

**PROJECT-SPECIFIC GUIDELINES FOR THE PREPARATION OF AN  
ENVIRONMENTAL IMPACT STATEMENT AND  
*CANADIAN ENVIRONMENTAL ASSESSMENT ACT*  
COMPREHENSIVE STUDY SCOPING DOCUMENT**

**HIGHWAY 914 ALL-WEATHER ROADWAY McARTHUR RIVER MINE  
SITE TO CIGAR LAKE MINE SITE**

As Proposed by the Saskatchewan Ministry of Highways and Infrastructure

**October 2010**

This document has been prepared to meet the requirements for Project-Specific Guidelines for the Saskatchewan environmental impact assessment process and for the federal Comprehensive Study Scoping Document as required by the *Canadian Environmental Assessment Act*. It was prepared by Saskatchewan Environment and the Canadian Environmental Assessment Agency to assist the Saskatchewan Ministry of Highways and Infrastructure with the environmental impact assessment of the proposed all-weather roadway from McArthur River mine site to Cigar Lake mine site.

**Canada**



**Saskatchewan**

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## List of Acronyms

<b>Acronym</b>	<b>Meaning</b>
Agency	Canadian Environmental Assessment Agency
Cooperative Agreement	The Canada-Saskatchewan Agreement on Environmental Assessment Cooperation (2005)
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Fisheries and Oceans Canada
EAB	The Environmental Assessment Branch of the Saskatchewan Ministry of Environment
EC	Environment Canada
EIA	Environmental Impact Assessment (Saskatchewan)
EIS	Environmental Impact Statement
Federal Act	Canadian Environmental Assessment Act
INAC	Indian and Northern Affairs Canada
NWPA	Navigable Waters Protection Act
Provincial Act	The Environmental Assessment Act (Saskatchewan)
PSGs	Project-Specific Guidelines
RA	Responsible Authority
ROW	Road Right-of-Way
SARA	Species at Risk Act
SKCDC	Saskatchewan Conservation Data Centre
SMHI	Saskatchewan Ministry of Highways and Infrastructure
TC	Transport Canada
VEC	Valued Ecosystem Component

## 1.0 INTRODUCTION

Saskatchewan Ministry of Highways and Infrastructure (SMHI) submitted a project proposal for construction of an all weather roadway commencing at a point near the McArthur River Mine Site and connecting to an existing private Cameco access road near the Cigar Lake Mine Site in northern Saskatchewan.

Sole access between the locations consisted of an undeveloped winter trail that is no longer used for any purpose. The project will establish 51.71 km of all weather roadway in an entirely new location and will avoid entering areas currently considered within the limits of the two mine sites. The project involves: initial location centerline clearing; right of way clearing and grubbing; roadway subgrade construction (including excavation of borrow sources); crushing of granular material for the roadway surface; installation of required stream crossings, including culverts and bridges; cleanup of right of way, borrow sources, and granular sources; remediation work (as required); and post construction activities.

The purpose of the project is to provide a more efficient route for traffic to access mines operated by Cameco and others in northern Saskatchewan. In addition, negotiations are currently underway between SMHI and Cameco to open the entire section of Highway 914 as a public roadway after construction of the connector is complete.

The proposed project will be subject to environmental assessment under both the provincial *Environmental Assessment Act* (Provincial Act) and the federal *Canadian Environmental Assessment Act* (Federal Act). The project is subject to a comprehensive study under the Federal Act. The Province of Saskatchewan and the Government of Canada have agreed to review the project cooperatively as per the *Canada-Saskatchewan Agreement on Environmental Assessment Cooperation* (Government of Canada and Government of Saskatchewan 2005) (Cooperative Agreement). The following sections describe the process to be followed under the cooperative agreement, including the specific requirements of both the provincial and federal environmental assessment regimes, and the specific information requirements for the environmental impact statement (EIS).

### 1.1 Purpose of the Guideline Document

The purpose of this document is twofold. First, these Guidelines have been prepared to assist the proponent with the conduct of the environmental impact assessment (EIA) and preparation of the EIS. The Guidelines reflect concerns and issues that have been raised by federal and provincial officials regarding the proposed project and identify the information that shall be included in the EIS. Second, the information provided in the EIS shall also be sufficient for preparation of the Comprehensive Study Report by the federal government.

These Guidelines shall not be regarded as either restrictive or exhaustive, as concerns other than those identified in the document could arise during the investigations associated with the EIA. Reference to the Saskatchewan Ministry of Environment, Environmental Assessment Branch's (EAB) website for general guidelines for conducting an EIA, *EIA Conduct – EIS Content* (Saskatchewan Ministry of Environment), as well as the Canadian Environmental Assessment Agency's (Agency) website guidance materials for the conduct of environmental

assessments, *Basics of Environmental Assessment*, is recommended. The EAB, as lead agency in the cooperative federal/provincial review, is prepared to provide advice and assistance throughout the EIA with regard to the identification of environmental concerns and appropriate assessment methodology.

## **2.0 THE ENVIRONMENTAL ASSESSMENT PROCESS**

### **2.1 Federal and Provincial Cooperation in the Environmental Assessment**

The Government of Canada and the Province of Saskatchewan have agreed to review the project cooperatively as per the Cooperative Agreement. Canada and Saskatchewan intend to cooperate throughout the process in a manner that meets the legislated environmental assessment requirements of both parties. Under the Cooperative Agreement, federal and provincial environmental assessment processes, directed respectively by the Provincial Act and the Federal Act, are coordinated for proposals subject to provincial and federal jurisdiction, where not limited by individual statutory or process requirements of the respective processes. Accordingly, information requirements of both provincial and federal agencies have been included in this document so that the EIS will be sufficient to address the environmental concerns of both the Government of Saskatchewan and the Government of Canada.

Both governments will use the information generated through the cooperative environmental assessment as the basis for their respective decisions about the project. However, each government will retain its ability to make project-related decisions on matters within its own legislative authority.

Under the Cooperative Agreement, the EAB is the lead party and contact for the project and has established a Project Administration Team for the cooperative environmental assessment. Membership on the Project Administration Team includes representatives from Saskatchewan Environment's Environmental Assessment Branch, Fisheries and Oceans Canada (DFO), Transport Canada (TC) and the Agency. Members of the Project Administration Team will also be responsible for coordinating required decisions during the administration of the cooperative environmental assessment.

Pursuant to subsection 17(1) of the Federal Act and subsection 9(1) of the Provincial Act, the responsible authorities delegate the conduct of the environmental assessment to the Proponent. The Proponent will prepare an EIS based on these Guidelines. Once completed, the proponent will submit the EIS to the Project Administration Team for review.

### **2.2 Requirement for Environmental Impact Assessment under *The Environmental Assessment Act* (Saskatchewan)**

In Saskatchewan, a proponent that has a project that is considered to be a "development" pursuant to subsection 2(d) of the Provincial Act is required to conduct an EIA of the proposed project and prepare and submit an EIS to the Minister of Environment.

In conducting a technical review of SMHI's project proposal, EAB arranged for comments

from provincial ministries and agencies. Based on the results of the technical review, the project met the definition of a “development” as defined by the Provincial Act, and as such, the proponent must carry out an EIA and complete the requirements as outlined in the Provincial Act.

The EIA guidelines, particularly from section 3 onward, will assist the proponent in undertaking their EIA. They have been prepared in consultation with both federal and provincial agencies. Once the EIS is submitted, the EAB circulates the EIS to provincial technical reviewers to obtain their expert advice. Review agencies include the Saskatchewan Ministries of Environment; Health; Advanced Education, Employment and Labour; First Nations and Métis Relations; Culture Youth and Recreation, Heritage Resources Branch; Social Services; Industry and Resources; Northern Affairs; and Government Relations; and the Crown Corporation, Saskatchewan Watershed Authority. In the case of a cooperative federal-provincial review, expert advice is also provided by federal agencies as outlined in section 2.3.

Following review of the EIS by the noted agencies, the EAB will prepare Technical Review Comments that will document the outcomes of the federal and provincial evaluation of the EIS. The EIS and Technical Review Comments, along with the federal Comprehensive Study Report (discussed below) are then provided to the public for a minimum 30-day review. Comments from the review are provided to the provincial Minister of Environment and are taken into consideration prior to the Ministerial Decision being made.

### **2.3 Requirement for Environmental Assessment under the *Canadian Environmental Assessment Act***

The proposed road project is an undertaking in relation to a physical work and, as such, is defined as a project under subsection 2(1) of the federal Act.

DFO may be required to issue one or more authorizations under subsection 35(2) of the *Fisheries Act* with respect to watercourse crossings. Issuance of these authorizations is described in the *Law List Regulations* under the federal Act. Therefore, DFO must ensure that an environmental assessment of the project is carried out before any *Fisheries Act* authorizations are issued. DFO is an RA under the federal Act.

The project may also require approval from TC pursuant to section 5 of the *Navigable Waters Protection Act* (NWPA), which ensures a balance between the public right to navigate and the need to build works such as bridges, dams, or docks in navigable waters.. Certain types of NWPA approvals are described in the *Law List Regulations*. If any component of this project requires an NWPA approval which is described in the *Law List Regulations*, TC will be required to conduct an environmental assessment under the federal Act. TC is participating as an RA on an in-until-out approach.

Environment Canada (EC) and Natural Resources Canada (NRCan) have identified themselves as expert federal authorities, and they will provide advice in relation to the environmental assessment. The Agency is the federal environmental assessment coordinator for the proposed project and is responsible for coordinating the activities of the responsible authority (RA) and expert federal authorities in accordance with section 12 of the federal Act.

The project is subject to a comprehensive study under the federal Act, pursuant to paragraph

29(b) of the *Comprehensive Study List Regulations*. The project consists of the proposed construction of an all-season public highway that will be more than 50 km in length and will lead to a community that lacks all-season public highway access. Under the federal Act, the Agency will lead the preparation of the comprehensive study report in partnership with the responsible authorities and federal authorities. This report is submitted to the federal Minister of the Environment

This document includes a description of the scope of the project, the factors to be considered in the comprehensive study and the scope of those factors.

