

## **5.0 Environmental Effects Assessment**

---

This assessment considers potential effects during Project construction and operations. An interaction matrix, used to identify potential environmental effects to be included in the scope of the effects assessment, is provided in Table 5-1 below.

### **5.1 ENVIRONMENTAL ASSESSMENT APPROACH**

Predicted environmental effects of the Project, including any predicted impacts remaining after implementation of mitigation measures, are documented in the following sections. In accordance with regulatory requirements, conclusions are made regarding whether any potential environmental change is “significant.”

The Significance Determination Methods provided in Appendix H were used to determine the significance of potential residual impacts.

### **5.2 CONSTRUCTION PHASE**

Construction effects are expected to be primarily associated with components of the work in water, such as the placing of cofferdams and riprap. Local wildlife in the Project site may be temporarily disturbed or displaced to varying degrees during Project construction, and some limited amount of wildlife habitat may be removed.

#### **5.2.1 Terrain, Topography and soils**

There is a potential for clearing and grading activities to result in increased soil erosion during construction due to exposure of bare soils. There may also be a potential for a change in the land gradient within the Project site to accommodate the new structure. Mitigation will involve maintaining natural drainage patterns and restoring any disturbed river banks or lands to the original contour where feasible. The following erosion control measures will be implemented by the Contractor throughout the course of construction to reduce loss of soil material:

- Installation of erosion and sediment control measures (e.g., silt fences).
- Construction will be halted by the Contractor during periods of heavy rainfall.
- 200 m<sup>3</sup> of riprap will cover portions of both embankments and cleared areas will be revegetated to reduce potential erosion.





Table 5-1: Potential Project – Environment Interaction Matrix

| Project Phases/ Components           | Environmental Components     |              |           |                           |       |                       |                     |             |                |                 |            |          |   |                 |                             |                       |       |                       |                    |          |       |                                |                             |   |                      |           |
|--------------------------------------|------------------------------|--------------|-----------|---------------------------|-------|-----------------------|---------------------|-------------|----------------|-----------------|------------|----------|---|-----------------|-----------------------------|-----------------------|-------|-----------------------|--------------------|----------|-------|--------------------------------|-----------------------------|---|----------------------|-----------|
|                                      | Direct Environmental Effects |              |           |                           |       |                       |                     |             |                |                 |            |          | Indirect Environmental Effects <sup>1</sup> |                 |                             |                       | Other |                       |                    |          |       |                                |                             |   |                      |           |
|                                      | Land                         |              |           |                           |       | Water                 |                     | Air         |                | Natural Systems |            |          |   |                 | Socioeconomic               |                       |       |                       | Cultural           |          |       |                                |                             |   |                      |           |
|                                      | Terrain and Topography       | Soil Quality | Sediments | Erosion / Slope Stability | Other | Surface Water Quality | Groundwater Quality | Air Quality | Greenhouse Gas | Other           | Vegetation | Wetlands | Species at Risk                             | Migratory Birds | Wildlife / Wildlife Habitat | Fish and Fish Habitat | Other | Human Health / Safety | Navigation Related | Land Use | Other | Physical and Cultural Heritage | Aboriginal Use <sup>2</sup> | Historical / Archaeological Site <sup>3</sup> | Acoustic Environment | Vibration |
| • Transporting materials/soils/fill  |                              |              |           |                           |       |                       | X                   | X           |                |                 |            |          |   |                 |                             |                       |       |                       |                    |          |       |                                |                             |   | X                    | X         |
| • Disposing of hazardous wastes      |                              | X            |           |                           |       | X                     |                     |             |                |                 |            |          |   |                 |                             |                       |       | X                     |                    |          |       |                                |                             |   |                      |           |
| <b>Operation:</b>                    |                              |              |           |                           |       |                       |                     |             |                |                 |            |          |   |                 |                             |                       |       |                       |                    |          |       |                                |                             |   |                      |           |
| • Applying abrasive material         |                              | X            |           |                           |       | X                     |                     | X           |                |                 |            |          |   |                 | X                           |                       | X     |                       |                    |          |       |                                |                             |   |                      |           |
| • Maintenance                        |                              |              |           |                           |       | X                     |                     |             |                | X               |            |          |   |                 | X                           |                       | X     | X                     |                    |          |       |                                |                             |   |                      |           |
| <b>Accident / Malfunctions</b>       |                              |              |           |                           |       |                       |                     |             |                |                 |            |          |   |                 |                             |                       |       |                       |                    |          |       |                                |                             |   |                      |           |
| • Traffic accidents                  |                              |              |           |                           |       |                       |                     |             |                |                 |            |          |   |                 |                             |                       |       | X                     |                    |          |       |                                |                             |   |                      |           |
| • Fires and explosions               |                              |              |           |                           |       |                       | X                   |             |                |                 |            |          |   |                 |                             |                       |       | X                     |                    |          |       |                                |                             |   |                      |           |
| • Spills hazardous substance release |                              | X            |           |                           |       | X                     | X                   |             |                | X               |            | X        | X   | X               | X                           |                       | X     |                       |                    |          |       |                                |                             |   |                      |           |

<sup>1</sup> An effect in which the cause-effect relationship between the Project and an environmental component has an intermediary effect (CEAA 2013).  
<sup>2</sup> The current use of lands and resources for traditional purposes by Aboriginal persons.  
<sup>3</sup> Include any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

There is a potential for a loss of soil quality due to contamination resulting from vehicle or equipment leaks or improper storage and handling of hazardous materials. The following measures will be implemented by the Contractor throughout the course of construction to reduce the potential for soil contamination:

- Vehicles and equipment will be maintained in good working order.
- Refueling and maintenance activities will be conducted in a designated lay-down area located on the existing road at least 100 m from the Fork River.
- Hazardous materials will be securely stored in approved containers in designated laydown areas.
- Application of appropriate provincial and federal stream-crossing guidelines (*The Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat*, Manitoba Natural Resources and DFO, 1996) to minimize sedimentation and potential contamination of surface waters.

**Potential effects to terrain, topography and soils during construction are considered to be restricted to the Project site, reversible and of low magnitude. Following the implementation of identified mitigation measures, potential residual effects to soil quality are considered to be negligible and therefore not significant.**

### **5.2.2 Surface-water Quality**

Surface waters in the vicinity of the Project Area will potentially experience increased sediment loads and reduced water quality due to construction activities such as clearing, grading, runoff from cleared and roughed areas (erosion) and coffer damming. However, such effects are considered to be minimal and will be mitigated by utilizing erosion, spillage and sediment-control measures outlined below.

- If possible, works will be constructed during periods of no flow or very low flow.
- Flowing water will be diverted around the construction area using a cofferdam and bypass pump or temporary flume (e.g., culvert) in a manner that avoids sediment generation to downstream areas and does not alter the volume of flow in the Fork River.
  - The cofferdam will be made of non-earthen material such as aqua-dams, sand bags, sheet pile or clean granular material wrapped in poly-plastic or other suitable isolation materials.
  - Pump inlets will be appropriately screened following the DFO *Freshwater Intake End-of-Pipe Fish Screen Guidelines* (DFO 1995). All isolation materials will be completely removed from the watercourse once construction is complete.

**FORK RIVER LOW-LEVEL CROSSING REPLACEMENT – ENVIRONMENTAL ASSESSMENT REPORT**

Environmental Effects Assessment

May 30, 2013

---

- All areas which are disturbed by the construction of the Project will be stabilized to prevent water erosion, sedimentation and the establishment of weeds.
- Bank areas subject to high velocity flows will be stabilized with riprap.
- Upland disturbed areas will be revegetated with native plant species, grasses and herbs, see Section 5.2.4 for additional detail.

On-site casting of low-level crossing components have the potential to degrade surface water quality through the contact of surface water with uncured concrete or treated wood forms.

- Untreated wood will be used for forms to cast concrete components and contact between surface water and uncured concrete will be avoided.
- Surplus uncured concrete will be deposited in a pit, if required, located at least 100 m from Fork River.
- Hardened surplus concrete and demolition wastes will be broken up and disposed of at an approved solid waste disposal facility capable of accepting such waste.

The Contractor will handle fuel and report spillages to the appropriate authorities (Manitoba Conservation and Water Stewardship).

- The Contractor will be required to locate all fuel storage and equipment servicing areas a minimum of 100 m away from the ordinary high water mark of any waterbody. Any fuel storage areas will be required to be operated according to the *Storage and Handling of Petroleum Products and Allied Products Regulation* (2001).
- At all times, the Contractor will be required to have materials at the construction site to contain and recover fuel spills. Any fuel spills that occur will be reported to Manitoba Conservation and Water Stewardship in accordance with the *Environmental Accident Reporting Regulation* (1987).
- At no time shall the arm of a backhoe 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 a supply of oil absorbent pads in the event of an oil spill or accidental submergence of toxin-covered machinery occurs.
- Furthermore, the construction site will be kept clean on a daily basis, with all waste materials placed in designated containers.
  - Any non-reusable demolition and construction debris will be disposed of at an approved waste disposal ground operating under a permit pursuant to the *Waste Disposal*

*Grounds Regulation* (1991) or a licence pursuant to *The Environment Act* (1987). This includes all packing materials, waste-construction materials (such as used concrete form boards) and other consumable products.

**Effects to surface-water quality during construction are considered to be local, reversible, low in duration and frequency and of low magnitude. With the implementation of the mitigation measures no significant adverse effects on surface-water quality are anticipated as a result of Project construction.**

### **5.2.3 Greenhouse Gas and Air Quality**

The Construction Phase will involve the use of a variety of diesel construction vehicles and equipment. This will result in emissions of greenhouse gases (GHGs) consistent with diesel construction equipment engine exhaust and include carbon dioxide, methane and nitrous oxide. The GHG emissions resulting from construction activity will be continuous during the working hours through the construction phase of the Project. However, emissions will be short-term in duration (ceasing when construction is complete).

While GHG emissions associated with construction activities cannot be avoided with available construction vehicles and equipment, procedures will be followed to reduce emissions where possible. These include applying proper vehicle maintenance for more efficient engine operation as well as turning equipment off when it will not be immediately deployed. There are situations where some construction equipment will idle in order to warm equipment to establish suitable operating temperatures.

**Potential effects of greenhouse gas emissions on air quality following implementation of mitigation measures are anticipated to be local, low in frequency and duration, negligible in magnitude and to be reversible. Residual effects to air quality are anticipated to be not significant.**

### **5.2.4 Fish and Fish Habitat**

The use of heavy equipment for activities such as clearing, stripping, grading, infilling near a waterbody and the construction/installation of a cofferdam have the potential to disrupt sediments and make them available for transport into water bodies via wind, runoff or bank erosion. The introduction of sediments into a waterbody can cause direct and indirect effects on fish habitat by affecting fish and egg respiration, fish foraging-efficiency, and habitat productivity for fish and invertebrates. Machinery, vehicles and equipment working near the site contain fuel, coolant, and other materials that, if released to the water, could be deleterious to fish health, water quality, and the environment. When placing concrete in or around water, if the fresh concrete and/or concrete wash water are released to the aquatic environment, they can increase pH, resulting in injury or mortality to fish and other aquatic organisms.

