



**GENERAL SPECIFICATION FOR ENVIRONMENTAL
PROTECTION FOR CONSTRUCTION IN AND AROUND
WATERBODIES AND ON WATERBODY BANKS**

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This specification covers the environmental protection requirements and mitigation measures that apply to construction involving work in and around waterbodies and on waterbody banks.

182.02 REFERENCES

This specification refers to the following standards, specifications, or publications:

Ontario Provincial Standard Specifications, Construction

OPSS 517	Dewatering and Temporary Flow Passage Systems
OPSS 803	Vegetative Cover
OPSS 804	Temporary Erosion Control
OPSS 805	Temporary Sediment Control

Canadian and Provincial Statutes

Endangered Species Act, S.O. 2007, c.6

Endangered Species Act, S.O. 2007, c.6 - Ontario Regulation 242/08: General
Fisheries Act, R.S.C., 1985, c. F-14
Fish and Wildlife Conservation Act, S.O. 1997, c. 41 - Ontario Regulation 664/98 - Fish Licensing
Species at Risk Act, S.C. 2002, c. 29

Canadian and Provincial Policy

Fisheries and Oceans Canada Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater
Fisheries and Oceans Canada Protocol for the Detection of Fish Species at Risk in Ontario Great Lakes Area (OGLA)
Fisheries and Oceans Canada Protocol for the Detection and Relocation of Freshwater Mussel Species at Risk in Ontario Great Lakes Area (OGLA)
Ministry of Transportation Environmental Guide for Fisheries - Fish Guide
Ministry of Transportation Environmental Guide for Fisheries - Best Management Practices
Ministry of Transportation Environmental Guide for Fisheries - Maintenance Works

182.03 DEFINITIONS

For the purpose of this specification, the following definitions apply:

Aquatic Species at Risk means a fish and/or a freshwater mussel species provincially or federally listed as extirpated, endangered, or threatened species.

Cofferdam means a temporary enclosure constructed within a waterbody to allow the enclosed area to be pumped out, creating a dry work environment.

Deleterious Substance means as defined by the Fisheries Act.

Entrainment means when a fish is drawn into a water intake and cannot escape.

Endangered Species Act Permit means as defined by the Endangered Species Act.

Endangered Species Act (ESA) Exemption means as defined by Ontario Regulation 242/08: General, under the Endangered Species Act.

Fish means as defined by the Fisheries Act.

Fish Habitat means as defined by the Fisheries Act.

Fish Salvage means the physical relocation of fish from the work area.

Fish Screen means a device designed to prevent fish from swimming or being drawn into a water intake pipe.

Fisheries Act Authorization means as defined by the Fisheries Act.

Fisheries Assessment Specialist means an individual who meets the requirements of the Fisheries Assessment specialty and is registered on MTO RAQS.

Fisheries Contracts Specialist means an individual who meets the requirements of the Fisheries Compliance During Construction specialty and is registered on MTO RAQS.

Freshwater Mussel means as defined by the Fisheries Act.

Harmful Alteration, Disruption, or Destruction of Fish Habitat (HADD) means any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes of fish.

High Water Mark means the elevation of the top of the bank of the channel. In watercourses this refers to the "bank-full channel" which is often the 1:2 year flood flow return level. In inland lakes and wetlands, it refers to those parts of the waterbody bed and banks that are frequently flooded by water that leaves a mark on the adjacent land and where the natural vegetation changes from predominately aquatic vegetation to terrestrial vegetation.

Impingement means when an entrapped fish is held in contact with the intake screen and is unable to free itself.

In-Water Work means any work, activity or undertaking occurring at or below the high water mark that may impact the waterbody bed or flow in the waterbody.

In-Water Work Timing Windows means a restriction to in-water work related to an activity during certain periods to protect fish and freshwater mussels from impacts of works or undertakings in and around waterbodies during critical life stages.

Licence to Collect Fish for Scientific Purposes means as defined in Part IV of Ontario Regulation 664/98, under the Fish and Wildlife Conservation Act.

Mitigation Measures means measures to reduce the spatial scale, duration, or intensity of harmful impacts to fish and fish habitat when such impacts cannot be avoided.

Riparian Vegetation Areas means trees, shrubs and other vegetation on waterbody bank from the high water mark upland for 30 metres.

Secondary Containment means a system made of impermeable material that is installed and operated to contain fuel tank leaks, overflows, or spills, and prevent any release of fuel, oil, and other contaminants to land, groundwater, or surface water.

Sediment means soils or other surface material transported by wind or water as a result of erosion.

Significant Rainfall means as defined in OPSS 804.

