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## **9.0 Environmental Mitigation**

This section provides a summary of the environmental mitigation measures as applicable to the design, construction, and operational phases of the Project.

### **9.1 General**

Since there is a potential for adverse effects during all phases, it is important to recognize the importance of the mitigation measures that were prescribed for the potential effects that were identified in Section 8.0, Environmental Effects Assessment. The Project will ensure that any measures taken to mitigate adverse environmental effects will be effective, primarily through the implementation of monitoring and follow-up programs, discussed in Section 10.0.

Section 8.0 Environmental Effects, identifies mitigation measures to reduce or minimize the significance of, or altogether eliminate potential environmental effects. Mitigation measures to be implemented throughout the life of the Project are listed according to the main Project phases - design; construction; monitoring; operation; and rehabilitation.

Environmental Protection Guidelines and Best Management Practices contained within Appendix 7.1 and 7.2, respectively will be used during the design of the Project and as supporting documentation for the development of Environmental Management Plans pertinent to the construction and operations of the ASR.

Mitigation, with respect to a project, is defined as the elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.

Mitigation may include:

- Avoiding a specific effect altogether by not taking a certain action or parts of an action;
- Minimizing effects limiting the degree or magnitude of the action and its implementation;
- Rectifying the effect by repairing, rehabilitating or restoring the affected environment;
- Reducing or eliminating the effect over time by preservation and maintenance operations during the life of the action; and
- Compensating for the effect by replacing or providing substitute resources or environments.

The environmental effects of the Project have been addressed in Sections 8.1 through 8.10. One of the key mitigation measures is the development of Environmental Management Plan (EMP) addressing both the construction and operational phases of the Project. A description of the EMP is found in Section 9.8.

## **9.2 Design Phase**

The detailed design phase of the ASR will commence in 2009. Design related mitigation measures include

- Design for safe traffic operation and snow clearing in accordance with applicable Manitoba Infrastructure and Transportation standards for all-season highways in remote areas as well as other appropriate design standards and guidelines;
- Design of bridges and culverts to effectively handle surface water drainage during periods of high run-off (1 in 100 year storm) to ensure efficient passage of storm water and to minimize the potential for backwater ponding and flooding;
- Design of watercourse crossing structures will be designed to meet DFO criteria for fish passage;
- Placement of geotextile matting and scrub trees/brush where beneficial to reduce the effect of peat compression;
- Alignment refinement to minimize or avoid sensitive areas or features of concern (archaeological, heritage or cultural sites, sensitive wildlife habitat, etc.);
- Alignment optimization to minimize the need for fill materials;
- Optimization of the location of quarries, borrow pits, construction camps, construction staging areas and construction access roads to minimize environmental effects;
- Development of an Environmental Protection Plan containing policies, procedures, guidelines and best management practices for various aspects of the ASR project;
- Development of environmental protection and monitoring clauses in the construction specifications;
- Design of stream crossings that minimize the harmful alteration, disruption or disturbance to fish habitat such as clear-span bridges over wide spans that minimize the need for pier structures in the watercourse;
- Development of fish habitat compensation plans in accordance with Section 35 of the Fisheries Act, in areas where the alteration, disturbance or destruction of fish habitat might occur, in collaboration with the Department of Fisheries and Oceans (DFO);
- Scheduling of construction activities to minimize adverse environmental effects on VECs such as the timing of instream work to avoid sensitive spawning periods in the spring, the timing of blasting activities to avoid calving periods, etc; and

- Design of wildlife deterrents such as access controls in area of identified wildlife/vehicular conflicts.

### **9.3 Construction Phase (including Decommissioning of Temporary Facilities)**

#### **9.3.1 Construction Activities and Mitigation Measures**

Following the detailed design phase, construction phase activities are expected to commence in the Fall of 2010. It is expected the construction phase will extend over a period of approximately 42 months, with substantial completion by March 2014 (assuming a start date in the Fall of 2010). Major construction activities during this time may include: clearing and grubbing of a new right-of-way and road foundation; clearing and grubbing of construction access roads and quarry and rock crushing facilities (exact locations to be determined during detailed design); blasting and crushing of quarry materials; and for the final road structure, construction will consist of a crushed rock subgrade, a sand layer and a graded aggregate surface, the materials for which will be supplied for various quarries and borrow sites along the alignment. All applicable permits and approvals will be obtained prior to construction and decommissioning activities.

Mitigation measures that will be implemented during the construction phase through the application of environmental protection requirements from, permitting requirements, Environmental Management Plan and related construction specifications:

Key aspects of these requirements are detailed in Appendix 7 in the Environmental Protection Guidelines that includes ESRA's environmental policy (Appendix 7.1), Best Management Practices (Appendix 7.2), and the Emergency Response Plan (Appendix 7.3).