**FORK RIVER LOW-LEVEL CROSSING REPLACEMENT – ENVIRONMENTAL ASSESSMENT REPORT**

Environmental Effects Assessment

May 30, 2013

---

Mitigation measures, to be implemented by the Contractor to prevent potential impacts to fish and fish habitat include:

- Due to the potential presence of spring spawning fish species, no in water or shoreline works will occur between **April 1 and June 15** of any given year.
- The cofferdam-related mitigation measures outlined in Section 5.2.2.
- Fish trapped within the isolated area will be captured and returned to the watercourse unharmed, including fin fish, crayfish, and mussels (freshwater clams). The Contractor will be required to obtain a Live Fish Handling Permit for this activity.
- Works will be limited to within the road's right of way and associated launch aprons.
- Arch 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) and will be embedded a minimum of 0.3 m or 10% of culvert vertical diameter, whichever is greater, to maintain connectivity during lower flows.
- The duration of the work and amount of disturbance to the bed and banks of the waterbody will be minimized to the extent possible.
- Appropriate precautions (Section 5.2.2) will be taken so that waste construction materials do not enter the Fork River and are removed to an appropriate landfill or storage facility.
- Only clean rock free of fine materials, appropriately sized to resist displacement during high flow events, from a suitable land-based source will be used for armouring arch culvert inlets and outlets.
- Armouring rock will be 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 Fork River or interfere with fish passage.
- Where grading is required, stream banks will be sloped by pulling material back from the water's edge.
- Waste materials will be stored above the ordinary high water mark prior to removal (Section 5.2.2), to prevent them from entering the Fork River.
- Spoil piles will be contained with a silt fence.
- Excavation of the streambed will be limited to within the road right of way and launch apron area and will be the minimum required for the proper placement of the low-level crossing.



**FORK RIVER LOW-LEVEL CROSSING REPLACEMENT – ENVIRONMENTAL ASSESSMENT REPORT**

Environmental Effects Assessment

May 30, 2013

---

- Shoreline vegetation will be retained to the greatest extent possible in order to maximize bank stability.
- Appropriate precautions (Section 5.2.2) will be taken so that potentially deleterious substances (such as fuel, hydraulic fluids, oil, sediment, etc.) will not enter the Fork River.
- Machinery operation from outside the water will occur in a manner that minimizes disturbance to the Fork River shoreline.
  - Machinery will arrive on site in a clean condition and will be maintained free of fluid leaks.
  - Machinery servicing, refueling and fuel storage will occur away from the river to prevent deleterious substances from entering the river.
  - An emergency spill kit will be kept on-site in case of fluid leaks or spills from machinery.
- Effective sediment and erosion control measures will be in place prior to work starting in order to prevent the entry of sediment into the river.
- Disturbed areas will be vegetated by planting and seeding preferably native shrubs or grasses; such areas will be covered with mulch or biodegradable erosion control blankets to prevent soil erosion and to help germinate seeds.
  - The site will be stabilized for vegetation the following spring (e.g., cover exposed areas with erosion control blankets to keep soil in place and prevent erosion) if insufficient time in the growing season remains.
- Maintain effective sediment and erosion control measures until complete re-vegetation of disturbed areas is achieved.
- The duration of in-stream works and the temporary diversion will be minimized to the extent possible.

There is also the potential for construction activities to enhance existing fish habitat through the installation of wider, natural bottom arch culverts and the placing of riprap.

**The potential construction-related effects to fish and fish habitat during Project construction are expected to be local, reversible, short term and of moderate magnitude. With the implementation of the mitigation measures no significant adverse effects on fish and fish habitat are anticipated as a result of Project construction.**

### 5.2.5 Vegetation

Required selective tree clearing will result in the loss of approximately three trees at the Project Site. There is also the potential for loss of a limited amount of vegetation (approximately 300 m<sup>2</sup>) as a result of stripping/grading and the movement of heavy equipment.

Mitigation measures to areas disturbed as a result of construction include:

- Landscaping – revegetation with native shrubs and grasses.
- Limiting the surface disturbance, vegetation clearing, stripping and grading to the construction limits.
- Maintaining a buffer of vegetation when working along waterways, where possible, to promote bank stabilization and reduce erosion.

**The potential construction-related effects of the project on vegetation is anticipated to be restricted to the Project site, reversible, moderate in magnitude and short term in duration. With the implementation of the mitigation measures no significant adverse effects on vegetation are anticipated as a result of Project construction.**

### 5.2.6 Wildlife and Habitat

Potential adverse effects on wildlife during construction are related to noise and human activity disturbance. There is a potential for construction activity, use of machinery and tree/vegetation clearing and stripping/grading to cause wildlife (e.g., song birds, small mammals/rodents, geese, large mammals, etc.) to temporarily avoid the Project site during construction (Rabin *et al.* 2003; Brumm 2004).

To mitigate such effects, no vegetation or tree clearing will occur in natural habitat areas within the Project site during the bird-nesting season (April 1-July 31). In compliance with the *Migratory Birds Convention Act*, construction activities will not disturb, move or destroy migratory bird nests. If a nest is encountered work will temporarily pause in the immediate area and the Construction Supervisor will be notified prior to resuming work in that area. Additionally, Environment Canada guidelines (2009) recommend that noise emissions be maintained at 49 dBA (A-weighted decibels) for works in grassland environment. As many species of wildlife breed and raise young within similar timing windows, mitigative activities aimed at avoiding effects to avian species are also expected to ameliorate potential impacts to small and larger mammals that may be breeding in the Project site. All Project staff will be aware of their responsibilities to watch for and avoid wildlife activity in the area.

**By avoiding the sensitive breeding period, it is anticipated that potential adverse construction-related effects to wildlife and wildlife habitat will be local, low in magnitude**

**and short-term. With the implementation of the mitigation measures no significant adverse effects on wildlife and habitat are anticipated as a result of Project construction.**

### **5.2.7 Species at Risk**

As indicated in Section 4.3.3, wildlife Species At Risk (SAR) use of the Project area is expected to be minimal and occur as a result of sub-adult dispersal and/or transitory passage through the riparian corridor. To date, no observations of SAR have been recorded within the Project footprint. However, nine birds, one mammal, one amphibian, one reptile and two invertebrate SAR (Appendix E) have the potential to occur within the vicinity of the Project site.

Due to the potential occurrence of inexperienced juvenile species that may use the area, dispersal habitat corridors represent important travel corridors to vulnerable wildlife and associated land alteration should be minimized, wherever feasible (Fahrig 1997; Sutherland *et al.* 2000; Funk 2005).

Project construction activities will potentially affect a small area of potential SAR habitat. To minimize Project construction effects on terrestrial SAR, clearing of the site will take place outside the most sensitive breeding and brood-rearing season for birds and other wildlife (i.e., April 1-July 31).

In the event that SAR are encountered during Project construction, work will pause in the immediate area, the site will be made safe and the Construction Supervisor will be notified to seek advice on appropriate steps for proceeding and any additional mitigation measures. All Project staff working within the Project footprint will be aware of their responsibilities to watch for SAR (see Appendix I for a list and photographs of threatened and endangered species).

Given the low probability of SAR to occur in the immediate vicinity of the Project, effects to wildlife SAR are considered negligible.

**Potential adverse construction-related effects on SAR are anticipated to be reversible, low in magnitude over a short-term within the Project area. With the implementation of the mitigation measures, no significant adverse effects on SAR are anticipated as a result of Project construction.**

### **5.2.8 Socioeconomic Effects**

The socio-economic effects of the Project are generally expected to be positive. The Project is expected to have positive short-term effects on local employment, income generation, and have positive local economic spin-offs in the RM and nearby towns (e.g., patronage of accommodations from local businesses). Potential adverse effects on the socio-economic environment relate primarily to issues of public safety for workers and the general public during construction. It is anticipated that these potential effects can be fully mitigated to acceptable levels through personnel training and adherence to applicable guidelines and regulations.

The overall negative socio-economic effects of Project construction are primarily related to health and safety, potential effects from noise and increased traffic.

**The socio-economic effects of Project construction are anticipated to be positive and adverse, sporadic (lasting only as long as construction is underway), regional, reversible, short-term and of moderate magnitude and therefore not significant.**

#### ***5.2.8.1 Employment and Job Creation***

It is currently estimated that the Project will involve three to six workers at the site during the Construction Phase of the Project.

**This positive effect of Project construction is anticipated to be sporadic (lasting only as long as construction is underway), regional, reversible, short-term and of moderate magnitude and not significant.**

#### ***5.2.8.2 Materials and Services***

Construction materials, such as gravel, concrete and culverts arches will be sourced locally or regionally, where available. Other effects include the use of local area hotels, restaurants, etc., particularly in the communities surrounding the Project site during the construction phase.

**These positive effects on the demand for services during construction in the local/regional area are anticipated to be short-term and reversible, lasting only as long as construction is underway, local and regional and of low magnitude, therefore not significant.**

#### ***5.2.8.3 Health and Safety***

Safety issues associated with the construction phase are anticipated to arise during the transportation and installation of crossing components and reduction of traffic. These safety concerns will be addressed with the placement of appropriate signage indicating the construction area.

Construction firms contracted for the Project must provide the safety measures for construction workers as required in Manitoba's *The Workplace Safety and Health Act* (2010).

**Project health and safety effects are expected to be restricted to the vicinity of the Project site, sporadic, short-term, reversible and low in magnitude.**

#### ***5.2.8.4 Noise***

During construction, sound levels within the vicinity of the Project site are anticipated to be typical of rural agricultural communities. Adverse noise and vibration effects due to construction-related activities are anticipated to be minimal and will not persist beyond the Construction

Phase. To mitigate against potential adverse noise effects, construction workers will wear hearing protection as required in Manitoba's *The Workplace Safety and Health Act* (2010).

There are two residential homes within 200 m of the Project site. Potential noise effects may be mitigated through restricting construction activities from 7:00 a.m. to 7:00 p.m. six days per week, with no construction on Sunday or holidays.

Effects are expected to occur primarily within the Project site but may be noticeable in the local area, depending on weather conditions (e.g., prevailing winds for noise).

**The effects of Project noise are expected to occur sporadically during the Construction phase, be limited to the local area, short-term in duration, reversible and of low to moderate magnitude and therefore not significant.**

#### ***5.2.8.5 Traffic***

Increases in local traffic and occasional traffic congestion on rural roads due to the presence of delivery vehicles and heavy machinery are expected during the Construction Phase of the Project. As the road is low volume, the RM will close the roadway for the duration of crossing removal and construction. Local traffic will be required to detour around the site.

**Effects of the Project on traffic will occur throughout the Construction phase and will be short-term, reversible, moderate in magnitude, and more noticeable at the local rather than regional scale.**

#### ***5.2.8.6 Heritage Resources***

Although no heritage resources have been previously recorded at the Project site, there is the potential for heritage objects and/or human remains to be present adjacent to the river. Potential effects to heritage resources include clearing for site access, tree removal for bank preparation, slope cutting, any required excavations for deposition of the rip-rap, and any required widening of the right-of-way.

Additionally, there is the potential for impacts to heritage resources at these upstream and downstream locations, if the low-level crossing replacement alters the fluvial dynamics at the ford crossing and affects riverbank stability downstream or upstream during normal flow or high water stages.

During the course of construction, workers will be alert for artifacts that may be uncovered and, in the event that artifacts of potential significance are unearthed, work will cease until Historic Resources Branch Authorities have been notified.

