



**RAINY RIVER RESOURCES LTD.**

**VOLUME 1: SUMMARY OF FINAL ENVIRONMENTAL ASSESSMENT REPORT  
(ENVIRONMENTAL IMPACT STATEMENT)**

**RAINY RIVER PROJECT  
TOWNSHIP OF CHAPPLE, ONTARIO**

**VERSION 2**

**1111 Victoria Avenue East  
Thunder Bay, Ontario  
P7C 1B7**

**December 2013  
TC111504**



## PREFACE

This document contains "forward-looking information" as defined in applicable securities laws (referred to herein as "forward-looking statements"). Forward looking statements include, but are not limited to, statements with respect to the cost and timing of the development of the Rainy River Project, including the exercise of the economic parameters of the project; the success and continuation of exploration activities; estimates of mineral resources; acquisitions of additional mineral properties; the future price of gold; government regulations and permitting timelines; estimates of reclamation obligations that may be assumed in connection with the exercise of the economic parameters of the project; requirements for additional capital; environmental risks; and general business and economic conditions. Often, but not always, forward-looking statements can be identified by the use of words such as "plans", "expects", "is expected", "budget", "scheduled", "estimates", "suggests", "continues", "forecasts", "projects", "predicts", "intends", "anticipates" or "believes", or variations of, or the negatives of, such words and phrases, or statements that certain actions, events or results "may", "could", "would", "should", "might" or "will" be taken, occur or be achieved. Inherent in forward-looking statements are risks, uncertainties and other factors beyond the Company's ability to predict or control. These risks, uncertainties and other factors include, but are not limited to, the assumptions underlying the document not being realized, future gold prices, changes in cost of labour, supplies, fuel and equipment, changes in equity markets, actual results of current exploration, changes in project parameters, exchange rate fluctuations, title risks, regulatory risks and uncertainties with respect to obtaining necessary surface rights and permits or delays in obtaining same, and other risks involved in the gold exploration and development industry, as well as those risk factors discussed in the section entitled *Description of Business-Risk Factors* in Rainy River Resources 2012 Annual Information Form. Forward-looking statements are based on a number of assumptions which may prove to be incorrect, including, but not limited to, the availability of financing for the Company's exploration and development activities; the timelines for the Company's exploration and development activities on the Rainy River Property; the availability of certain consumables and services; assumptions made in mineral resource estimates, including geological interpretation grade, recovery rates, and operational costs; and general business and economic conditions. Forward looking statements involve known and unknown risks, uncertainties and other factors which may cause the Company's actual results, performance or achievements to be materially different from any of its future results, performance or achievements expressed or implied by forward-looking statements. All forward-looking statements herein are qualified by this cautionary statement. Accordingly, readers should not place undue reliance on forward-looking statements. The Company undertakes no obligation to update publicly or otherwise revise any forward-looking statements whether as a result of new information or future events or otherwise, except as may be required by law.

## **ACKNOWLEDGEMENTS**

Rainy River Resources Ltd. / New Gold Inc. wish to acknowledge the involvement and support of many groups and individuals in the Rainy River Project to date, including but not limited to: local Municipalities, First Nations, Métis, the public, other government agencies, the Rainy River School District, Riverside Health, Rainy River Cattleman's Association, Ontario Federation of Anglers and hunters, Confederation College, as well as local hoteliers and resort owners.

Through this involvement and support, Rainy River Resources Ltd. / New Gold Inc. have been able to design a better project for development in the Rainy River District.



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## GLOSSARY AND ABBREVIATIONS

Aboriginal	In the context of the RRP includes both First Nation and Métis people
AMEC	AMEC Environment & Infrastructure
CEA Agency	Canadian Environmental Assessment Agency
CEQG	Canadian Environmental Quality Guidelines
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
COSSARO	Committee on the Status of Species at Risk in Ontario
EA	Environmental Assessment
EIS	Environmental Impact Statement
FMP	Follow-up Monitoring Program
HLSA	Human Environment Local Study Area
HRSA	Human Environment Regional Study Area
MNR	Ontario Ministry of Natural Resources
MOE	Ontario Ministry of the Environment
NLSA	Natural Environment Local Study Area
NPAG	Non-potentially Acid Generating
NRSA	Natural Environment Regional Study Area
PAG	Potentially Acid Generating
PWQO	Ontario Provincial Water Quality Objectives
PSQG	Ontario Provincial Sediment Quality Guidelines
RRP	Rainy River Project
RRR	Rainy River Resources Limited
SAR	Species at Risk
SARA	<i>Species at Risk Act</i>
SARO	Species at Risk in Ontario
TK	Traditional Knowledge
TLU	Traditional Land Use
ToR	Terms of Reference
VEC	Valued Ecosystem Component
VSEC	Valued Socio-Economic Component

**MEASUREMENT UNITS**

a	annum (year)
ha	Hectares
km	Kilometre
m	Metre
m <sup>3</sup>	Cubic Metres
mm	Millimetres
M	Million
Mt	Million Tonnes
Mt/a	Million Tonnes per Year
t	Tonne
tpd	Tonnes per day

## 1.0 OVERVIEW

This Environmental Assessment (EA) Report summary has been prepared in partial fulfilment of Federal and Provincial EA requirements for the Rainy River Project (RRP), as defined through the Federal Environmental Impact Statement (EIS) Guidelines and the Provincially-approved Amended Terms of Reference (ToR). The EA process is a tool used by the Federal and Provincial governments, and proponents, to provide potentially affected stakeholders and other interested parties an opportunity to have input into project planning, with the intent of developing a project which is both compliant with applicable regulations and statutes, and cognisant of stakeholder concerns and interests.

Rainy River Resources Ltd. (RRR) has been exploring the RRP property since 2005, with the objective of developing a gold mine and milling complex on the site. RRR proposes to construct, operate and eventually reclaim a new open pit and underground gold mine, the RRP.

Project Name: Rainy River Project

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New Gold Inc. (New Gold) recently successfully completed its acquisition of RRR and the RRP is 100%-owned by New Gold; however, the proponent of the RRP remains RRR. New Gold is listed on both the Toronto Stock Exchange and the NYSE MKT under the symbol: NGD. New Gold has corporate offices in both Vancouver, British Columbia and Toronto, Ontario. New Gold maintains a corporate and management structure in line with similar publicly-traded companies. Directors and officers of the company are disclosed annually in regulatory filings and identified on the company web site.

The RRP is located in the Township of Chapple, District of Rainy River, in northwestern Ontario, approximately 65 km northwest of Fort Frances, and 420 km west of Thunder Bay (Figure S-1). The UTM coordinates for the centroid of the proposed open pit are at 425660E, 5409700N (NAD 83 Zone 15). The RRP site and surrounding lands are dominantly privately held, with RRR holding a considerable private land package.

The area exhibits variable, gently undulating terrain, and is drained principally by small creeks leading to the Pinewood River. The project site is located in a low density rural area within which some limited agricultural (mainly cattle and fodder cropping) and logging activities occurs. Adjacent areas show mostly second growth poplar forests and wetlands.

The EA Report presented herein has been developed through a process of close coordination between the project engineering teams, and RRR sustainability staff and their consultants. Meetings and discussions with community members through various forums including the development of agreements with First Nation and Métis partners have enhanced and strengthened the development process over a preceding 24 month period.