Key aspects include the application, where appropriate, of the following:

- erosion and sedimentation control measures to avoid sedimentation of receiving waterways such as:
  - minimize slope degradation and erosion during excavation and placement of fill and road base materials such as slope texturing, riprap armouring, berms, silt fencing, rolled erosion control products, and soil tackifiers as part of a short-term erosion and sediment control strategy as appropriate.
  - part of a long term/final erosion and sediment control/rehabilitation strategy through re-vegetation such as mulching, seeding, planting trees and shrubs. as appropriate.
  - control sediment and erosion along the right-of-way at watercourse crossings, including silt fencing, riparian zone preservation, cofferdams, temporary stream diversions, turbidity curtains primarily in areas of fill placement and excavation, and in areas of watercourse structure construction; as appropriate.

- control instream sedimentation through the use of clean course materials as appropriate.
- dust control such as watering (seasonal); chemical suppressant; covering of stockpiles and berms as appropriate.
- noise control such as proper scheduling of construction activities to minimize noise effects from blasting and heavy equipment operation near inhabited areas and notice to affected parties.
- protect the public, land users and construction workers through restrictions on access to work areas and provide safety setbacks from construction activities such as blasting areas.
- spill prevention including minimum setbacks for vehicle maintenance and refuelling near watercourses, accidental spill response plans and training, and available spill kits.
- Employ hazardous material and waste storage, handling, disposal procedures to avoid accidental discharges and provide for safe and secure storage and handling through a WHMIS system and setbacks from sensitive areas such as waterways.
- Employ appropriate wastewater storage and handling procedures, systems and to prevent accidental release and provide for disposal in accordance with provincial requirements.
- Restrict winter trail access and access to areas adjacent to the ASR and construction access roads for hunting and fishing in order to minimize effects to wildlife and traditional use activities.
- Minimize timber harvest within and adjacent to the right-of-way and along construction access roads to avoid.
- Decommission construction facilities and access routes once no longer required to limit hunting pressures on wildlife, reduce habitat fragmentation by:
  - Rehabilitating facilities such as temporary construction access roads; construction camps, construction staging areas and (some) quarries and rock crushing facilities removing wastes, impacted soils and closing access to wildlife areas.
  - rehabilitating all areas that were disturbed by construction including: roadside slopes, streambanks, streambeds, and stockpile areas.
  - Close access to those segments forming the permanent all season road to provide for re-growth of the boreal forest.

### **9.3.2 Fish Habitat Compensation Opportunities – Construction Phase**

#### **Requirement for Fish Habitat Compensation**

Construction of some watercourse crossings along PR 304 to Berens River ASR may result in unavoidable alteration or destruction of fish habitat, despite implementation of mitigation measures that will minimize and avoid effects to the extent possible. Under terms of s. 35 of the federal *Fisheries Act*, an unavoidable Harmful Alteration, Disruption, or Destruction (HADD) of fish habitat can be authorized in some circumstances, conditional upon commitment to a habitat compensation plan approved by DFO.

The intent of a habitat compensation plan, on a project-by-project basis, is to maintain the productive capacity of the habitat available to fish that directly or indirectly support a fishery, based on a No Net Loss guiding principle. Habitat compensation plans are generally implemented through the rehabilitation or creation of habitat similar to that lost through the HADD. To ensure No Net Loss of productive capacity, a conservative approach is often stipulated, in that more fish habitat must be created through the compensation plan than is lost through the HADD, often at a ratio of 2:1.

At crossings along the ASR, examples of HADD may include:

- Loss of habitat within the stream channel (e.g., placement of a culvert and roadbed fill below the high water mark of the channel);
- Loss of floodplain habitat (within the footprint of the roadbed along the approaches to a stream); and,
- Loss of bank or riparian vegetation within the cleared ROW.

With proper implementation of best management practices such as slope texturing, straw bale barrier, check dams, temporary stream diversions, energy dissipaters, planting trees and shrubs, turbidity curtains, cofferdams and riparian zone vegetation including erosion and sediment control and scheduling to prevent disturbance of fish during sensitive life stages, HADD associated with temporary disturbance of habitat during construction will be avoided through mitigation. Therefore, HADD will be limited to the permanent alteration or destruction of habitat associated with the installation of permanent crossing structures and establishment of the cleared ROW.

