

APPENDIX F – ENVIRONMENTAL PROTECTION PLAN

ENVIRONMENTAL PROTECTION PLAN

- E1.1 The Contractor will plan and implement the Work of this Contract strictly in accordance with the requirements of the Federal Environmental Assessment (CEAR # 10-01-59643) and this Environmental Protection Plan as herein specified.
- E2.1 The Contractor is advised that at a minimum the following Acts, Regulations and By-laws apply to the Work and are available for viewing on line at the applicable websites (www.canlii.ca and/or <http://www.winnipeg.ca/CLKDMIS/>) or at the office of the Contract Administrator.
- E1.1.1 Federal
- (a) Canadian Environmental Assessment Act (CEAA), c.37
 - (b) Canadian Environmental Protection Act
 - (c) Fisheries Act, c. F-14
 - (d) Transportation of Dangerous Goods Act and Regulations, c. 34
 - (e) Migratory Birds Convention Act and Regulations, c. 22
 - (f) Species at Risk Act, c. 29
 - (g) And any other applicable Acts, Regulations and By-laws
 - (h) Applicable Fisheries and Oceans Canada Operational Statements for Manitoba for temporary stream crossings
 - (i) *The Department of Fisheries and Oceans Freshwater Intake End-of-Pipe Fish Screen Guidelines*, DFO 1995
 - (j) *Fisheries and Oceans Policy for the Management of Fish Habitat 1986*
 - (k) *Federal Policy on Wetland Conservation 1991*
 - (l) *Transportation Association of Canada's Transportation Association of Canada National Guide to Erosion and Sediment Control on Roadway Projects, 2005*
- E2.1.1 Provincial
- (a) The Dangerous Goods Handling and Transportation Act, D12
 - (b) The Endangered Species Act, c. E111
 - (c) The Heritage Resources Act, c. H39.1
 - (d) The Noxious Weeds Act, c. N110
 - (e) The Nuisance Act, c. N120
 - (f) The Public Health Act, c. P210
 - (g) The Water Protection Act, c. W65
 - (h) Workplace Safety and Health Act, c. W210
 - (i) And current applicable associated regulations
 - (j) And any other applicable Acts, Regulations, and By-laws
 - (k) *The Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat*, Manitoba Natural Resources and DFO, 1996
- E3.1.1 Municipal
- (a) The City of Winnipeg Neighbourhood Liveability By-law No. 1/2008
 - (b) The City of Winnipeg Traffic By-law No. 1573/77 and all amendments up to and including 55/2011
 - (c) And any other applicable Acts, Regulations and By-laws.

(d) *City of Winnipeg Best Management Practices Handbook for Activities In and Around the City's Waterways and Watercourses*, City of Winnipeg, 2005

(e) *City of Winnipeg Motor Vehicle Noise Policies and Guidelines*

- E3.1 The Contractor is advised that the Fisheries and Oceans Canada (DFO) Letters of Advice are applicable to all Works. The materials submitted for review and Letters of Advice received are in Appendix A. A copy of the material submitted to DFO and the DFO Letter of Advice must be on Site at all times. All dates stated within the DFO submission and responses are valid.
- E4.1 The Contractor is advised that the project has been determined to not likely to cause significant environmental effects) under the *Canadian Environmental Assessment Act*
- E5.1 The Contractor is advised that the Waverley West Arterial Roads Project Environmental Assessment Screening Report, dated June 2011, applies to the Work and is available for viewing at the office of the Contract Administrator. An Environmental Effects Analysis Summary is available in Appendix B.
- E6.1 The Contractor is advised that both the mitigation measures contained in the Waverley West Arterial Roads Project Environmental Assessment Screening Report, dated June 2011 as well as the following environmental protection measures apply to the Work.
- (a) Materials Handling and Storage
- (i) Storage of construction materials and equipment will be confined within a fenced area or at a location approved by the Engineer or Contract Administrator with environmental protection (e.g. silt fence) as appropriate.
 - (ii) Construction materials will not be deposited or stored on or near watercourses unless written acceptance from the Contract Administrator is received in advance.
 - (iii) Construction materials and debris will be tied down or secured if severe weather and high wind velocities are forecasted. Work shall be suspended during extreme high wind conditions.
 - (iv) Construction materials and debris will be prevented from entering watercourses. In the event that materials and/or debris inadvertently enter the land drainage system, the Contractor will be required to remove the material to an appropriate landfill or storage facility and restore the watercourse to its original condition.
- (b) Fuel Handling and Storage
- (i) The Contractor will obtain all necessary permits from Manitoba Conservation for the handling and storage of fuel products and shall provide copies to the Contract Administrator.
 - (ii) All fuel handling and storage facilities will comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
 - (iii) Fuels, lubricants and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act will be stored and handled within approved storage areas.
 - (iv) The Contractor will ensure that any temporary fuel storage areas established for construction of the project are contained by an impermeable dyke and

are located a minimum distance of 100 m away from the Lot 16 Drain, Beaujolais Coulee and any other watercourse. Dykes will be designed, constructed, and maintained to retain not less than 100% of the capacity of the total number of containers or 110% of the largest container, whichever is greatest. The dykes will be constructed of clay or similar impervious material. If this type of material is not available, the dyke will be constructed of locally available material and lined with high-density polyethylene (HDPE). Furthermore, the fuel storage area(s) will be secured by a barrier such as a high fence and gate to prevent vandalism.