Species at Risk Act Permit means as defined by the Species at Risk Act.

Waterbody means any permanent or intermittent, natural or constructed body of water including lakes, ponds, wetlands, and watercourses.

Waterbody Bank means the land adjacent to a waterbody from the high-water mark to the top of slope.

Waterbody Bed means the bottom and sides of the waterbody over which the water flows, up to the high-water mark.

Watercourse means a stream, creek, river, or channel including ditches, in which the flow of water is permanent, intermittent, or ephemeral.

182.04 DESIGN AND SUBMISSION REQUIREMENTS

182.04.01 Submission Requirements

182.04.01.01 Licences and Permits

A Licence to Collect Fish for Scientific Purposes shall be obtained from the Ontario Ministry of Natural Resources (MNR) to conduct a fish salvage prior to any in-water works in fish-bearing waterbodies, as specified in the Contract Documents.

Copies of all permits and licences obtained from regulatory agencies shall be submitted to the Contract Administrator upon receipt.

182.04.01.02 Fisheries Specialists

When a fisheries specialist(s) is required, the name(s) of the fisheries contracts specialist(s) and, if applicable, fisheries assessment specialist(s), shall be provided to the Contract Administrator a minimum of 10 business days prior to the commencement of work at each location where specialist oversight is specified.

182.05 MATERIALS

All Materials used to provide environmental protection shall not contain any deleterious substances.

182.06 EQUIPMENT

All Equipment used for the work in and around waterbodies or on waterbody banks shall at all times be free of excess or leaking fuel, lubricants, coolant and any other deleterious substances that could enter the waterbody.

182.07 CONSTRUCTION

182.07.01 General Requirements

In addition to the environmental protection requirements specified elsewhere in the Contract Documents, all Work shall be controlled to provide effective waterbody and fish habitat protection. If fish are observed in the work area during construction the work shall cease, and the fish salvaged, according to the Contract Documents.

The Work shall be according to all mitigation measures specified in the Contract Documents.

Unless specified in the Contract Documents, waterbodies shall not be permanently diverted, relocated, blocked, or filled.

Unless specified in the Contract Documents, the removal of woody debris, rocks, sand or other materials from the waterbody bed and banks shall not be permitted.

When practicable, work shall be scheduled to avoid wet or windy periods that may increase erosion and sedimentation.

182.07.02 Operation of Equipment in and around Waterbodies or on Waterbody Banks

Equipment shall arrive on site in clean condition and shall be maintained free of fluid leaks.

Unless specified in the Contract Documents, Equipment shall not enter a waterbody and shall be operated on dry land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the waterbody banks.

Heavy equipment (e.g., loader, excavator, bulldozer) shall not be parked or stored within 30 metres of a waterbody.

Refueling and maintenance of mobile equipment shall take place at locations a minimum of 30 metres away from a waterbody or, where 30 metres is not feasible (e.g. landscape or property limitations), as far away as practicable from a waterbody, and in a manner that prevents any deleterious substances from entering a waterbody.

Fuel storage areas shall be located a minimum of 30 metres away from a waterbody. All fuel storage containers must include secondary fuel containment with sufficient capacity to contain a minimum of 110% of the maximum volume of the fuel storage container(s) stored. This system may consist of tanks with built in secondary fuel containment (e.g., double walled tanks) and/or an external containment device (e.g., a berm and/or liner).

182.07.02.01 Secondary Fuel Containment for Stationary Equipment

Secondary fuel containment is required for all stationary equipment with a built-in or mounted fuel tank, such as, but not limited to, pumps, generators and compressors that remain at a fixed location for any length of time within 30 metres of a waterbody. Secondary fuel containment shall be installed to fully contain fuel tank leaks or spills.

The secondary fuel containment shall consist of an external containment device, drip tray, berm, dike, and/or liner with sufficient capacity to contain a minimum of 110% of the maximum volume of the stationary equipment's fuel tank.

The secondary fuel containment shall be:

- a) installed and functioning as intended for the duration the stationary equipment is within 30 m of a waterbody.
- b) monitored daily and any observed material (fluid or otherwise) shall be removed so as not to diminish the capacity of the containment.
- c) emptied after, or during, a precipitation event as required to prevent filling to capacity with water. Before water is emptied and disposed of, the secondary fuel containment shall be inspected to confirm there is no visual sheen or odour. Only clean water, free of contaminants, may be discharged to the environment.

Any fuel or substance contaminated by fuel, observed within the secondary fuel containment must be disposed of in a manner as specified elsewhere in the Contract Documents and in compliance with applicable legislation and regulations.