### **2.3.1 Federal and Provincial Legislation**

The proponent shall comply with any federal and provincial legislation including but not limited to the *Species At Risk Act* (SARA) the *Migratory Birds Convention Act*, the *Fisheries Act*, and the *International River Improvements Act*. The proponent shall also comply with objectives set by federal and provincial policies such as the *Federal Policy on Wetland Conservation*.

### **2.4 Joint Public Consultation on the EIA and Comprehensive Study Report**

The public is being asked to comment on this document which includes the scope of the environmental assessment and the draft EIA guidelines.

As is required in both federal and provincial environmental assessment processes, the public will be given an opportunity to participate in the conduct of the environmental assessment, including participation in public meetings to be held by the proponent. The requirements for this participation are set out in subsection 21.1, subsection 21.2, and section 22 of the federal Act. The public will also be provided with an opportunity to examine the EIS, the comprehensive study report prepared by the federal government, and the Technical Review Comments prepared by the provincial EAB. The public will be requested to provide their comments to the respective federal and provincial Ministers who will be issuing an environmental assessment decision. This final public review period must be a minimum of 30 days to meet provincial requirements and will be extended, if necessary, through consultation with the Project Administration Team as per the Cooperative Agreement.

## **3.0 PROPOSED SCOPE OF PROJECT**

In general, the proposed scope of the project for the purpose of the EIA is the construction, operation, maintenance, and decommissioning of approximately 51.7 km of all weather roadway, in which the west terminus is a tie-in point with the existing access, extending approximately 3.6 km east of the McArthur Lake mine site; and in which the east terminus is a tie-in with the existing private access road, extending approximately 8.0 km south of the Cigar Lake mine site. The scope will take into consideration that the roadway may be located anywhere within a width extending 1 km from each side of the centerline identified in Appendix B of the project proposal, with the exception of where the location may be hindered



by the presence of water bodies.

Specifically, the defined scope of the project for the purpose of the EIA will include but is not limited to:

- initial location centerline clearing;
- right-of-way clearing and grubbing (vegetation clearing, topsoil stripping, and stockpiling);
- roadway subgrade construction;
- excavation of borrow sources;
- crushing of granular material for the roadway surface;
- installation of required stream crossings, including culverts and bridges;
- remediation work (as required);
- construction and operation of temporary work camps;
- construction and operation of water withdrawal facilities for construction and temporary work camps;
- disposal of solid waste and sewage from temporary work camps;
- operation, maintenance, and storage of machinery and equipment;
- maintenance (e.g. vegetation management in ditches, erosion control measures on side-slopes and ditch grades; erosion control measures on soil stockpiles, inspection and maintenance of road crossings, inspection and maintenance of water crossings, summer and winter maintenance of road surface);
- reclamation and revegetation of rights-of way, aggregate and borrow pits, temporary work camp sites, and other temporarily disturbed sites;
- decommissioning of the roadway; and
- all physical works and undertakings associated with any required fish habitat compensation plan.

The EIS shall include a description of each component of the project and any associated physical works and activities.

### **3.1 Proposed Factors to be Considered**

As stated in the federal Act: "Environment" means the components of the Earth, and includes: (a) land, water and air, including all layers of the atmosphere; (b) all organic and inorganic matter and living organisms; and (c) the interacting natural systems that include components referred to in paragraphs (a) and (b).

As stated in the federal Act, "environmental effect" means, in respect of a project:

- (a) *any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the Species at Risk Act,*
- (b) *any effect of any change referred to in paragraph (a) on*
  - (i) *health and socio-economic conditions,*
  - (ii) *physical and cultural heritage,*
  - (iii) *the current use of lands and resources for traditional purposes by aboriginal persons,*  
*or*
  - (iv) *any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or*
- (c) *any change to the project that may be caused by the environment.*

As stated in the provincial Act, a “development” means any project, operation, or activity, or any alteration or expansion of any project, operation, or activity, which is likely to:

- (i) have an effect on any unique, rare or endangered feature of the environment;
- (ii) substantially utilize any provincial resource and in so doing pre-empt the use, or potential use, of that resource for any other purpose;
- (iii) cause the emission of any pollutants or create by-products, residual or waste products which require handling and disposal in a manner that is not regulated by any other Act or regulation;
- (iv) cause widespread public concern because of potential environmental changes;
- (v) involve a new technology that is concerned with resource utilization and that may induce significant environmental change; or
- (vi) have a significant impact on the environment or necessitate a further development which is likely to have a significant impact on the environment;

and “environment”: means

- (i) air, land and water;
- (ii) plant and animal life, including man; and
- (iii) the social, economic and cultural conditions that influence the life of man or a community insofar as they are related to the matters described in subclauses (i) and (ii);

As described in Subsections 16(1) and (2) of the federal Act and in accordance to the provincial Act, the EIA and the federal comprehensive study report shall include a consideration of the following factors:

- the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
- the significance of the effects referred to in the previous paragraph;

- comments from the public that are received in accordance with the cooperative environmental assessment process;
- measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project;
- the purpose of the project;
- alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means;
- a description of the environmental conditions that may affect, or be affected by the project;
- the need for, and the requirements of, any follow-up program in respect of the project; and
- the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future.

Taking into consideration the definition of “environmental effect”, the EIA shall also address the effect of any environmental change that the project may have on:

- the current use of lands and resources for traditional purposes by aboriginal persons;
- human health (residences are identified within 500 m of proposed alignment);
- physical and cultural heritage, including first nations and local Métis interest;
- socio-economic conditions (e.g. transportation, land use, population, safety issues, etc.); and
- anything of historical, paleontological, archaeological or architectural significance.

Accordingly, the EIS shall include information in each of the areas above.

### **3.2 Proposed Scope of the Factors to be Considered**

In accordance with the Provincial Act and further to subsection 16(1) and (2) of the Federal Act, the EIA and the federal comprehensive study report will consider the factors listed above and document any issues and concerns that may be identified through any regulatory, stakeholder, and/or public consultation.

The assessment will consider potential effects the project may have on the environment and other aspects considered to be Valued Ecosystem Components (VECs). Impacts with respect to spatial and temporal boundaries may vary depending on the VEC, and the assessment of these impacts shall consider:

- timing/scheduling of project activities;
- natural variations of each VEC;
- the time required for recovery from an impact; and
- cumulative effects, including effects from other activities likely to occur as a result of road construction and improved access to new areas (i.e. increased mineral exploration or other natural resource based industry undertakings likely to benefit from better ground access to new areas).

VECs of interest in this project area must include but are not limited to the following:

- atmosphere and climate (e.g. air quality);
- migratory birds, raptors etc. along the road right-of-way (ROW);
- fish and fish habitat in watercourses along the ROW, including spawning, rearing, feeding, and migratory habitat;
- surface water quality along the ROW and receiving waters downstream (down slope) of the ROW;
- groundwater and surface water resources that are or may be used for drinking water;
- amphibian and reptile populations along the ROW;
- wetlands;
- all species that are listed in the Provincial *Wild Species At Risk Regulation* or that are listed as extremely rare (S1) or rare (S2) in the provincial Saskatchewan Conservation Data Centre (SKCDC);
- all SARA and Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed species (preparation of the list, and design of necessary surveys, may be done in consultation with EC);
- geological resources, soils, and landscape features encountered along the ROW;
- vegetation;
- wildlife and wildlife habitat;
- First Nations reserve lands and lands considered for Treaty Land Entitlement;
- traditional lifestyles in the area, including hunting, trapping, and traditional plant gathering activities;
- country foods harvested as food or for medicinal or ceremonial purposes;
- archaeological sites along the ROW and associated work spaces;
- commercial trapping affected by the project;
- commercial and recreational fisheries on nearby waterbodies;
- mineral claims potentially affected by the project;
- outfitters, sport fishing camps, and other recreational uses affected by the project;
- human health and safety;
- noise and vibration; and
- navigation.

Detailed requirements on these components are provided in section 8.

### 3.3 Proposed Spatial and Temporal Boundaries

The consideration of the environmental effects in the environmental assessment needs to be conceptually bounded in both time and space. This is more commonly known as defining the study areas and time frames, or spatial and temporal boundaries of the environmental assessment.

Study areas must encompass all relevant components of the environment, including the people, biota, land, water, air, and other aspects of the natural and human environment. Study boundaries shall be defined taking into account ecological, technical, and social considerations. The spatial boundaries must reflect the geographic range over which the project’s environmental effects may occur, even if these effects extend beyond the project footprint.

The project footprint includes the area where new construction takes place, as well as areas or structures that are being decommissioned or abandoned.

The following geographic study areas are suggested as a reference point. It is expected that the spatial boundaries may vary for each environmental component, depending on the nature of the predicted effects. The specific spatial boundaries must be defined in the EIS.

Site Study Area	The Site Study Area is the project footprint, as described above.
Local Study Area	The Local Study Area is defined as that area existing outside the Site Study Area boundary, where there is a reasonable potential for the occurrence of environmental effects from the project. The boundaries may change, as appropriate, following a preliminary assessment of the spatial extent of potential environmental effects.
Regional Study Area	The Regional Study Area is defined as the area within which there is the potential for cumulative effects.

The temporal boundaries for the environmental assessment must establish over what period of time the project-specific and cumulative effects are to be considered and shall at a minimum address the planning horizon of the project.

SMHI shall clearly define and provide the rationale for the spatial and temporal boundaries. All VECs must be given adequate attention throughout the core study area. For example, boundaries shall encompass aspects of the project such as operation and maintenance of the road, which will extend beyond the initial construction phase of the road. Any VEC-specific variation from the core study area shall be identified and the rationale provided. Boundaries shall be flexible and adaptive to enable adjustment or alteration based on field data.

## 4.0 PROJECT-SPECIFIC GUIDELINES

The following sections outline the specific studies to undertake and the information to obtain as part of the EIA, and how to present and evaluate these in the EIS. These sections describe what would conventionally be understood as Draft Project-Specific Guidelines (PSGs) under

the Province of Saskatchewan's environmental review process. These PSGs have been developed with input from provincial and federal expert advisors.

## **5.0 EIS GENERAL REQUIREMENTS**

The EIS is a statement of SMHI's environmental conclusions and commitments regarding the development and, as such, must be explicitly endorsed by SMHI.