- (v) The Contractor will ensure that all fuel storage containers are inspected daily for leaks and spillage.
 - (vi) Products transferred from the fuel storage area(s) to specific Work sites will not exceed the daily usage requirement.
 - (vii) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size will be spread on the ground to catch the fluid in the event of a leak or spill.
 - (viii) Wash, refuel and service machinery and store fuel and other materials for the machinery 100 m away from watercourses to prevent deleterious substances from entering the water.
 - (ix) The area around storage sites and fuel lines will be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.
 - (x) The deposit of deleterious substances into water frequented by fish is prohibited under the Fisheries Act. The Contractor will take appropriate precautions to ensure that potentially deleterious substances (such as fuel, hydraulic fluids, oil, sediment, etc.) do not enter any water body.
 - (xi) Machinery is to arrive on Site in a clean condition and is to be maintained free of fluid leaks.
 - (xii) A sufficient supply of materials, such as absorbent material and plastic oil booms, to clean up minor spills will be stored nearby on Site. The Contractor will ensure that additional material can be made available on short notice. Additionally, appropriate staff on site will be trained in proper handling of deleterious liquids (i.e. fueling) and trained on how to prevent and clean-up minor spills.
- (c) Waste Handling and Disposal
- (i) The construction area will be kept clean and orderly at all times and at the completion of construction.
 - (ii) At no time during construction will personnel or construction waste be permitted to accumulate for more than one day at any location on the construction Site, other than at a dedicated storage area as may be approved by the Contract Administrator.
 - (iii) The Contractor will, during and at the completion of construction, clean up the construction area and all resulting debris shall be deposited at a Waste

Disposal Ground operating under the authority of Waste Disposal Grounds Regulation, Manitoba Regulation 150/91. Exceptions are liquid industrial and hazardous wastes which require special disposal methods.

- (iv) On Site volumes of sewage and/or septage will be removed on a weekly basis.
 - (v) The Contractor will ensure sewage, septage and other liquid wastes generated on Site are handled and disposed of by a certified disposal contractor.
 - (vi) Indiscriminate dumping, littering, or abandonment will not take place.
 - (vii) No burning of waste or other materials is permitted.
 - (viii) Clearing debris will be disposed of by chipping and/or mulching with the material being used by the City of Winnipeg for future uses.
 - (ix) The Contractor will use structurally suitable Site excavation material as fill within the project. Should excavated material exceed fill needs, the remainder would be stockpiled for use on other local projects.
 - (x) Structurally unsuitable site excavation material will be removed by the Contractor.
 - (xi) Waste storage areas will not be located so as to block natural drainage.
 - (xii) Runoff from a waste storage area will not be allowed to cause siltation of a watercourse.
 - (xiii) Waste storage areas will be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
 - (xiv) Equipment will not be cleaned near watercourses; contaminated water from onshore cleaning operations will not be permitted to enter watercourses.
 - (xv) The Contractor will notify and receive written approval from the Contract Administrator prior to discharge from any dewatered areas. The discharge will be released into a well-vegetated area, filter bag, settling basin, or storm sewer system to remove suspended material and other deleterious substances from the discharge before it finds its way into any watercourse. Discharge from dewatering areas may require disposal via the sanitary sewer system or disposal truck in accordance with Construction Specifications, at the request of the Contract Administrator.
 - (xvi) Flows will be dissipated so that dewatering discharges minimize erosion at the discharge point.
- (d) Dangerous Goods/Hazardous Waste Handling and Disposal
- (i) Dangerous goods/hazardous waste are identified by, and will be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
 - (ii) The Contractor will be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
 - (iii) The Contractor will have on Site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said

dangerous/hazardous goods are being utilized on Site for the performance of the Work.

- (iv) Different waste streams will not be mixed.
- (v) Disposal of dangerous goods/hazardous wastes will be at approved hazardous waste facilities.
- (vi) Liquid hydrocarbons will not be stored or disposed of in earthen pits on Site.
- (vii) Used oils will be stored in appropriate drums, or tankage until shipment to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.
- (viii) Used oil filters will be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
- (ix) Dangerous goods/hazardous waste storage areas will be located at least 100 m away from the high water line and be dyked.
- (x) Dangerous goods/hazardous waste storage areas will not be located so as to block natural drainage.
- (xi) Runoff from a dangerous goods/hazardous waste storage area will not be allowed to cause siltation of a watercourse.
- (xii) Dangerous goods/hazardous waste storage areas will be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.

(e) Emergency Response

- (i) The Contractor will ensure that due care and caution is taken to prevent spills.
- (ii) The Contractor will report all major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1 below) to Manitoba Conservation, immediately after occurrence of the environmental accident, by calling the 24-hour emergency phone number (204) 945-4888.
- (iii) The Contractor will designate a qualified supervisor as the on Site emergency response coordinator for the project. The emergency response coordinator will have the authority to redirect manpower in order to respond in the event of a spill.
- (iv) The following actions will be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on Site emergency response coordinator.
 - (i) Notify emergency-response coordinator of the accident:
 - Identify exact location and time of the accident.
 - Indicate injuries, if any.
 - Request assistance as required by magnitude of accident [Manitoba Conservation 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup].
 - (ii) Attend to public safety:
 - Stop traffic, roadblock/cordon off the immediate danger area.

- Eliminate ignition sources.
 - Initiate evacuation procedures if necessary.
- (iii) Assess situation and gather information on the status of the situation, noting:
- Personnel on Site.
 - Cause and effect of spill.
 - Estimated extent of damage.
 - Amount and type of material involved.
 - Proximity to waterways, sewers and manholes.
- (iv) If safe to do so, try to stop the dispersion or flow of spill material:
- Approach from upwind.
 - Stop or reduce leak if safe to do so.
 - Dyke spill material with dry, inert absorbent material or dry clay soil or sand.
 - Prevent spill material from entering waterways and utilities by dyking.
 - Prevent spill material from entering manholes and other openings by covering with rubber spill mats or dyking.
- (v) Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (vi) The emergency response coordinator will ensure that all environmental accidents involving contaminants shall be documented and reported to Manitoba Conservation according to The Dangerous Goods Handling and Transportation Act Environmental Accident Reports Regulation 439/87.
- (vii) When dangerous goods are used on Site, materials for containment and cleanup of spill material (e.g., absorbent materials, plastic oil booms, and oversized recovery drums) shall be available on Site.
- (viii) Minor spills of such substances that may be contained on land with no significant impact on the environment may be responded to with in-house resources without formal notification to Manitoba Conservation.
- (ix) City emergency response, 9-1-1, shall be used if other means are not available.

