <input checked="" type="radio"/> No <input type="radio"/> Yes		Number of Pages _____



SECTION IDENTIFIER: upstream		SECTION LOCATION:				SECTION LENGTH (m):				SCALE (cm / m): nts	
										PROJECT #:	
										MAPPER:	
										NAME OF WATERBODY:	
										CROSSING #:	
										STATION #:	
										DATE: YY-MMM-DD	
<b>LEGEND</b>											
<p> <b>10d</b> depth (cm)  <b>6w</b> width   Riffle   Run/Glide   Pool   Island/Bar   Fine Substrate   Gravel Substrate   Cobble /Boulder   Debris  <b>CT</b> Cattail  <b>SV/FV</b> Submergent/Float Veg  <b>EV</b> Emergent Vegetation  <b>W</b> Watercress  <b>Fe</b> Iron Staining   Eroded Bank  <b>xxx</b> Riprap/Other Stabilization   Instream Log/Tree   Dam/Weir/Obstruction   Riparian Tree   Seep/Spring   Undercut Bank   Barrier to Fish Movement   Seasonal Barrier   Fence line   Culvert                 </p>											
<b>PROFILE:</b>		<b>Horz. Scale</b>				<b>Vert. Scale</b>					
Grid area for profile and scales											

**WATERCOURSE FIELD COLLECTION FORM**


<b>GENERAL INFORMATION</b>			
Project #	Project Description:		Date:
Is Stream Realignment required for this section: <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown			
Collectors:	Time Started:	Time Finished:	
Weather Conditions:			
Air Temp (°C):	Water Temp (°C):	Conductivity (µS/cm):	Velocity (m/s): n/a
Photos Numbers And Descriptions: n/a			
<b>LOCATION</b>			
Name of Waterbody:	Drainage System:	Crossing #:	Station #:
Location Of Crossing: n/a			
GPS Coordinates:	MTO Chainage: n/a		
Township:	MNR District:		

LAND USE AND POLLUTION								
Surrounding Land Use:				Sources of Pollution:				
EXISTING STRUCTURE TYPE								
Bridge <input type="radio"/>		Box Culvert <input type="radio"/>		Open Foot Culvert <input type="radio"/>		CSP <input type="radio"/>		N/A <input type="radio"/>
Other <input type="radio"/> (Describe)				Size: (w x h) m <sup>2</sup>				
SECTION TYPE AND MORPHOLOGY								
Section (Reach) Identifier: downstream				Section Location: (Include On Habitat Map)				
Associated Wetland								
Stream / River <input type="radio"/>		Channelized <input type="radio"/>		Permanent <input type="radio"/>		Intermittent <input type="radio"/>		Ephemeral <input type="radio"/>
Total Section (Reach) Length (m):								
<b>Sub-Sections:</b>	Run <input type="radio"/>	Pool <input type="radio"/>	Riffle <input type="radio"/>	Flats <input type="radio"/>	Culvert <input type="radio"/>	Other <input type="radio"/>		
<b>Percentage of Area:</b>								
<b>Mean wetted depth (m)</b>								
<b>Mean wetted width (m)</b>								
<b>Mean bankfull depth (m)</b>								
<b>Mean bankfull width (m)</b>								
<b>Substrate (type &amp; %)</b>								
<b>Bedrock (Br)</b>	<b>Boulder (Bo)</b>	<b>Cobble (Co)</b>	<b>Gravel (Gr)</b>	<b>Sand (Sa)</b>	<b>Silt (Si)</b>	<b>Clay (Cl)</b>	<b>Muck (Mu)</b>	<b>Detritus (D)</b>



<b>BANK STABILITY</b>				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Right Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Right Bank	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>HABITAT</b>				
<b>In-Stream Cover (% surface area):</b>				
Undercut banks:	Boulders:	Cobbles:	Organic Debris:	None <input type="radio"/>
Vascular Macrophytes:		Woody Debris:		
Instream:		Instream:		
Overhanging:		Overhanging:		
<b>Shore Cover (% stream shaded):</b>				
100-90% <input type="radio"/>	89-60% <input type="radio"/>	59-30% <input type="radio"/>	29-1% <input type="radio"/>	None <input type="radio"/>
<b>Vegetation Type:</b>				
Vegetation Type (%)	Submergent:	Floating:	Emergent:	None <input type="radio"/>
Predominant Species:				

