AECOM

Appendix C

Aquatic Effects Assessment Summary Table (Template D4)

Table 8. Aquatic Effects Assessment Summary Table (Template D4)

Project W.P No	**Project Title**	**Waterbody Name**
2007-21-01	Highway 400 – Highway 404 Link (Bradford Bypass) County Road 4 Early Works (GWP 2008-21-00), Ontario Ministry of Transportation	Unnamed Tributary North Branch
Fisheries Assessment Specialist		**Date**
Roger Holmes		November 18, 2021
PROPOSED WORKS, ENVIRONMENTAL AND MANAGEMENT CONTEXT		
Proposed Works	- To accommodate the road widening and traffic staging along County Road 4, culvert extensions will be required at both the inlet and outlet of the existing 33.45 m culvert structure - EX-CL-9. At this time, approximately a 5 m extension at the culvert inlet and a 25 m extension at the culvert outlet are proposed to allow for additional fill and grading in the area along the road. - Relocation of the existing ditches on the west side of County Road 4 to accommodate the fill/grading and culvert extension. No existing defined ditches were observed on the outlet (east) side of County Road 4. Ditches may be proposed on the east side if required during subsequent design stages. - A new 67.2 m culvert will be installed immediately north of the existing culvert to convey flows underneath County Road 4. The existing culvert will then be plugged and abandoned once the new culvert is online.	
Fish and Fish Habitat	- The Unnamed Tributary North Branch is characterized as direct warmwater fish habitat with no significant fish habitat features or SAR. The watercourse originates from a SWMP and outlets into the Unnamed Tributary North Branch, which then crosses Country Road 4. At the culvert outlet on the east side of County Road 4, the watercourse continues to flow east where is collects ephemeral flows from an agricultural drainage swale to the north. The SWMP on the west side of County Road 4 is an offline feature. On the east side of County Road 4, riparian lands consist of dense invasive phragmites (European Common Reed) that choke out the channel and heavily shade the watercourse. Due to the dense phragmites, no channel morphology or variation in fish habitat was noted.	
Fish Passage	- There are no fish passage issues that will be created as a result of the proposed works. Currently, the dense phragmites on the east side of County Road 4 may create a seasonal fish barrier during low flow conditions in the summer. During detail design, removal drawings should require the removal of invasive phragmites in the ROW to the extent possible. Landscape drawings should also require that riparian lands be restored shortly after disturbance to prevent invasive phragmites from reestablishing in the area. - Field studies identified seasonal (potentially permanent) barriers to fish movement upstream through the culvert due to shallow laminar flows. During installation of the proposed culvert, the culvert should be embedded a minimum of 10% to eliminate a perch at the outlet and create a smooth transition at the inlet and outlet by placing appropriate substrate to smoothly tie into the culvert. If possible, the culvert grade should also be reduced to lessen flow velocities throughout the culvert to improve fish passage. It should also be noted that there is only a small section (less than 10 liner meters) of fish habitat upstream of the culvert before a permanent fish passage barrier is present (i.e., the SWMP outlet).	
Fisheries Management Objectives (FMO)/In-Water Work Timing Window	- Review of background information determined that the Unnamed Tributary North Branch has a warmwater thermal regime. Therefore, in-water work is permitted from July 15 – March 15.	
RESIDUAL EFFECTS ASSESSMENT		
Negative residual effects:		
1. There will be the permanent loss of approximately 80.64 m^2 of fish habitat as a result of the existing culvert being abandoned and the channel being infilled upstream and downstream of the culvert (67.20 linear meters of channel x 1.2 meters channel width). The existing 33.45 m culvert will be temporarily extended during construction and then abandoned, with the new culvert conveying flows underneath County Road 4 immediately north of the existing culvert. The existing culvert will be plugged and abandoned. The extent of the channel infilling upstream and downstream of the existing culvert is not known at this time and will need to be determined during detail design.		
Spatial Scale	Approximately 80.64 m^2 of fish habitat will be impacted, which affects the watercourse contained within the culvert and immediately upstream and downstream of the culvert in the ROW. No impacts to upstream of downstream fish habitat outside of the ROW is anticipated. Therefore, the spatial scale is relatively small.	
Duration	The loss of the existing fish habitat within will be permanent. Once the new culvert is online, permanent new fish habitat will then be created directly adjacent to the existing culvert.	
Intensity	Given the proposed works will result in the permanent loss of direct fish habitat, the intensity is considered high.	
DOCUMENTATION OF FISH AND FISH HABITAT IMPACT - Rationale and Conclusions Considering that the severity (spatial scale, duration, intensity) of all negative residual effects, taken together, are used to determine, provide a brief rationale for why <u>is or is not</u> likely to occur by addressing the following questions below:		
1.0 Will the project result in the death of fish? All in-water works are to follow the appropriate BMPs for working in-water, including that all works are to be completed in the dry and that a fish salvage shall occur prior to any in-water work.	**YES** ☐	**NO** ☒

2.0 Will the project result in harmful alteration, disruption or destruction of fish habitat? Approximately 80.64 m^2 of fish habitat will be permanent removed. Temporary impacts during construction can be mitigated by implementing standard ESC measures and applicable BMPs for working in and near water (i.e., working in the dry, maintain flow around the work area, complete a fish salvage, etc).	**YES** ☒	**NO** ☐

Relocating the existing culvert to the north will result in the permanent loss of direct fish habitat in the existing culvert as described above. Therefore, the existing fish habitat will be destroyed and recreated in the new culvert immediately to the north.

Fisheries Assessment Specialist Recommendation:

Check one of the boxes based on the summary of findings.

☐ Proceed with project with identified mitigation measures (Complete MTO Project Notification Form)

☒ Recommendation to send project for review by DFO*

***Project submission to DFO should be reassessed once the design process has been advanced further.**

MTO Review of the Fisheries Assessment Specialist's Recommendation (to be completed by MTO):

All projects identified by the Fisheries Assessment Specialist as likely to result in the death of fish or HADD of fish habitat require a review by MTO prior to completion of any forms or submission to DFO. Only once advised by MTO should the Fisheries Assessment Specialist complete a DFO Request for Review Form to submit to MTO for signature and submission to DFO.