Secondary fuel containment is not required for equipment with mounted or built-in fuel tanks where the fuel tank is essential for the movement of the equipment, or handheld equipment.

182.07.03 Dewatering and Temporary Flow Passage Systems

Dewatering and/or temporary flow passage systems shall be according to OPSS 517.

182.07.04 Preservation of Riparian Vegetation

Riparian vegetation removal shall be no more than one third (1/3) of the total woody riparian vegetation within 30 metres of the high-water mark of a waterbody. Vegetative root masses found within the waterbody bed and/or banks shall remain undisturbed unless specified in the Contract Documents.

Existing trails, roads or cut lines shall be used wherever possible as access routes to avoid disturbance to waterbody banks and riparian vegetation areas. Equipment travel paths, stockpile areas and staging areas, within the vicinity of the crossing, shall be established to minimize impacts to riparian vegetation.

When practicable, riparian vegetation in the right-of-way shall be altered by hand.

182.07.05 Erosion and Sediment Control

The installation, monitoring, maintenance, and removal of temporary erosion and sediment control measures shall be according to OPSS 804 and OPSS 805 and as specified in the Contract Documents.

Erosion and sediment control measures shall be in place prior to any soil disturbance and shall remain effective at all times, including seasonal and other shut down periods.

Site isolation measures (i.e. cofferdams, turbidity curtains) shall be installed prior to any in-water work activities taking place and shall remain effective at all times to allow the Contractor to work in a manner that prevents sediment from entering into a waterbody.

Removal of temporary erosion and sediment control and site isolation measures shall be as specified in the Contract Documents.

Measures for managing water being pumped and/or diverted from the site shall be according to OPSS 517.

182.07.06 Restoration of Disturbed Areas

All disturbed areas shall be immediately restored after a disturbance or upon completion of the work in or around waterbodies, waterbody banks, and riparian vegetation areas. The disturbed areas shall be restored to an equivalent or better condition than existed prior to the commencement of construction.

All disturbed areas on waterbody banks and riparian vegetation areas shall be stabilized with effective temporary erosion and sediment control measures as specified in the Contract Documents and maintained until vegetation is established, or where applicable, other final cover is placed.

All vegetative cover shall be applied as specified in the Contract Documents and according to OPSS 803.

Materials for the restoration of waterbody beds shall not be obtained from below the high-water mark of any waterbody unless specified in the Contract Documents.

182.07.07 Contaminant and Spills Management

All stockpiled materials, including but not limited to excavated overburden and topsoil, excess materials, construction debris and containers shall be stored and stabilized in a manner that prevents them from entering any waterbody and as specified in the Contract Documents.

All materials such as paint, primers, blasting abrasives, concrete, rust, solvents, degreasers, grout, or other chemicals shall not enter a waterbody.

All building materials used in and around a waterbody or on waterbody banks shall be handled and treated in a manner to prevent the release or leaching of substances into a waterbody that may be deleterious to fish.

All waste materials (e.g., dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) shall be contained and stabilized above the high-water mark of nearby waterbodies to prevent re-entry.

An emergency spill kit shall be kept on site to address any fluid leaks or spills from Equipment. The management of spills shall be according to the Contract Documents.

182.07.08 Fish Protection

182.07.08.01 Timing of In-Water Works

All in-water work construction activities shall comply with the in-water works timing windows specified in the Contract Documents.

182.07.08.02 Fish Salvage

Fish stranded by the Work or found in the work area during construction shall be salvaged and relocated according to the Licence to Collect Fish for Scientific Purposes and any permit(s) issued under the Species at Risk Act (SARA) and/or the Ontario Endangered Species Act (ESA), unless specified in the Contract Documents. If fish cannot be safely relocated, the local MNR office shall be consulted prior to commencing fish salvage to determine a suitable relocation site.

Fish exclusion measures (i.e. block nets) shall be used to prevent fish from re-entering work areas. If the fish exclusion measures fail, additional fish salvage activities shall be performed to relocate the fish from the work areas prior to recommencing construction. All fish exclusion measures shall be removed once the works in the area has been completed.

All fish shall be handled as little as possible and in a manner that minimizes stress and shall prevent the death of fish.

All persons leading electrofishing operations shall possess a valid certification for electrofishing in Ontario, or equivalent training. All staff assisting in electrofishing shall have received appropriate health and safety training for electrofishing.

182.07.08.03 Reporting Species at Risk

Where a SARA or ESA permit or ESA exemption has been obtained for the work, and an aquatic species at risk is captured, the individual that incidentally captured the aquatic species at risk shall process the fish in accordance with the conditions of the SARA or ESA permit or registration.