Table 1 - Environmental Accident Reporting Reportable Quantities of Spills that must be Reported to Manitoba Conservation [(204) 944-4888]		
Classification	Hazard	Reportable Quantity or Level
1	Explosives	All
2.1	Compressed Gas (Flammable)	100 L*
2.2	Compressed Gas	100 L*
2.3	Compressed Gas (Toxic)	All
2.4	Compressed Gas (Corrosive)	All
3	Flammable Liquids	100 L

4	Flammable Solids	1 Kg
5.1 Packing Groups I and II	Oxidizer	1 Kg or 50 L
Packing Group III	Oxidizer	5 Kg or 50 L
5.2	Organic Peroxide	1 Kg or 1 L
6.1 Packing Group I	Acute Toxic	1 Kg or 1 L
Packing Groups II and III	Acute Toxic	5 Kg or 5 L
6.2	Infectious	All
7	Radioactive	Any discharge or level exceeding 10 m Sv/h at the package surface and 200 uSv/h at 1 m from the package surface
8	Corrosive	5 Kg or 5 L
9.1	Miscellaneous (except PCB Mixtures)	50 Kg
9.1	PCB Mixtures	500 grams
9.2	Aquatic Toxic	1 Kg or 1 L
9.3	Wastes (Chronic Toxic)	5 Kg or 5 L

* Container Capacity (refers to container water capacity)

Source: *Environmental Accident Reporting Regulation M.R. 439/87*

(f) Noise and Vibration

- (i) The Contractor will adhere to all Noise and Vibration mitigation outlined in the Waverley West Arterial Roads Project Environmental Assessment Screening Report, dated June 2011
- (ii) Noise generating activities will be limited to the hours indicated in the City of Winnipeg Neighbourhood Liveability By-law No. 1/2008. The activities will generally be restricted to 7:00 a.m. to 7:00 p.m. weekdays with written permission of the Contract Administrator and the City of Winnipeg for any after-hours or weekend work required for special cases. No extended or alternative working hours/dates will be permitted for pile driving activities.
- (iii) The Contractor will be responsible for scheduling Work to avoid potential noise problems and/or employ noise reduction measures to reduce noise to acceptable limits. The Contractor will also demonstrate to the Contract Administrator that Works to be performed during the night-time period, on Sundays, and Holidays will not exceed the approved limit.

(g) Dust and Emissions

- (i) Construction vehicles and machinery will be kept in good working order by the Contractor through the use of inspection and maintenance.
- (ii) The Contractor will minimize construction equipment idling times and turn off machinery, when feasible.
- (iii) Dust control practices implemented by the Contractor during construction will include regular street cleaning and dampening of construction access roads and Works areas with water or approved chemicals at an adequate frequency to prevent the creation of dust.

- (iv) Only water or chemicals approved by the Contract Administrator will be used for dust control. The use of waste petroleum or petroleum by-products is not permitted.
 - (v) The Contractor will ensure that trucks which are used to haul excavated material and backfill material to and from the Work site utilize tarpaulin covers during transport to prevent material from falling onto the street and creating dust.
 - (vi) Stockpiled soils will be wetted down or covered with tarpaulin covers to prevent the creation of dust, when appropriate.
- (h) Erosion Control
- (i) The Contractor will develop a sediment control plan prior to beginning construction in adherence with the Transportation Association of Canada National Guide to Erosion and Sediment Control on Roadway Projects, 2005 and to the satisfaction of the Contract Administrator.
 - (ii) Sediment control will be applied to all inwater works to prevent the release or re-suspension of sediments to the watercourse. A turbidity curtain will be used to contain sediments from coffer dam construction/removal and riprap placement, if warranted. This turbidity curtain should isolate as small an area as possible to complete the works, and should be completely removed once turbidity within the isolated area has returned to background levels.
 - (iii) The Contractor will inspect all sediment control structures daily during heavy construction activity in the areas of the structures and after a heavy rainfall to ensure their continued integrity.
 - (iv) Exposure of soils along drain slopes will be kept to the minimum practical amount, acceptable to the Contract Administrator.
 - (v) Effective sediment and erosion control measures (e.g., straw mulch, erosion control blankets, interceptor ditches) will be used both during construction and until vegetation is re-established to prevent sediment-laden runoff from entering the Lot 16 Drain, wetlands and other watercourses.
 - (vi) All areas disturbed during construction will be landscaped and revegetated with native and/or introduced plant species in order to restore and enhance the Site and protect against soil erosion unless otherwise indicated.
 - (vii) The disturbed surface will be revegetated as soon as possible and done so as to create a dense root system in order to defend against soil erosion on the right-of-way and any other disturbed areas susceptible to erosion.
 - (viii) The loss of topsoil and the creation of excessive dust by wind during construction will be prevented by the addition of temporary cover crop, water or tackifier, if conditions so warrant.
 - (ix) The Contractor will routinely inspect all erosion and sediment control structures and immediately carry out any necessary maintenance. Several inspections will be performed during rainy days.
 - (x) Construction activities will be avoided during periods of high winds to prevent erosion and the creation of dust.

- (i) Runoff Control
 - (i) Measures will be undertaken to ensure that runoff containing suspended soil particles is minimized from entering the land drainage system to the extent possible to the satisfaction of the Contract Administrator.
 - (ii) Areas that are heavily disturbed and vulnerable to erosion or gullying will be dyked to redirect surface runoff around the area prior to spring runoff.
 - (iii) Construction activities on erodible slopes will be avoided during spring runoff and heavy rain falls.
 - (iv) Soil and fill will not be stockpiled on immediate watercourse bank areas.
- (j) Fish
 - (i) The Contractor will adhere to all of the protection measures below and the measures included in Appendix A to adhere to the DFO No Net Loss Policy for fish habitat.
 - (ii) Due to the presence of spawning fish species no culvert replacement works will occur between April 1 and June 15 of any given year.
 - (iii) If possible, culvert replacement works will be constructed during periods of no flow or very low flow. Flowing water should be diverted around the construction area using a dam and bypass pump or temporary flume (culvert). Water will be diverted in a manner that avoids sediment generation to downstream areas and does not alter the volume of flow in the watercourse. Use coffer dams made of non-earthen material such as aquadams, sand bags, sheet pile or clean granular material wrapped in poly-plastic or other suitable isolation materials. Ensure any pump inlets are appropriately screened following the DFO Freshwater Intake End-of-Pipe Fish Screen Guidelines. Ensure all isolation materials are completely removed from the watercourse once construction is complete.
 - (iv) Any fish trapped within the isolated area will be captured and returned to the watercourse unharmed. Fish includes fin fish, crayfish and mussels (clams).
 - (v) All culvert replacement works will be limited to within road's right-of-way.
 - (vi) A buffer of vegetation will be maintained when working along waterways, where possible.
 - (vii) Culverts will be installed according to the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (Manitoba Natural Resources and DFO, 1996). The culverts will be embedded a minimum of 0.3 m or 10% of culvert vertical diameter, whichever is greater to maintain connectivity during lower flows in this forage fish stream.
 - (viii) The duration of work and amount of disturbance to the bed and banks of the water body will be minimized.
 - (ix) Use only clean rock for armouring the inlets and outlets of the culvert, and haul it in from an appropriate land-based source. Avoid using poor quality limestone that breaks down quickly when exposed to the elements or acid generating rocks typical from metal mines. All rock will be clean and free of fine materials and of appropriate size to resist displacement during high flow events.