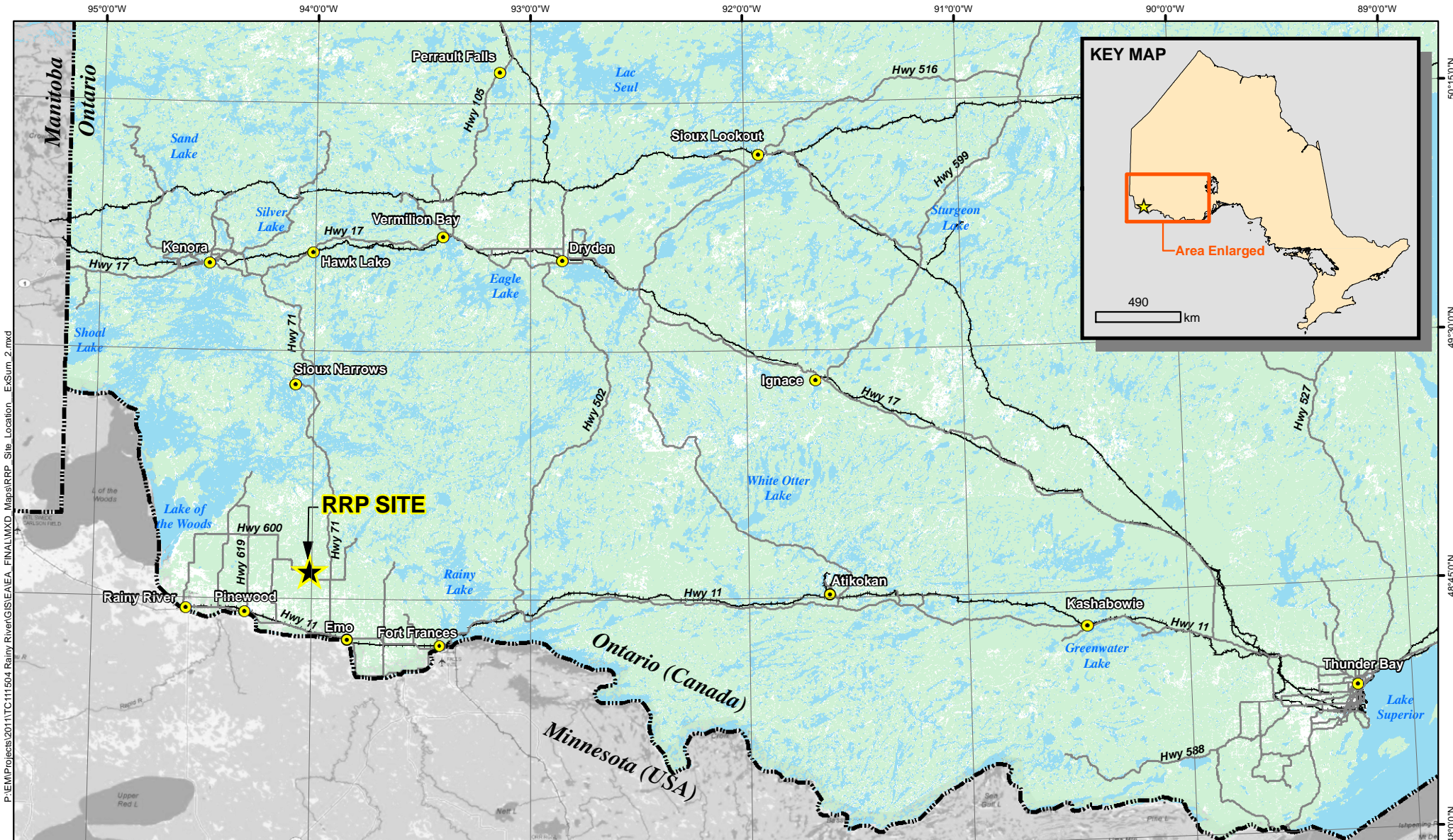
Central to the EA development process has been the integration of the below key principles:

- Respect for the cultural pluralism intrinsic within the Rainy River District;
- Integration of a 'do no harm culture';
- Design and integration of enhanced management practices; and
- Continuous improvement.

RRP construction expenditures of \$713.5M are expected to generate in Ontario about \$202.2M in Gross Domestic Product from direct expenditures, \$114.5M from indirect expenditures and \$95.6M from induced expenditures. Total Gross Domestic Product in Ontario increased as a result of the RRP construction phase is projected to be about \$412.4M. Construction is expected to generate about 2,415 person-years of direct employment, 1,252 person-years of indirect employment and 883 person-years of induced employment. Total increased employment in Ontario as a result of the RRP construction phase is projected to be about 4,550 person-years.

Over the operational life of the mine from 2016 to 2031, the mine is expected to earn gross revenues of \$5.6B. On average during the operation phase, the RRP will generate \$196.8M in Gross Domestic Product annually from direct expenditures, \$56.9M annually from indirect effects and \$62.6M annually from induced effects. The total average annual Gross Domestic Product increase in Ontario as a result of operations is \$316.3M. The RRP will create direct employment for approximately 727 people in Ontario on average during each year of operations. Annual indirect and induced employment in Ontario during this phase is expected to total approximately 611 and 578 jobs, respectively. When added to direct employment for the RRP, total employment in Ontario as a result of the operation phase is 1,917 jobs per year.





P:\EMP\Projects\2011\TC111504 Rainy River\GIS\EA\EA\_FINAL\MXD Maps\RRP\_Site\_Location\_ExtSum\_2.mxd

**LEGEND**

-  RRP Site
-  Regional Communities
-  Provincial / National Border
-  Regional Road / Highway
-  Railway



**NOTES:**  
 - Ontario base data extracted from Land Information Ontario (MNR) data warehouse, Queen's Printer for Ontario, 2011-2012  
 - Base data outside of Ontario extracted from ESRI DeLorme World Basemap

Datum: NAD83  
 Projection: UTM Zone 15N



**newgold™** Rainy River Project **amec**

**RAINY RIVER PROJECT**

**Site Location**

PROJECT N<sup>o</sup>: TC111504

FIGURE: S-1

SCALE: 1:1,800,000

DATE: October 2013



## **2.0 STRUCTURE OF THE FINAL ENVIRONMENTAL ASSESSMENT REPORT**

This Volume 1 consists of a standalone summary of the Final EA Report structured to comply with the Federal EIS Guidelines. Referencing has been provided herein to guide the reader to information contained in additional volumes of the Final EA Report. The front of this document includes a:

- Glossary and abbreviations;
- List of measurement units; and
- Table of contents, including list of tables and list of figures.

Volume 2 contains the main text of the EA Report, including the following introductory information to assist the reader:

- Glossary and abbreviations;
- List of measurement units;
- List of chemical elements and compounds; and
- Table of contents, including list of tables, list of figures and list of appendices.

Volume 3+ contains the supporting appendices (generally technical documents) for the EA Report grouped by topic as follows. Each appendix may contain more than one document:

- Appendix A: Photographic Summary;
- Appendix B: Federal EIS Guidelines and Concordance Table;
- Appendix C: Provincial Approved ToR, Concordance Table and Commitments;
- Appendix D: Records of Consultation, Meetings and Discussions;
- Appendix E: Conceptual Closure Plan;
- Appendix F: Climate, Air Quality and Sound Baseline;
- Appendix G: Report on ML/ARD Characterization of Mine Rock and Tailings;
- Appendix H: Hydrogeology Baseline;
- Appendix I: Aquatic Resources Baseline;
- Appendix J: Terrestrial Baseline;
- Appendix K: Species at Risk Baseline;
- Appendix L: Socio-economic Baseline;
- Appendix M: Cultural Heritage Resources Baseline;
- Appendix N: Initial Interdisciplinary Baseline;
- Appendix O: Comprehensive Alternatives Assessment Tables;
- Appendix P: Assessment of Alternatives for Tailings and Mine Rock Storage;
- Appendix Q: Air Quality Modelling Report;
- Appendix R: Sound and Vibration Modelling Reports;
- Appendix S: Hydrogeology Modelling Report;
- Appendix T: Prediction of Post-Closure Water Quality;

- Appendix U: Tailings Management Area Failure and Water Quality Assessment;
- Appendix V: Contingency and Response Plan;
- Appendix W: Water Management Approach;
- Appendix X: Draft Fisheries Compensation Strategy and Plans; and
- Appendix Y: Highway 600 Re-alignment Engineering Aspects.