The EIS will be made available for public review and must be written so that it can be understood by non-specialists. In particular, the Executive Summary must be easily understood and printed in black and white so that reproductions can be easily made. Acronyms used and a glossary of technical terms would also be useful.

The following sections describe the different topics to be addressed in the EIS. Sufficient information needs to be provided for each so that informed conclusions can be reached regarding the potential for impacts on the various components of the environment. However, the greatest time and effort are to be applied to data collection and interpretation related to the most significant impacts as identified by the proponent and through these PSGs. SMHI must provide rationale as to why any issues identified in the guidelines were not addressed in the EIS and highlight key impacts that are identified for more intensive investigation.

Where external sources of information or data are used, SMHI will provide a brief reference for the source at the point at which the information is presented and a complete reference at the end of the EIS. Where conclusions that are critical to the assessment of environmental impact are cited from other reports, SMHI shall provide sufficient detail of the originating data and analysis so as to enable the critical review of that material. Such detailed reference material could be submitted as an appendix to the EIS. The EIS will be a stand-alone document upon which critical review can be undertaken.

When submitting the EIS, one digital copy (Word and/or PDF) and approximately 25 paper copies are required (confirm number with the EAB Project Development Administrator). The proponent may wish to print and bind the EIS in a way that is amenable to revision should changes to the EIS be required following technical and/or public review.

A suggested table of contents for the EIS is provided below:

- Executive Summary;
- Table of Contents;
- List of Tables;
- List of Figures
- Acronyms and Abbreviations;
- Application of the Provincial Environmental Impact Assessment and Federal Environmental Assessment Processes;
- Project Introduction;

- Scope of the Project;
- Scope of the Assessment;
- Scope of the Factors;
- Spatial and Temporal Boundaries of the Assessment;
- Description of the Existing Environment (description of environmental components and likely interactions with the project);
- Description of Alternative Routes;
- Assessment of the Environmental Effects (provincial and federal)
- Selection of Preferred Route and Description of Full Project;
- Accidents and Malfunctions;
- Effects of the Environment on the Project;
- Assessment of the Cumulative Environmental Effects;
- Mitigation Measures;
- Summary of Commitments;
- Description of Monitoring, Reporting, and the Follow-Up Process;
- Significance of Residual Effects;
- Summary of Stakeholder Consultation;
- Summary of First Nations/Aboriginal Groups Consultation; and
- Conclusions and Recommendations for the Decision.

## **6.0 EIS EXECUTIVE SUMMARY**

An executive summary of the EIS is required. Briefly summarize the EIS under the following topic areas:

- purpose of carrying out the development;
- description of the alternative means for development (if any) and the preferred option;
- the benefits and costs of the preferred option and the alternatives (if any);
- if no alternatives means for development are considered, the reasons why;
- potential for short and/or long-term environmental effects of the development, including the potential for spills/malfunctions/accidents;
- potential cumulative environmental effects that are likely to result from the development in combination with other local/adjacent projects (past, present, and future) and activities in the short and long term;
- mitigation measures, including their environmental outcome and technical and economical feasibility;

- significance of the identified residual environmental impacts;
- decommissioning and reclamation;
- monitoring programs for the development at all phases; and
- public involvement activities and comments received, along with SMHI's responses.

To enhance public involvement, write the executive summary in clear language, avoid the use of technical terms and jargon, and place the summary under a cover separate from the EIS document.

## **7.0 PROJECT INTRODUCTION**

Describe the need and purpose for constructing the all weather roadway and provide an overview of the area that the project may impact, taking into account that more than just the area immediately adjacent to preferred route may be impacted. Consider the impacts on wildlife, vegetation, fish, water, air, land uses and values, and local communities and businesses when selecting the area to describe in the project.

Provide a map describing the project area, without yet highlighting the preferred route for the project (route selection, access road and intersection location, borrow pit locations, aggregate sources, and temporary work camp locations). Selection of the preferred route for the project (which may or may not include the route identified in the proposal) and description of alternatives should only be identified after considering and describing the existing environment. Identify features that are important to SMHI in achieving the overall objective. Provide enough detail on the map that the reader can locate themselves within the province of Saskatchewan. As a suggestion, at a minimum, this map and other maps in the EIS should contain the information outlined in Appendix A.

## **8.0 DESCRIPTION OF THE EXISTING ENVIRONMENT**

Describe the existing environment of the project area in sufficient detail to enable an understanding of how the current environmental conditions might be impacted (positively or negatively) by project alternatives. This section should also aid in the selection of the preferred approach and development of mitigation strategies to prevent or reduce the expected impacts. Maps, tables and figures should be included as appropriate.

In developing a project-specific database that reflects current environmental conditions in the study area, existing data may be utilized to the extent possible. Some baseline material, that may include the project area, has been compiled in the *Draft Athabasca Land Use Plan, Stage I* (Athabasca Interim Advisory Panel 2006), which can be viewed and downloaded from the Ministry of Environment's website. Other data sources may be obtained by contacting the Ministry of Environment's Boreal Geomatics Section (306-953-2376). Existing data will be supplemented with field data as required to predict impacts. Such data shall be collected using known and accepted methodologies. SMHI shall ensure that relevant data are collected in a



format that can interface with the SKCDC. As well as being included in the EIS, these data sets shall be forwarded directly to Saskatchewan Ministry of Environment. The proponent or consultant shall also contact the SKCDC for rare species information.

The data in the EIS shall satisfy the following criteria:

- (i) the baseline data will accurately describe the existing environment that will be potentially affected by the project as proposed;
- (ii) the data will provide a sound basis for comparative monitoring; and
- (iii) the EIS will be complete, in terms of data availability and presentation, and shall concentrate on those issues of major environmental and social importance.

No more data than are necessary shall be collected and presented to meet these purposes.

## **8.1 Biophysical Environment**

### **8.1.1 Land Surface**

Information about the land surface is essential in identifying a suitable location for the new section of roadway and associated borrow sources and aggregate pits amongst a choice of alternatives selections. Identify with text and a map: “surface form”, “surface material”, “texture of parent material”, “soil development” and areas of “permafrost”. Erosion prone terrain shall be identified and unique landscape features shall be presented. Digital data are available from the Soil Landscapes of Canada available from the Agriculture and Agri-Food Canada website. The information could be supplemented by examining digital imagery or other forms of data that SMHI may have knowledge of and by consulting *The Ecoregions of Saskatchewan*, (Canadian Plains Research Centre 1998) where descriptions are provided for the land surface of each “Landscape Area”.

### **8.1.2 Hydrology**

The project has the potential to impact local drainage patterns. SMHI shall obtain information on local drainage patterns by downloading digital watershed information from the Agriculture and Agri-Food Canada website. SMHI shall also identify any known sensitive areas where drainage patterns may be at risk to alteration as a result of project related erosion and/or flooding events.

### **8.1.3 Rare Species**

Rare species are those that meet any of the following criteria: are listed in: the SKCDS as extremely rare (S1) and rare (S2); are listed in the provincial *Wild Species at Risk Regulations*; are listed in Schedules 1, 2, and 3 of SARA; and/or are recognized as being at risk by COSEWIC.

Under *The Wildlife Act* (Saskatchewan), “wild species” refers to any plant, animal, or organism; and “wild species at risk” refers to any native wild species that have been designated

and listed by the Lieutenant Governor in Council as extirpated, endangered, threatened, or vulnerable.

Under SARA, “wildlife species” refers to a native species, subspecies, variety, or geographically or genetically distinct population of animal, plant, or other organisms, other than a bacterium or virus; and “species at risk” refers to wildlife species that are extirpated, endangered, or threatened; or of a special concern.

Rare species will be discussed, along with species of other interest or concern, in the following Aquatic Resources, Vegetation, and Wildlife and Wildlife Habitat sections.

SARA establishes obligations to address potential effects on listed wildlife species in a federal environmental assessment. Federal environmental assessments are legally required to address the potential effects of a proposed project on listed wildlife species, their critical habitat, and residences of individuals of those species, and to consider any cumulative environmental effects. Environmental assessments must also include species that are not legally listed under SARA, namely those species that are recommended for legal listing by COSEWIC.

To aid SMHI in accounting for those species listed in Schedules 1, 2 and 3 of SARA and those considered as at risk by COSEWIC, EC has listed the following information baseline data needs:

- identify all SARA listed species and those recognized as at risk by COSEWIC that may occur in the project area, using recognized survey protocols to provide current field data;
- provide assessments of abundance and distribution using recognized survey protocols that optimize detectability of all SARA listed species and those recognized as at risk by COSEWIC and sufficient survey effort to obtain comprehensive coverage; and
- identify residences, seasonal movements, movement corridors, habitat requirements, key habitat areas, critical habitat and general life history of all SARA listed species and those recognized as at risk by COSEWIC that may occur in the project area.

#### **8.1.4 Aquatic Resources**

Construction of the all weather roadway near streams or lakes could result in the harmful alteration, disruption or destruction of fish habitat, increased sediment loading into fish habitat and impedance to fish movement. Road development could also result in increased access to lakes which could have impacts on fish populations in the area.

The EIS should include a catalogue of each watercourse or waterbody proposed to be crossed as well as what fish species utilize each area. Each proposed crossing location should be mapped on a large scale map (1:50,000 topographic map). All areas functioning as fish habitat at crossing locations should be identified and characterized (i.e. habitat type, vegetation community, gradient, bank shape, substrate type, etc.) with particular attention given to critical or limiting habitat.

The proponent will obtain data on fish species composition, distribution, relative abundance, movements and general life history, and fish habitat for all lakes and streams

located within 1 kilometer on either side of the selected route. Existing information on the presence or absence of fish will be supplemented with sampling results. The inventory of local fish species and other lake and stream characteristics will provide a sound baseline for determining the need to design crossing structures for fish passage and evaluating both direct impacts to fish populations in the vicinity of stream crossings and indirect impacts from increased public access to watercourses and water bodies in the area.