<b>MIGRATORY OBSTRUCTIONS</b>		
Permanent	Seasonal	None
<b>POTENTIAL CRITICAL HABITAT</b>		
Spawning	Groundwater	Other
<b>POTENTIAL ENHANCEMENT OPPORTUNITIES</b>		
<b>ADDITIONAL COMMENTS</b>		
Fish Habitat:		
Additional Notes Appended? <input checked="" type="radio"/> No <input type="radio"/> Yes		Number of Pages _____

SECTION IDENTIFIER: downstream		SECTION LOCATION:				SECTION LENGTH (m):				SCALE (cm / m): nts	
										PROJECT #:	
										MAPPER:	
										NAME OF WATERBODY:	
										CROSSING #:	
										STATION #:	
										DATE: YY-MMM-DD	
<b>LEGEND</b>											
<p>10d depth (cm) 6w width</p> <p>➔ Riffle ⇨ Run/Glide ○ Pool ■ Island/Bar ⦿ Fine Substrate ### Gravel Substrate oOooO Cobble /Boulder * * * Debris</p> <p>CT Cattail SV/FV Submergent/Float Veg EV Emergent Vegetation W Watercress Fe Iron Staining ///// Eroded Bank xxx Riprap/Other Stabilization</p>											
<b>PROFILE:</b>		<b>Horz. Scale</b>				<b>Vert. Scale</b>				<p>⊖ Instream Log/Tree ^^^ Dam/Weir/Obstruction Ⓡ Riparian Tree └▶ Seep/Spring ----- Undercut Bank — Barrier to Fish Movement -S- Seasonal Barrier -x-x- Fence line ┌ Culvert</p>	



### FISH COMMUNITY INVENTORY FORM

GENERAL INFORMATION						
Project #			Date:			
Project Description:						
Collectors:			Time Started:		Time Finished:	
Weather Conditions:			Surface Conditions (If Applicable):			
			Calm <input type="radio"/>	Rippled <input type="radio"/>	Wavy <input type="radio"/>	Rough <input type="radio"/>
LOCATION						
Name of Waterbody:			Crossing #:		Station #:	
Location of Crossing/Station: n/a						
GPS Coordinates:			MTO Chainage: n/a			
Township:			MNR District:			
SAMPLING LOCATIONS AND WATER CHEMISTRY						
Location:	Length (m)	Air Temp. (°C)	pH	Dissolved Oxygen (mg/L)	Water Temp (°C)	Conductivity (µS/cm)
Upstream						
Downstream						
Culvert/Hwy ROW				n/a		
Water Colour:						
Colourless <input type="radio"/>	Yellow/Brown <input type="radio"/>	Blue/Green <input type="radio"/>	Turbid <input type="radio"/>	Other <input type="radio"/> _____		

<b>GEAR</b>					
<b>Electrofisher:</b>					
Length (m):	Settings:	Seconds:			
<b>Nets and Traps:</b>					
Minnow Trap: <input type="radio"/> #	Dip Net <input type="radio"/> #	Trap Net <input type="radio"/> #			
Seine: <input type="radio"/>	Gill <input type="radio"/>	Other <input type="radio"/>			
		Specify:			
Hauls (#):	Period of Time (24 Hour Clock):				
	Set Time:				Clear Time:
<b>Size of Net:</b>					
Length (m):	Mesh Size:		Depth of Capture:		
	Smallest (cm):		Minimum (m):		
	Largest (cm):		Maximum (m):		
<b>SAMPLE COLLECTION</b>					
Fish Kept? <input type="radio"/> Yes <input checked="" type="radio"/> No	Number of Bags	Preservative:			
		Formalin <input type="radio"/>	Frozen <input type="radio"/>	Alcohol <input type="radio"/>	Other (specify) <input type="radio"/>
<b>ADDITIONAL COMMENTS</b>					
Additional Notes Appended? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes number of pages _____					