**The effects on heritage resources are expected to be limited to the vicinity of the Project site and of low magnitude.**

#### ***5.2.8.7 Land Alteration and Interference***

Construction effects are anticipated to occur in the process of replacing the crossing. Landowners will be consulted if Project construction has potential to interfere with normal farm operations. Measures to mitigate and accommodate any interference will be identified on a case-by-case basis.

**Land alteration effects are not expected during construction. Potential land interference effects are expected to be short term, reversible, low in magnitude and limited to within the Project site and therefore not significant.**

#### ***5.2.8.8 Property Values***

A change in property values is not expected as a result of the crossing replacement. No effects of the Project on property values are expected over the duration of the Project.

### **5.3 OPERATIONS PHASE**

#### **5.3.1 Terrain, Topography and Soils**

**No adverse terrain, topography or soils effects are anticipated as a result of Project operation.** Vehicular traffic will be limited to the low-level crossing and existing roads; therefore soil compaction is not anticipated to be a concern.

#### **5.3.2 Surface Water**

There is potential for the Fork River to over-top the low-level crossing in times of flooding or extreme precipitation. This could result in sediment being carried into the water-course. There is also a potential for abrasive materials applied during operations to be deposited within the Fork River, reducing surface water quality.

Features inherent in the design, such as curbing and the top deck having a longitudinal slope of 1% towards the centre of the structure, will allow water and sediments to drain in a phased manner and, thus, lessen potential adverse effects to surface water quality during operation of the crossing.

**However, these operational effects are anticipated to be commensurate with or an improvement of existing condition and therefore no effect over baseline. Potential surface water effects are expected to be restricted to the Project site, sporadic long-term, reversible and low in magnitude and therefore not significant.**

#### **5.3.3 Fish and Fish Habitat**

Effects to fish and fish habitat during the operation phase are related to potential arch culvert blockages and displacement of the riprap. Such occurrences may result in disruption to fish

mobility and opportunities for erosion and sedimentation. Though such measures will alter fish habitat, it is anticipated that they will improve upon existing conditions by limiting erosion and sedimentation, and providing a clear route through which fish can swim.

Due to natural accumulation of debris, there is potential for the culverts to get blocked; however, with regular maintenance this can be mitigated. Stantec recommends that the RM conduct regular inspections of the arch culverts and remove accumulated debris as necessary. Displaced riprap shall also be replaced as necessary. Maintenance activities should also be conducted in accordance with the DFO Manitoba Operational Statement for Culvert Maintenance (Appendix A). Routine maintenance and in-stream repair works (i.e., non-emergency) should be conducted outside of the April 1 to June 15 sensitive fish spawning period.

Potential operation-related effects to fish and fish habitat during operations are anticipated to be better than existing conditions and therefore no effect over baseline. **Anticipated effects during project operations are expected to be restricted to the Project site, sporadic, long-term, reversible and of low to moderate magnitude and not significant.**

#### **5.3.4 Wildlife and Habitat**

Potential adverse effects on wildlife and habitat during operations are primarily related to the potential for vehicle-wildlife collisions. However, the Project is located within a previously disturbed landscape. Habitat in the immediate area is fragmented and suboptimal; **therefore, adverse effects on wildlife and habitat as a result of Project operations are not significant.**

#### **5.3.5 Socioeconomic Effects**

##### ***5.3.5.1 Human Health and Safety***

Human health and safety concerns during operations are related to the potential for accidents to occur during maintenance and use. Such accidents might include workers falling into the river, fuel spillages and commuter incidents during extreme weather events such as storms or flooding.

The RM staff should be aware of hazards and work in accordance with the *Manitoba Workplace Safety and Health Act* (2010).

Road signs should be posted in each direction to alert commuters of the approaching low-level crossing.

**With adherence to safety protocols, effects on human health and safety during Project operations are anticipated to be sporadic to continuous, reversible, short- to**

**intermediate-term in duration, low to moderate magnitude and restricted to the footprint and immediately adjacent area.**

### ***5.3.5.2 Navigation***

The low-level crossing will continue to impede navigation of the Fork River; however, this is commensurate with existing conditions.

In accordance with the approval issued by Transport Canada (Reference No. 8200-2011-600084; Appendix J), a portage should be maintained to provide access around the site at all times for the duration of the works, including for any construction during the navigation season. Further, signs should be placed at the portage's upstream and downstream access points, advising boaters of the portage route, in accordance with the approval. A copy of the approval should be kept on-site at all times during construction.

**Effects on navigation are anticipated to be restricted to the Project site and commensurate with baseline conditions and therefore not significant.**

## **5.4 CUMULATIVE EFFECTS**

### **5.4.1 Scope of the Cumulative Effects Assessment**

Potential residual effects of the Project are as follows:

- Loss of soil and sediments.
- Increase in sedimentation.
- Temporary increase in noise and vibration.
- Temporary disturbance to fish habitat.
- Temporary loss of vegetation.
- Temporary avoidance by wildlife.
- Loss of wildlife habitat.
- Disturbance to unknown heritage resources.
- Increased risk to human health and safety.
- Increased risk of spills or fire.



The spatial and temporal boundaries for these effects are within the Project limits during the construction and/or operation phase. The spatial boundary for surface water and fish and fish habitat components includes adjacent areas upstream and downstream on the Fork River.

#### **5.4.2 Other Projects or Activities**

A search of the Manitoba Environmental Approvals Branch Public Registry and the *Canadian Environmental Assessment Act* Registry revealed no other projects within the vicinity of the Project area.

#### **5.4.3 Cumulative Effects Assessment**

**As there are no projects within the vicinity of the Project area, no potential adverse cumulative effects are anticipated.**



## **6.0 Environmental Protection Plans and Monitoring**

---

### **6.1 ENVIRONMENTAL INSPECTION AND REPORTING**

Prior to construction, the selected Contractor will appoint a Project Manager and General Contractor/Construction Site Manager to coordinate and supervise construction activities.

### **6.2 EMERGENCY-RESPONSE MANAGEMENT**

The Contractor will take due care and caution to prevent spills of dangerous goods or hazardous wastes. The Contractor will designate a qualified supervisor as the on-site Emergency-Response Coordinator for the work area. The Emergency-Response Coordinator shall have the authority to direct manpower in order to respond in the event of a spill. Emergency procedures will be implemented to address potential incidents. Potential incidents may include but not limited to: contaminant spills such as chemicals, fuels, oils and lubricants released into land, water and/or air.

### **6.3 MONITORING**

The RM of Mossey River will be responsible for periodically monitoring the arch culverts during operations to confirm that they are free of debris to permit the free movement of fish, aquatic organisms and river flows.



## **7.0 Conclusions**

---

On the basis of the information available to date, the proposed Mossey River low-level crossing replacement creates no basis for predicting any significant impacts to the biophysical and socioeconomic environments, while creating socioeconomic benefits.



## 8.0 References

---

### 8.1 LITERATURE CITED

Alberta Agriculture and Food. 2007. Biodiversity Conservation Guide for Farmers and Ranchers in Alberta. Agriculture and Agri-Food Canada – Prairie Farm Rehabilitation Administration Alberta Agriculture and Food Ducks Unlimited Canada. Accessed online at [http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/all/agdex4702/\\$FILE/060-1.pdf](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/agdex4702/$FILE/060-1.pdf) on March 12, 2013.

Beier, P. and R. F. Noss. 1998. Do Habitat Corridors Provide Connectivity? *Conservation Biology*, 12(6): 1241–1252.

Bennett, A.F. 1999. Linkages in the Landscape: The Role of Corridors and Connectivity in Wildlife Conservation. The World Conservation Union, Gland, Switzerland.

Betcher, R.N. 1986. Groundwater availability map series – Dauphin Lake area (62O), Manitoba Natural Resources, Water Resources Branch.

Boscolo, D., C. Candia-Gallardo, M. Awade, and J. P. Metzger. 2008. Importance of Interhabitat Gaps and Stepping-Stones for Lesser Woodcreepers (*Xiphorhynchus fuscus*) in the Atlantic Forest, Brazil. *Biotropica*, 40(3): 273–276.

Burpee, L.J. 1927. Journals and Letters of La Verendrye. Chaplin Society, Toronto ON.

Brumm, H. 2004. The impact of environmental noise on song amplitude in a territorial bird. *Journal of Animal Ecology* 73, 434–440.

Canadian Environmental Assessment Agency. 2013. Cumulative Assessment Practitioner's Guide. Accessed May 2013. Available at:

<http://www.ceaa.gc.ca/default.asp?lang=En&n=43952694-1&offset=11&toc=show>.

Dangerous Goods Handling and Transportation Act. 1987. C.C.S.M. c. D12. Queen's Printers, Winnipeg.

Department of Energy, Mines and Resources. 1994. National Atlas Information Surveys, Mapping and Remote Sensing Sector and Geophysics Division, Geological Survey of Canada. Canada Seismicity, National Atlas of Canada, 5th Edition.

Department of Fisheries and Oceans Canada. 2013. DRAFT - Fish Habitat Classification for Manitoba Agricultural Watersheds for the Fork River, Manitoba. Provincial mapping provided by Todd Schwartz, Fish Habitat Biologist, Manitoba District, Fisheries and Oceans received April 2, 2013.

Department of Fisheries and Oceans Canada. 1995. Freshwater Intake End-of-Pipe Fish Screen Guideline.

Environmental Accident Reporting Regulation. 1987. Regulation 439. Queen's Printers, Winnipeg.

Environment Canada. 2009. Petroleum Industry Activity Guidelines for Wildlife Species at Risk in the Prairie and Northern Region. Canadian Wildlife Service, Environment Canada, Prairie and Northern Region, Edmonton Alberta. 64p.

Environment Canada, National Data and Information Archive. 2013. Station: Dauphin. Accessed April 2013. Available at:

[http://www.climate.weatheroffice.gc.ca/climate\\_normals/results\\_e.html?stnID=3780&prov=&lang=e&dCode=3&dispBack=1&StationName=Dauphin\\_&SearchType=Contains&province=ALL&provBut=&month1=0&month2=12](http://www.climate.weatheroffice.gc.ca/climate_normals/results_e.html?stnID=3780&prov=&lang=e&dCode=3&dispBack=1&StationName=Dauphin_&SearchType=Contains&province=ALL&provBut=&month1=0&month2=12).

Fahrig, L. 1997. Relative Effects of Habitat Loss and Fragmentation on Population Extinction. *Journal of Wildlife Management* 61: 603-610.

Fahrig, L. 2003. Effects of Habitat Fragmentation on Biodiversity. *Annu. Rev. Ecol. Evol. Syst.* 34: 487–515.

Funk, W. C., A. E. Greene, P. S. Corn, and F. W. Allendorf. 2005. High Dispersal in a Frog Species Suggests That it is Vulnerable to Habitat Fragmentation. *Biology Letters* 1, 13–16.

GeoBase Canada. 2012. Land Cover, Circa 2000 – Vector. Accessed online at <http://www.geobase.ca/geobase/en/data/landcover/csc2000v/description.html>, on March 5, 2013.