**3.0 PARTICIPANTS IN ENVIRONMENTAL ASSESSMENT**  
**Reference: Volume 2, Section 2**

**3.1 Stakeholders**

RRR is an active member of the local community with offices in both Emo and Thunder Bay, Ontario that offer residents easily accessible locations to learn about the RRP. RRR continues to engage and consult with the local communities, including First Nations and Métis community members. Through meetings, site tours and regular communications, RRR strives to ensure engagement with all members of the local communities.

The main stakeholders involved to date in the RRP include those with a direct interest in the RRP, and those who provided data for baseline environmental reports such as Municipal and Provincial government department representatives, community-based service providers, economic development agencies and other similar groups. The Provincial and Federal government representatives have been actively involved in the EA process to date.

The range of stakeholders is expected to grow and will continue to evolve throughout RRP development to reflect varying levels of interest and opportunities over time. Stakeholders engaged by RRR to date include:

**Business, Community Groups and Environmental Organizations:**

- Ainsworth Lumber;
- Borderland Snowmobile Club;
- Camp Narrows Lodge;
- Clearwater Lodge;
- Confederation College;
- Fort Frances Chamber of Commerce;
- Fort Frances Sportsman's Club;
- Gateway North Outfitters;
- Riverside Health Care Facilities;
- Mining Watch Canada;
- Natural Resources Advisory Committee;
- Northwatch;
- Northwest Catholic District School Board;
- Ontario Federation of Anglers and Hunters;
- Rainy Lake Conservancy;
- Rainy River Cattleman's Association;
- Rainy River District School Board;
- Rainy River District Social Services Administration Board;
- Rainy River District Stewardship;

- Rainy River Federation of Agriculture;
- Rainy River Future Development Corporation;
- Rainy River Outfitters;
- Rainy River Soil and Crop Improvement Association;
- Rainy River Trapping Council;
- Rainy River Valley Field Naturalists;
- Resolute Forest Products;
- Known local mineral rights holders; and
- Other local small business owners.

**Municipal Government:**

- Township of Alberton;
- Township of Chapple;
- Township of Dawson;
- Township of La Vallee;
- Township of Morley;
- Township of Sioux Narrows-Nestor Falls;
- Town of Emo;
- Town of Fort Frances; and
- Town of Rainy River.

**Provincial (Ontario) Government:**

- Ministry of Aboriginal Affairs;
- Ministry of Agriculture and Food;
- Ministry of Economic Development, Trade and Employment;
- Ministry of Energy;
- Ministry of Health and Long-Term Care;
- Ministry of Infrastructure;
- Ministry of Labour;
- Ministry of Municipal Affairs and Housing;
- Ministry of Natural Resources (MNR);
- Ministry of Northern Development and Mines;
- Ministry of the Environment (MOE);
- Ministry of Tourism, Culture and Sport;
- Ministry of Transportation;
- Hydro One Networks Inc.;

- Ontario Provincial Police; and
- Provincial Parliament representatives.

The naming of government ministries is current as of October 1, 2013. Note that when referencing past communications / documents in the EA Report, the original government name is utilized.

#### **Federal Government:**

- Aboriginal Affairs and Northern Development Canada;
- Canadian Environmental Assessment Agency (CEA Agency);
- Environment Canada;
- Fisheries and Oceans Canada;
- Health Canada;
- International Joint Commission (Canada - United States);
- Major Projects Management Office;
- Natural Resources Canada;
- Transport Canada; and
- Federal Parliament representative.

### **3.2 Aboriginal Groups**

The Aboriginal groups engaged in discussions regarding the RRP were identified using the following criteria:

- Proactive engagement initiated by RRR;
- Direction from the Provincial Crown (Ministry of Northern Development and Mines, MOE, Ministry of Aboriginal Affairs and MNR) and Federal Crown (represented by the CEA Agency);
- Proximity to the RRP; if the stakeholders or Aboriginal groups are resident in and/or have jurisdiction over the area in which the project is proposed or has the potential to affect;
- Past or current interest in similar projects or developments in the region; if the stakeholders or Aboriginal groups have been involved in consultation processes in current or past projects in the region that are anticipated to have a similar interest in the RRP;
- Demonstrated previous interest in potential biophysical and socio-economic environmental effects of the RRP; or

- Aboriginal groups with traditional lands encompassing the RRP site and its related proposed infrastructure.

Through advice from the Provincial Crown, Aboriginal groups identified to be consulted regarding the RRP are:

- Mishkosiminiziibiing (Big Grassy River) First Nation;
- Anishinaabeg of Naongashiing First Nation (Big Island);
- Naicatchewenin First Nation;
- Naotkamegwanning (Whitefish Bay) First Nation;
- Ojibways of Onigaming First Nation;
- Rainy River First Nations;
- Buffalo Point First Nation; and
- Métis - Rainy River Lake of the Wood Regional Consultation Committee Region #1.

RRR will also continue to consult and involve the Fort Frances Chiefs Secretariat and Pwi-Di-Goo-Zing-Ne-Yaa-Zhing Advisory Services Tribal organizations.

Aboriginal groups identified by the Provincial Crown to be notified regarding the RRP are:

- Anishinabe of Wauzhushk Onigum First Nation (Rat Portage);
- Couchiching First Nation;
- Lac La Croix First Nation;
- Mitaanjigamiing (Stanjikoming) First Nation;
- Nigigoonsiminikaaning (Nicickousemenecaning) First Nation;
- Northwest Angle #33 First Nation;
- Northwest Angle #37 First Nation; and
- Seine River First Nation.

RRR elected to have the Provincial Crown coordinate notification in August of 2012.

RRR also received guidance from the CEA Agency with regards to Aboriginal engagement. The preliminary depth of consultation intended by the CEA Agency to take into account the strength of the community's claim to Aboriginal or Treaty Rights and the seriousness of potential adverse impacts was provided to RRR as follows:

**High Depth of Consultation:**

- Naicatchewenin First Nation;
- Rainy River First Nations;
- Anishinaabeg of Naongashiing First Nation (Big Island);
- Mishkosiminiziibiing (Big Grassy River) First Nation;

- Ojibways of Onigaming First Nation; and
- Naothamegwanning (Whitefish Bay) First Nation.

**Moderate Depth of Consultation:**

- Métis - Rainy River Lake of the Wood Regional Consultation Committee Region #1.

**Low Depth of Consultation:**

- Mitaanjigamiing (Stanjikoming) First Nation;
- Couchiching First Nation;
- Buffalo Point First Nation;
- Northwest Angle #33 First Nation;
- Northwest Angle #37 First Nation;
- Anishinabe of Wauzhushk Onigum First Nation (Rat Portage);
- Lac La Croix First Nation;
- Seine River First Nation; and
- Nigigoonsiminikaaning (Nicickousemenecaning) First Nation.

#### **4.0 CONSULTATION, ENGAGEMENT AND DISCUSSIONS** **Reference: Volume 2, Section 3**

RRR believes that in order to be successful, effective engagement of local communities is required. Stakeholders involved to date in the RRP include those with a direct interest in the Project, or those who were able to provide data for baseline environmental reports such as Municipal and Provincial government department representatives, community-based service providers, economic development agencies and similar.

RRR has informed and involved the public and stakeholders in a variety of ways. The focus of early consultation was to introduce RRR, to inform citizens of the status of the exploration and mining-related activities and to provide information related to future consultation opportunities.

RRR is actively involving local Aboriginal groups in the project planning and has negotiated comprehensive agreements with a number of the local First Nations to set protocols and commitments for ongoing involvement for the life of the project and community benefits that would, in part, help mitigate any potential effects to Aboriginal or Treaty rights. Key issues and interests raised by Aboriginal groups to date are related to: environmental management; employment and benefits; fisheries and wildlife; project components and mining; TLU and culture; and water resources.