- (x) The rock is placed such that it does not constrict the channel or change the hydraulics in a way that might damage the bed and/or banks of the watercourse or interfere with fish passage.
 - (xi) Where grading of stream banks is required they are sloped by pulling material back from the water's edge. Stabilize any waste materials removed from the work site, above the ordinary high water mark, to prevent them from entering any water body. Spoil piles could be contained with silt fence, flattened, covered with biodegradable mats or tarps, and/or planted with preferably native grass or shrubs.
 - (xii) Excavation of the water body bed will be limited to within the road right of way and is the minimum required for the proper placement of the culvert crossing.
 - (xiii) Shoreline vegetation will be retained to the greatest extent possible to maximize the stability of the banks.
 - (xiv) Operate machinery from outside of the water and in a manner that minimizes disturbance to the banks of the water body.
 - (xv) The intake of any pumps used in surface waters will be screened to meet the Department of Fisheries and Oceans' Freshwater Intake End-of-Pipe Fish Screening Guidelines (1995) and water withdrawal rates will not exceed 10% of the instantaneous stream flow at the time.
- (k) Wildlife
- (i) No clearing of trees, shrubs or vegetation is permitted between May 1 and July 31st of any year to protect nesting and breeding season for migratory birds and other wildlife, unless otherwise identified by a Project Biologist.
 - (ii) No one will disturb, move or destroy migratory birds' nests.
 - (iii) If a nest is encountered, work will cease in the immediate area and the Contract Administrator will be contacted for further direction.
 - (iv) In the event that species at risk are encountered during the project construction, all work will cease in the immediate area, the site will be made safe and the Contract Administrator will be contacted.
- (l) Wetlands
- The Contractor will implement the following environmental protection measures to prevent the new loss of wetland functions, in accordance with the Federal Policy on Wetland Conservation:
- (i) The Contractor will clearly mark wetland limits near the construction footprint prior to commencement of the Work and will remain marked throughout the construction period.
 - (ii) Wetlands will not be disturbed without written permission from the Contract Administrator.
 - (iii) Should additional wetlands be encountered during construction, construction in that area will halt until the area is properly marked.
 - (iv) Construction equipment will avoid the marked wetland areas as much as possible, where feasible.

- (v) The Contractor will not discharge water into adjacent wetlands without written permission from the Contract Administrator, having confirmed the quality of the water to be discharged and the capacity of the receiving wetland.
 - (vi) Any fish located within the wetlands to be disturbed by the project will be captured and returned to a nearby watercourse unharmed.
- (m) Vegetation
- (i) The Contractor will clearly mark the disturbance limit prior to commencement of the Work and will remain marked throughout the construction period.
 - (ii) Vegetation will not be disturbed without written permission from the Contract Administrator.
 - (iii) The Contractor will protect plants or trees which may be at risk of accidental damage. Such measures may include protective fencing or signage and will be approved in advance by the Contract Administrator.
 - (iv) The Contractor will limit the removal of trees and snags (standing dead trees); surface disturbance and vegetation clearing.
 - (v) Herbicides and pesticide will not be used adjacent to any surface watercourse.
 - (vi) Trees or shrubs will not be felled into watercourses.
 - (vii) Areas where vegetation is removed during clearing, construction decommissioning activities, will be revegetated as soon as possible in accordance with the landscaping plans forming part of the Contract, or as directed by the Contract Administrator.
 - (viii) Trees damaged during construction activities will be examined by bonded tree care professionals. Viable trees damaged during construction activities will be pruned according to good practices by bonded tree care professionals.
 - (ix) Damaged trees which are not viable will be replaced at the expense of the Contractor.
- (n) Landscaping
- (i) Construction waste (excluding common construction gravel, sand, etc.) will be removed to a minimum depth of 600mm below final grade in all areas that are to be backfilled with suitable material and revegetated in accordance with the City of Winnipeg Standard Construction Specifications.
 - (ii) Topsoil will be stripped prior to construction and salvaged for use during landscaping. Surplus topsoil will be properly stockpiled for use in other projects.
 - (iii) The Contractor will adhere to the landscaping plan for the maintenance of initial stages and development stages of the plant community.
- (o) Heritage Resources
- (i) If heritage material is located during the construction and soil removal process, all Work will cease and the Contractor will immediately contact the Contract Administrator. The Historic Resource Branch, Manitoba Culture,

Heritage, Tourism and Sport or the Project Archaeologist, will be contacted by the Contract Administrator to determine the nature and extent of the archaeological material and to arrange for its recovery. The archaeological remains will be recovered by salvage excavation upon authorization by the Contract Administrator, having consulted with the Historic Resources Branch, Manitoba Culture, Heritage, Tourism and Sport.