Geological Survey of Canada (GSC). 2002. Earthquake hazard estimation, and earthquakes in Canada. Accessed at: <http://www.pgc.nrcan.gc.ca/seismo/eqhaz/seishaz.htm> and <http://www.pgc.nrcan.gc.ca/seismo/eqhaz/canq.htm>.

Government of Alberta. 2009. Guidelines and Procedures for Watercourse Crossings in Alberta. Accessed May 2013. Available at:

[http://www.transportation.alberta.ca/Content/docType245/Production/Complete\\_Fish\\_Habitat\\_Manual.pdf](http://www.transportation.alberta.ca/Content/docType245/Production/Complete_Fish_Habitat_Manual.pdf).

Hamm, P. 1980. Place Names of Manitoba. Western Producer Prairie Books, Saskatoon, SK.

Little, J. 1973. Groundwater availability studies report #10 – Dauphin Lake.

Manitoba Conservation. 2011. Manitoba Conservation, Wildlife Branch. Wildlife Management Areas. Accessed online at <http://www.gov.mb.ca/conservation/wildlife/habcons/wmas/index.html> on February 25, 2013.



**FORK RIVER LOW-LEVEL CROSSING REPLACEMENT – ENVIRONMENTAL ASSESSMENT REPORT**

References

May 30, 2013

---

Manitoba Conservation Data Centre (MB CDC). 2013. Occurrence of Species by Ecoregion: Lake Manitoba Plain. Accessed March, 2013. Available at: <http://www.gov.mb.ca/conservation/cdc/ecoreg/lakembplain.html>.

Manitoba Conservation and Water Stewardship. 2013. Fisheries Inventory and Habitat Classification System Report for the Fork River. Fisheries Branch. Requested and received April 4, 2013.

Manitoba Conservation and Water Stewardship. 2011. Manitoba Water Quality Standards, Objectives, and Guidelines. Water Science and Management Branch. Manitoba Water Stewardship Report 2011-01. November 28, 2011.

*Manitoba Endangered Species Act (MB ESA)*. 1990. C.C.S.M. c. E111 The Endangered Species Act. Accessed March, 2013. Available at: <http://web2.gov.mb.ca/laws/statutes/ccsm/e111e.php>

*Manitoba Environment Act*. 1987. CCSM c.E125. Queen's Printer. Winnipeg.

Manitoba Land Initiative (MLI). 2004a. Designations of Drains and Drain Digital Data Sets. Created by Geomatics Branch, Land Information Division. Revised December 6, 2004. Available on-line from: <http://mli2.gov.mb.ca>.

Manitoba Land Initiative (MLI). 2004b. Drain Digital Data Sets. Created by Geomatics Branch, Land Information Division. Revised December 6, 2004. Available on-line from: <http://mli2.gov.mb.ca>

Manitoba Natural Resources and the Department of Fisheries and Oceans. 1996. *Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish*.

Manitoba's Water Stewardship Development 2012. GWDRILL database.

McLeod, K.D. 2000. The Drifting River-Lwiwski (EhMc-18), Ochre Beach (EgLw-5) and Hunter's Brother (EhKx-8) Burials. Ms on file, Historic Resources Branch, Manitoba Culture, Heritage and Tourism, Winnipeg, MB.

*Migratory Bird Convention Act*. 1994. S.C.c.22. Queen's Printer, Ottawa.

Morlan, R.E. 2000. "Archaeological Radiocarbon Dates" in Manitoba Radiocarbon Dates. Manitoba Ministry of Industry, Trade and Mines, Geological Survey, Winnipeg, MB.

Pip, E. 1984. Ecogeographical tolerance range variation in aquatic macrophytes. *Hydrobiologia* 108: 37-48.

Province of Manitoba (Manitoba). 2012. Conservation and Water Stewardship. Accessed from: <http://www.gov.mb.ca/conservation/wildlife/index.html> on February 28, 2012.

**FORK RIVER LOW-LEVEL CROSSING REPLACEMENT – ENVIRONMENTAL ASSESSMENT REPORT**

References

May 30, 2013

---

Rabin, L.A., B. McCowan, S.L., Hooper, and D.H., Owings. 2003. Anthropogenic noise and its effect on animal communication: An interface between comparative psychology and conservation biology. *International Journal of Comparative Psychology* 16, 172–192.

Schmutz, J. K. 2001. Community conservation plan for the Colgate Prairie Important Bird Area. Important Bird Areas Program Nature Saskatchewan. Accessed March 2013. Available at <http://www.ibacanada.ca/conservationplans/skcolgate.pdf>.

Smith, R.E., H. Velhuis, G.F. Mills, R.G. Eilers, W.R. Fraser, G.W. Lelyk. 1998. Terrestrial Ecozones, Ecoregions, and Ecodistricts of Manitoba. Technical Bulletin 98-9E. Land Resource Unit, Brandon Research Center, Agriculture Canada.

*Species At Risk Act (SARA)*. 2002. Species at Risk Act S.C. 2002, c. 29. Accessed March 2013. Available at: <http://laws-lois.justice.gc.ca/eng/acts/S-15.3/page-1.html>.

Statistics Canada. 2007. Mossey River, Manitoba (Code4617071) (table). 2006 Community Profiles. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. Accessed February 2013. Available at: <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E>.

Statistics Canada. 2011. Census of Agriculture; farm and farm operator data. Accessed March, 2013. Available at: <http://www.statcan.gc.ca/ca-ra2011/index-eng.htm> on March 5, 2013.

Statistics Canada. 2012a. Mossey River, Manitoba (Code 4617071) and Manitoba (Code 46) (table). Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa.

*Storage and Handling of Petroleum Products and Allied Products Regulation*. 2001. Regulation 188. Queen's Printers, Winnipeg.

Statistics Canada 2012b. 2011 Census of Agriculture. Farm and Farm Operator Data. Accessed February 2013. Available at: <http://www29.statcan.gc.ca/ceag-web/eng/index-index.jsessionid=82C1BF62FDE1EDC4EC750FE595B8D986> on February 28, 2013.

Sutherland, G. D., A. S. Harestad, K. Price, and K. P. Lertzman. 2000. Scaling of natal dispersal distances in terrestrial birds and mammals. *Conservation Ecology* 4(1): 16.

Tyrell, J.B. 1916. David Thompson's Narrative of His Explorations Western America, 1784-1812. Chaplain Society, Toronto ON.

UNIES Consulting Engineers Ltd. 2012. Draft Report – Hydrologic and Hydraulics Design Assistance, Fork River Low-level Crossing Replacement, NW 27-29-20W, R.M. of Mossey River.

United States Department of Agriculture. 1990. Land and Resource Management Plan. Umatilla National Forest. Forest Service. Pacific Northwest Region. Accessed on April, 2013. Available at: <http://www.fs.usda.gov/main/umatilla/landmanagement/planning>.

*Waste Disposal Grounds Regulation*. 1991. Regulation 150. Queen's Printers, Winnipeg.

*Workplace Safety and Health Act (2010)*. C.C.S.M.c. W210. Queen's Printer, Winnipeg.

Wright, J.V. 1999. A History of the native People of Canada, Volume I (10,000 to 1,000 B.C.). Canadian Museum of Civilization, Ottawa, ON.

## **8.2 PERSONAL COMMUNICATIONS**

Biggin, Wade. 2013. Telephone between Wade Biggin, Fisheries Technician, Fisheries Branch, Manitoba Conservation and Water Stewardship and Jacqueline Reidy, Biologist, Stantec Consulting Ltd. April 4, 2013.

Friesen, Chris. 2013. Acting Biodiversity Information Manager, Manitoba Conservation Data Centre, Wildlife and Ecosystem Protection Branch, Manitoba Conservation. Email correspondence with Shirley Bartz, Biologist, Stantec Consulting Ltd., February 15, 2013.

Schwartz, Todd. 2013. Telephone conversation between Todd Schwartz, Fish Habitat Biologist, Central and Arctic Region, Fisheries and Oceans Canada and Jacqueline Reidy, Biologist, Stantec Consulting Ltd. April 4, 2013.



## **9.0 Closure**

---

This report was prepared on behalf of the Rural Municipality of Mossey River. The report may not be relied upon by any other person or entity without the express written consent of Stantec Consulting Ltd. and the Rural Municipality of Mossey River.

Any use which a third party makes of this report, or any reliance on decisions made based on it, is the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgment of Stantec Consulting Ltd. based on the data obtained from the work and on the site conditions encountered at the time the work was performed at the specific sampling, testing, and/or observation locations.



## **Appendix A**

# **DFO Manitoba Operational Statement Culvert Maintenance**







# CULVERT MAINTENANCE

Fisheries and Oceans Canada  
Manitoba Operational Statement

Version 3.0

Culvert maintenance is undertaken to extend the life of the structure and to ensure that it functions as designed, thus ensuring public safety and safe fish passage. Culvert maintenance includes the removal of accumulated debris (e.g., logs, boulders, garbage, ice build-up) that prevents the efficient passage of water and fish through the structure. Culvert maintenance may also include the reinforcement of eroding inlets and outlets, but does not include the replacement of damaged or destroyed bevel ends. Culverts requiring regular maintenance should be considered for future remediation via redesign or reinstallation.

Culvert maintenance activities can affect fish and fish habitat by the removal of woody debris that is important for cover and food production, by causing flooding and excessive stream scouring if blockages are removed too quickly, excessive erosion and sedimentation from the use of equipment along the stream bank, and disruption of critical fish life stages. Replacement of eroded rock armouring can alter flows and fish movement patterns if done excessively.

Fisheries and Oceans Canada (DFO) is responsible for protecting fish and fish habitat across Canada. Under the *Fisheries Act* no one may carry out a work or undertaking that will cause the harmful alteration, disruption or destruction (HADD) of fish habitat unless it has been authorized by DFO. By following the conditions and measures set out below you will be in compliance with subsection 35(1) of the *Fisheries Act*.

The purpose of this Operational Statement is to describe the conditions under which it is applicable to your project and the measures to incorporate into your project in order to avoid negative impacts to fish habitat. You may proceed with your culvert maintenance project without a DFO review when you meet the following conditions:

- the work does not include realigning the watercourse, installing a culvert liner or support struts, replacing damaged or destroyed bevels ends, or extending/replacing the existing culvert,
- explosives are not used to remove debris,
- the work does not include any dredging, infilling (e.g., filling scour pools) or excavation of the channel upstream or downstream of the culvert, and
- you incorporate the *Measures to Protect Fish and Fish Habitat when Maintaining Culverts* listed below in this Operational Statement.

If you cannot meet all of the conditions listed above and cannot incorporate all of the measures listed below then your project may result in a violation of subsection 35(1) of the *Fisheries Act* and you could be subject to enforcement action. In this case, you should contact the DFO office in your area if you wish to

obtain DFO's opinion on the possible options you should consider to avoid contravention of the *Fisheries Act*.

**You are required to respect all municipal, provincial or federal legislation that applies to the work being carried out in relation to this Operational Statement.** The activities undertaken in this Operational Statement must also comply with the *Species at Risk Act* ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)). If you have questions regarding this Operational Statement, please contact the DFO office in your area (see Manitoba DFO office list).

We ask that you notify DFO, preferably 10 working days before starting your work by filling out and sending the Manitoba Operational Statement notification form ([www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/prov-terr/index\\_e.htm](http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/prov-terr/index_e.htm)) to the DFO office in your area. This information is requested in order to evaluate the effectiveness of the work carried out in relation to this Operational Statement.