The approximate maximum area of in-stream habitat to be lost at each crossing along the ASR will be approximately the width of the stream channel times the width of the roadbed piers, or length of the culvert (approximately 30 m). However, actual habitat losses will likely be less, particularly along the portion of the ASR south of the Bloodvein River, as habitat losses will be incremental to that already within the footprint of the existing Rice River Road. Maximum riparian habitat losses will be approximately 60 m wide on each side of each crossing (the width of the cleared portion of the ROW). However, as low vegetation will be left intact, and as most streams are bordered only by low vegetation in their present (natural) condition, riparian clearing will be less than this maximum.

The potential for HADD exists at 21 proposed watercourse crossings however, based on current design information, HADD ten of these crossings will be minimized or avoided through construction of single-span bridges.

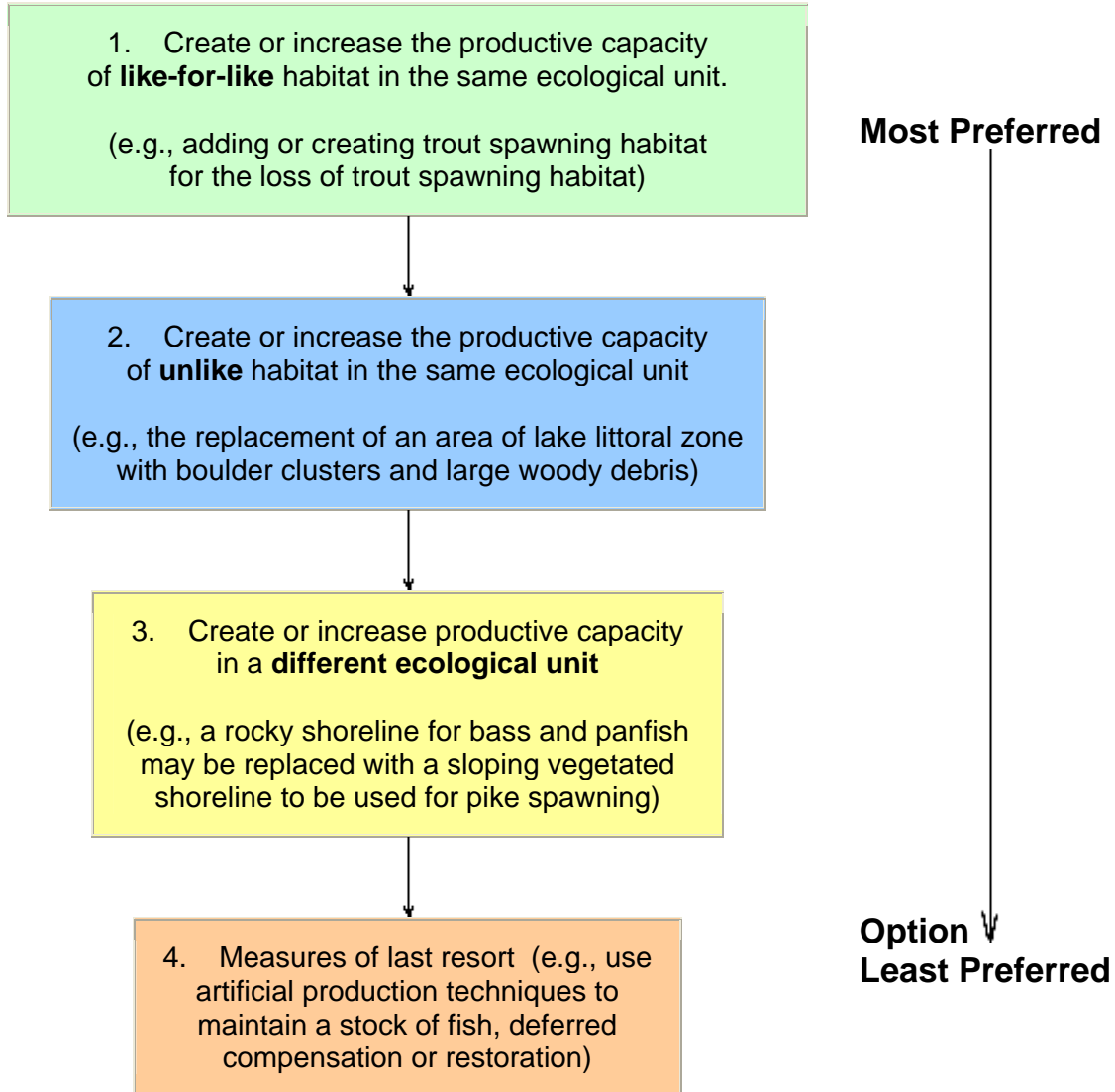
Based on the above information, the maximum area of HADD that may result from the project will be approximately 30 m of in-stream habitat and 60 m of riparian habitat at each of 11 to 17 crossings. As discussed, the actual area of HADD will be considerably less, to be determined from additional design detail. Based on stream widths as determined from low-level ortho-imagery collected in 2009, the approximate in-stream habitat to be potentially impacted varies between 210 m<sup>2</sup> and 2,310 m<sup>2</sup>, for a total area of 11,100 m<sup>2</sup> (Table 3-4). As described above, construction in the riparian zone will not necessarily impact riparian vegetation, however the approximate riparian area to be potentially impacted, based on the 60 m ROW, is 14,460 m<sup>2</sup>. Prior to construction of the crossings, design detail with sufficient information to quantify the area of each type of habitat to be impacted at the crossings will be submitted to DFO in application for site-specific project approval