- (ii) The Contractor will be prepared to continue his Work elsewhere on the project while the Archaeologist investigates the find and determines its heritage value.
 - (iii) The Contractor is advised that he may be denied access to such areas of the project until such time as a thorough archaeological investigation is conducted or the find is deemed to have no heritage value.
 - (iv) Construction and excavation work will not resume until the Contract Administrator, having consulted with the Historic Resources Branch, Manitoba Culture, Heritage, Tourism and Sport, or the Project Archaeologist, authorizes a resumption of Work.
 - (v) If human remains are uncovered during the construction and soil removal process, all Work will cease and the Heritage Resources Branch, Manitoba Culture, Heritage, Tourism and Sport will be contacted by the Contract Administrator. The Historic Resources Branch will contact the City of Winnipeg Police.
 - (vi) If the human remains are not considered forensic, (i.e., no foul play suspected), they will be removed by the Historic Resources Branch, Manitoba, Culture, Heritage, Tourism and Sport or the Project Archaeologist and turned over to the Province.
 - (vii) If the human remains are considered forensic, the City of Winnipeg Police will be responsible for their removal.
 - (viii) Additional information may be obtained by contacting: Archaeological Assessment Services, Historic Resources Branch.
- (p) Construction Traffic
- (i) Workforce parking will be limited to the areas designated for such as detailed in the Contract Documents, or as otherwise may be directed by the Contract Administrator.
 - (ii) Large equipment will be equipped with flashing beacons and/or an audible “back up” warning device that is audible when the transmission is in reverse.
 - (iii) The Contractor will adhere to the Standard Provisions of the Standard Construction Specifications, and of the Manual of Temporary Traffic Control in Work Areas on City Streets of the City of Winnipeg Public Works Department.
 - (iv) The Contractor’s laydown area, construction Site and access road will be fenced and gated to secure the Site and materials and to discourage pedestrian entrance to construction areas and to control any potential hazard to the public, particularly children.

- (v) For circumstances where the Contract Administrator has accepted Site access of special equipment or material, the Contractor will provide adequate flagmen for traffic control in the vicinity of any public buildings.
- (q) Access
 - (i) The Contractor will maintain access to affected residential properties.
 - (ii) The Contractor will provide or maintain general and off-street access to any affected business during construction.
- (r) Measurement and Payment
 - (i) The Environmental Protection Plan will be considered incidental to the Work and as such no measurement or payment will be made for this item.

Appendix A – DFO Guidance Materials

Anseeuw, Carmen

From: Schwartz, Todd <Todd.Schwartz@dfo-mpo.gc.ca>
Sent: Tuesday, January 18, 2011 4:21 PM
To: Amy, Kevin
Subject: RE: Kenaston Culvert Extension, Lot 16 drain (WI-09-3720)

Kevin,

as discussed on the phone, the project should be low risk to fish and fish habitat as long as proper best management practices are followed. The following additional mitigation measures should be applied.

- 1) No inwater work from April 1 to June 15 to protect fish during spawning and rearing.
- 2) Sediment control should be applied to all inwater works to prevent the release or re-suspension of sediments to the watercourse. A turbidity curtain may be used to contain sediments from coffer dam construction/removal and riprap placement. This turbidity curtain should isolate as small an area as possible to complete the works, and should be completely removed once turbidity within the isolated area has returned to background levels. (note: some coffer dam construction and removal methods may generate essentially no sediment, and a turbidity curtain may not be necessary)

Todd Schwartz

Telephone/ Téléphone: 204 983-4231
Facsimile / Télécopieur: 204 984-2402
Email / Courriel: Todd.Schwartz@dfo-mpo.gc.ca

Fish Habitat Biologist.	Biologiste, Habitat du poisson
Manitoba District.	District du Manitoba
Winnipeg Office.	Bureau de Winnipeg
Central and Arctic Region.	Région du Centre et de l'Arctique
Fisheries and Oceans Canada.	Pêches et Océans Canada
501 University Crescent.	501 University Crescent
Winnipeg, MB R3T 2N6.	Winnipeg (Manitoba) R3T 2N6
Government of Canada.	Gouvernement du Canada

**For more information on Fish and Fish Habitat and DFO Reviews Visit our Website
Oceans and Fish Habitat** http://www.dfo-mpo.gc.ca/oceans-habitat/index_e.asp

From: Amy, Kevin [mailto:kevin.amy@stantec.com]
Sent: 2011-January-18 1:43 PM
To: Schwartz, Todd
Subject: Kenaston Culvert Extension

Todd,

As discussed on the phone I have attached the Title page and the various site plans developed for this project for your review and information. Please call when you have had a chance to review this information.

As outlined on the Drawings we will Complete the Stage I works by March 15, 2011 and the Stage II works by July 29, 2011. Total completion by August 5, 2011.

Kevin Amy, M.Sc., P.Eng.

Bridge Project Manager

Stantec

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Fisheries and Oceans
Canada

Pêches et Océans
Canada

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Winnipeg, Manitoba
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(204) 983-4231

Institut des eaux douces
Secteur des Prairies, District du Manitoba
501 University Crescent
Winnipeg, (Manitoba)
R3T 2N6
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January 4, 2010

Your file *Votre référence*

Our file *Notre référence*
WI-09-3720

Michelle Harms
City of Winnipeg, Public Works
106-1155 Pacific Ave
Winnipeg, MB R3E 3P1

Dear Mrs. Harms:

Subject: Proposal not likely to result in impacts to fish and fish habitat.

Fisheries and Oceans Canada - Fish Habitat Management Program (DFO) received your proposal from Stantec Consulting Ltd. (Kevin Amy) on December 24, 2009 for the extension of a culvert on Lot 16 Drain at Kenaston Boulevard. Please refer to the file number and title below:

DFO File No.: **WI-09-3720**
Title: **Lot 16 Drain culvert extension at Route 90 (Kenaston Boulevard), in Winnipeg, Manitoba**

Your proposal has been reviewed to determine whether it is likely to result in impacts to fish and fish habitat which are prohibited by the habitat protection provisions of the *Fisheries Act* or those prohibitions of the *Species at Risk Act* that apply to aquatic species.*

Our review consisted of:

- Information provided by email from Stantec Consulting on December 24, 2009 including a project description, design drawings, photographs, map location and a description of best management practices to be followed during construction.

We understand that you propose to:

- Extend the existing box culver on Lot 16 Drain at Kenaston Boulevard by 20 m in length to accommodate the construction of an additional lane of traffic.
- Construction will be completed by March 31, 2010
- This project is funded in part through the Federal Building Canada Fund infrastructure program.

No fish species which are currently listed as species at risk in Canada are believed to use this area. If you would like more information about fish species at risk please visit the *Species at Risk Act* Public registry at www.sararegistry.gc.ca.

*Those sections most relevant to the review of development proposals include 20, 22, 32 and 35 of the *Fisheries Act* and sections 32, 33 and 58 of the *Species at Risk Act*. For more information please visit www.dfo-mpo.gc.ca.