## Measures to Protect Fish and Fish Habitat when Maintaining Culverts

1. Use existing trails, roads, or cut lines wherever possible to avoid disturbance to the riparian vegetation.
2. While this Operational Statement does not cover the clearing of riparian vegetation, the removal of select plants may be required. This removal should be kept to a minimum.
3. Unless accumulated material (i.e., branches, stumps, other woody materials, garbage, ice build-up, etc.) is preventing the passage of water and/or fish through the structure, time material and debris removal to prevent disruption to sensitive fish life stages by adhering to appropriate fisheries timing windows (see the *Manitoba In-Water Construction Timing Windows*). Any proposal to conduct such work under ice-covered conditions, with the exception of ice build-up removal, requires prior review by DFO.
4. Emergency debris removal using hand tools or machinery (e.g., backhoe) can be carried out at any time of year. Emergencies include situations where carrying out the project immediately is in the interest of preventing damage to property or the environment, or is in the interest of public health or safety. DFO is to be notified immediately. **You should follow all other measures to the greatest extent possible.**
5. Install effective sediment and erosion control measures before starting work to prevent sediment from entering the watercourse. Inspect them regularly during the course of

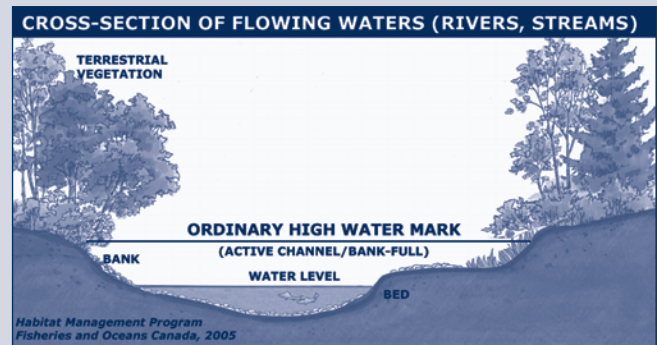
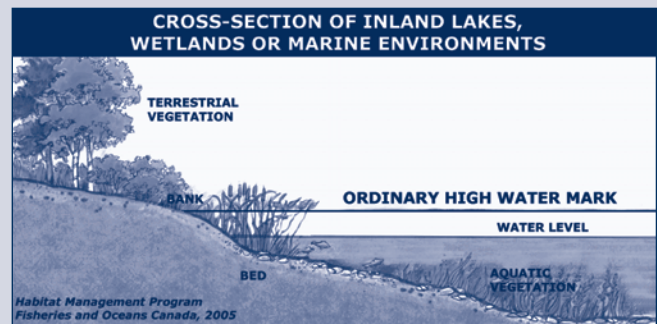
construction and make all necessary repairs if any damage occurs.

6. Limit the removal of accumulated material (i.e., branches, stumps, other woody materials, garbage, etc.) to the area within the culvert, immediately upstream of the culvert and to that which is necessary to maintain culvert function and fish passage.
7. Remove accumulated material and debris slowly to allow clean water to pass, to prevent downstream flooding and reduce the amount of sediment-laden water going downstream. Gradual dewatering will also reduce the potential for stranding fish in upstream areas.
  - 7.1. A separate Operational Statement exists for the removal of beaver dams and associated debris and it applies to dams that are not directly connected or immediately adjacent to the culvert structure.
8. Operate machinery on land (from outside of the water) and in a manner that minimizes disturbance to the banks of the watercourse.
  - 8.1. Machinery is to arrive on site in a clean condition and is to be maintained free of fluid leaks.
  - 8.2. Wash, refuel and service machinery and store fuel and other materials for the machinery away from the water to prevent any deleterious substance from entering the water.
  - 8.3. Keep an emergency spill kit on site in case of fluid leaks or spills from machinery.
  - 8.4. Restore banks to original condition if any disturbance occurs.
9. If replacement rock reinforcement/armouring is required to stabilize eroding inlets and outlets, the following measures should be incorporated:
  - 9.1. Place appropriately-sized, clean rocks into the eroding area.
  - 9.2. Do not obtain rocks from below the ordinary high water mark (see definition below) of any water body.
  - 9.3. Avoid the use of rock that is acid-generating. Also avoid the use of rock that fractures and breaks down quickly when exposed to the elements.
  - 9.4. Install rock at a similar slope to maintain a uniform stream bank and natural stream alignment.
  - 9.5. Ensure rock does not interfere with fish passage or constrict the channel width.
  - 9.6. If any in-water work is involved, adhere to fisheries timing windows, as outlined in Measure 3 above.
10. Stabilize any waste materials removed from the work site to prevent them from entering the watercourse. This could include covering spoil piles with biodegradable mats or tarps or planting them with grass or shrubs.
11. Vegetate any disturbed areas by planting and seeding preferably with native trees, shrubs or grasses and cover such areas with mulch to prevent erosion and to help seeds germinate. If there is insufficient time remaining in the growing season, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.
  - 11.1. Maintain effective sediment and erosion control

measures until re-vegetation of the disturbed areas is achieved.

**Definition:**

**Ordinary high water mark** – The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to change the characteristics of the land. In flowing waters (rivers, streams) this refers to the “active channel/bank-full level” which is often the 1:2 year flood flow return level. In inland lakes, wetlands or marine environments it refers to those parts of the water body bed and banks that are frequently flooded by water so as to leave a mark on the land and where the natural vegetation changes from predominately aquatic vegetation to terrestrial vegetation (excepting water tolerant species). For reservoirs this refers to normal high operating levels (Full Supply Level).



**FISHERIES AND OCEANS CANADA OFFICES IN MANITOBA**

**Winnipeg Office**

Fisheries and Oceans Canada  
Freshwater Institute  
501 University Crescent  
Winnipeg, Manitoba  
R3T 2N6  
Tel: (204) 983-5163  
Fax: (204) 984-2402

**Dauphin Office**

Fisheries and Oceans Canada  
101-1st Avenue N.W.  
Dauphin, Manitoba  
R7N 1G8  
Tel: (204) 622-4060  
Fax: (204) 622-4066

*Aussi disponible en français*

[http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/modernizing-moderniser/epmp-pmpe/index\\_f.asp](http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/modernizing-moderniser/epmp-pmpe/index_f.asp)

DFO/2007-1329

©Her Majesty the Queen in Right of Canada 2007

## **Appendix B**

### ***Winnipeg Free Press Advertisement***





Stantec

**NAVIGABLE WATERS  
PROTECTION ACT**  
(R.S.C. 1985, c. N-22)  
as amended by Part 7 of the  
Budget Implementation Act,  
2009, S.C. 2009 c. 2  
(Navigable Waters  
Protection Act)

The Rural Municipality of Mossey River hereby gives notice that an application has been made to the Minister of Transport, Infrastructure and Communities pursuant to the Navigable Waters Protection Act for approval of the work described herein and its site plans. Pursuant to section 9 of the said Act, the Rural Municipality of Mossey River has deposited with the Minister of Transport, Infrastructure and Communities, and in the office of the District Registrar of the Dauphin Land Titles Office at 308 Main Street South, Dauphin, MB, R7N 1K7, under deposit number 1864/12, a description of the following work, its site and plans for the replacement of an existing low level culvert crossing with a new low level culvert crossing and concrete deck slab, across the Fork River at the north west corner of Section 27, Township 29, Range 20W.

Comments regarding the effect of this work or marine navigation may be directed to: The Regional Manager, Navigable Waters Protection Program, Transport Canada, Canada Place, 1100 - 9700 Jasper Avenue, Edmonton, AB, T5J 4E6. However, comments will be considered only if they are in writing and are received no later than 30 days after the publication of the last notice. Although all comments conforming to the above will be considered, no individual response will be sent.

Signed at Winnipeg, MB, this  
15th day of December, 2012

STANTEC  
CONSULTING LTD.  
JUSTIN DAHL, E.I.T.  
Bridge Engineer-in-Training



## **Appendix C**

### ***Dauphin Herald Advertisement***





## **LEGAL NOTICE**

### **NAVIGABLE WATERS PROTECTION ACT**

*(R.S.C. 1985, c. N-22) as amended by Part 7 of the  
Budget Implementation Act, 2009, S.C. 2009 c. 2  
(Navigable Waters Protection Act)*

The Rural Municipality of Mossey River hereby gives notice that an application has been made to the Minister of Transport, Infrastructure and Communities pursuant to the Navigable Waters Protection Act for approval of the work described herein and its site plans. Pursuant to section 9 of the said Act, the Rural Municipality of Mossey River has deposited with the Minister of Transport, Infrastructure and Communities, and in the office of the District Registrar of the Dauphin Land Titles Office at 308 Main Street South, Dauphin, MB, R7N 1K7, under deposit number 1864/12, a description of the following work, its site and plans for the replacement of an existing low level culvert crossing with a new low level culvert crossing with concrete deck slab, across the Fork River at the north west corner of Section 27, Township 29, Range 20W.

Comments regarding the effect of this work or marine navigation may be directed to: The Regional Manager, Navigable Waters Protection Program, Transport Canada, Canada Place, 1100-9700 Jasper Avenue, Edmonton, AB, T5J 4E6. However, comments will be considered only if they are in writing and are received no later than 30 days after the publication of the last notice. Although all comments conforming to the above will be considered, no individual response will be sent.

Signed at Winnipeg, MB, this 18th day of December, 2012

**STANTEC CONSULTING LTD.**  
**JUSTIN DAHL, E.I.T.**  
**Bridge Engineer-in-Training**



**Appendix D**  
***Canada Gazette Advertisement***



## **NAVIGABLE WATERS PROTECTION ACT**

(R.S.C. 1985, c. N-22) as amended by Part 7 of the *Budget Implementation Act*, 2009, S.C. 2009 c. 2 (*Navigable Waters Protection Act*)

The Rural Municipality of Mossey River hereby gives notice that an application has been made to the Minister of Transport, Infrastructure and Communities pursuant to the *Navigable Waters Protection Act* for approval of the work described herein and its site plans. Pursuant to section 9 of the said Act, the Rural Municipality of Mossey River has deposited with the Minister of Transport, Infrastructure and Communities, and in the office of the District Registrar of the Dauphin Land Titles Office at 308 Main Street South, Dauphin, MB, R7N 1K7, under deposit number 1864/12, a description of the following work, its site and plans for the replacement of an existing low level culvert crossing with a new low level culvert crossing with concrete deck slab, across the Fork River at the north west corner of Section 27, Township 29, Range 20W.

Comments regarding the effect of this work or marine navigation may be directed to: The Regional Manager, Navigable Waters Protection Program, Transport Canada, Canada Place, 1100-9700 Jasper Avenue, Edmonton, AB, T5J 4E6. However, comments will be considered only if they are in writing and are received no later than 30 days after the publication of the last notice. Although all comments conforming to the above will be considered, no individual response will be sent.