### **Habitat Compensation Options**

When considering options for fish habitat compensation, creation or rehabilitation of habitat close to the site of habitat loss (within the same ecological unit or stream, supporting the same stock or species) is preferred over off-site compensation. Figure 9-1 illustrates the Hierarchy of Compensation Options that DFO has established for consideration in the development of compensation proposals for project-specific Fisheries Authorizations.



**Figure 9 - 1: Hierarchy of Compensation Options**



Source: DFO – Practitioners Guide to Habitat Compensation

Compensation can be achieved through rehabilitation of degraded in-stream or riparian habitats (typically arising from anthropogenic development or disturbance), or, less commonly, enhancement or creation of limiting habitat (e.g. creation of deep pools in an otherwise shallow stream system). Both types of compensation are most readily affected in areas of prior disturbance or degradation, as alteration of natural habitat is rarely endorsed.

As the ASR will traverse terrain with little anthropogenic development, opportunities for fish habitat compensation within the immediate area of the ASR alignment are scarce.

In July 2009, the alignment and surrounding area were surveyed by low-level helicopter flight, with focus on crossings of streams by hydro lines, winter roads, and abandoned forestry access roads. The crossings observed were neither actively eroding nor prone to erosion, generally being stabilized by dense, well-established vegetation that included grasses, sedges and willows. During examination of the larger rivers upstream and downstream of the ASR alignment as far as Lake Winnipeg, no areas of habitat degradation or risk were apparent.

Due to the apparent lack of habitat compensation opportunities in the immediate area of the ASR, an exploration of opportunities outside the area has been initiated. However, efforts will continue to identify opportunities within the region. Following initial focus on the rivers crossing the ASR alignment, the search for opportunities was expanded to include other tributaries to Lake Winnipeg, as these tributaries support the same fisheries supported by the east-side tributaries.

Whereas opportunities are continuing to be identified and verified, early findings indicate that abundant opportunities exist to compensate habitat losses at the potential HADDs along the ASR, as discussed below.

#### **Potential HADD Compensation Options in the Project Area**

Within the Berens River community, road crossings adjacent to the Berens River have been identified that do not meet DFO criteria for provision for fish passage (UMA Engineering Ltd., 2006). Pending confirmation of authority/responsibility for these roads, upgrade of these crossings may provide opportunity for fish habitat enhancement as compensation for HADD.

#### **Potential HADD Compensation Options Outside of the Project Area**

In the Fisher River, which flows into the west side of the north basin of Lake Winnipeg immediately across from the ASR alignment, several low-level crossings have been constructed with culverts that are hydraulically insufficient for the flows in the river. These crossings pose a barrier to fish passage under a variety of flow conditions, and tend to wash out during high flows, resulting in sediment release to the river (AECOM, 2009). Their replacement with a crossing structure designed to meet DFO criteria for fish passage could represent a fairly large compensation plan due to the large areas of habitat that could be made accessible during high flows.

Studies conducted for the East Interlake Conservation District have identified approximately 122 sites of in-stream and riparian habitat degradation that may provide opportunities for fish habitat enhancement and rehabilitation in the Icelandic River, Washow Bay Creek, and smaller streams and drains that flow into the west side of the south basin of Lake Winnipeg (North/South Consultants Inc., 2007a, 2007b, 2008a, 2008b).

In a study conducted for the Manitoba Floodway Authority, 497 sites for potential habitat compensation were identified in the Red River watershed (Golder, 2009). These sites included areas of destabilized and eroding shorelines, riparian degradation, and poorly-designed or unstable stream crossings.

#### **9.4 Operations and Maintenance Phase**

The operations and maintenance phase is expected to start in 2014 (perhaps earlier in some segments). At the time of operation, the road will become part of the provincial roadway network and subject to controls and enforcement under the Highway Traffic Act.