The fish species survey must account for any fish that may occur in the project area and that are rare species as defined in section 8.1.3. To determine whether listed rare species may occur in the project area, SMHI should consult EC's advanced search web site ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)) and the document entitled *Expected Animal and Invertebrate Species List by Ecoregion* (Saskatchewan Conservation Data Centre 2010a), which can be downloaded from the SKCDC website. Other knowledge about the presence of listed rare species could be obtained from the Ministry of Environment's Area Fisheries Biologist in La Ronge, Mark Duffy (306-425-4247).

Field surveys will use standardized procedures that are acceptable to the Saskatchewan Ministry of the Environment and DFO and are repeatable, such that future comparisons can be made. Fish sampling undertaken will be timed to coincide with the highest likelihood of the fish utilizing the stream for one or more of their life stages (i.e. early spring/summer and possibly again in the fall to assess for the presence of fall spawning species) and sampling methods utilized will be appropriate for the season, habitat, fish species and life stage present. Fish habitat assessments will include qualitative and quantitative descriptions of channel and riparian features such as channel morphology, include substrate type, and vegetation; will include photographs taken during open-water conditions; and will be undertaken in such a manner that impacts to fish habitat from stream crossings can be accurately determined.

Fish habitat and fish utilization assessments should consider Aboriginal input and comments, as local Aboriginal people often possess first hand and long term knowledge on these issues.

Special collection permits shall be obtained and sampling methodologies will be discussed with Saskatchewan Ministry of Environment's Fisheries Biologist, Mark Duffy at (306) 425-4247) in La Ronge prior to sampling. The data from these surveys will assist in evaluating both direct impacts at crossings and indirect impacts from increased access. To mitigate impacts to lakes and related fish resources, the road should be routed to avoid direct access to lakes, especially those containing lake trout or walleye.

With respect to construction activities and sedimentation, it should be noted that the proponent has responsibilities under subsection 36(3) of the *Fisheries Act* that states:

“Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in place under conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter such water.”

Despite any approvals that may be issued, there is no authorization under the *Fisheries Act* for the deposit of materials such as noted above. Therefore, road development and associated

work practices must be implemented such that a deposit of a deleterious substance does not occur.

### 8.1.5 Vegetation

The proposed road and related ancillary features have the potential to impact plant species at risk and species of importance to local residents and has the potential to introduce non-native species to the area. In order to evaluate the potential for these types of impacts, SMHI must document all vegetation types encountered throughout the study area, as well as complete and document the findings of a survey for rare plants and other plant species of interest or concern.

The rare species survey must account for any plants, mosses, lichens, and fungi that may occur in the project area and that are rare species as defined in section 8.1.3.

Other plant species of interest or concern will be determined by contacting residents of the Black Lake Denesuline First Nation, English River First Nation, Hatchet Lake Denesuline First Nation, and the Pinehouse Métis Local. Plants that may not be recognized as rare by federal and provincial legislation may be important to the local communities for food, ceremonies, income, or medicinal purposes.

To determine whether listed rare species and other species of interest or concern may occur in the project area, SMHI should consult EC's advanced search web site ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)) and the documents entitled *Expected Plant Species List by Ecoregion* (Saskatchewan Conservation Data Centre 2010c) and *Expected Fungi Species List by Ecoregion* (Saskatchewan Conservation Data Centre 2010b), which can be downloaded from the SKCDC website. Other knowledge about the presence of listed rare species or species and species of interest or concern could be obtained from the Ministry of Environment's Species at Risk Biologist, Karyn Scalise at (306) 787-8665) and/or Habitat Biologist, Dave Arneson at (306) 787-8457), the Black Lake Denesuline First Nation, English River First Nation, Hatchet Lake Denesuline First Nation, and the Pinehouse Métis Local, or other people with special knowledge of the area.

The EIS must indicate how the listed plants and other species of interest or concern are accounted for in the survey design and how methodologies employed for the surveys are in agreement with *Standardized Methodology for Surveys of Rare Plants* (Saskatchewan Conservation Data Centre 2009), which can be downloaded from the SKCDC website. The document entitled, *Terrestrial Field Surveys: Permit Requirements, and Design & Methodology Guidelines* (Saskatchewan Ministry of Environment 2009) provides further guidance on general plant and rare plant surveys and can also be downloaded from the SKCDC website.

All data recorded from plant surveys is to be submitted in digital form to the SKCDS. If rare plants listed in the *Wild Species at Risk Regulations* (Saskatchewan) are to be collected during field surveys, a scientific research permit will be required from the Fish and Wildlife Branch of the Saskatchewan Ministry of Environment.

The proponent shall provide a list of any rare or at risk species that may occur in the study area and may be affected by the project, irrespective of whether the species has been observed or not.

### **8.1.6 Wildlife and Wildlife Habitat**

The proposed road and related ancillary features have the potential to impact wildlife species at risk, species of importance to local residents, wildlife habitat and wildlife behaviour. In addition, rare wildlife species, recreation, hunting, trapping, and traditional use of the land associated with wildlife may be impacted. In order to determine how wildlife might be impacted by the project, it is important to identify the rare species and other species of interest or concern that the project might affect. It is also important to describe the current locations and potential habitats of these species in relation to the project site and adjacent lands within the project study areas.

Rare wildlife species are to include mammals, birds, insects, amphibians, reptiles, arthropods, and land-dwelling mollusks that may be found in the project area and that are rare species as defined in section 8.1.3.

Other wildlife species of interest or concern will be determined by contacting residents of the Black Lake Denesuline First Nation, English River First Nation, Hatchet Lake Denesuline First Nation, and the Pinehouse Métis Local, other interested parties, and the Ministry of Environment's Wildlife Biologist, Tim Trotter at (306) 425-4237.

To determine whether listed rare species and other species of interest or concern may occur in the project area, SMHI should consult EC's advanced search web site ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)) and the document entitled *Expected Animal and Invertebrate Species by Ecoregion* (Saskatchewan Conservation Data Centre 2010a), which can be downloaded from the SKCDC website. Other knowledge about the presence of listed species could be obtained from the Ministry of Environment's Wildlife Biologist in La Ronge, Tim Trotter at (306) 425-4237; the Black Lake Denesuline First Nation, English River First Nation, Hatchet Lake Denesuline First Nation, and the Pinehouse Métis Local; or other people with special knowledge of the area. In particular, SMHI should consult with knowledgeable area residents to identify heron rookeries and nesting areas of other migratory birds that are listed as of interest or concern within the project area, currently and historically occupied woodland caribou and moose habitats within 5 kilometres of the proposed routes, as well as known denning sites for wolves, wolverines and black bears. Knowledge about barren-ground caribou use of the area should also be documented, particularly wintering habitats and movement corridors that intersect alternative routes (contact with the Beverly & Qamanirjuaq Caribou Management Board would be useful in this regard). Further available information should be gathered on the population health of each located species.

SMHI shall supplement obtained information on large mammals (i.e., moose, woodland caribou, barren-ground caribou, and wolf) with a winter aerial reconnaissance survey within a 5 kilometre distance of each route option. Recorded observations shall include location and abundance of wildlife, tracks and a description of wildlife habitat types. Locations of discovered denning sites for wolves, wolverines, and black bears shall be recorded and supplemented with information found during the previously mentioned consultations.

The document entitled, *Terrestrial Field Surveys: Permit Requirements, and Design & Methodology Guidelines* (Saskatchewan Ministry of Environment 2009) provides guidance for carrying out appropriate terrestrial vertebrate surveys in Saskatchewan. The document can be downloaded from the SKCDC website.

SMHI must demonstrate that wildlife surveys optimized detection ability, that they were conducted at the appropriate time (day, year, and under suitable weather conditions) and location (relative to the ecological footprint of the development), and that sufficient effort was devoted to obtaining comprehensive coverage of the potentially impacted area.

Please note that for species at risk and species recognized as at risk by COSEWIC, estimates of abundance and distribution; and identification of residences, seasonal movement, movement corridors, habitat requirements, key habitat areas, critical habitat, and general life history are requested. Methodology to be used for identifying wildlife habitat is discussed below.

Methodology used for wildlife surveys and the results of the surveys must be documented. All data recorded from wildlife surveys is to be submitted in digital form to the SKCDC. If protected wildlife or species at risk are to be disturbed during the survey investigations, a Scientific Research Permit must be obtained from the Fish and Wildlife Branch of the Ministry of Environment.

SMHI shall include maps of the vegetation/wildlife habitats for the wildlife species of concern that are found in the study area. The maps shall identify the locations of sensitive wildlife habitats for those species along the length of the route alternatives. These wildlife habitats may or may not support existing wildlife populations, but the presences of the habitats may be essential for supporting future wildlife populations. Information on habitats for species of concern must be of sufficient detail to allow a decision regarding route selection and alignment changes to avoid sensitive areas or for the assessment of impacts and selection of appropriate mitigative measures where such habitats cannot be avoided. Wildlife habitat information can be inferred from the analysis of vegetation types (which is discussed in section 8.1.5).

The proponent shall provide a list of any rare or at risk species that may occur in the study area and may be affected by the project, irrespective of whether the species has been observed or not.

### **Migratory Birds**

EC's mandate includes the protection of migratory birds and their habitat. Regulations pursuant to the *Migratory Birds Convention Act* provide for the conservation of migratory birds and the protection of their nests and eggs. The proponent shall describe the measures that will be taken to minimize the impacts to migratory birds and their eggs and nests in accordance with the *Migratory Birds Convention Act*.

### **8.1.7 Wetlands**

*The Federal Policy on Wetland Conservation* (Government of Canada 1991) promotes the wise use of wetlands and protection through adequate consideration of wetland concerns in environmental assessments of development projects. The objective of the Policy is to promote

the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and into the future. The Policy goals promote the maintenance of the functions and values derived from wetlands throughout Canada, recognition of wetland functions in resource planning and economic decisions, enhancement and rehabilitation of wetlands in areas where continuing loss or degradation of wetlands or their functions have reached critical levels, and utilization of wetlands in a manner that enhances prospects for their sustained and productive use by future generations. Wetlands do not operate in isolation and adjacent upland habitats play an integral part in the maintenance of the functions of wetlands.

Wetlands have important significance as habitat for several extremely rare, rare, and rare-uncommon species of plants, wildlife, and amphibians, and other species with environmental and social significance.