Signed at Winnipeg, MB, this 22<sup>nd</sup> day of December, 2012

STANTEC CONSULTING LTD.  
JUSTIN DAHL, E.I.T.  
Bridge Engineer-in-Training



**Appendix E**  
**Animal and Plant Species of**  
**Conservation Concern**





**Animal And Plant Species Of Conservation Concern Potentially  
Inhabiting The Project Study Area**

| Scientific Name                       | Common Name                | CDC <sup>1</sup> | SARA              |
|---------------------------------------|----------------------------|------------------|-------------------|
|                                       |                            |                  | MESA <sup>2</sup> |
| <i>Urocyon cinereoargenteus</i>       | Grey fox                   | SH               | Threatened        |
|                                       |                            |                  | Not Listed        |
| <i>Ammodramus bairdii</i>             | Baird's sparrow            | S2S3B            | Not listed        |
|                                       |                            |                  | Endangered        |
| <i>Falco peregrinus</i>               | Peregrine falcon           | S1B, SZN         | Threatened        |
|                                       |                            |                  | Endangered        |
| <i>Buteo regalis</i>                  | Ferruginous hawk           | S2B, SZN         | Special Concern   |
|                                       |                            |                  | Threatened        |
| <i>Ixobrychus exilis</i>              | Least bittern              | S3B, SZN         | Threatened        |
|                                       |                            |                  | Not Listed        |
| <i>Lanius ludovicianus</i>            | Loggerhead shrike          | S2S3B, SZN       | Endangered        |
|                                       |                            |                  | Endangered        |
| <i>Charadrius melodus</i>             | Piping plover              | S2B, SZN         | Endangered        |
|                                       |                            |                  | Endangered        |
| <i>Asio flammeus</i>                  | Short-eared owl            | S3S4B, SZN       | Special Concern   |
|                                       |                            |                  | Not Listed        |
| <i>Anthus spragueii</i>               | Sprague's pipit            | S3B?, SZN        | Threatened        |
|                                       |                            |                  | Not Listed        |
| <i>Coturnicops noveboracensis</i>     | Yellow rail                | S4B, SZN         | Special Concern   |
|                                       |                            |                  | Not Listed        |
| <i>Lithobates pipiens</i>             | Northern leopard frog      | S4               | Endangered        |
|                                       |                            |                  | Not Listed        |
| <i>Chelydra serpentina serpentina</i> | Common Snapping Turtle     | S3               | Special Concern   |
|                                       |                            |                  | Not Listed        |
| <i>Danaus plexippus</i>               | Monarch butterfly          | S5               | Special Concern   |
|                                       |                            |                  | Not Listed        |
| <i>Hesperia dacotae</i>               | Dakota skipper             | S2S3             | Threatened        |
|                                       |                            |                  | Threatened        |
| <i>Cypripedium candidum</i>           | Small White Lady's-slipper | S1               | Endangered        |
|                                       |                            |                  | Endangered        |
| <i>Solidago riddellii</i>             | Riddell's Goldenrod        | S1               | Special Concern   |
|                                       |                            |                  | Threatened        |
| <i>Vernonia fasciculata</i>           | Western Ironweed           | S1?              | Not Listed        |
|                                       |                            |                  | Endangered        |

**Animal And Plant Species Of Conservation Concern Potentially  
Inhabiting The Project Study Area**

| Scientific Name            | Common Name | CDC <sup>1</sup> | SARA              |
|----------------------------|-------------|------------------|-------------------|
|                            |             |                  | MESA <sup>2</sup> |
| <i>Celtis occidentalis</i> | Hackberry   | S1               | Not Listed        |
|                            |             |                  | Threatened        |

Source: Manitoba Conservation Data Centre 2004

<sup>1</sup> Conservation Data Centre Rank

<sup>2</sup> SARA listing on top and MESA listing on bottom

S1 - Critically imperiled because of extreme rarity (5 or fewer occurrences)

S2 - Imperiled because of rarity (6-20 occurrences)

S3 - Rare or uncommon (on the order of 21-100 occurrences)

S4 - Apparently secure, with many occurrences (>100)

## **Appendix F**

### **Fish Species Known or Expected to Reside in the Fork River, Manitoba**



### Fish Species Known or Expected to Reside in the Fork River, Manitoba

| Genus   | Species              | Common Name            | Range          |
|---|----------------------|------------------------|----------------|
| <b>Cyprinidae Family</b>  |                      |                        |                |
| <i>Hybognathus</i>  | <i>hankinsoni</i>    | Brassy minnow          | C <sup>1</sup> |
| <i>Luxilus</i>  | <i>cornutus</i>      | Common shiner          | U <sup>2</sup> |
| <i>Semotilus</i>  | <i>margarita</i>     | Pearl dace             | U              |
| <i>Notropis</i>   | <i>heterolepis</i>   | Blacknose shiner       | U              |
| <i>Phoxinus</i>   | <i>eos</i>           | Northern redbelly dace | C              |
| <i>Phoxinus</i>   | <i>neogaeus</i>      | Finescale dace         | U              |
| <i>Pimephales</i>   | <i>promelas</i>      | Fathead minnow         | C              |
| <i>Rhinichthys</i>  | <i>atratus</i>       | Blacknose dace         | C              |
| <i>Rhinichthys</i>  | <i>cataractae</i>    | Longnose dace          | U              |
| <i>Semotilus</i>  | <i>atronaculatus</i> | Creek chub             | U              |
| <b>Catostomidae Family</b>  |                      |                        |                |
| <i>Catostomus</i>   | <i>commersonii</i>   | White sucker           | C              |
| <i>Moxostoma</i>  | <i>anisurum</i>      | Silver redhorse        | U              |
| <b>Esocidae Family</b>  |                      |                        |                |
| <i>Esox</i>   | <i>lucius</i>        | Northern pike          | C              |
| <b>Gasterosteidae Family</b>  |                      |                        |                |
| <i>Culaea</i>   | <i>inconstans</i>    | Brook stickleback      | C              |
| <b>Percidae Family</b>  |                      |                        |                |
| <i>Etheostoma</i>   | <i>exile</i>         | Iowa darter            | U              |
|   | <i>nigrum</i>        | Johnny darter          | U              |
| <i>Perca</i>  | <i>flavescens</i>    | Yellow perch           | C              |
| <i>Perina</i>   | <i>caprodes</i>      | Logperch               | U              |
| <p>Source: Manitoba Conservation and Water Stewardship 2013</p> <p><sup>1</sup> C – Common</p> <p><sup>2</sup> U – Uncommon</p> <p>Note: Common defined as more than ten, uncommon defined as less than ten as per Biggin, Wade. 2013. Telephone between Wade Biggin, Fisheries Technician, Fisheries Branch, Manitoba Conservation and Water Stewardship and Jacqueline Reidy, Biologist, Stantec Consulting Ltd. April 4, 2013.</p> |                      |                        |                |



## **Appendix G**

### **Population Demographics for the RM of Mossey River, Manitoba (2006 and 2011)**





**Population Demographics for the RM of Mossey River, Manitoba (2006 and 2011)**

|   | RM of Mossey River<br>2011 |     | RM of Mossey River<br>2006 |     | Province of<br>Manitoba<br>2011 | Province of<br>Manitoba<br>2006 |
|---|----------------------------|-----|----------------------------|-----|---------------------------------|---------------------------------|
|   | Total<br>Population        | %   | Total<br>Population        | %   | %                               | %                               |
| Total Population                        | 540                        | 100 | 615                        | 100 | 100%<br>(1,208,270)             | 100%<br>(1,148,400)             |
| 0 to 4 years                            | 20                         | 4   | 20                         | 3   | 6                               | 6                               |
| 5 to 9 years                            | 25                         | 5   | 30                         | 5   | 6                               | 6                               |
| 10 to 14 years                          | 30                         | 6   | 55                         | 9   | 7                               | 7                               |
| 15 to 19 years                          | 40                         | 8   | 65                         | 11  | 7                               | 7                               |
| 20 to 24 years                          | 30                         | 6   | 15                         | 2   | 7                               | 7                               |
| 25 to 29 years                          | 5                          | 1   | 15                         | 2   | 6                               | 6                               |
| 30 to 34 years                          | 10                         | 2   | 25                         | 4   | 6                               | 6                               |
| 35 to 39 years                          | 25                         | 5   | 35                         | 6   | 6                               | 6                               |
| 40 to 44 years                          | 30                         | 6   | 40                         | 7   | 6                               | 8                               |
| 45 to 49 years                          | 40                         | 8   | 55                         | 9   | 7                               | 8                               |
| 50 to 54 years                          | 60                         | 11  | 55                         | 9   | 7                               | 7                               |
| 55 to 59 years                          | 55                         | 10  | 60                         | 10  | 7                               | 6                               |
| 60 to 64 years                          | 55                         | 10  | 35                         | 6   | 6                               | 5                               |
| 65 to 69 years                          | 30                         | 6   | 35                         | 6   | 4                               | 4                               |
| 70 to 74 years                          | 25                         | 5   | 40                         | 7   | 3                               | 3                               |
| 75 to 79 years                          | 25                         | 5   | 20                         | 3   | 3                               | 3                               |
| 80 to 84 years                          | 15                         | 3   | 5                          | 1   | 2                               | 2                               |
| 85 years +                              | 10                         | 2   | 10                         | 2   | 2                               | 2                               |
| Median Age of<br>Population             | 50.4                       |     | 45.5                       |     | 38                              | 38.1                            |
| % of Population<br>aged 15+             | 87                         |     | 83.7                       |     | 81                              | 80.4                            |
| Source: Statistics Canada 2012 and 2007 |                            |     |                            |     |                                 |                                 |



# **Appendix H**

## **Significance Determination**



## Assessment Parameters

Determining “significance” involves scientific analyses and interpretation of the capacity of potential post-mitigation or benefits-enhancement scenarios to be free of, or to have reduced potential for adverse effects. The following parameters were relied upon in the EIA to evaluate the significance of environmental effects:

- Nature of the effects (positive, neutral, or negative/adverse).
- Temporal boundaries (when the effect would occur and if the Project effects can be reversed):
  - Frequency of the effect (how often the effect occurs, e.g., once, sporadic, or continuous).
  - Duration of the effect (how long the effect would last, i.e., short-term, immediate-term, or long-term).
  - Reversibility of the effect (within the timeframe of the Project).
- Spatial boundaries or the geographic extent of the potential effect (area where the effect would be limited to, i.e., the Project Site, local area, regional scale, or global scale).
- Ecological/sociological context (potential effects of the Project on highly valued features [e.g., culturally or historically significant areas; protected species]).
- Uncertainty (determine if the overall effect is unknown or indefinable).

## Approach to Determining “Significance”

A systematic consideration of the above-noted parameters was relied upon for scoping the assessment of the Project’s effects and creating conclusions about their significance (Figures 7-1 and 7-2), as outlined below:

1. Define the Project.
2. Describe the effect (positive, negative, neutral) and if negative, determine if the impact is reversible (yes or no).
  - Determine whether effect is short-, intermediate- or long-term in nature.
3. Define the spatial extent of the effect:
  - Project Site, local, regional or global.
4. Define if and how the effect acts in a cumulative way with other projects or activities with respect to the spatial extent of the effect (applies to intermediate- and long-term effects occurring at local, regional or global scales).
  - It is assumed that effects, which are short-term in nature, or restricted to the Project Site, are not able to act cumulatively.
5. Define if the uncertainty associated with the assessment of the effect is acceptable.
  - If unacceptable, then the effect cannot be assessed further (and monitoring may be needed to create data needed to resolve the uncertainty).
6. Define the magnitude of the effect.
  - Is it likely that the effect will exceed an ecological or socio-cultural threshold that is identified within provincial or federal legislation, statutes or applicable regulations or guidelines? (If such a threshold is exceeded, then the effect is deemed “significant.”)