Key aspects of these requirements are detailed in Appendix 7 in the Environmental Protection Guidelines that includes ESRA's environmental policy (Appendix 7.1), Best Management Practices (Appendix 7.2), and the Emergency Response Plan (Appendix 7.3).

The following mitigation measures are proposed during the operations and maintenance phases of the project:

- Maintain road surface in good condition, through regular maintenance (including snow and ice clearing) and provide traffic speed signage to minimize environmental effects resulting from accidents and collisions;
- During maintenance activities adhere to spill prevention best management practices and spill response plans;
- Apply environmental protection measures for bridge and culvert maintenance in order to protect waterways, fish habitat and fish passage.
- Restrict access to side roads such as active quarry sites by physical means; such as gated access on routes that cannot be destroyed;
- Installation of signs to warn vehicles of potential ungulate crossings and wildlife fences or other control measures as appropriate;
- Community workshops on road safety, licensing and enforcement of highway traffic laws;

#### **9.5 Rehabilitation Phase**

Rehabilitation activities will occur following the construction phase, and following the operations phase.

As discussed in Section 9.3.1, roads, construction camps, construction staging areas and trails that have been cleared and constructed specifically for construction of the ASR will be closed and rehabilitated immediately following completion of construction. This is expected to minimize access into previously undisturbed areas to reduce potential impacts to moose and caribou populations as a result of increased hunting activity. Side roads necessary for on-going maintenance of the ASR will be gated and securely locked to restrict access.

It is expected that the all-season road, once constructed, will be operational for many years. On-going maintenance and improvement activities will be undertaken during the operations phase, as required to ensure the road remains efficient, safe and reliable. Although not anticipated at this time, the road may require closure and rehabilitation following the end of its useful life. Details concerning the closure and rehabilitation of the Project have not been developed for this EIA as it is recognized that the environment

surrounding the Project will change over the course of the operating life of the road. In addition, regulatory requirements and best management practices pertaining to road rehabilitation are also expected to have changed, potentially providing improved methods that could be applied at the time rehabilitation is required.

ESRA is committed to ensuring that, at the time road closure and rehabilitation is required, a comprehensive analysis of potential effects/mitigation will be undertaken, up-to-date rehabilitation methods and techniques will be employed, affected communities and road users will be involved in the planning process through a comprehensive engagement program, and all applicable regulatory requirements will be met.

## **9.6 Communication and Cooperation with Local Communities**

In addition to the measures outlined above, ESRA is also developing a communications program so that communities within the study area remain informed about the Project, through each phase of development, and are provided an opportunity to provide comments and voice concerns.

Building on community engagement activities conducted to date for the Project, as described in Section 5.0 Environmental Assessment Engagement Program, additional consultation will be undertaken by the Responsible Authority(s) – to be named - during the permitting and approvals that was initiated with public release of this EIA for public and government agency review and approval.

In addition, ESRA continues to explore opportunities for maximizing the involvement of local communities and community members through employment and contracting opportunities; providing training and capacity building in support. Training Memorandum of Understanding with Berens River and Bloodvein First Nations have been signed and others are expected with additional communities

As the Project moves from planning and development/construction into the operations phase, ESRA will provide regular opportunities for community leadership and road users to review monitoring data that is generated, and to provide comments that will lead to improved operations of the roadway.

## **9.7 Implementation of Mitigation**

Mitigation measures will be implemented through plans to be developed during detailed design that will provide detailed procedures and construction specifications outlining requirements and activities to be conducted during construction and operation. Plans that will be developed include:

An Environmental Management Plan (EMP) will be developed for the Project. The implementation of the EMP will be reinforced by the application and use of the Environmental Protection Guidelines (EPGs) and Best Management Practices (BMPs) during construction, and the strict adherence to licences, permits and authorizations. Copies of the EPGs and BMPs are provided in Appendix 7.1 and 7.2, respectively.

Construction of the ASR will be executed by a Prime Contractor(s) with various sub-contractors providing support for specific activities or work areas. ESRA will develop an organizational framework with corresponding roles and responsibilities for the implementation and operation of the EMP prior to commencement of construction activities.

The successful establishment of the EMP for the Project is dependent to a great extent on the definition and assignment of roles and responsibilities for the management of the EMP (Action Plans) by ESRA. ESRA will determine and make available appropriate resources to establish, implement, improve and maintain the EMP. Staffing will be provided in a timely and efficient manner according to the different stages of construction of the project.