The federal government's responsibilities for addressing wetlands in environmental assessments and maintaining wetland functions are further supported by the *Fisheries Act*, SARA, and the *Migratory Bird Convention Act*.

To aid SMHI in meeting the *Federal Policy on Wetland Conservation*, EC has provided the following baseline data needs:

- map all wetlands, indicate direction of inflow/outflow, and describe the location, size of wetlands, wetland type, condition, ecological community types, and flora and fauna;
- describe contribution of the wetland to the quantity and quality of surface water and groundwater;
- describe terrestrial and aquatic habitat functions;
- describe the ecological function of the wetland in the surrounding ecosystem and adjacent land use; and
- describe the Aboriginal use of wetlands.

SMHI must also outline the measures that will be taken to maintain the continuity of water flow for any bogs or fens crossed by the road development.

## **8.2 Socio-Economic**

### **8.2.1 Regional Economy and Potentially Affected Communities**

The proposed project occurs in a isolated area of Saskatchewan. However, the opening of the entire section of Highway 914 as a public roadway after construction of the connector is complete, and the linkage to Highway 905, opens the possibility for broader economic activity in the area, and could also have social implications to the communities of Green Lake, Big River, Meadow Lake, Beauval, Pinehouse Lake, Air Ronge, La Ronge, Missinipe, Stanley Mission, Southend, Brabant Lake, and Wollaston Lake. A baseline of information on the socio-economic characteristics of the Green Lake, Big River, Meadow Lake, Beauval, Pinehouse Lake, Air Ronge, La Ronge, Missinipe, Stanley Mission, Southend, Brabant Lake, and Wollaston Lake communities shall be provided in the EIS. Community involvement is required to confirm the current socio-economic data and to gain a good understanding of the social conditions that could be impacted by the development, and of the economy that supports

the existing population. The EIS shall also describe how the regional economy is likely to be affected by the opening of the entire section of Highway 914 and how this is likely to impact the social and economic baseline conditions of the communities of Green Lake, Big River, Meadow Lake, Beauval, Pinehouse Lake, Air Ronge, La Ronge, Missinipe, Stanley Mission, Southend, Brabant Lake, and Wollaston Lake. Other communities may also need consideration.

### **8.2.2 Traditional Use and Values Associated with the Lands and Resources**

A description should be provided regarding the traditional use and values associated with the lands and resources that may be impacted by the road project, as determined through discussions and consultations with the Black Lake Denesuline First Nation, English River First Nation, Hatchet Lake Denesuline First Nation, Prince Albert Grand Council who hold a traditional knowledge data base for the area, Pinehouse Métis Local, and Métis Northern Regions I, II, and III. At a minimum, traditional hunting and gathering activities, and spiritual and ceremonial practices should be described. SMHI is encouraged to involve the Black Lake Denesuline First Nation; English River First Nation; Hatchet Lake Denesuline First Nation; Prince Albert Grand Council; Pinehouse Métis Local, and Métis Northern Regions I, II, and III in determining how traditional uses and values are to be described.

Should you require additional direction on the Government of Saskatchewan *First Nation and Métis Consultation Policy Framework* (Government of Saskatchewan 2010), please contact the Ministry of First Nations and Métis Relations' Director, Consultation, Crystal McLeod at (306) 798-5166. For additional information on the Government of Canada's Action Plan for Consultation with First Nations, Métis and Inuit Peoples, please contact Jeanne Cadorette, Indian and Northern Affairs Canada (INAC), at (613) 944-9321.

### **8.2.3 Heritage Resources**

Given that the project would appear to involve disturbance to previously undisturbed forest over a long distance, as well as construction in the vicinity of water courses, the project will minimally require a review by the Saskatchewan Ministry of Tourism, Parks, Culture and Sport's Heritage Resource Branch office at (306) 787-2817, and will likely require a Heritage Resource Impact Assessment pursuant to *The Heritage Property Act*. SMHI is advised to contact the Heritage Resources Branch office.

### **8.2.4 Non-Traditional Uses and Values Associated With the Lands and Resources**

Baseline data on non-traditional uses and values, associated with the lands and resources (i.e. hunting, trapping, fishing, outfitting, mining, tourism, recreation, wilderness, etc.) that may be impacted by the project, should be gathered and described. Data will include the known locations of planned facilities, including recreational facilities and outfitting camps in the area of the proposed road. This data may be obtained by contacting the Ministry of Environment's Boreal Geomatics Section (306-953-2376). Natural and recreational resources will also be described for areas adjacent to or in close proximity of the proposed road.



### **8.2.5 Navigable Waterways**

Any proposed works associated with the project that involve building in, on, over, through, or across any navigable waterway could result in interference with the public right to navigate.

The EIS should describe known waterway users, including known vessel use, on affected waterways. As well, all waterways affected by proposed works (new or changes to existing infrastructure) in, on, over, under, through, or across any waterway should be discussed in the EIS. This would also include any temporary works that may impede vessel passage and safety.

The EIS should include the following:

- appropriately scaled maps depicting where the existing waterways and in-water works are located (latitude and longitude);
- physical characteristics of the waterway (such as length, width, depth, seasonal flow, and fluctuations);
- photographs of the proposed work locations (crossings, and upstream and downstream views), if available, and to be shown in an appendix; and
- conceptual drawings (plan and profile views) and proposed construction schedules and methods of the proposed in-water works, both permanent and temporary.

The submission of applications under the NWPA to the Regional Office of the Navigable Waters Protection Program would be required for all water crossings where the Minor Works and Waters (NWPA) Order were not applicable.

## **9.0 ASSESSING ENVIRONMENTAL IMPACTS**

In conducting the EIA, the consideration of potential environmental effects shall be considered in a systematic and traceable manner and the methodology used described. The results of the assessment process shall be clearly documented using summary matrices and tabular summaries where appropriate. The assessment is to include an evaluation of alternatives in determining the preferred approach. For the environmental effects (including cumulative effects) that are identified for the preferred approach, technically and economically feasible mitigation measures must be considered. Taking into consideration the mitigation measures identified, the report shall also clearly identify the residual effects of the project (effects that that will exist after the implementation of mitigation) and make a determination regarding the importance of effects after mitigation measures.

The EIA must provide the information necessary to determine whether the benefits of the proposed development justify the environmental costs of the preferred approach. Information provided in the EIS, related to the potential impacts (including beneficial impacts) for each alternative, shall be complete and detailed, including tables, figures, maps, and graphs where appropriate. Impacts shall be analyzed as the expected changes from the baseline conditions (the difference between environmental conditions expected if the development were not to proceed and those expected as a consequence of it. Potential impacts shall be described in terms of their probability, extent, frequency, reversibility, and duration. The methods and

assumptions used to estimate the impacts shall be clearly documented and a rationale provided for the conclusions. Gaps in the quality of data that limit the analysis and conclusions shall be explained and appropriate limitations placed on the reliability of predictions.

The following is a list of identified potential impacts that shall be addressed in the EIS:

- impacts to fish species that may occur in the project area and are rare as defined in section 8.1.3; and including impacts to residences of individuals of a species, and impacts to a species' critical habitat;
- impacts to other fish species of interest or concern;
- impacts from stream crossing construction on water quality and quantity, fish, and fish habitat, including:
  - the sedimentation of streams from construction activities; short and long-term erosion from disturbed sites including stream banks, road surfaces, ditches and cleared areas; wind erosion; and mass wasting due to wash outs from road-related blockages or from failed stream crossing structures;
  - channel degradation due to alterations in streamflow during construction or improperly sized or installed stream crossing structures;
  - the harmful alteration of fish habitat due to construction activities or the replacement of natural substrates by stream crossing structures;
  - the loss of fish habitat from channel infilling;
  - short-term or long-term impacts on fish passage from construction activities or improperly designed or installed stream crossing structures; and
  - impacts on the water quality and quantity of receiving water bodies during both the construction and operation phases;
- impacts to water and fish from fuel, chemical, or hazardous waste spills or leakages occurring during use, transportation, or storage of these materials;
- impacts on vegetation (plants, mosses, lichens, and fungi) species that may occur in the project area and are rare as defined in section 8.1.3; and including impacts to residences of individuals of a species, and impacts to a species' critical habitat;
- impacts on other plants, mosses, lichens, and fungi species of interest or concern;
- impacts to vegetation, including the removal of vegetation (particularly in sensitive habitats); potential adverse effects on biodiversity (such as the potential for the establishment of exotic invasive plant species and possible effects on genetic and species diversity); disturbance effects (such as edge effects); and (where relevant) the potential effects of vegetation control, road salt, and other operational considerations.
- impacts on wildlife (mammals, birds, amphibians, insects, reptiles, arthropods, and land-dwelling mollusks) species that may occur in the project area and are rare as defined in section 8.1.3; and including impacts to residences of individuals of a species, and impacts to a species' critical habitat;
- impacts on other wildlife (mammals, birds, amphibians, insects, reptiles, arthropods, and land-dwelling mollusks) species of interest or concern;

- disturbance and risk to wildlife during construction and operation of the roadway;
- discuss the cumulative environmental effects on all SARA listed species and those recognized as at risk by COSEWIC, including the cumulative environmental effects on the residences of their individuals, and the cumulative environmental effects on the species' critical habitat;
- discuss residual effects on species at risk and the degree of scientific uncertainty related to the information used.
- disturbance to ecosystem functioning caused by fragmentation;
- impacts to wetland function and ecosystem functions that contribute to the integrity of the wetland (information needs to meet the *Federal Policy on Wetland Conservation*);  
Wetland functions are to include hydrological, biogeochemical, habitat, and ecological functions as well as social/cultural/commercial values, aesthetic/recreational values, and education and public awareness values.
- impacts to traditional uses and values associated with the land and resources;  
Through discussions and consultations with the Black Lake Denesuline First Nation, English River First Nation, Hatchet Lake Denesuline First Nation, the Lac La Ronge Indian Band, and the Prince Albert Grand Council, describe how identified traditional uses and values associated with the land and resources may be impacted by the proposed route locations.  
The Pinehouse Métis Local may have some interest in the area, and if so, some discussion would be appropriate on how the proposed route locations may impact their traditional uses and values associated with the land and resources. SMHI may want to contact the Saskatchewan Métis Nation's Northern Region I, II, and III offices in order to determine if there are other Métis Locals that may be impacted by the project.
- impacts to heritage resources;
- impacts to non-traditional uses and values associated with the land and resources;  
Estimate how the proposed route alternatives could adversely affect or enhance trapping, mining, hunting, fishing, camping, recreation, outfitting, wilderness, and other values. Particularly, explore how the road might affect outfitters that are currently offering "fly-in" fishing opportunities within and near the vicinity of the project area.. The potential for unauthorized clearing of trails and/or shorelines for boat launches and other activities shall be identified.
- impacts to social well-being other than impacts to uses and values associated with the land and resources;  
For example, people living in the communities of Pinehouse Lake, Green Lake, Big River, Beauval, Meadow Lake, Air Ronge, La Ronge, Missinipe, Stanley Mission, Southend, Brabant Lake, and Wollaston Lake may be positively and/or negatively affected by an increase in economic activity associated with the opening of the entire section of Highway 914 for public use, and the connection to Highway 905.