Documented support for the RRP has been received from the following stakeholders and Aboriginal groups:

- Town of Rainy River;
- Township of Chapple;
- Township of La Vallee;
- Township of Alberton;
- Town of Fort Frances;
- Township of Dawson;
- Township of Lake of the Woods;
- Township of Morley;
- Mishkosiminiziibiing (Big Grassy River) First Nation;
- Naicatchewenin First Nation;
- Rainy River First Nations; and
- Mitaanjigamiing (Stanjikoming) First Nation.

The text that follows provides an overview of the comments received to date on the RRR. As the EA process has progressed, more detailed / specific comments regarding the RRP have been received from stakeholders including government representatives and the public, as well as from Aboriginal groups. Appendix D provides a comprehensive summary of all consultation and engagement activities to date, including copies of all comments received and responses

provided by RRR, unless RRR has been directed to restrict the information from public viewing. The reader is directed to this appendix for further detail. To the knowledge of RRR, responses have been provided to all comments received regarding the RRR prior to October 1, 2013.

#### **4.1 Summary of Comments - Prior to the Draft ToR**

Key comments received by RRR prior to the release of the draft ToR were consistently related to employment and training opportunities related to the RRP. There were also comments about the need to manage the RRP to avoid negative effects to surface and groundwater resources, effects on adjacent landowners, and to keep the size of the RRP site as compact as possible to avoid loss of land for other uses. The region has and continues to experience ongoing significant declines in both employment and population in large part related to the downturn in the forestry industry; and the RRP received positive comments from local citizens at open houses; stakeholders such as the Ministry of Economic Development, Trade and Employment as well as Aboriginal groups.

#### **4.2 Summary of Comments - ToR Process**

During the issuance and review of the draft and proposed ToR, and approval of the Amended ToR, numerous comments and questions were received which were responded to. Key or frequent comments / questions related to the management of surface and groundwater impacts, the treatment of tailings and potential environmental effects related to the mineral waste stockpiles. These comments were largely related to the proximity of individuals' properties or property use near the RRP site. Additional comments and questions related to the: location of RRP infrastructure, use of cyanide in ore processing, concern for Species at Risk (SAR) and environmental concerns associated with a potential temporary suspension of mining activities. Comments on the Proposed ToR also noted that the RRP has the potential to positively impact the local and regional economy and individual expressions of support were noted.

Key comments and discussions about the RRP during this period from Aboriginal groups related to employment and training opportunities, fish and wildlife effects, environmental management, water resources, and traditional culture and land use.

The comments from government agencies focused primarily on the methodology and process, and the natural environment. Key topics of discussion and comments received from government agencies related to the adequacy of environmental baseline studies, the content of the Proposed ToR document, alternatives descriptions, and Aboriginal engagement and consultation. Key technical comments related to study methodology, surface and groundwater quality, RRP power requirements, alternatives, monitoring, waste management, land use and SAR.



#### **4.3 Summary of Comments - During Preparation of Draft EA Reports**

In preparing the draft EA Report, numerous stakeholder interviews were conducted to discuss current service capacities, regional issues and challenges, and involvement in mitigation and enhancement planning. Through these interviews, as well as other meetings and discussions, RRR received numerous comments related to the economic benefits that will accrue within the region as a result of the RRP development, particularly those benefits that may result from anticipated employment and business opportunities. Other comments and questions received from stakeholders during this time period related primarily to the natural environment, particularly the management of tailings and the potential for RRP to impact air and water quality. A potential was also noted for RRP to impact local infrastructure through increased demand. The importance of information sharing between RRR and the municipalities to inform municipal decision making was highlighted.

During the preparation of the draft EA Report, RRR met with Aboriginal groups to further advance Traditional Knowledge / Traditional Land use (TK / TLU) studies, strengthen relationships and share information about the RRP. Environmental management, in particular the potential effects of the RRP on surface and groundwater, as well as the potential for the RRP to impact the land for future generations have continued to be key areas of discussion. Discussion topics have also included the management of chemicals at the RRP site, noise, and the management of onsite domestic sewage and solid waste, with RRR indicating that all regulatory requirements will be met. Discussions and correspondence with Aboriginal groups also focused on the RRR support for an independent technical review of the draft EA Report (Version 1). Rainy River First Nations and Naicatchewenin First Nation provided letters to RRR expressing support for the fish habitat compensation plan proposed by RRR, which they were provided a copy to review. In addition, Mitaanjigamiing First Nation and Naicatchewenin First Nation provided letters of support for the RRP.

Consultation, meetings and discussions with Municipal agencies largely focussed on social and economic effects of the RRP, including impacts on municipal planning, the proposed Highway 600 re-alignment, housing options and economic development in the Rainy River District (employment, business and procurement opportunities). The Township of Chapple, Township of Alberton, Township of La Vallee, Town of Rainy River Town of Fort Frances, Township of Lake of the Woods, Township of Dawson and Township of Morley all provided letters of support for the RRP during this period. The letters of support largely expressed concern for the current state of the collective local economy in the Rainy River District and requested that government agencies demonstrate their commitment to the economy through an efficient and effectively managed EA process for the RRP. Provincial and Federal government agency interactions centred primarily on the technical reviews of environmental baseline reports.



#### **4.4 Summary of Comments - During Preparation of Final EA Report**

RRR received 36 sets of comments on the draft EA Reports, the majority of which (22 sets) were from Provincial government Ministries.

The majority of the comments received from the Federal and Provincial government agencies during preparation of the final EA Report were specific to the draft EA Report, providing technical or editorial comments related to the document. As the comments were from individual government agencies, the focus of the comments was on each individual Ministry's regulatory responsibility. More comments were generally received regarding potential effects to the natural environment (water, groundwater, wildlife and SAR) and Aboriginal consultation and editorial aspects.

Tables S-1 and S-2 provide a summary of the comments received from government agencies and stakeholders on the draft EA Report by valued component or other topic, along with summarized responses. The comments received have been addressed within the final EA Report as applicable.

Comments received through the Independent Technical Review of the RRP draft EA Report (Version 1) conducted on behalf of various Aboriginal groups related to Aboriginal consultation, TK / TLU, socio-economics, fish, wildlife, vegetation, surface water, groundwater, air quality, noise and vibration, and human and ecological health. Table S-3 provides a summary of the comments and listing of the commitments resulting from the review.

The Métis Nation of Ontario, through their Lands, Resources and Consultation Branch provided an initial review of the RRP Draft EA Report (Version 1) on August 19, 2013. The review identified several issues to be addressed which RRR has been cognizant and respectful of, to ensure the Métis Way of Life is considered throughout the RRP. A copy of the MNO comments are provided in Appendix D. RRR will work with the Métis Nation of Ontario to address these comments during the final EA Report review period.

Big Grassy River First Nation undertook a second independent review of the draft EA Report, a copy of which was provided to RRR on October 18, 2013. The review concluded that additional work with the RRR was required. RRR has committed to continuing the close engagement with the community in support of the RRP development.

#### **4.5 Changes to Project since Initially Proposed**

Appendix D contains a copy of all of the comments received on the draft EA Report, responses made, the current status of the required action and reference to pertinent sections of the final EA Report where appropriate. Changes to the RRP since submission of the draft ToR are summarized in Table S-4 along with benefits to the environment, stakeholders and Aboriginal groups from these changes, where applicable.

#### **4.6 Documented Support**

RRR has received considerable support for the RRP from various stakeholders and Aboriginal groups (Appendix D). Various Municipal governments have also provided letters of support for the RRP:

- Township of Alberton;
- Township of Chapple;
- Township of Dawson;
- Township of Lake of the Woods;
- Township of La Vallee;
- Township of Morley;
- Town of Fort Frances; and
- Town of Rainy River

The letters of support largely expressed concern for the current state of the collective local economy in the Rainy River District and requested that government agencies demonstrate their commitment to the economy through an efficient and effectively managed EA process for the RRP.