Provided that your plans are implemented as described DFO has concluded that your proposal is not likely to result in impacts to fish and fish habitat.

You will not need to obtain a formal approval from DFO in order to proceed with your proposal.

Please notify this office at least 10 days before starting the work. A copy of this letter should be kept on site while the work is in progress.

If the plans have changed or if the description of your proposal is incomplete you should contact this office to determine if the advice in this letter still applies.

Please be advised that any impacts to fish and fish habitat which result from a failure to implement this proposal as described could lead to corrective action such as enforcement.

If you have any questions please contact Todd Schwartz at our Winnipeg office at (204) 983-4231, by fax at (204) 984-2402, or by email at Todd.Schwartz@dfo-mpo.gc.ca.

Yours sincerely,



Todd Schwartz
Fish Habitat Biologist
Prairies Area, Winnipeg Office

cc: Winnipeg Distribution
J. Hunt (MB Water Stewardship, Winnipeg)
G. Klein (MB Water Stewardship, Gimli)
Jim Gallagher (Manitoba Housing Renewal Corporation, Winnipeg)
Elizabeth Newgard (Transport Canada, Ottawa)
Kevin Amy (Stantec Consulting Ltd., Winnipeg)



Stantec

Stantec Consulting Ltd.
905 Waverley Street
Winnipeg MB R3T 5P4
Tel: (204) 489-5900
Fax: (204) 453-9012

December 24, 2009
File:

Department of Fisheries and Oceans
501 University Crescent
Winnipeg MB R3T 2N6

Attention: Todd Schwartz

Dear:

**Reference: Route 90 Extension Project
Culvert Extension at Lot 16 Drain**

1. Introduction

Originally the proposed Route 90 Extension Project was intended to be part of the planned Waverley West Arterial Road system and involved a cost share arrangement between the developer and the City of Winnipeg. The project involves several components, including construction of two interchanges, road widening, the realignment of existing roads, and other related road work along Waverley Street and Kenaston Boulevard in Winnipeg. The Project was expected to be constructed over two years beginning in 2010. With the recently announced Building Canada Fund - Major Infrastructure Component, this project may become subject to the funding structure of that program with a break down in funding as follows: 1/3 Federal Government, 1/3 Provincial Government and 1/3 City of Winnipeg. While the Building Canada Project boundaries are considerably more broad based and includes the extension of Kenaston Boulevard south to PTH 100, this submission deals specifically with the construction of a culvert extension at the Lot 16 Drain located at the existing transition between Bishop Grandin Boulevard and Kenaston Boulevard. Extension of this culvert is required to facilitate the construction of an intersection of Bishop Grandin Boulevard and Kenaston Boulevard allowing Kenaston Boulevard to extend south into the Waverley West lands and beyond

This submission is prepared and submitted on behalf of the Manitoba Housing Renewal Corporation; contact person is Jim Gallagher MCIP 2702-83 Garry Street Winnipeg, MB R3C 4J9. The end owner will be the City of Winnipeg; contact person is Michelle Harms, P.Eng. 106-1155 Pacific Ave. Winnipeg, MB R3E 3P1. The City of Winnipeg and the Manitoba Housing Renewal Corporation have a development agreement in place as related to this Project. requiring the developer to construct this intersection prior to the year 2011.

2. Project Need

Kenaston Boulevard has been identified as a Strategic and Economic Route for the City of Winnipeg and the Provincial Capital Region. It is also considered to be a key link in the Inner City Ring Road system proposed by the Mayor's Trade Council Report, which establishes a strategy for the future growth and economic development of Winnipeg as a major inland port and international

December 24, 2009

Todd Schwartz

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**Reference: Route 90 Extension Project
Culvert Extension at Lot 16 Drain**

trade hub. It has become critical that an innovative and cost effective solution to projected traffic congestion be found for the important intersection of Bishop Grandin and Kenaston Boulevards. The intra-city commuter traffic volumes at this intersection, especially the south to east and west to north movements, are among the highest in the city. The projected additional traffic from the Waverley West development that will utilize this intersection reinforces the need to develop a long term solution at this location.

As the initial phase of the project, a new two lane road will extend north from the first collector street, North Town Road, in the Waverley West Development to Bishop Grandin Boulevard. The two new lane road will be an extension of Kenaston Boulevard and tee into Bishop Grandin. The simple tee intersection will be signalized.

A new two lane road will be built to the north of and paralleling the existing lanes along Bishop Grandin Boulevard allowing eastbound to north bound traffic to flow freely. The new two lane road to the north will connect into the existing road north of the existing culvert on the Lot 16 drain. Lot 16 drain culvert must be extended to accommodate the construction of the new two lane road to the north of the existing north bound lanes of Bishop Grandin Boulevard.

3. Project Description - Proposed Lot 16 Drain Culvert Extension

The proposed culvert extension will be proceeding to Tender mid January 2010 with construction of the proposed culvert extension to commence in early February 2010 and be completed by March 15, 2010. This is the first, critical step in the construction of the subsequent works such as the land drainage and sewers and the proposed roadways. Completion of the culvert extension within the winter months is critical to the overall project schedule.

The proposed culvert extension will be a 20m long cast-in-place concrete culvert having interior dimensions of 3.0x3.0m to match the existing culvert. The overall dimensions of the existing pipe, including grade will be matched by the proposed culvert extension. The headwall and wingwall geometries have been altered for the proposed culvert extension, as compared to the existing culvert, to address the revised proximity of the outlet to the Lot 16 Drain.

The existing headwall, wingwalls and apron are to be removed. To accomplish this, temporary shoring may be utilized to the north of the outlet of the culvert. The temporary shoring will allow for the dewatering of the Site, if the water is not frozen to the bottom of the drain at the time of construction. Should the drain be frozen through to the bottom of the drain the temporary shoring would not be installed. The Contractor will have the responsibility to design and submit for review a temporary shoring and dewatering plan. It is expected at this time, the temporary shoring, if required, will be constructed from steel sheet piling which will be removed upon the completion of the work. The existing concrete headwall, wingwalls and apron will be demolished and the rubble removed from the site and disposed of at an environmentally acceptable location/facility. As construction will be completed in the winter, as well as in the dry, the Contractor will be able to readily collect the rubble and thus it will not enter the drain.