- regional social and economic benefits associated with the project related to jobs, business opportunities, or training opportunities, with emphasis on benefits to First Nation and Métis people;
- impacts to the safety and health of workers and the general public during construction activities (Health Canada’s guidance document, *Useful Information for Environmental Assessments* (Health Canada 2010), can be found on their web site);
- impacts to the safety of users of the road and associated impacts to the safety of users of other roadways, which are linked to Highway 914, and which may now experience heavier traffic; and
- issues and concerns arising from public consultation to date.

In addition to summarizing the issues and concerns raised, SMHI should also provide a table indicating the individual consultations, who the person was, the date, and the issues and concerns they raised. Statements of support could also be included in the table. The table should also summarize how the public’s concerns, comments or information requests were/will be addressed. Any resulting modifications to mitigation measures or additional mitigation measures introduced to reduce the risk of residual environmental effects should be noted.

The above list is not necessarily complete and any additional potential impacts identified by SMHI, regulators, technical reviewers, the public, and First Nations and Métis communities will need to be addressed.

## **10.0 PROJECT ALTERNATIVES**

Different alternatives for the project that are considered technically and economically feasible shall be considered and the environmental impacts for each alternative analyzed and explained in the EIS in order to provide the justification for the preferred approach. The analysis of the alternatives shall factor in the life-cycle of the development such as construction, operation, maintenance, decommissioning, and rehabilitation. Evaluation of alternatives may consider route selection, access road and intersection locations, borrow pit locations, and locations for sources of aggregate material.

A discussion of the potential environmental effects that were considered relative to any such alternative means shall be included. As well, the site selection process for all significant components of the project shall be discussed in the EIS. The information presented shall include the rationale for selection of the proposed sites (routes) along with how the current environmental conditions, predicted environmental impacts, and public consultations were considered in the decision making. The information presented shall be in the form of tables, figures, and text, presenting the issues and outcomes, and environmental trade-offs associated with the each alternative route.

## **11.0 SELECTION OF THE PREFERRED ROUTE AND DESCRIPTION OF FULL PROJECT**

A detailed description of the preferred approach must be provided describing all phases of the project, including construction, operation, maintenance, decommissioning, reclamation, and monitoring. The description must provide the information necessary to determine whether the benefits of the proposed development to the province and its citizens justify the environmental costs of the preferred route. The following details must be included in the description of the preferred route as follows:

- exact locations (depicted on a map(s) and explained in text) of new highway routes and rights-of way, access roads, and intersections at a scale appropriate to the effects and with identifiable geographic and environmental features, surface and ground water resources, current land use and nearby communities, residences, and industries;
- where possible, exact locations of borrow pits, aggregate sources, temporary work camps, maintenance facilities, water withdrawal facilities, and other activities associated with the project at a scale appropriate to the effects and with identifiable geographic and environmental features, surface and ground water resources, current land use and nearby communities, residences, and industries;
- a detailed, large-scale map and a photomosaic showing the project area in relation to surrounding topographic and land-use features;
  - Mapping shall place the project in the context of current protected area reserves, Treaty land entitlement land selections, recreational areas, wildlife protection lands, communities, heritage resource sites, etc.
- the anticipated schedule of all phases of the project;
- detailed descriptions of timing and the methods proposed for the various undertakings related to stream crossing construction (bridge construction, culvert placement, coffer dams, dewatering, erosion control, etc.);

The following information must be provided for all locations where the roadway will cross a fish-bearing stream:

- average bankfull channel width at the crossing location;
- proposed stream crossing structure, including a cross-sectional (side view) drawing of the structure that includes the outline of the stream channel and location of the normal high-water mark;
- the area within the stream channel up to the normal high-water mark, in square metres, that will be altered or infilled (destroyed) by the stream crossing structure. Appendix B includes a drawing that distinguishes between areas that are altered and areas that are infilled; and
- details on any permanent channel re-alignment or meander cut-off.

Where large-bodied fish are present within the stream at any time of the year, DFO requires that the crossing structure be designed to provide fish passage for the 1 in 10 year, 3-day delay discharge for the poorest swimming species of spawning size within

the stream. Where the crossing structure is a clear-span bridge that does not incorporate any infill of the stream channel or a single culvert that does not constrict the natural channel within the normal high-water mark, DFO assumes that fish passage will be achieved.

- a summary of the potential environmental impacts; and
- a description of mitigation measures for each potential environmental impact.

## **12.0 ACCIDENTS AND MALFUNCTIONS**

The EIS must identify the potential for environmental effects (including cumulative effects) resulting from accidents and malfunctions and unplanned events during any phase of the project and evaluate the likelihood and circumstances under which these events could occur. The implementation of any mitigation measures, contingency plans, and response mechanisms must also be detailed in this section.

**All spills** of oil, fuel, or other deleterious materials, **regardless of size**, are to be reported to the SK 24-hour Spill Line 1-800-667-7525.

## **13.0 EFFECTS OF THE ENVIRONMENT ON THE PROJECT**

The EIS must also take into account how the environment could adversely affect the project. This shall include consideration of the effects of severe weather events, such as extreme drought, abnormal precipitation, runoff/flooding, fire, earthquakes, rockfalls etc. The EIS must take into account any potential effects of climate change on the project, including an assessment of whether the project is sensitive to changes in climatic conditions during its lifespan.

## **14.0 REGIONAL/CUMULATIVE IMPACT ASSESSMENT**

The EIS shall discuss whether existing environmental conditions, including other developments in the area, might influence the development or its potential impacts. The discussion shall address whether the project-specific effects of the development combined with the impacts from the existing and planned developments in the region will result in, or contribute to any cumulative environmental effects or regional effects in the short or long term.

Cumulative effects are residual effects on the environment (i.e. impacts that occur after mitigation measures have been put in place) combined with the environmental effects of past, present, and future projects or activities. Cumulative effects can also result from the combination of different individual environmental effects of the project acting on the same environmental component. As such, the effects of this project must be considered together with those of other projects and activities that have been, or will be carried out, and for which the effects are expected to overlap with those of the project (i.e. overlap in same geographic area and time).

In order to consider the potential cumulative environmental effects of the project, the EIS shall identify other past, present, or reasonably foreseeable future projects carried out in the study area. The emphasis in this section shall be on “reasonably foreseeable” projects (e.g., projects that have been approved or that are currently advancing through the regulatory approvals process). Ongoing discussion with federal authorities is recommended in preparing a list of other projects and activities that shall be addressed. At a minimum, effort shall be made to identify other projects planned by local and regional governments as well as provincial and federal agencies.

The projects shall not be limited to other public transit/transportation infrastructure projects. All projects must be considered, especially those that may add cumulative effects on water quality, wetlands and wetland functions (information needs to meet the *Federal Policy on Wetland Conservation*), vegetation, wildlife habitat, air quality, and noise, as these environmental factors often experience the most impact from multiple projects/cumulative effects and shall be a focus of a cumulative effects analysis. Generally speaking, the information available to assess the environmental effects from other projects can be expected to be more conceptual and less detailed as those effects become more remote in distance and time to the project, or where information about another project or activity is not available. The consideration of cumulative environmental effects may, therefore, be at a more general level of detail than that considered in the assessment of the direct project-environment interactions.

Where potentially significant adverse cumulative effects are identified, additional mitigation measures may be necessary.

The Agency guidance documents, Operational Policy Statement - *Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act* (Canadian Environmental Assessment Agency 2007) and *Cumulative Effects Assessment Practitioners Guide* (Canadian Environmental Assessment Agency 1999) should also be consulted regarding the scope of cumulative impacts to be evaluated in the EIS.

## **15.0 MITIGATION MEASURES**

Measures that will be implemented to minimize adverse impacts and enhance positive impacts of the preferred route must be described. Any adverse impacts resulting from the project that cannot be mitigated must be explained. A table summarizing the mitigation measures for the identified potential impacts for the preferred route would be beneficial to technical and public reviewers.

All potential impacts and mitigation measures of the preferred route must be identified before highway construction begins. The mitigation measures that follow have been previously listed by provincial and federal government reviewers for similar projects. Mitigation measures must include but are not limited to the following:

- stream crossing requirements – bridge and culvert design and installation details, including related cross-sections and other stream channel characteristics;

Bridge structures that completely span a watercourse without altering the stream bed or bank or result in channel infilling are preferred over structures that alter the stream bed/bank or result in infilling of the channel.