The EMP will be implemented on a site-wide basis with all on-site personnel possessing an understanding of their EMP responsibilities as it relates to their individual work activities. ESRA and the Prime Contractor(s) will have several key personnel in their construction management team who will have responsibilities for environmental protection prior to, during and following design and construction. These individuals will generally be responsible for:

- Facilitating implementation of environmental policy;
- Verifying that environmental protection has been included in any detailed construction drawings;
- Conducting environmental inspection during site construction activities;
- Conducting environmental compliance monitoring;
- Implementing the Emergency Response Plan;
- Ensuring that environmental issues and problems are resolved in a timely and sensitive manner; and
- Providing assistance on environmental liaison with stakeholders.

In addition to the EMP will be safety and health and emergency response plans. A Health and Safety Plan (HSP) will be designed to address relevant occupational health and safety procedures that will be implemented during the stages of the ASR construction and operation. The HSP will comply with applicable Manitoba and Federal standards on protection to guarantee that a safe and healthy work environment is developed. All contractors will require COR certification under the plan. The HSP will provide awareness to all employees regarding the following:

- description of working conditions including the identification of hazardous areas or material use,
- any health and safety policies or procedures;
- worker's training in health and safety and first response and emergency prevention; and
- Proper use and protection of natural resources.

An Emergency Response Plan provides procedures to be followed in the event of emergencies such as spills, accidents and other situations that may occur during construction and operation. This is an initial document that will be elaborated upon further during later Project stages.

## **9.8 Environmental Management Plan**

The EMP to be developed during the detailed design stage of the Project, will define plans and procedures to prevent or mitigate all the potential effects of the Project identified in Section 8.0. The EMP will be submitted to the Responsible Authority (RA) for review and approval prior to construction.

The EMP will demonstrate ESRA's commitment to environmental quality, and will outline:

- Procedures for ensuring commitments are met during construction and operation of the Project;
- Plans to adaptively manage adverse effects;
- Procedures for ensuring monitoring and follow-up are implemented correctly;
- Procedures for reporting progress and compliance with the terms and conditions of permits and approvals.

The EMP document will provide specific and unique procedures for the construction phase and the operations phase. The EMP document will include the following components:

- Environmental Protection Plan;
- Erosion and Sediment Control Plan;
- Dust Control Plan;
- Waste Management Plan;
- Hazardous Materials Management Plan;
- Monitoring Plan;
- Decommissioning Plan; and
- Winter Road Closure and Reclamation Plan

Each is briefly described in the sections below. The Monitoring Plan is discussed in Section 10.0. The Monitoring Plan provides procedures to compare pre-project baseline conditions to projected or predicted conditions, and the conditions actually found during the different phases of the project

The following environmental guidelines, operational statements, or strategies will serve a key source documents in developing the EMP and its components;

**DFO Operational Statements;**

- Manitoba Operational Statement for Clear Span Bridges, Version 3.0, Fisheries and Oceans Canada
- Manitoba Operational Statement for Temporary Stream Crossings, Version 1.0, Fisheries and Oceans Canada
- Manitoba Operational Statement for Ice Bridges and Snow Fills, Version 1.0, Fisheries and Oceans Canada
- Manitoba Operational Statement for Beaver Dam Removal, Version 3.0, Fisheries and Oceans Canada
- Manitoba Operational Statement for Maintenance of Riparian Vegetation in Existing Rights-of-Way, Version 3.0, Fisheries and Oceans Canada
- Manitoba Operational Statement for Culvert Maintenance, Version 3.0, Fisheries and Oceans Canada
- Bridge Maintenance, Version 3.0, Fisheries and Oceans Canada – Manitoba Operational Statement

**Federal/Provincial Documents**

- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, Manitoba Department of Natural Resources (DNR) and the Department of Fisheries and Oceans (DFO), 1996.

**Manitoba Guidelines or Strategy Statements**

- Manitoba Conservation and Recovery Strategy for Boreal Woodland Caribou Manitoba Conservation, 2005
- Manitoba Natural Resources Consolidated Buffer Management Guidelines, Manitoba Natural Resources, March 1996.
- Manitoba Water Quality Standards, Objectives, and Guidelines, 2002 - Manitoba Conservation Report 2002-11, Final Draft, November 2002
- Standard Construction Specifications, Manitoba Infrastructure and Transportation, 2008
- Forest Management Guidelines for Riparian Management Areas, Manitoba Conservation Forest Guidebook – Published January 2008

### **Project Specific Documents**

- Manitoba Floodway and East Side Road Authority - Environmental Protection Guidelines (Draft, August 2009) presented in Appendix 7.1 of this document.
- Best Management Practices presented in Appendix 7.2 of this document.

#### **9.8.1 Environmental Protection Plan**

The Environmental Protection Plan (EPP) is intended for use in the field by all site personnel as well as at the corporate level for ensuring commitments made in the EIS, corporate policy statements, permits and approvals are implemented and monitored.