When no SARA or ESA permit or ESA exemption has been obtained for the work, and an aquatic species at risk protected under the federal SARA or the Ontario ESA is incidentally captured during fish salvage activities, the individual that incidentally captured the aquatic species at risk shall take a digital photograph according to the Protocol for the Detection of Fish Species at Risk in Ontario Great Lakes Area (OGLA) or the Protocol for the Detection and Relocation of Freshwater Mussel Species at Risk in Ontario Great Lakes Area (OGLA), as appropriate. Once the digital photograph has been taken, the species shall be released immediately. The digital photograph shall be reported and emailed to the Contract Administrator and the appropriate Regulatory Agency, (i.e. MECP for ESA, and Fisheries and Oceans Canada (DFO) for SARA).

All mortalities of species protected under SARA or ESA associated with the fish salvage activities shall be reported to the Contract Administrator, and the appropriate Regulatory Agency, immediately upon being discovered or, where a SARA or ESA permit or ESA exemption has been obtained for the work, in accordance with the conditions of the SARA or ESA permit or ESA exemption. Mortalities shall be vouchered according to the Protocol for the Detection of Fish Species at Risk in Ontario Great Lakes

Area (OGLA) or the Protocol for the Detection and Relocation of Freshwater Mussel Species at Risk in Ontario Great Lakes Area (OGLA), as appropriate.

182.07.08.04 Fish Screens

Any water intakes or outlet pipes in fish bearing waters shall have screens to prevent entrainment or impingement of fish and shall follow the measures as outlined in DFO's Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater.

182.07.08.05 Fisheries Specialist Services

When oversight by a Fisheries Specialist is required for a location as specified in the Contract Documents, an MTO fisheries contracts specialist shall be retained to provide the following services.

- a) Work with construction personnel to protect fish and fish habitat.
- b) Work with construction personnel in the development and review of waterbody and fisheries protection strategies, and any required contractor plans and submissions.
- c) Liaise with the Owner, the Contract Administrator, and, as necessary, Regulatory Agency representatives regarding permit and approval requirements (e.g. Fisheries Act authorizations, SARA/ESA permits).
- d) Be on-site to inspect and verify the installation, function, and decommissioning (as appropriate) of all temporary and permanent mitigation measures as specified in the Contract Documents, including providing field fit advice and necessary corrective actions for issues of non-compliance.
- e) Inspect erosion and sediment control measures prior to and within 24 hours after a significant rainfall event.
- f) Provide immediate notification to the Contractor and Contract Administrator of any unauthorized release of a deleterious substance, death of fish, or HADD of fish habitat, or when there is a serious and imminent danger of any of these occurring.
- g) Complete and submit all monitoring documentation as specified in Table 1.
- h) Fish salvage, as necessary, under a Licence to Collect Fish for Scientific Purposes.
- i) Review Change Proposals for compliance with the Fisheries Act. If a fisheries assessment is required, it shall be conducted by an MTO fisheries assessment specialist.

182.07.09 Contingency Measures

When an environmental protection measure is found to be ineffective, corrective actions shall be taken immediately including repair or replacement of the measure to ensure waterbody and fish habitat protection.

182.07.10 Management of Excess Materials

Management of excess material shall be according to the Contract Documents.

182.10 BASIS OF PAYMENT

Payment at the Contract price for the appropriate tender items that require fisheries protection and mitigation measures shall include full compensation for all labour, Equipment, and Material to do the work.

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TABLE 1
Fisheries Contracts Specialist - Monitoring Documentation

MTO Documentation Name	Warrant for Completion	Distribution
Construction Inspection Checklist	Every day that a fisheries contracts specialist is on site.	Within one (1) Business Day of inspection, submit one (1) electronic copy of the inspection checklist to Contract Administrator.
Non-Compliance Summary Form	Friday of each week when the Contractor is not in compliance with waterbody and fish habitat protection measures, conditions of a Fisheries Act authorization, Endangered Species Act permit/exemption, or Species at Risk Act permit, as specified in the Contract Documents.	By the following Monday, submit one (1) electronic copy of the non-compliance summary to Contract Administrator.
Construction Monitoring Report	Annually on multi-year construction projects and prior to the completion of construction as specified in the Fisheries Act authorization or unless otherwise specified in the Contract Documents.	Unless specified otherwise in the Contract Documents, by November 15 of the monitoring year, submit one (1) electronic copy of the draft report to Contract Administrator. Unless specified otherwise in the Contract Documents, by December 15 of the monitoring year, submit one (1) electronic copy and one (1) hard copy of the final report incorporating MTO comments on the draft to Contract Administrator.