In addition to the letters of support from Municipal governments, support from public and stakeholders was largely expressed through meetings and discussions, as well as during socio-economic interviews and public open houses. Positive comments received from members of the public and stakeholders focussed on the potential positive RRP impacts associated with employment, business and procurement opportunities that would support local economic development.

Letters of support for the RRP were provided to MOE and CEA Agency from the following Aboriginal groups:

- Big Grassy River First Nation;
- Mitaanjigamiing First Nation;
- Naicatchewenin First Nation; and
- Rainy River First Nations.

These letters cited support for the RRP and included the following types of information: an overview of the relationship between RRR and the Aboriginal groups in the area; ways in which the communities have already benefited from RRP; and support for the RRP ToR.

Additional letters of support from groups were received from Naicatchewenin First Nation and Rainy River First Nations with respect to the proposed fish habitat compensation plan that is

expected to complement and work with existing local programs and initiatives, such as the Rainy River First Nations Watershed Program and MNR District Partnership Program.

In addition to formal letters of support, Aboriginal groups have also noted support for the RRP during the course of discussions and meetings held with RRR.



**Table S-1: Summary of Government Agency Comments on the Draft EA Report (Version 2)**

Topic	Overview of Comments	RRR Response
<b>Natural Environment</b>		
Air quality / climate	<ul style="list-style-type: none"> <li>• Air concentrations of particulate matter</li> <li>• Mitigation measures to reduce particulate matter emissions</li> <li>• Air monitoring programs</li> <li>• Potential impacts on climate change</li> <li>• Climate change scenarios potential impacts on RRP</li> <li>• Potential air quality impacts from construction</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly regarding air quality model inputs and results</li> <li>• Completion of additional climate change modelling (Appendix W-2)</li> <li>• Incorporation of information into the EA Report including Appendix Q-2</li> </ul>
Water resources / quality	<ul style="list-style-type: none"> <li>• Potential impacts on water quality</li> <li>• Water management strategies</li> <li>• Potential impacts on groundwater quality</li> <li>• Drinking water monitoring and mitigation measures</li> <li>• Potential tailing and waste mine rock impacts to Pinewood River</li> <li>• Lack of assimilative capacity in the Pinewood River</li> <li>• Desired assessment of alternative discharge locations</li> <li>• Total and methyl mercury trace analysis</li> <li>• Hydrogeology modelling</li> <li>• Possible climate change impacts on hydrology post-closure</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly regarding the potential effects on water quality, and proposed mitigation measures and monitoring plans</li> <li>• Development of a comprehensive water management plan that fully responds to technical requests (Appendix W-1)</li> <li>• Commitment to additional field investigations</li> <li>• Completion of additional climate change modelling (Appendix W-2)</li> <li>• Incorporation of information into the EA Report</li> </ul>
Wildlife	<ul style="list-style-type: none"> <li>• Potential country food exposure to contaminants of concern</li> <li>• Potential impacts on SAR</li> <li>• Baseline wildlife descriptions and methodologies</li> <li>• Wildlife exclusion measures over tailing management area</li> <li>• List of Avian SAR and Provincially rare species incomplete</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly regarding Species-at-Risk and other wildlife, including information from investigations to date</li> <li>• Revision of EA Report to address errors</li> <li>• Incorporation of information into the EA Report</li> </ul>
Noise and vibration	<ul style="list-style-type: none"> <li>• Noise source assessments and control measures</li> <li>• Points of noise reception</li> <li>• Land Use Zoning Designation Plan of the surrounding area</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly the approach to modelling noise effects and presentation of information</li> <li>• Incorporation of information into the EA Report as appropriate including Appendix R-1</li> </ul>
Fisheries and aquatic resources	<ul style="list-style-type: none"> <li>• Potential impacts on fish habitat</li> <li>• Effects of blasting on the aquatic environment</li> <li>• Habitat restoration initiatives</li> <li>• Watershed restoration program</li> <li>• Aquatic SAR (Lake Sturgeon)</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly related to potential effects on fisheries and aquatic species as well as proposed mitigation measures and compensation plans</li> <li>• Incorporation of information into the EA Report</li> <li>• Revision of EA Report to address progression in development of compensation plans (Appendices X-1, X-2, X-3)</li> </ul>

Topic	Overview of Comments	RRR Response
Biodiversity	<ul style="list-style-type: none"> <li>Swamp habitat management</li> <li>Use of the wetland for water treatment</li> <li>Aerial survey methodology</li> <li>Rare plant survey methodology</li> <li>Revegetation plan for closure</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding the constructed wetland design and surveys to date</li> <li>Development of a comprehensive water management plan that fully responds to technical requests (Appendix W-1)</li> <li>Commitment to develop a revegetation plan for closure</li> <li>Incorporation of information into the EA Report</li> </ul>
<b>Human Environment</b>		
Land and resource use	<ul style="list-style-type: none"> <li>The need for a study of baseline domestic well water quality to establish pre-development conditions</li> <li>Land tenure designations</li> <li>Domestic groundwater use</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding land tenure and current groundwater use / potable water sources</li> <li>Commitment to additional field investigations</li> <li>Incorporation of information into the EA Report</li> </ul>
Socio-economic	<ul style="list-style-type: none"> <li>Potential impacts on housing markets</li> <li>Public engagement discussions and RRR responses</li> <li>Valued socio-economic components (VSECs)</li> </ul>	<ul style="list-style-type: none"> <li>Additional information provided directly regarding results of public consultation efforts</li> <li>Incorporation of information into the EA Report</li> </ul>
TK / TLU	<ul style="list-style-type: none"> <li>The need to address independent technical reviewer comments with potential impact to the natural environment</li> <li>Integration of TK / TLU information regarding cultural heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>Independent technical reviewer comments responded to directly (copies provided to MOE, CEA Agency and MNDM)</li> <li>Incorporation of information into the EA Report. A copy is provided in Appendix D.</li> </ul>
Aboriginal engagement	<ul style="list-style-type: none"> <li>Consultation practices and notifications</li> <li>Aboriginal Consultation Record</li> </ul>	<ul style="list-style-type: none"> <li>Incorporation of information into the EA Report</li> <li>Revision of EA Report and consultation appendix (Appendix D) and consultation summary (Volume 2 Section 3)</li> </ul>
Human health	<ul style="list-style-type: none"> <li>Consumption guidelines for cadmium and lead</li> <li>Potential impacts of RRP on human exposure to contaminated country foods related to project activities</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding potential impacts from metal releases</li> <li>Revision of EA Report as appropriate</li> </ul>
Archaeology heritage	<ul style="list-style-type: none"> <li>Integration of TK / TLU information regarding cultural heritage resources</li> <li>Potential impacts on cultural heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>Clarification regarding TK / TLU studies and information provided directly</li> <li>Incorporation of results of cultural heritage landscapes and built heritage resources study into the EA Report</li> <li>Clarifications provided in the EA Report</li> </ul>
<b>Other Topics</b>		
Tailings management area	<ul style="list-style-type: none"> <li>Potential impacts on water quality</li> <li>Long term management strategies</li> <li>Emissions (hydrogen cyanide and ammonia)</li> <li>Effluent discharge, quality, mitigation and treatment measures to manage waste water</li> <li>Soil permeability</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding design measures, potential impacts and mitigation measures</li> <li>Development of a comprehensive water management plan that fully responds to technical requests (Appendix W-1)</li> <li>Incorporation of information into the EA Report</li> </ul>