The EPP is a dynamic 'living' document that will be developed during detailed design for implementation at the commencement of construction, and on through operations.

This EPP will provide detailed procedures for ensuring that commitments made in the EIA, elements included in design, and conditions of regulatory approvals, are implemented throughout all phases of Project implementation.

The EPP will provide sections relating to:

- environmental awareness training;
- an overview of environmental concerns and environmental protection procedures associated with a variety of specific anticipated activities related to activities during construction; and
- site-specific EPPs for the principal work areas for the construction of the ASR.

This EPP will be implemented primarily by the Environmental Manager and will be organized to allow project personnel in the field to understand and implement these protection procedures during both planned activities and unplanned events associated with construction activities. The EPP will also serve as an important resource document used to support environmental awareness training of construction contractors, and operations and maintenance staff.

#### **9.8.2 Erosion and Sediment Control Plan**

As discussed in Section 8.0 of this EIA, erosion and sediment release have been identified as potentially significant effects both during construction and throughout operations. To minimize the significance of the potential effects, mitigation measures were identified to be implemented during construction and operations. Measures identified include temporary and permanent control measures, such as silt barriers; re-vegetation; slope stabilization; and diversion ditches. To the extent that is feasible and economically achievable, recommended erosion control measures will be incorporated into Project design, such as minimizing slope lengths and gradients; minimizing the



exposure of exposed/disturbed slopes; and minimizing the size and height of soil stockpiles.

In addition to the above, to ensure adequate protection of watercourses, an Erosion and Sediment Control Plan (ESCP) will be developed during detailed design that provides detailed procedures for the management of construction and operations activities to ensure that controls are in place to minimize the amount of erosion and sedimentation in local watercourses. In addition to providing detailed procedures for construction activities (such as the prescribed use of silt fencing), the ESCP will also provide procedures for monitoring/auditing construction and operations activities, mechanisms for reporting exceedances/non-compliance and procedures for corrective actions where non-compliance has occurred.

### **9.8.3 Dust Control Plan**

A Dust Control Plan will be prepared during detailed design which provides procedures and design measures for the control of dust during construction and operation. Fugitive dust will be generated from wind erosion generated by roadway construction, such as blasting, rock quarrying and crushing, excavation, fill placement and road grading. Stabilization measures, including water and chemical dust suppression (e.g., surfactants), and procedures for application and monitoring, will be identified including procedures to manage non-compliance and corrective action.

### **9.8.4 Waste Management Plan**

The Waste Management Plan (WMP) will include procedures to ensure that the collection, storage, transportation and disposal of all wastes generated will be conducted in a safe, efficient and environmentally compliant manner.

The WMP will identify potential wastes and estimates the quantities that might be generated on site during construction of the Project. The plan will establish consistent and efficient roles and responsibilities to be undertaken by the various site contractors and project personnel and sets guidelines for storing and processing the wastes. The intent is to afford a high degree of control over the handling of waste and ultimately this will help to minimize adverse environmental effects.

The WMP will also make appropriate references to other EMP component Plans with regard to Health and Safety, Hazardous Materials Management, and Emergency Response.

### **9.8.5 Hazardous Materials Management Plan**

The Hazardous Materials Management Plan (HMMP) will describe the handling and storage of hazardous materials during the construction phase of the Project.

All storage areas will be designed, operated, and maintained to provide appropriate levels of containment related to the following:

- Establishment of safe work environment for project personnel, and the surrounding environment and communities;
- Receipt of materials delivered to the site;
- Safe handling of hazardous materials used;
- Safe storage of hazardous materials; and
- Transportation or movement of materials.

All facilities that will be built to store and manage materials will be designed to current provincial and federal standards, and be staffed by personnel who have been provided with appropriate educational, technical, and safety training.

The HMMP will be reviewed on a regular basis and updated or amended to reflect changes in specific activities, process or handling operations, or environmental practices that should be recognized from time to time over the life of the Project.

For the operations phase the HMMP will be adapted to focus on the transportation of hazardous materials over the ASR and the normal maintenance activities that may include the transport, use, and disposal of hazardous materials.

#### **9.8.6 Decommissioning Plan**

A Decommissioning Plan (DP) related to closure and reclamation of temporary construction facilities will be developed during design and a comprehensive decommissioning plan will be prepared early during construction, specifying the activities that will be undertaken during the decommissioning and abandonment phase of the project.

The DP will identify:

- facilities and works areas (that will not be retained for future maintenance activities) for decommissioning;
- areas for progressive closure during construction as areas (e.g. staging areas, borrow pit etc) become available during and at the end of road construction activities; and
- methods for decommissioning and reclamation such as breaking up access roadbeds by surface ripping or discing, recontouring, and revegetation etc.