- development and implementation of Best Management Practices for reducing or eliminating impacts to fish and fish habitat at road crossings, such as construction practices and erosion and sediment control practices, and that apply to all phases of construction and operation of the road;
- description and quantification of all harmful alterations and losses of fish habitat and provision of a compensation plan, to offset such alterations or losses, that demonstrates that the proposed road will not result in a loss of the productive capacity of fish habitat;

The Plan must include conceptual design specifications and methods; techniques and materials to be utilized; and be presented in text, tables, and conceptual maps and drawings as appropriate. The Plan must also include a description of measures to monitor the plan's implementation and verify the extent to which the Plan's purpose (i.e., no net loss of productive capacity of fish habitat) will be achieved.
- measures to mitigate impacts to fish species that may occur in the project area and are rare as defined in section 8.1.3; and including separate measures to mitigate impacts to all SARA listed species and those recognized as "at risk" by COSEWIC, their critical habitat, and residences of individuals of those species;
- measures to prevent negative impacts to fish, fish habitat and water quality resulting from water runoff, soil erosion, soil disturbance, or mass wasting;
- rehabilitation measures for borrow sources;
- estimated aggregate requirements and anticipated life of aggregate sources, including use in other projects (if applicable) and rehabilitation;
- reclamation and revegetation measures for vegetation disturbed within the right-of-way;
- an erosion and sediment control plan;
- standards for overall construction;
- the procedures and guidelines that will be utilized in construction, operation, and mitigation activities;
- procedures for documenting the types, quantities, storage locations, and handling procedures for waste, fuel, hazardous substances, and waste dangerous goods;
- measures to manage wastes and debris (including non-merchantable timber) during clearing and construction;
- measures to prevent spills or leakages of fuel, chemicals, or hazardous wastes during use, transportation, or storage of these materials;

The approximate volumes of stored fuel and lubricants for equipment shall be identified along with the likely locations and related mitigation measures to ensure environmental protection. Any measures that will be implemented to recycle and reuse materials, increase energy efficiency and reduce waste shall be outlined.
- measures to ensure occupational health and safety of workers during construction, including measures for health and safety when working with explosives;



- measures to ensure the safety of the users of the all weather roadway, and additional measures that may be taken to ensure the safety of the users of adjoining roadways that may be subject to heavier usage as a result of the new all weather roadways;
- measures to provide training opportunities, and ongoing employment for local communities, First Nations, and Métis people;
- measures to mitigate impacts to vegetation (plants, mosses, lichens, and fungi) species that may occur in the project area and are rare as defined in section 8.1.3; and including separate measures to mitigate impacts to all SARA listed species and those recognized as “at risk” by COSEWIC, their critical habitat, and residences of individuals of those species;
- measures to mitigate impacts to other plants, mosses, lichens, and fungi species of interest or concern;
- measures to prevent the spread of non-native vegetation;
- measures to mitigate impacts to wildlife (mammals, birds, amphibians, insects, reptiles, arthropods, and land-dwelling mollusks) species that may occur in the project area and are rare as defined in section 8.1.3; and including separate measures to mitigate impacts to all SARA listed species and those recognized as “at risk” by COSEWIC, their critical habitat, and residences of individuals of those species;
- measures to mitigate impacts on other wildlife (mammals, birds, amphibians, insects, reptiles, arthropods, and land-dwelling mollusks) species of concern or interest
- measures taken during the road construction, operation, and closure stages to limit hunter access and minimize the impact on caribou and their habitats;
- measures taken to monitor all adverse effects on species that are rare as defined in section 8.1.3 and that occur in the area; including separate measures to monitor impacts to all SARA listed species and those recognized as “at risk” by COSEWIC, their critical habitat, and residences of individuals of those species;
- discuss how measures taken to monitor the adverse effects of all SARA listed species and those recognized as “at risk” by COSEWIC, their critical habitat, and residences of individuals of those species are consistent with any applicable recovery strategy, management plans, and action plans;
- discuss the cumulative environmental effects on all SARA listed species and those recognized as “at risk” by COSEWIC, the residences of their individuals and their critical habitat and measures to reduce these effects.
- discuss measures taken to mitigate the cumulative environmental effects on all SARA listed species and those recognized as at risk by COSEWIC, including cumulative environmental effects to the residences of their individuals, and the cumulative environmental effects on a species’ critical habitat.
- measures to ensure the no net loss of wetland function;

Discuss how the mitigation measures are expected to meet *The Federal Policy on Wetland Conservation* (Government of Canada 1991).

In addressing wetland mitigation, SMHI may wish to formulate strategies similar to those used for the Lewvan Interchange along the Trans-Canada Highway in south Regina.

- measures to mitigate changes to local natural drainage patterns. Note, that if such impacts occur, a drainage permit must be obtained from the Saskatchewan Watershed Authority;
- measures to ensure that heritage resources are protected; and

Where heritage resources have been identified within the project area, the HRIA will indicate where suitable site avoidance measures (including right-of-way relocation) may be implemented. The HRIA will also establish the content, structure and importance of those heritage sites located in unavoidable conflict with development. On that basis, both the need for and scope of any migratory follow-up (including archaeological salvage excavation) will be determined.

The HRIA must be carried out by qualified personnel under an approved investigation permit issued through the Heritage Resources Branch of the Ministry of Tourism, Parks, Culture and Sport.

- measures to accommodate issues and concerns documented during public consultation.

To assist proponents in accounting and managing species at risk, EC has developed a guide entitled, "*Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada*."

Species specific timing restrictions and setbacks must also be respected. For a list of wildlife species appropriate setbacks, the proponent is referred to EC's *Petroleum Industry Activity Guidelines for Wildlife Species at Risk in the Prairie and Northern Region*. For a list of plant species appropriate setbacks and survey protocols, the proponent is referred to EC's *Occupancy Survey Guidelines for Prairie Plant Species at Risk* and *Activity Set-back Distance Guidelines for Prairie Plant Species at Risk*.

For copies of these documents, contact EC's Environmental Assessment Coordinator for Saskatchewan, Amy Wilker at 306-780-5399 or at [Amy.Wilker@ec.gc.ca](mailto:Amy.Wilker@ec.gc.ca).

Guidelines are also available on activity restrictions for species: listed by SKCDS as extremely rare (S1) and rare (S2); listed in *The Wild Species at Risk Regulations* (Saskatchewan); or that are sensitive for other reasons (SKCDC 2003).

## 16.0 COMMITMENTS REGISTER

Technical reviewers will expect a commitments register outlining each commitment made to mitigate the environmental impacts of the preferred route and to meet any regulatory requirements. The register should provide a brief description of the commitment, indicate how the commitment is to be implemented, indicate how and when the implementation of the commitment is to be assessed, and describe any follow-up action items. The register should be developed in consultation with the EAB, the RAs, and the Agency.

## **17.0 MONITORING, REPORTING AND FOLLOW-UP**

Technical reviewers will expect a monitoring and reporting strategy for the commitments outlined in the Commitments Register. The reporting shall indicate how effectively the commitment has been or is being met, indicate any preventive actions where a commitment may not be met, and any actions to correct non-conformances where a commitment has not or is not being met. The strategy shall indicate which reviewing agency shall be reported to for each commitment, and include a strategy on how the EAB and federal regulatory agencies will be kept informed of all monitoring and reporting to ensure that these actions are being undertaken. An annual report to the EAB, summarizing monitoring and reporting activities is a suggested approach.

A statement on inspection and compliance monitoring activities is necessary in the EIS to later ensure that proposed mitigation is implemented and functioning as expected (note: additional mitigation monitoring information may also be requested during project construction). It is preferred that an initial mitigation monitoring plan be submitted as part of the EIS, and that if necessary modification be made and submitted prior to construction.

INAC, TC and DFO and have not currently identified a likely need for a formal federal follow-up program for the proposed project. A decision on the need for a follow-up program is typically made once the likely effects of the project and proposed mitigation measures are known.

## **18.0 SIGNIFICANCE OF RESIDUAL ADVERSE ENVIRONMENTAL EFFECTS**

The criteria for evaluating and describing the significance of the residual (post-mitigation) effects (including cumulative effects) may include: magnitude; duration and frequency; ecological context; geographic extent; and degree of reversibility. Existing federal and provincial regulatory and industry standards and guidelines are relevant as points of reference for evaluating significance. Professional expertise and judgment may also be applied in evaluating the significance of an environmental effect. All applicable federal and provincial laws must be respected.

To satisfy the Federal Act requirements, this statement must include conclusions specifically on whether the project is likely to cause significant adverse effects on the environment. The analysis must be documented in a manner that readily enables conclusions on the significance of the environmental effects to be drawn. The RAs will make the final decision on the significance of the environmental effects.

## **19.0 PUBLIC INVOLVEMENT**

In addition of the opportunity for the public to comment on the scope and draft PSGs as discussed in section 19 below, the public will be given an opportunity to participate in the conduct of the environmental assessment through public meetings to be held by the proponent,

as is required in both federal and provincial environmental assessment procedures. SMHI will undertake a significant public involvement program that informs the public about the project and receives feedback on potential issues, interests, and concerns related to the project and alternate routes. These issues shall then be recorded in the EIS along with the measures that will be taken to address concerns and enhance opportunities. Public meetings or open houses shall be held in the impacted communities to outline the preferred route and route alternatives and to obtain comments on the options. Prior to this, meetings/interviews shall be held with trappers, fishermen, hunters, elders, councilors and others from the communities/First Nations to obtain a clear understanding of the issues, land uses, and local knowledge that will assist in choosing a preferred route.

The public will also be provided with an opportunity to examine the EIS, the comprehensive study report prepared by the federal government and the Technical Review Comments prepared by the provincial Environmental Assessment Branch. The public will be requested to provide their comments to the respective federal and provincial Ministers who will be issuing an environmental assessment decision. This final public review period must be a minimum of 30 days to meet provincial requirements and will be extended, if necessary, through consultation with the Project Administration Team as per the Cooperative Agreement.