Topic	Overview of Comments	RRR Response
Mine rock	<ul style="list-style-type: none"> <li>Potential impacts on water quality</li> <li>Long term management strategies</li> <li>Potentially acid generating material management, auditing and monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding acid rock drainage management approach and potential effects on water quality</li> <li>Development of a comprehensive water management plan that fully responds to technical requests (Appendix W-1)</li> <li>Revision to Conceptual Closure Plan (Appendix E)</li> <li>Incorporation of information into the EA Report</li> </ul>
Transmission line	<ul style="list-style-type: none"> <li>Electromagnetic fields exposure</li> <li>Fragmentation effects on wildlife</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding potential for effects on wildlife from habitat fragmentation</li> <li>Incorporation of information into the EA Report</li> </ul>
Roads	<ul style="list-style-type: none"> <li>Controls management measures for emissions</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding means to control dust from roads</li> </ul>
Process plant	<ul style="list-style-type: none"> <li>Sulphur dioxide and contingency / response measures</li> </ul>	<ul style="list-style-type: none"> <li>Revision to discussion of malfunctions and accidents in the EA Report (Volume 2 Section 9.3.9)</li> </ul>
Open pit	<ul style="list-style-type: none"> <li>Pit lake concentrations of contaminants of concern and impacts on Pinewood River</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding contaminants of concern and potential effect on Pinewood River</li> <li>Incorporation of information into the EA Report</li> </ul>
Transportation	<ul style="list-style-type: none"> <li>Highway 600 realignment</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding the proposed realignment design</li> <li>Incorporation of information into the EA Report (Appendices Y-1 and Y-2)</li> </ul>
Waste management	<ul style="list-style-type: none"> <li>Development of an onsite landfill and regulatory requirements</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding sufficient capacity in local landfills and RRR's understanding of the regulatory regime</li> <li>Incorporation of information into the EA Report</li> </ul>
Operations	<ul style="list-style-type: none"> <li>Potential impacts on Pinewood River Watershed during start-up</li> <li>Water supply for process plant operations</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding potential effects on the Pinewood River related to start-up and proposed water supply options</li> <li>Development of a comprehensive water management plan that fully responds to technical requests (Appendix W-1)</li> <li>Incorporation of information into the EA Report</li> </ul>
Construction	<ul style="list-style-type: none"> <li>Recommendations to provide an assessment of metal leaching potential for construction materials</li> <li>Contingency measures should acid rock drainage issues arise in construction</li> <li>RRP potential impacts to Hydro One transmission facilities</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding proposed investigation and management of construction materials</li> <li>Revision to the EA Report as appropriate</li> </ul>
Closure	<ul style="list-style-type: none"> <li>Waste management</li> <li>Workforce transition plans</li> <li>Detail regarding demolition landfill</li> </ul>	<ul style="list-style-type: none"> <li>Additional technical information provided directly regarding the demolition landfill</li> <li>Incorporation of information into the EA Report</li> </ul>

<b>Topic</b>	<b>Overview of Comments</b>	<b>RRR Response</b>
Post-closure	<ul style="list-style-type: none"> <li>• Partial saturation of mine rock stockpiles</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly regarding the mine rock stockpile post-closure</li> </ul>
Alternatives	<ul style="list-style-type: none"> <li>• Descriptions of locations, advantages and disadvantages of alternatives</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly regarding various alternatives for which comments were provided</li> <li>• Revision as needed in the EA Report</li> </ul>
Effects assessment	<ul style="list-style-type: none"> <li>• Effects assessment and mitigation methodology deemed conservative</li> <li>• Cumulative effects analysis methodology</li> <li>• Restrictions of existing environmental baseline</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly regarding methodology utilized and as defined in the Provincially-approved ToR</li> <li>• Revision of the EA Report as appropriate</li> </ul>
Regulatory	<ul style="list-style-type: none"> <li>• Accuracy of the record of consultation</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly regarding consultation activities to date</li> <li>• Revision to the EA Report for clarity</li> </ul>

Note: Appendix D-2a provides a complete record of government comments and specific responses on the draft EA Report (Version 2). Comments were either: responded to directly or through revision to the EA Report; or a commitment was made to completion in the future (such as through the environmental approvals process or additional consultation).



**Table S-2: Summary of Other Stakeholder Comments on the Draft EA Report (Version 2)**

Topic	Overview of Comments	RRR Response
<b>Natural Environment</b>		
Wildlife	<ul style="list-style-type: none"> <li>• Methods used to survey elk (aerial survey)</li> <li>• Moose densities in the RRP area</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly regarding elk and moose for the local area</li> <li>• Revision to the EA Report as appropriate</li> </ul>
Fisheries and aquatic resources	<ul style="list-style-type: none"> <li>• Presence of Lake Sturgeon in the Pinewood River</li> <li>• RRP impacts on fish and fish habitat</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly regarding the three Lake Sturgeon captured during 2013 and potential effects on fish and fish habitat from the RRP</li> <li>• Revision to the EA Report as appropriate</li> </ul>
<b>Human Environment</b>		
Land and resource use	<ul style="list-style-type: none"> <li>• Number of hunters who use the area and that will be displaced</li> </ul>	<ul style="list-style-type: none"> <li>• Revision to the EA Report as appropriate</li> </ul>
Socio-economic	<ul style="list-style-type: none"> <li>• Employment opportunities related to RRP</li> <li>• Local workforce and economic capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Comments responded to with appreciation</li> <li>• Revision to the EA Report as appropriate</li> </ul>
Human health	<ul style="list-style-type: none"> <li>• Rationale for human health risks related to metal exposure related to project activities</li> </ul>	<ul style="list-style-type: none"> <li>• Additional technical information provided directly regarding the potential for human health risks</li> </ul>
<b>Other Topics</b>		
Mine rock	<ul style="list-style-type: none"> <li>• Acid generation treatment methods</li> </ul>	<ul style="list-style-type: none"> <li>• Clarification provided</li> </ul>

Note: Appendix D-3a provides a complete record of public and other stakeholder comments and specific responses on the draft EA Report (Version 2). Comments were either: responded to directly or through revision to the EA Report; or a commitment was made to completion in the future (such as through the environmental approvals process or additional consultation).

**Table S-3: Summary of Comments from the Independent First Nations Review of the Draft EA Report (Version 1)**

Overview of Comments	Commitments
<b>First Nations</b>	
<p><b>TK / TLU:</b> Concern was expressed regarding the role of TK / TLU in the EA and future project planning, the availability of studies lead by each First Nations community and information sharing.</p>	<p>TK/TLU data has been widely collected for the RRP, including from the closest communities of Big Grassy River First Nation, Rainy River First Nations and Naicatchewenin First Nation. All TK/TLU sessions were community driven, meaning that the method of data collection was community specific. No TK/TLU data has been identified for the Project area specifically. The majority of the data has been broad and overreaching, which Rainy River Resources (RRR) will continue to respect as it serves as the basis for First Nations' unique relationship to the land. TK/TLU collection will continue; information collected will be appropriately considered for construction, operation and closure phases. For example, RRR will further investigate the historical travel corridor and incorporate appropriately any new information that may become available.</p> <p>RRR will share results of the TK/TLU data sessions in a non-public First Nations forum(s).</p>
<p><b>Aquatic Resources:</b> Comments were provided regarding the potential for impacts to local water quality and fisheries.</p>	<p>RRR will commit to a joint water quality monitoring and reporting program with the area First Nations as part of the existing monthly water quality monitoring program which is currently carried out by RRR. The program will be funded by RRR and form an integral part of the overall environmental management program as it relates to First Nations traditional knowledge and assurances of maintaining water quality and by extension, aquatic biota protection. The program will be developed jointly with the First Nations in lead-up to the initiation of mine construction.</p>
<p><b>Communication of Information:</b> The First Nations wish to be kept up to date on the Project, including any potential changes.</p>	<p>RRR will continue to communicate closely with First Nations regarding the Project.</p>
<p><b>Environmental Monitoring:</b> Ensure that First Nations have an active role in monitoring plans and programs.</p>	<p>RRR has an open invitation for First Nations to participate in all baseline and environmental monitoring programs, including Whip-poor-will, where appropriate and to share monitoring results. RRR will continue to advise of the opportunity at public forums in order to encourage anyone who's interested to participate.</p>
<p><b>Cultural Awareness Training:</b> Provide cultural awareness training for those working at the mine.</p>	<p>All RRR staff will undergo cultural awareness training. Temporary contractors will undergo an awareness program as part of the regular induction program when working at the mine.</p>
<p><b>Lake Sturgeon:</b> Consider obtaining new information on Sturgeon.</p>	<p>Additional information related to Lake Sturgeon and the Rainy River First Nations management program will be added to the Final EA Report. RRR has committed to a program of close coordination with Rainy River First Nations in support of the pre-existing First Nation Watershed Program and water quality protection. Company funding will be provided as part of the fisheries compensation program to further water quality enhancement programs for the Pinewood and similar agriculturally-impacted waterways.</p>