#### **9.8.7 Winter Road Closure and Reclamation Plan**

This Section provides an overview of closure and reclamation activities to be conducted in the segments of the winter road (WR) between Bloodvein (Sta 0 +100) and Berens River (Sta 156 +000) that will no longer be used as a result of the construction of the Project.

Approximately 115.5 km of the ASR follows the existing winter road and will be constructed over the WR. Approximately 88.3 km of the ASR will be located adjacent to

the existing power distribution line while 68.5 km is new construction in areas not previously disturbed.

In areas where the all-season road alignment does not match the WR alignment, use of the WR will be discontinued once the all-season road is operational. During construction of the all-season road, portions of the existing WR between Bloodvein and Berens River will be required for up to three construction seasons, for the movement of materials and equipment. The road surface will be 20 m to 30 m wide, and will be in service from January to the end of April as long as weather and road conditions permit. As construction proceeds and portions of the all-season road are operational (in the second or third construction seasons), some segments of the WR will no longer be required and can be reclaimed.

A detailed site plan will be developed during the detailed design stage of the Project which will show:

- The finalized alignment of the PR 304 to Berens River all-season road;
- Construction staging and locations of winter roads which are needed for construction; and,
- Winter road segments to be reclaimed.

### **9.8.8 Overview of Reclamation Activities**

As segments of the winter road and any adjacent disturbed areas become available for closure, all signs and other man-made features will be removed from the roadway. In some areas, the locations used for ice bridges in small creeks may require some rehabilitation work to prevent ice damming and impedance of fresh runoff flows.

The long-term closure objectives will be to decommission the winter road to remove all structures, restore natural drainage patterns and promote naturalization of the ground surface. For final reclamation of the WR, the following closure measures will be considered for implementation:

- Clearing of all structures;
- Decontamination of the original disturbed ground, if applicable;
- Grading and contouring to fit the surrounding landscape;
- Compacting the original disturbed ground, where appropriate;
- Scarifying or ripping original ground and applying topsoil and other amendments at chosen locations to improve initial growth and the establishment of a sustainable community;
- Re-vegetation, using seeds or native plant species so that vegetation can be established; and,

Inspection of the re-vegetated area will be conducted following initial planting until vegetation is successfully established. Once vegetation has been established,

inspection will be conducted to determine any necessary repairs. Evidence of poorly established areas will require re-assessment of the re-vegetation program and implementation of additional measures to ensure successful re-vegetation. Once a self-sustaining vegetation cover has been established, the inspection program will be discontinued.

## **9.9 Emergency Response Plan**

This document provides the Emergency Response Plan (ERP) for ESRA during the construction and operation of the PR 304 to Berens River ASR. The ASR, described in Section 3 - Project Description is also referred to as the "site" throughout the ERP.

A preliminary draft of the ERP has been developed to provide an appropriate and consistent response to emergency situations that may occur during construction and operational activities. It is a dynamic document which will be updated as the Project proceeds through the Engineering, Tendering and Procuring, and Construction Management phases and as the ASR facilities and activities are better defined.

### **Objectives**

The objective of the ERP is to continuously ensure the safety and protection of life, environment and property, identifying predetermined course of actions and responsible personnel for emergency situations arising from incidents, release of hazardous/toxic substances, or other emergency situations during the construction and operational period of the ASR.

### **Scope**

The ERP is structured to provide easily accessible information in emergencies and to define:

- Individual roles and responsibilities of all response personnel and organizations;
- Internal and external communication;
- Mandatory response actions and procedures to be executed;
- Reporting protocols to be followed; and
- Follow-up actions.

The ERP covers various emergency response situations that are likely to occur. They include fire, injuries and medical emergencies, spill response, wildlife encounters and whiteout and winter conditions, etc. The ERP is a resource for all personnel, since all personnel share the responsibility for site safety and environmental management.

The ERP will be refined and finalized in preparation for construction permitting, in consultation with communities, and relevant regulatory authorities such as Fisheries and Oceans Canada, Transport Canada, and Manitoba Conservation. The procedures may be revised at any time during construction or should unusual circumstances warrant.

An Operational Phase ERP will be prepared by ESRA prior to commencement of road operations in accordance with the Manitoba Government guidelines. This document would focus on road operations and maintenance procedures, with particular emphasis on road safety and spill response attributed to vehicular accidents. It would then be reviewed periodically during operations to particular locational concerns (e.g., accidents/spills, etc.).

A copy of the preliminary draft of the Emergency Response Plan developed at this point is provided in Appendix 7.3.