The final step is to make a professional judgment about the significance of the effect (this consideration is generally applied only to adverse effects, i.e., “impacts”). Figure 7-2 summarizes the following approach to determining whether long-term adverse effects are “significant”:

- All impacts (after the integration of any potential cumulative effects) found (or judged) to be in excess of established regulatory ecological or socio-cultural thresholds are considered to be “significant.”

- Irreversible Long-Term Effects:
  - All long-term irreversible effects that are global in scope are considered to be “significant” (e.g., the Project being evaluated is going to permanently alter the world).
  - All high-magnitude, long-term, irreversible effects are considered to be “significant” (e.g., the Project is going to have a permanent and obvious effect).
  - All moderate-magnitude, long-term, irreversible effects, which are regional in scope, are considered to be “significant.”
- Reversible Effects:
  - All moderate- and high-magnitude, reversible effects, which are global in scope, are considered to be “significant.”
  - All moderate-magnitude, long-term, reversible effects, which are regional in scope, are considered to be “significant.”

All other Project effects (e.g., reversible, site-specific, and short-term effects) are considered to be “not significant.”

The residual effects of the Project (i.e., after mitigation) are assessed as “significant” or “not significant.” Further to this judgment, a qualitative assessment is conducted of the magnitude of the effects and whether it is positive, neutral, uncertain, or negative.

This process of determining significance of effects considers mitigation measures and incorporates the concept of “cumulative effects” into the assessment before determining whether the effect is “significant.” To determine the potential for cumulative effects, the residual effects of the Project are compared against past, present and future projects that have the potential to act cumulatively with the Project. To achieve this, a period of 10 years was used to assess past and future projects.





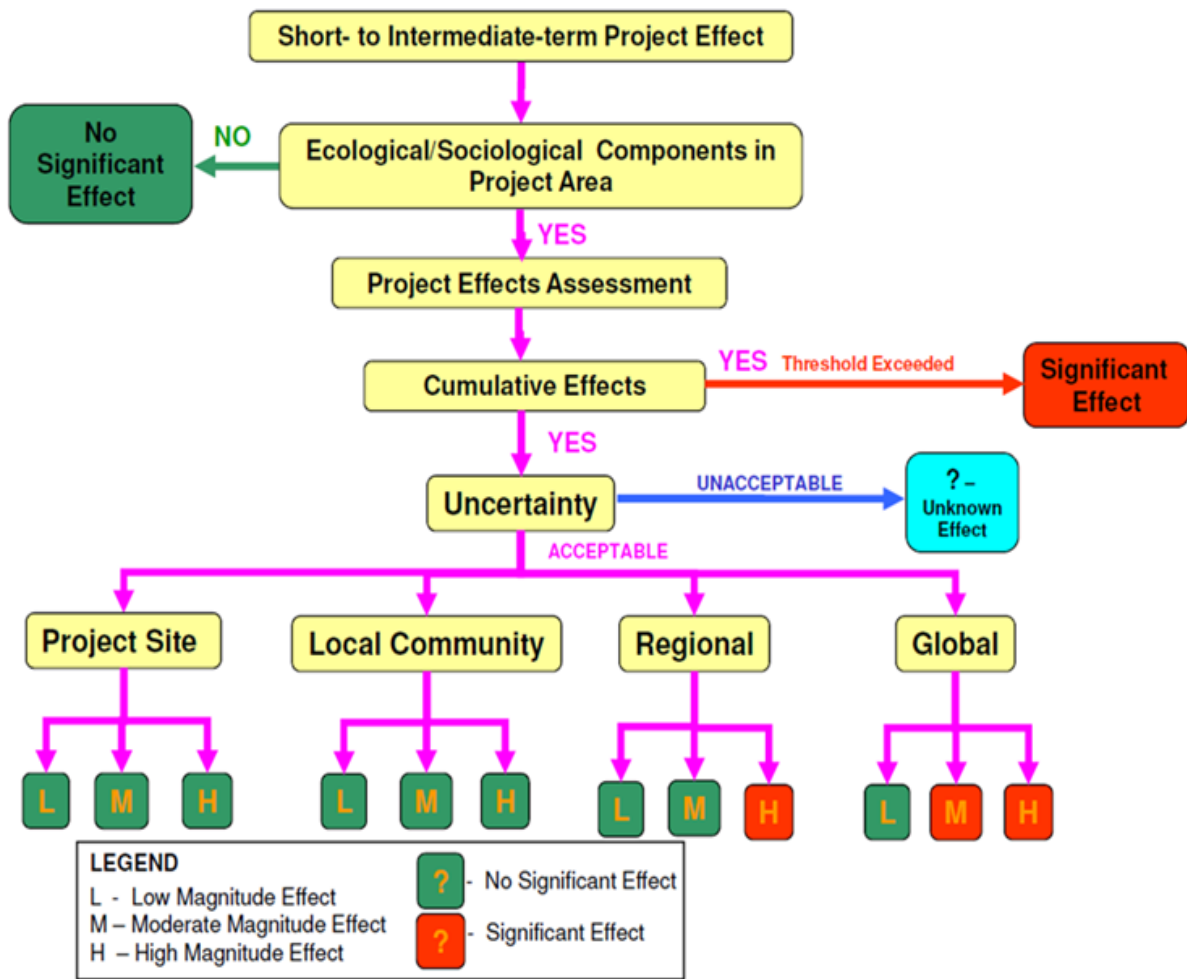


Figure H-1: Decision Tree for Determining Significance of Short- and Intermediate-term Effects

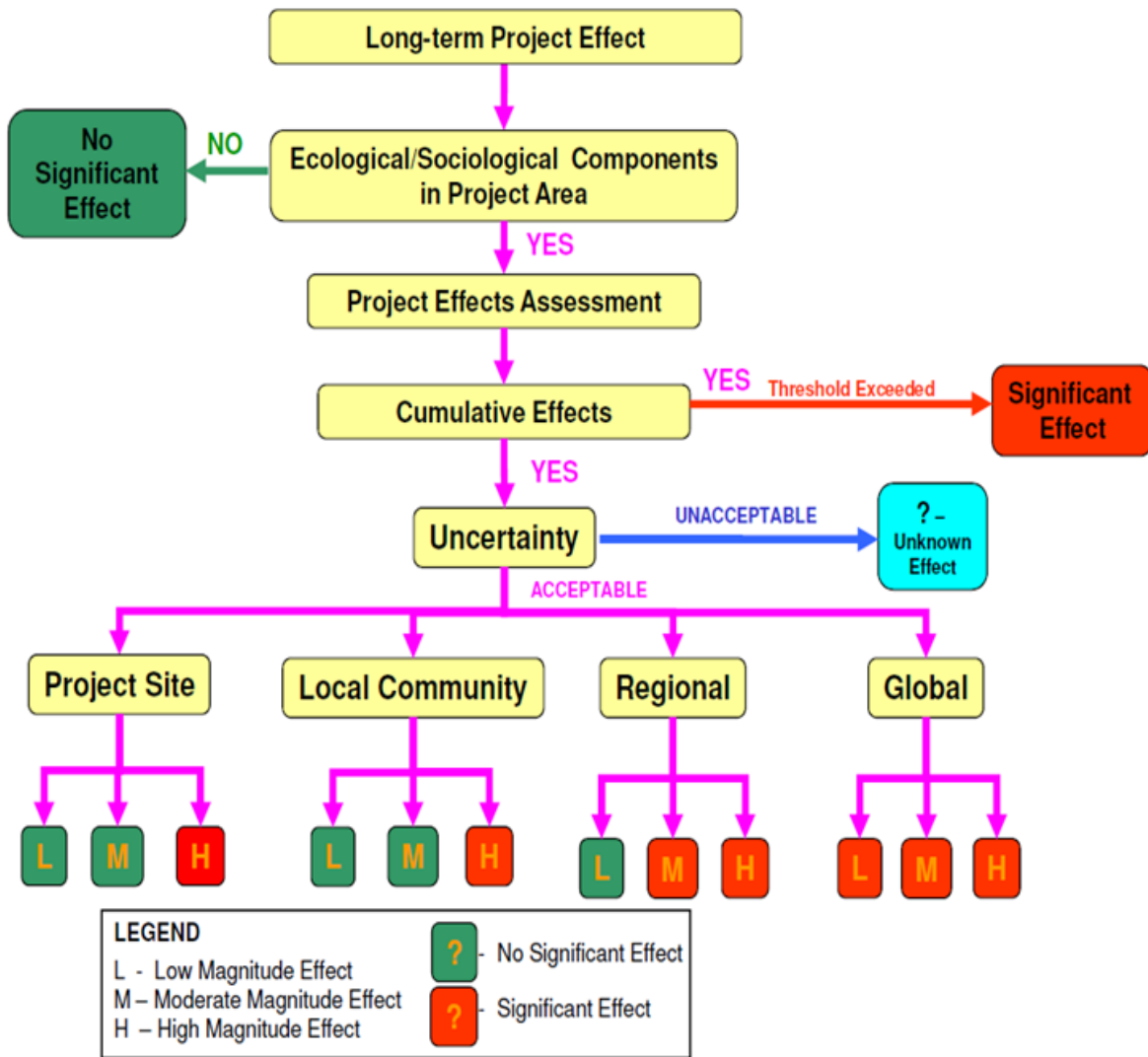


Figure H-2: Decision Tree for Determining Significance of Short- and Intermediate-term Effects

## Environmental Assessment Definitions

Provincial guidelines typically associated with environmental assessments and other federal guidance documents were reviewed and the following list of definitions were developed and used in the environmental assessment of the Project:

- **The Project:** Includes all physical works and activities associated with pre-construction, construction, operations, maintenance and decommissioning.
- **Nature of the Effect:**
  - Positive – effect is beneficial to the environment.
  - Neutral – no change to the environment.
  - Negative – effect is adverse.
- **Temporal Bounds:**
  - Reversibility:
    - Yes – Generally short-term and intermediate-term effects that do not persist in the environment after the application of reasonable Project-related mitigation and rehabilitation.
    - No – A long-term effect that persists in the environment beyond decommissioning of the Project, i.e., remains indefinitely as a residual effect.
  - Frequency:
    - Once – effects are expected to only occur once during the life of the Project.
      - Effects are unique and don't accumulate over the life of the Project.
    - Sporadic – effects are expected to occur occasionally but without any predictable pattern during the life of the Project.
      - Effects may accumulate over the life of the Project.
    - Continuous – effects are reoccurring continuously or periodically during the life of the Project.
      - Effects may accumulate over the life of the Project.
  - Duration:
    - Short-term effect – occurs for small proportion of the life of the Project, e.g., construction and operational manner.
      - The most common short-term effects are associated with preconstruction, construction, maintenance, and decommissioning activities.
    - Intermediate-term effect – occurs over most or all of the life of the Project.
      - The most common intermediate-term effects are related to Project operations.
    - Long-term effects – occurs beyond the life of the Project.
      - Effects cannot be mitigated and persist beyond any reasonable rehabilitation effort after decommissioning.