Overview of Comments	Commitments
<p><b>Baseline Health Information:</b> The Proponent may wish to contact the Seven Generations School and/or MNR to obtain additional information.</p>	<p>RRR will reach out to the Seven Generations Education Institute and/or the MNR to obtain any additional information on baseline health of animals and fish.</p>
<p><b>Closure Planning:</b> Describe what the mechanisms are to deliver a successful closure plan over time, including incorporation of TK and community engagement activities.</p>	<p>First Nations will play an active role in the development of the mine Closure Plan, including development of the monitoring and mitigation programs. While the Closure Plan will be completed prior to construction, RRR will consult on significant revisions periodically during operations to ensure incorporation of TK and best management practices.</p>
<p><b>Wildlife Studies:</b> Investigate whether there will be changes to ungulates.</p>	<p>Monitoring programs targeted at ungulates (moose, deer) will be coordinated with First Nations.</p>
<p><b>First Nation Water Supply:</b> Concern expressed regarding the potential for effects to water supply from the RRP.</p>	<p>RRR would be pleased to assemble a map showing the locations of the closest First Nation community water supply intakes on receipt of the locations/coordinates.</p>
<p><b>First Nation Member Health:</b> The First Nations wish to be kept up to date on the Project, including any potential changes. It is suggested that the Proponent and the First Nations work together through a committee to mitigate any potential social problems with workers staying in nearby villages and camps. The largest issue is the potential for more drugs and alcohol to be brought in and consumed in the area.</p>	<p>While the Draft EA has shown no impacts to First Nations or non-Aboriginal people's health, any new information that has a potential to impact health will be provided to First Nations. RRR will work with First Nations to ensure employee overall well-being. Programs to highlight the dangers of drug use combined with drug testing will be implemented.</p>

Note: Appendix D-1e provides a complete record of comments from the independent technical review of the draft EA Report (Version 1) and specific responses. Comments were either: responded to directly or through revision to the EA Report; or a commitment was made to completion in the future (such as through the environmental approvals process or additional consultation).

**Table S-4: Changes to the Project since Initially Proposed and Benefits to the Environment, Stakeholders and Aboriginal Groups**

<b>Changes to Project since Proposed *</b>	<b>Benefits or Comment</b>
Addition of a pit protection berm between the open pit and the Pinewood River	Reflecting engineering design, as well as government and public comments to ensure Pinewood River and workers are protected, and to allow better access. / Reduced environmental effect for extreme flooding.
Addition of aggregate pit within site boundary	Reflecting purchase of existing aggregate pit from Ministry of Transportation. / Reduced environmental effect (less shipments to site).
Addition of ditching and associated sediment ponds at the tailings management area and stockpiles	Design optimized with overall project design, to reflect proposed water management practices, including ditching in anticipation of treatment and monitoring requirements. / Reduced environmental effect.
Addition of the Clark Creek diversion and Clark Creek pond (and potentially Teeple Pond)	Added to reflect re-designed stockpile (previous stockpile included complete overprinting), further engineering, and maintenance / enhancement of habitat. / Reduced environmental effect / enhancement of environment.
Addition of the West Creek pond, mine water pond, water management pond and water discharge pond	Designed to reflect further engineering, and proposed water treatment supply including maximizing water re-use. / Reduced environmental effect.
Constructed wetland to be developed below tailings management area	Design optimized for treatment ability and habitat. / Environment enhancement.
Contingency stockpile south of Pinewood River removed	Reflecting government and public comments received, and changes to overall project design. / Reduced environmental effect.
Development of Fisheries Offset Strategy and No Net Loss Plans to protect fisheries within the project area.	A Fisheries Working group was established with Fisheries and Oceans Canada, MNR and the project team to develop acceptable methods of assessing and offsetting potential impacts to fisheries within the Project area. Minimized fisheries impacts and provides a framework to ensure acceptable offset measures can be implemented.
Freshwater taking location re-located further downstream on the Pinewood River	Re-located below the McCallum Creek outlet to an area with greater flow to reduce potential effects of fresh water taking. / Reduced environmental effect.
Reduction in water taking volume / usage from West Creek / West Pond during operations	Revision to the water balance with additional engineering information / progression in engineering design.
In regards to SAR, the site footprint has been redesigned and is considerably smaller	A reduced footprint reflects engineering design, as well as government comments to minimize overlap with SAR habitat. A reduced footprint will reduce potential overlap with SAR (Eastern Whip-poor-will and Bobolink) habitat to the extent reasonably practical.
Location of buildings (plant site and explosives plant) altered	Reflecting government comments received regarding avoidance of known SAR concentration; design optimized to reflect further engineering knowledge. / Reduced environmental effect.
Low grade ore area defined	Design optimized to reflect further engineering knowledge; requirement for the stockpile potentially to be developed. / Improved project benefits to public.

<b>Changes to Project since Proposed *</b>	<b>Benefits or Comment</b>
Mine rock stockpile re-designed into two stockpiles located west and east of the open pit	Reflecting government and public comments received, non-potentially acid generating and potentially acid generating mine rock segregated to allow better long term management; shape altered to reflect land ownership aspects. / Reduced environmental effect.
Minor routing change of 230 kilovolt transmission line at site	Routing optimized to reflect further engineering knowledge and site layout changes.
Open pit footprint altered	Design optimized to reflect further engineering knowledge.
Overburden stockpile (east) footprint reduced	Design optimized with overall project design, shifting to allow space for West Creek diversion and stockpile ditching in anticipation of potential treatment and monitoring requirements. / Reduced environmental effect.
Overburden stockpile (west) removed	Not required with design optimization. / Reduced environmental effect.
Removal of Marr Connector Road	No longer required with the relocation and re-design of the TMA. / Reduced environmental effect.
Removal of the east Pinewood River crossing	No longer required with the removal of the contingency stockpile (south). / Reduced environmental effect.
Removal of the potential requirement to re-route the Pinewood River	Reflecting increased engineering knowledge, and government and public comments. / Reduced environmental effect.
Routing of the east access road	Design optimized to reflect further engineering knowledge and to avoid low-lying wetland area.
Routing of West Creek into Loslo Creek	Resulting from reduce overall stockpile footprints. / Reduced environmental effect; environment enhancement.
Tailings management area - northwest corner	Reflecting public comment received regarding proximity to existing resident, moving further away. / Reduced environmental effect; reduced effect on public.
Tailings management area re-aligned - eastern boundary	Reflecting government comments received regarding avoidance of known SAR concentration. / Reduced environmental effect.
Tailings management area refined	Reflecting increased engineering knowledge and comments received during consultation to date. / Reduced environmental effect.
<b>Other Changes</b>	
Changes to the ownership status of lands within the site area	Reflecting additional land purchases and agreements previously pending.
Further definition of project design, environmental effects, mitigation measures and management plans	Updated and expanded upon to reflect comments received during consultation as well as additional engineering information. / Reduced environmental effect.

\* Changes described herein are based on a comparison between the draft Provincial ToR and the accepted Federal Project Description in comparison to the project as described in the Environmental Assessment Report.