Once the noted demolition of the existing culvert is complete the proposed culvert extension will then be constructed. The temporary shoring, if installed, would remain in place until the

December 24, 2009
Todd Schwartz
Page 3 of 5

**Reference: Route 90 Extension Project
Culvert Extension at Lot 16 Drain**

construction of the proposed culvert is complete. The works included to complete the construction of the proposed culvert extension are the construction of a 75mm thick concrete working slab, use of untreated forms, placement of steel reinforcing and concrete, regarding of the Site, and riprap placement.

The embankments will be shaped locally around the headwall and wingwalls to provide a stable slope and to suit riprap placement. The embankments will be protected by a 1000mm thick layer of 250 to 650mm rock with 50% of the rock being at least 500mm. The riprap will be nominal field stone or quarried rock and will be clean and free of fines prior to placing. The embankments are not to be reshaped below the water level as the proposed grading is to match the elevation of the existing embankments at the waterline. The proposed extent of the riprap is shown on the attached site plan.

It should be noted that Stantec anticipates at this time to have a Site Plan and General Arrangement drawings completed early in the week of January 4, 2010. These drawings, once completed, will be submitted in addition to the drawings attached to this document, for review. The attached drawings (note that these are scans of larger drawings and the notes scale is no longer valid) are intended to demonstrate the intent and general limits of the project.

As it is Stantec's understanding that the existing culvert grades and invert elevations are functioning to ensure the culvert is not perched at low flows, the proposed culvert will match the existing culvert grade.

As apart of these works a retaining wall is to be constructed to the west of the culvert. This retaining wall, approximately 25m long, will be constructed of cast-in-place concrete but is not anticipated to be within the Lot 16 Drain waters at any time during construction. The slopes between the retaining wall and the drain will be covered by riprap details, as previously discussed, to ensure the long term stability of the retaining wall.

A hard copy of Stantec's letter requesting approval and the Letters of Advice, or approval letters, received will be attached to the tender documents forming part of the legal contract, if available at that time.

As part of our sediment and erosion control mitigation measures, Stantec will request the following task be implemented throughout the course of construction:

- Removing the debris from the ice.
- Installation of silt fences isolating the construction areas if the creek thaws (this is not anticipated to be an issue as construction should be completed during the winter months).
- Placement of coconut or straw blankets on all exposed slopes upon the completion of final grading.
- Re-vegetation of all disrupted areas of the embankment.
- No in-water construction to be undertaken between April 1 through June 30.
- Non-reusable demolition or construction materials will be disposed of in an authorized waste disposal facility.

December 24, 2009
Todd Schwartz
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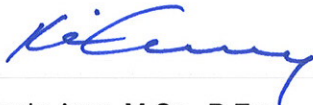
**Reference: Route 90 Extension Project
Culvert Extension at Lot 16 Drain**

- Demolition materials will not be allowed to enter Lot 16 Drain.
- Construction will be halted during periods of heavy rainfall (this is not anticipated to be an issue as construction should be completed during the winter months).
- Stock piled backfill material will be covered with poly during heavy rainfall events and if it is to remain on site for an extended period of time (this is not anticipated to be an issue as construction should be completed during the winter months).
- Riprap to be placed to the waters edge and to match the extent of the existing riprap.
- The riprap will be clean fieldstone or quarried rock free of fines.
- Construction machinery may not be refueled or serviced within 100m adjacent to any body of water.
- All construction work shall be performed in a workmanship like manner and shall be in accordance with "Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat".
- At no time shall the arm of a back-ho or any other machinery extensions enter the waterway where exposed hydraulic cylinders, engines or other devices containing grease, oil, gas and other toxins could enter and contaminate the waterway and environment.
- The contractor shall have on site at all times, oil absorbent pads in the event of an oil spill or accidental submergence of toxin covered machinery occurs.
- The excavated material for the culvert construction shall be placed where it is not likely to erode or be washed into the waterway.

Please contact the undersigned if you require further information, clarification or have comments.

Sincerely,

STANTEC CONSULTING LTD.



Kevin Amy, M.Sc., P.Eng.
Structural Engineer
Tel: (204) 488-5743
Fax: (204) 453-9012
kevin.amy@stantec.com

Attachment: Proposed Site Plan
Existing Culvert Drawings
Power Point Presentation

December 24, 2009

Todd Schwartz

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**Reference: Route 90 Extension Project
Culvert Extension at Lot 16 Drain**

C.

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Appendix B – Environmental Effects Analysis Summary

Environmental Effects Analysis Summary – Construction Phase

Potential Effect	Spatial Area	Frequency and Duration	Reversible	Magnitude	Nature of Impact	Mitigation/Comments	Significance
CONSTRUCTION							
Air Quality							
Construction vehicle/machinery emissions, including increase in greenhouse gases	Footprint and local area	Once/Short term	Yes	Low	Negative	<ul style="list-style-type: none"> Construction vehicles and machinery will be kept in good working order and Idling of construction vehicles will be kept to a minimum as feasible 	Not Significant
Increase in airborne particulates (road dust) during road construction	Footprint and local area	Once/Short term, sporadic	Yes	Low to moderate	Negative	<ul style="list-style-type: none"> Work areas will be dampened with water or approved chemicals to minimize airborne dust, as required Trucks hauling excavated material will utilize tarpaulin covers during transport 	Not Significant
Hydrology - Surface and Subsurface							
Effects to surface water quality due to sedimentation (runoff and culvert construction), road dust/particulates and potential contamination from land clearing, road construction machinery / vehicles	Local Area	Once/Short term	Yes	Low to moderate	Negative	<ul style="list-style-type: none"> Measures outlined in the EPP¹, DFO guidance and provincial stream crossing guidelines will be followed to minimize sedimentation and potential contamination of surface waters 	Not Significant