- **Physical Bounds:**
  - Spatial Bounds:
    - Project Site – defined by area of physical work or activities.
    - Local Area – defined by area of measurable influence of the physical work or activities.
      - This area will vary, depending on the component being evaluated, e.g., it may be the area of response to noise for wildlife, but for socio-economic environment it may be the recruitment area the workforce and where earned salaries are spent.
    - Regional – defined by the administrative districts used to manage the potentially affected environmental component.
      - For terrestrial wildlife ecodistricts, major basins and watersheds for aquatic organisms, and political boundaries including Rural Municipalities regarding socio-economic parameters.
    - Global Area – defined as the world.
  
- **Magnitude of Effect:**
  - Low – effects are anticipated to be within the range of natural variability and therefore cannot be quantified.
  - Moderate – effects exceed natural variability and could be quantified with a well-designed monitoring program.
  - High – effects are obvious and can be easily observed and described.
  
- **Ecological/Sociological Context:**

Defined as highly valued features (culturally significant, historic resources, protected areas, unique areas, etc.), listed species (SARA, MESA, etc.) or other valued species or components (hunting, trapping, air quality, fish habitat, etc.) considered for special management actions.

  - Yes – Project affects valued feature(s) or species.
  - No – Project does not affect valued feature(s) or species.
  - Threshold – an established regulatory value or objective (i.e., disturbance of critical habitat of a listed species, fish habitat HADD, etc., international agreements/national objectives on greenhouse gas emissions, etc.) or in the absence of such a value, an unacceptable or unjustifiable degree of effect given its specific nature.
  - Cumulative effect– defined as a Project-related effect that is the same effect as from a non-Project-related physical works or activities.
    - Short-term effects by definition are reversible and short-lived and therefore will not have a cumulative effect either spatially or temporally.
    - Intermediate-term temporal effects, applicable to the effects of other physical works and activities known to be planned or occurring over the Project’s life including the residual effects of physical works and activities that occurred before the Project.
    - For long-term temporal effects, applicable to all historic, Project-related and hypothetical future physical works and activities.

- **Uncertainty:**

The overall effect is unknown or not definable.

- Acceptable – a hypothetical range of potential effects can be defined and used in the assessment.
- Unacceptable – a hypothetical range of effects cannot be quantified (estimated) or defined sufficiently for use in the assessment.



**Appendix I**  
**Threatened and Endangered Species**  
**Inventory**





### Threatened and Endangered Species List

| Species Name               | Status   |
|----------------------------|--|
| <b>Flora</b>               |  |
| Small white lady's slipper | Endangered, <i>MB ESA</i> and <i>SARA</i>                |
| Riddle's goldenrod         | Threatened, <i>MB ESA</i> ; Special Concern, <i>SARA</i> |
| Hackberry                  | Threatened, <i>MB ESA</i>                                |
| Western ironweed           | Endangered, <i>MB ESA</i>                                |
| <b>Fauna</b>               |  |
| Grey Fox                   | Threatened, <i>SARA</i>                                  |
| Baird's Sparrow            | Endangered, <i>MB ESA</i>                                |
| Peregrine Falcon           | Threatened, <i>SARA</i> ; Endangered <i>MESA</i>         |
| Ferruginous hawk           | Threatened, <i>MB ESA</i>                                |
| Least bittern              | Threatened, <i>SARA</i>                                  |
| Loggerhead shrike          | Endangered, <i>MB ESA</i> and <i>SARA</i>                |
| Piping plover              | Endangered, <i>MB ESA</i> and <i>SARA</i>                |
| Sprague's pipit            | Threatened, <i>SARA</i>                                  |
| Northern leopard frog      | Endangered, <i>SARA</i>                                  |
| Dakota skipper             | Threatened, <i>SARA</i> and <i>MB ESA</i>                |



Small white lady's slipper

Source: Native Orchid Conservation Inc. 2004. Accessed April 2013, Available at:  
[http://www.nativeorchid.org/dorisPlantsUncommon-forCarillon\\_aug2004.htm](http://www.nativeorchid.org/dorisPlantsUncommon-forCarillon_aug2004.htm)



Riddle's goldenrod

Source: Study Blue. 2013. Wetlands. Accessed April 2013. Available at:  
<http://www.studyblue.com/notes/note/n/wetlands/deck/3220866>



**Hackberry**

Source: Saguaro-juniper. 2013. Accessed April 2013. Available at: [http://www.saguaro-juniper.com/i\\_and\\_i/treesNshrubs/desert\\_hackberry/desert\\_hackberry.html](http://www.saguaro-juniper.com/i_and_i/treesNshrubs/desert_hackberry/desert_hackberry.html)



**Western Ironweed**

Source: The University of Texas at Austin. 2013. Accessed April 2013. Available at: [http://www.wildflower.org/plants/result.php?id\\_plant=VEBA](http://www.wildflower.org/plants/result.php?id_plant=VEBA)



**Grey Fox**

Source: McGill. 2013. Accessed April 2013. Available at:  
[http://canadianbiodiversity.mcgill.ca/english/species/mammals/mammalpages/uro\\_cin.htm](http://canadianbiodiversity.mcgill.ca/english/species/mammals/mammalpages/uro_cin.htm)



**Baird's Sparrow**

Source: Larkwire. 2013. Accessed April 2013. Accessed at: <http://www.larkwire.com/library/bird-sounds/1838/Baird's-Sparrow-songs-and-calls>



**Peregrine Falcon**

Source: Martin Eager. 2013. Accessed April 2013. Available at: <http://year5ablogging.blogspot.ca/>



**Ferruginous Hawk**

Source: Blogspot. 2013. Accessed April 2013. Available at:  
<http://newallwallpaper.blogspot.ca/2012/07/ferruginous-hawk-pictures.html>



**Least Bittern**

Source: Birdsart. 2013. Accessed April 2013. Available at: <http://www.birdsasart.com/bn270.htm>



**Loggerhead Shrike**

Source: The University of Santa Cruz. 2013. Accessed April 2013. Available at: [http://ucsantacruz.ucnrs.org/?page\\_id=1468](http://ucsantacruz.ucnrs.org/?page_id=1468)



**Piping Plover**

Source: The Nature Conservancy. 2013. Piping Plover. Accessed April 2013. Available at: [http://www.natureconservancy.ca/en/what-we-do/resource-centre/featured-species/piping\\_plover.html](http://www.natureconservancy.ca/en/what-we-do/resource-centre/featured-species/piping_plover.html)



**Sprague's pipit**

Source: The Nature Conservancy. 2013. Accessed April 2013. Available at: <http://www.natureconservancy.ca/en/where-we-work/saskatchewan/stories/adventures-at-shoe-lake-west.html>



**Northern Leopard Frog**

Source: Nature Watch. 2013. Accessed April 2013. Available at:  
[http://www.naturewatch.ca/english/frogwatch/species\\_details.asp?species=13](http://www.naturewatch.ca/english/frogwatch/species_details.asp?species=13)



**Dakota Skipper**

Source: Wikipedia. 2013. Accessed April 2013. Available at:  
[http://en.wikipedia.org/wiki/File:Compton\\_Tortoiseshell.jpg](http://en.wikipedia.org/wiki/File:Compton_Tortoiseshell.jpg)



## **Appendix J**

# **Transport Canada *Navigable Waters Protection Act* Approval**





Transport Canada Transports Canada

Navigable Waters Protection Program  
Canada Place  
Edmonton Alberta T5J 4E6

Your file Votre référence

Our file Notre référence  
8200-2011-600084



**REGISTERED MAIL**

**JAN 29 2013**

Rural Municipality of Mossey River  
Box 80  
100 2 Avenue East  
Fork River, MB R0L 0V0

Attention: Larry Zurba

**RE: Application under the *Navigable Waters Protection Act* for Approval of a causeway, located on Fork River, Province of Manitoba**

Enclosed please find an Approval for the above-noted work signed on behalf of the Minister of Transport, Infrastructure and Communities pursuant to subsections 5(1) and (2) of the *Navigable Waters Protection Act (NWPA)*.

Ensure to review your Approval in its entirety and acknowledge receipt via the contact information provided below. In particular, note that your Approval carries a validity period and therefore it will be necessary to seek Re-Approval prior to the expiry date.

Please note that you must comply with the terms and conditions in the attached Approval document as well as any other requirements under the *NWPA*, its regulations and other relevant legislation.

**Should you have any questions, please do not hesitate to contact our office in Edmonton by phone at (780) 495-8215, by fax at (780) 495-8607 or by e-mail at [NWP-PEN.PN@tc.gc.ca](mailto:NWP-PEN.PN@tc.gc.ca).**

Respectfully,

Greg Black  
A/Regional Manager  
Navigable Waters Protection Program  
Marine Safety  
Transport Canada  
Prairies and Northern Region

cc: Stantec Consulting Ltd – Justin Dahl

Enclosure

**Canada**

NAVIGABLE WATERS PROTECTION ACT (R.S.C. 1985, c. N-22) as amended by Part 7 of the *Budget Implementation Act*, 2009, S.C. 2009, c. 2 (*Navigable Waters Protection Act*), PART I  
Subsections 5(1) and (2) – Substantial Interference

8200-2011-600084

## Approval

**APPLICANT:** Rural Municipality of Mossey River  
Box 80  
100 2 Avenue East  
Fork River, Manitoba R0L 0V0

**WORK:** Causeway

**SITE LOCATION:** Located at Approximately 51° 31' 14.73" N x 100° 12' 20.8" W, Fork River, East Section 28, Township 29, Range 20, WPM, Province of Manitoba

**IMPORTANT NOTICE:** This document approves the work in terms of its effect on marine navigation pursuant to the *Navigable Waters Protection Act*. In accordance with the *Navigable Waters Protection Act*, the work must be built, placed, maintained, operated, used and removed as per this Approval including the Terms and Conditions listed below and attached plans as well as regulations made pursuant to the *Navigable Waters Protection Act*.

It is the applicant's responsibility to obtain any other forms of approval, including building permits, under any applicable laws.

**WHEREAS** the above-named applicant has made application to the Minister of Transport, Infrastructure and Communities under the *Navigable Waters Protection Act* for approval of the above-referenced work at the above-described site in accordance with the attached plan(s);

**WHEREAS** it is considered advisable to approve the said work at the said site and plan(s) thereof for a period of 35 years pursuant to the the Schedule referred to in subsection 3(1) of *the Navigable Waters Works Regulations*;

**THEREFORE**, the Minister of Transport, Infrastructure and Communities, pursuant to subsections 5(1) and (2) of the *Navigable Waters Protection Act*, hereby approves the said work at the said site and plan(s) thereof in accordance with the following terms and conditions:

1. A portage shall be maintained to provide access around the site at all times for the duration of the works, including construction during the navigation season.
2. Signs shall be placed at the portage's upstream and downstream access points, advising boaters of the portage route.

3. The placement of any in-stream compensation under the *Fisheries Act* shall be subject to a separate application for 'Approval' under the provisions of Section 5 of the *Navigable Waters Protection Act*.

Signed at Edmonton, Alberta on JAN 29 2013



Greg Black  
A/Regional Manager  
Navigable Waters Protection Program  
Marine Safety  
Transport Canada  
Prairies and Northern Region

for the Minister of Transport, Infrastructure and  
Communities