## **20.0 INVITATION FOR PUBLIC TO COMMENT ON PROJECT SCOPE AND DRAFT GUIDELINES**

By policy, the Saskatchewan Ministry of Environment makes Draft PSGs available to the public so that they can provide input into the Guidelines and outline any additional issues of interest to the public that should be included in the Guidelines. Interested persons may submit their comments on the above issues to:

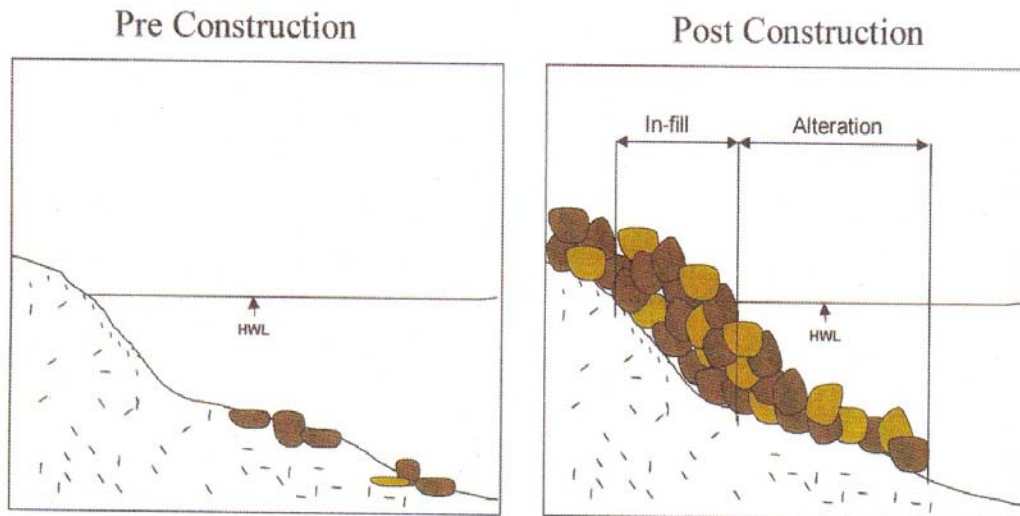
Howard DeLong,  
Senior Environmental Assessment Administrator  
Saskatchewan Ministry of Environment  
Environmental Assessment Branch  
3211 Albert Street, 4th Floor  
REGINA SK S4S 5W6  
Phone: (306) 787-6138  
Fax: (306) 787-0930

## **Appendix A: Recommended Mapping Requirements**

A description of the proposed work shall include a map(s) identifying the proposed work with sufficient detail that the reader can understand the work and the location within the province of Saskatchewan. The following is a list of minimum recommended mapping requirements to display on every map:

- Title
- The Ministry of Highway and Infrastructures' name
- Author of map
- Date of map
- Nearby place names
- Major lakes and names
- Major rivers and names
- Nearby major roads and names
- North arrow
- Scale bar
- Coordinates
- Standard used for map coordinates (the Ministry of Environment typically used NAD83(CSRS98))
- UTM Zone (if applicable)
- Legend
- Small reference key map showing the location of the proposed project in relation to whole province of Saskatchewan Other information on the map(s) that would help in the evaluation of the proposal would include locations of other resources or values that could be impacted by the program(s). One map shall also indicate the proposed work.

## Appendix B: Infilling or Alteration of Fish Habitat



**In-fill and alteration (modification) associated with sloping shoreline stabilization works. HWL = average high water level.**

**Infilling** occurs when an area below the average high water level is filled to make it higher than the average high water level, resulting in a loss of fish habitat. **Alteration** occurs when an area below the average high water level is modified/altered, but alterations will not result in material or structures extending above the average high water level.

## Appendix C: Data and Information Sources

Agriculture and Agri-Food Canada. *Watersheds*; <http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1229003100989&lang=eng>, or follow link - Agriculture and Agri-Food Canada/Programs and Services/Agri-Geomatics/Watershed

Agriculture and Agri-Food Canada. *Soil Landscapes of Canada*, <http://sis.agr.gc.ca/cansis/nsdb/slc/intro.html>, or follow link – Agriculture and Agri-Food Canada Canadian Soil Information Service/National Soil DataBase (NSDB)/Soil Landscapes of Canada (SLC),

Athabasca Interim Advisory Panel. 2006 *Draft Athabasca Land Use Plan, Stage One*, <http://www.environment.gov.sk.ca/Default.aspx?DN=77e08791-38ff-4b6c-bbd3-79c2af8320cc>, or follow link Government of Saskatchewan/Ministries and Agencies/Environment/Programs and Services/Land/Land Use Planning/Athabasca/Athabasca LUP Stage 1 Document

Canadian Environmental Assessment Agency. 2007. *Operational Policy Statement: Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act*, <http://www.ceaa.gc.ca/default.asp?lang=En&n=1F77F3C2-1>, or by following link – Canadian Environmental Assessment Agency/Policy & Guidance/Guidance Materials/Operational Policy Statements/Addressing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*

Canadian Environmental Assessment Agency. 1999 *Cumulative Effects Assessment Practitioners Guide*. Prepared by the Cumulative Effects Assessment Working Group and AXYS Environmental Consulting Ltd. 134 Pages. <http://www.ceaa.gc.ca/default.asp?lang=En&n=1F77F3C2-1>, or by following link - Canadian Environmental Assessment Agency/Policy & Guidance/Guidance Materials/Procedural Guides/Cumulative Effects Assessment Practitioners Guide

Canadian Environmental Assessment Agency. *Basics of Environmental Assessment*. <http://www.ceaa.gc.ca/default.asp?lang=En&n=B053F859-1> or follow link – Canadian Environmental Assessment Agency/Environmental Assessments/Basics of Environmental Assessment

Canadian Plains Research Centre. 1998. *The Ecoregions of Saskatchewan*, University of Regina, Regina, Saskatchewan. 204 pages. Available for purchase from the Government of Saskatchewan, <http://www.publications.gov.sk.ca/details.cfm?p=11934>. or follow link – Government of Saskatchewan/Publication/Canadian Plains Research Centre/Natural Sciences/The Ecoregions of Saskatchewan

Environment Canada. 2004. *Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada*. First Edition, Canadian Wildlife Service, Environment Canada. 68 Pages. For a copy, contact Environment Canada's Environmental Assessment Coordinator for Saskatchewan, Amy Wilker (306-780-5399, [Amy.Wilker@ec.gc.ca](mailto:Amy.Wilker@ec.gc.ca))

Government of Canada. 1991 *The Federal Policy on Wetland Conservation*. Canadian Wildlife Services, Environment Canada, Ottawa, Ontario. 15 pages.  
<http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=BBAAE735-EF0D-4F0B-87B7-768745600AE8>, or follow link –Environment Canada/Reports and Publications/Find a Publication/

Government of Canada and Government of Saskatchewan 2005. Canada-Saskatchewan Agreement of Environmental Assessment Cooperation. 16 pages

Government of Saskatchewan. 2010. *First Nation and Métis Consultation Policy Framework*. 20 pages <http://www.fnmr.gov.sk.ca/Consultation-Policy-Framework>, or follow link – Government of Saskatchewan/Ministries and Agencies/First Nations and Métis Relations/Aboriginal Consultation/Government of Saskatchewan First Nations and Métis Consultation Policy Framework.

Health Canada. 2010. *Useful Information for Environmental Assessments*. Ottawa, Ontario. 17 pages. [http://www.hc-sc.gc.ca/ewh-semt/alt\\_formats/hecs-sesc/pdf/pubs/eval/envIRON\\_assess-eval/envIRON\\_assess-eval-eng.pdf](http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/eval/envIRON_assess-eval/envIRON_assess-eval-eng.pdf), or follow link Health Canada/Environmental & Workplace Health/Reports and Publications/Environmental Health Assessment/Useful Information for Environmental Assessments

Henderson, Darcy 2009a. *Activity Set-Back Distance Guidelines for Prairie Plant Species at Risk*. Canada, Environment Canada, Canadian Wildlife Service, Prairie and Northern Region, Saskatoon, Saskatchewan. 18 pages. For a copy, contact Environment Canada's Environmental Assessment Coordinator for Saskatchewan, Amy Wilker (306-780-5399, [Amy.Wilker@ec.gc.ca](mailto:Amy.Wilker@ec.gc.ca))

Henderson, Darcy 2009b. *Occupancy Survey Guidelines for Prairie Plant Species at Risk*. Canada, Environment Canada, Canadian Wildlife Service, Prairie and Northern Region, Saskatoon, Saskatchewan, 44 pages. For a copy, contact Environment Canada's Environmental Assessment Coordinator for Saskatchewan, Amy Wilker (306-780-5399, [Amy.Wilker@ec.gc.ca](mailto:Amy.Wilker@ec.gc.ca))

Saskatchewan Conservation Data Centre. 2010a *Expected Animal and Invertebrate Species List by Ecoregion*. <http://www.biodiversity.sk.ca/SppList.htm>

Saskatchewan Conservation Data Centre. 2010b *Expected Fungi Species List by Ecoregion*. <http://www.biodiversity.sk.ca/SppList.htm>

Saskatchewan Conservation Data Centre. 2010c *Expected Plant Species List by Ecoregion*. <http://www.biodiversity.sk.ca/SppList.htm>

Saskatchewan Conservation Data Centre. 2009 *Standardized Methodology for Surveys of Rare Plants*. <http://www.biodiversity.sk.ca/Pubs.htm>



Saskatchewan Conservation Data Centre. 2003 Table 1. Saskatchewan Activity Restriction Guidelines for Sensitive Species in Natural Habitats. <http://www.biodiversity.sk.ca/Pubs.htm>

Saskatchewan Ministry of Environment. 2009 *Terrestrial Field Surveys: Permit Requirements, and Design & Methodology Guidelines* <http://www.biodiversity.sk.ca/Pubs.htm>

Saskatchewan Ministry of Environment. *EIA Conduct – EIS Content*  
<http://www.environment.gov.sk.ca/Default.aspx?DN=2eea259e-3f48-41af-9cb7-0a9f650762b3>, or follow link – Government of Saskatchewan/Ministries and Agencies/Environment/Programs and Services/Environmental Assessment/A Guide to the Environmental Assessment Process/EIA Conduct – EIS Content

Saskatchewan Ministry of Environment. *Past/Historical Fire Activity*.  
<http://www.environment.gov.sk.ca/Default.aspx?DN=e3b65a62-d11c-4a21-bd82-5247414d0f7d>, or follow link. Government of Saskatchewan/Ministries and Agencies/Environment/Programs and Services/Wildfire Management/Past-Historical Fire Activity. May also wish to directly contact the Ministry of Environment's Fire Management and Forest Protection Branch, Science and Planning Section (206-953-3459) for digital fire disturbance information, large scale maps, and the most recent fire disturbance updates.  
Saskatchewan Ministry of Environment. 2009

Saskatchewan Research Council. 2006. *Landcover, Northern Digital Land Cover*, Saskatoon, Saskatchewan. Available by contacting the Ministry of Environment's Boreal Geomatics Section (306-953-2376).