¹ EPP – Environmental Protection Plan

Environmental Effects Analysis Summary – Construction Phase

Potential Effect	Spatial Area	Frequency and Duration	Reversible	Magnitude	Nature of Impact	Mitigation/Comments	Significance
Net increase in surface water runoff due to impermeable road surface as construction progresses	Local Area	Continuous/ Intermediate term	Yes	Low to moderate	Negative	<ul style="list-style-type: none"> Sufficient drainage ditching / land contouring to contain and direct surface water runoff will be part of the Project design 	Not Significant
Effects to groundwater quality due to hydrocarbon / other contaminants from road construction machinery / vehicles and site cleanup activities	Footprint Area	Once/Short term	Yes	Low to moderate	Negative	<ul style="list-style-type: none"> Regulatory compliance, contract specifications and the EPP will be followed to prevent and limit soil contamination 	Not Significant
Changes to shallow groundwater flow and potential for seepage due to roadbed construction	Local Area	Continuous/ Intermediate term	Yes	Low	Negative	<ul style="list-style-type: none"> Project design will minimize impacts/changes to the groundwater regime 	Not Significant
Terrain and Soils							
Soil compaction, surface soil removal, erosion and rutting due to site access, land clearing, road construction and traffic	Footprint Area	Continuous/ Intermediate term for roads	Yes	High	Negative	<ul style="list-style-type: none"> Soil will be retained to rehabilitate and revegetate disturbed areas not required for operations 	Not Significant
Sub-surface soil disturbance due to roadbed construction	Footprint Area	Intermediate term	Yes	Low	Negative	<ul style="list-style-type: none"> Subsurface soil disturbance will be minimized to the extent feasible and will be used as backfill as required 	Not Significant
Terrestrial Environment							
Loss of vegetative communities on Project footprint	Footprint	Short to intermediate term	Yes	High	Negative	<ul style="list-style-type: none"> Top soil will be retained to rehabilitate and revegetate disturbed areas not required for operation 	Not Significant

Environmental Effects Analysis Summary – Construction Phase

Potential Effect	Spatial Area	Frequency and Duration	Reversible	Magnitude	Nature of Impact	Mitigation/Comments	Significance
Reduced use of local area by wildlife due to noise and human presence	Footprint and Local Area	Short to intermediate term	Yes	Low to moderate	Negative	<ul style="list-style-type: none"> Clearing activities will take place outside the most sensitive breeding and brood-rearing season for birds and other wildlife (i.e., May, June and July) 	Not Significant
Aquatic Environment							
Increase in TSS ² concentration due to runoff during storm events, due to disturbed soils during construction activities	Footprint and Local Area	Sporadic (influenced by precipitation)	Yes	Low to Moderate	Negative	<ul style="list-style-type: none"> Provincial and federal guidelines for fish habitat protection for road construction and stream crossings will be followed in accordance with the EPP and DFO guidance conditions 	Not Significant
Potential disruption of fish habitat from culvert extension construction	Footprint and Local Area	Once	Yes	High (for fish habitat); Moderate (for fish)	Negative	<ul style="list-style-type: none"> Culvert will be constructed in accordance provincial stream crossing guidelines, the EPP and DFO guidance conditions 	Not Significant
Potential loss of aquatic vegetation due to culvert construction	Footprint and Local Area	Once	Yes	High	Negative	<ul style="list-style-type: none"> Culvert will be constructed in accordance provincial stream crossing guidelines, the EPP and DFO guidance conditions 	Not Significant

² TSS – Total Suspended Solids

Environmental Effects Analysis Summary – Construction Phase

Potential Effect	Spatial Area	Frequency and Duration	Reversible	Magnitude	Nature of Impact	Mitigation/Comments	Significance
Potential for the introduction of hazardous materials (e.g. fuel / oil) into nearby waterbodies	Footprint and Local Area	Sporadic	Yes	Low to Moderate	Negative	<ul style="list-style-type: none"> Machinery / vehicle maintenance and refuelling will occur at a sufficient distance to minimize potential for hazardous substance introduction to adjacent waterbodies as per provincial and federal guidance 	Not Significant
Noise / Vibration							
Increased noise and vibrations from construction machinery and vehicles	Local Area	Sporadic and short term	Yes	High	Negative	<ul style="list-style-type: none"> Timing of construction activities will comply with the City of Winnipeg Neighbourhood Liveability By-law No. 1/2008 to minimize disturbance to local residents 	Not Significant
Public Health / Well Being / Aesthetics							
Increased safety hazard associated with construction zone	Footprint and adjacent areas	Short term	Yes	Low to high	Negative	<ul style="list-style-type: none"> Appropriate construction zone speed limit and warning signage will be posted in accordance with construction specification and the EPP 	Not Significant
Construction of the Project will temporarily decrease aesthetics of the area	Footprint and adjacent areas	Short term	Yes	High	Negative	<ul style="list-style-type: none"> Materials handling and storage will be in accordance with construction specification and the EPP 	Not Significant

Environmental Effects Analysis Summary – Construction Phase

Potential Effect	Spatial Area	Frequency and Duration	Reversible	Magnitude	Nature of Impact	Mitigation/Comments	Significance
Heritage Resources							
Disturbance / destruction of undiscovered heritage resources	Footprint	Short term	Yes (heritage resources can be preserved)	Moderate	Negative	<ul style="list-style-type: none"> If heritage material is located during construction, activities should be conducted in accordance with the EPP 	Not Significant
ACCIDENTS AND MALFUNCTIONS							
Soils, Surface and Groundwater Impacts							
Effects to soils, surface and groundwater quality due to leaks and spills of oil and gas from construction and maintenance machinery	Footprint Area	Sporadic/ Short term	Yes	High but very low probability	Negative	<ul style="list-style-type: none"> Hazardous material handling, storage and spill response should be conducted in accordance with provincial and federal legislation and the EPP 	Not Significant
Aquatic Environment							
Potential for contamination of aquatic habitat due to accidental spill or leak of hydrocarbons or other fluids during construction or operation and maintenance as a result of vehicle collision accidents	Footprint and Local Area	Sporadic in the Intermediate term	Yes	Low	Negative	<ul style="list-style-type: none"> Hazardous materials will be handled in accordance with applicable provincial and federal guidelines; All fuel storage and equipment servicing areas will be located a minimum of 100 m away from any waterbody and will have materials on-site to contain and recover fuel spills; The EPP for the Project outlines procedures to attend to, report and clean-up accidental spills 	Not Significant