## 5.0 REGULATORY FRAMEWORK AND SCOPE OF THE ASSESSMENT

### Reference: Volume 2, Section 1.6

The Federal Regulation Designating Physical Activities under the *Canadian Environmental Assessment Act, 2012* identifies the physical activities that constitute the designated projects that could require completion of a Federal EA. The following sections may apply to the RRP:

- Section 8: *The construction, operation, decommissioning and abandonment of a facility for the extraction of 200,000 m<sup>3</sup>/a or more of ground water...*
- Section 15: *The construction, operation, decommissioning and abandonment of:*
  - b) *a metal mill with an ore input capacity of 4,000 t/d or more;*
  - c) *a gold mine, other than a placer mine, with an ore production capacity of 600 t/d or more.*

Based on these criteria, RRR submitted a Project Description to the CEA Agency that was subsequently approved on August 31, 2012. After review of the Project Description, the CEA Agency confirmed that a Federal EA was required and issued draft EIS Guidelines on October 19, 2012 to help identify the scope of the EA required for the project. On December 18, 2012 RRR was informed that a Standard Assessment would be required for the RRP and the final EIS Guidelines were issued by the CEA Agency. This EA Report is intended to fulfil the requirements of the EIS Guidelines.

RRR entered into a Voluntary Agreement with the MOE to conduct a Provincial EA for the RRP that will meet the requirements of the Ontario *Environmental Assessment Act*. Several aspects of the RRP were anticipated to require completion of Provincial EA process(es) and a single Provincial process, coordinated with the required Federal EA process, was selected as the best approach to meet those (or other) needs. RRR initiated the Provincial EA through the submission of a draft and proposed ToR (May 2012 and October 2012, respectively) for public comment. The subsequent amended proposed ToR approved on May 15, 2013, sets out the framework for the Provincial EA requirements.

Consultation and engagement was conducted during preparation of the EA is to engage a wide range of stakeholders and Aboriginal groups through various methods to gather feedback on the RRP and the preliminary EA findings.

At various community and leadership meetings, RRR was informed that Aboriginal communities did not have the time, financial and human resource capacity to adequately review the RRP EA Report. In response to those concerns, RRR committed financial resources to the Aboriginal groups for an independent technical review of the RRP draft EA Report. In order to allow



adequate time for the Aboriginal technical review, the draft EA Report (Version 1) was released to 13 Aboriginal groups eight weeks in advance of the general public and government agencies.

A subsequent draft EA Report (Version 2) was provided for government, Aboriginal group and stakeholder review, and hosted at public venues to facilitate comment. Comments received during the draft EA Report reviews were responded to and as appropriate, have been addressed in this final EA Report. Copies of the comments and responses on the draft EA Report, along with an identification of where in the final EA Report the comments are addressed are provided in Appendix D-2.

This final EA Report is intended to meet the Federal EIS Guidelines and the Provincially-approved ToR. Where possible, consultation activities for both processes are coordinated, and all comments gathered will continue to be used to inform the EA process. After the EA process is completed, environmental approvals from both the Federal and Provincial government agencies will be required to construct, operate and decommission the RRP. Most such approvals are issued by the Province. There are also a number of regulatory instruments that will apply to the RRP which require compliance, but do not involve the issuing of approvals or licences, such as the Federal Metal Mining Effluent Regulations.

For the purpose of the EA, the scope of the RRP has been defined to include all phases of the project, including construction, operation and decommissioning, as these relate to physical project components planned for the mine site, as well as all supporting infrastructure such as the transmission line, the relocation of a portion of Highway 600, and development of the East Access Road.

For the purpose of assessing environmental effects both natural environment and human environment study areas have been defined. The natural environment study area includes a smaller local study area (Natural Environmental Local Study Area; NLSA) nested within a larger regional study area (Natural Environmental Regional Study Area; NRSA). The NLSA encompasses an area of 270 km<sup>2</sup> and includes the upper Pinewood River watershed, together with a 1 km buffer bordering portions of the north margin of the watershed, and a 4 km wide buffer to extending to the northeast accommodate the 230 kilovolt transmission line routing. The NRSA encompasses an area of 690 km<sup>2</sup> and includes the entire Pinewood River watershed together with an up to 10 km wide buffer extending to the northeast to include all transmission line routing alternatives considered in the assessment.

All reasonably measurable RRP-related effects to the natural environment are expected to occur within the NLSA, except potentially to aquatic habitats contained within the middle and lower reaches of the Pinewood River as a resulting of project water taking / capture for process plant needs. Environmental effects to the aquatic habitat downstream of the Pinewood River system (to the Rainy River and Lake of the Woods) are not expected.



Local and regional study areas were also defined for assessing RRP effects to the human environment. The human environment local study area (HLSA) has been defined as the area immediately surrounding the RRP site, set back sufficiently to include any properties, persons and activities which could reasonably be expected to experience an environmental effect, such as those relating to potential land use disruption, sound and air quality emissions, groundwater well function, recreational use and TLU. The only expected RRP-related effects to persons, properties or activities outside of the HLSA would be those involving potential effects to such aspects as: traffic flow; community and social services; employment, training and business opportunities; and potentially some TLU.

Project effects to persons, properties and activities outside of the HLSA are expected to occur over a larger area, the human environment regional study area (HRSA), recognizing that positive socio-economic effects relating to business and labour can extend far more broadly to other parts of Ontario, Canada and internationally. The HRSA was defined to include Aboriginal or non-Aboriginal communities generally within approximately a 100 km driving distance from the RRP, together with those additional First Nation communities with whom there was a commitment by RRR, or through the Federal EIS Guidelines or the Provincially-approved ToR, to include in the RRP EIS; as well as applicable Statistics Canada census reporting units.

## 6.0 PROJECT INFORMATION

RRR is a publicly traded company that proposes to develop and operate the RRP in order to provide shareholders with a reasonable return on investment. The underlying rationale for the RRP is the strong demand for gold in the global marketplace. With gold prices at sustained high levels, the economics of the RRP are such that RRR can successfully produce gold and provide shareholders with value.

In addition to the identified global demand for gold, there is a local and regional need in northwestern Ontario for economic development. The RRP is expected to be a positive economic influence on the region providing construction and permanent employment opportunities for a large number of people. The region has experienced recent declines in both employment and population in large part related to the downturn of the forestry industry.

### 6.1 Land Ownership Reference: Volume 2, Section 1.5

The RRP site and surrounding lands are dominantly privately held, with RRR holding a very large private land package. RRR has worked diligently to negotiate agreements with various landowners through the exploration phase and Feasibility Study preparation in anticipation of the proposed development of the RRP. The RRP is comprised of a total of 238 land parcels, which consist of patented whole, surface rights only, minerals rights only, leasehold interest only and unpatented mining claims. RRR has a 100% interest in the lands forming the RRP through direct ownership or option agreement. While a small number of agreements for specific land parcels have not been finalized as of the issuance of this final EA Report, RRR believes that the outstanding land requirements do not pose a significant constraint to the development of the RRP or required infrastructure components.

Through these land purchases and/or agreements, RRR has become the owner of a number of residential properties. Existing houses and out buildings may be re-used to support the project development or demolished once assessed for any heritage value. The RRP does not require the forced re-settlement of any individual families.

### 6.2 Physical Works Reference: Volume 2, Section 4

Physical works related to the RRP as shown on Figure S-2, are proposed to consist of:

- An open pit (approximate surface area of 170 ha and 400 m deep). Mining is proposed to occur at a rate of up to approximately 21,000 tpd of ore production over life of mine.
- An underground mine (approximate depth of 800 m below surface). Underground mining is proposed to occur at a rate of up to approximately 1,500 tpd.

- An overburden stockpile (approximately 70 to 80 Mt) and mine rock stockpiles (approximately 350 to 400 Mt). Low grade and high graded ore stockpiles will also be developed during operations.
- A primary crusher and process plant. Ore will be crushed and processed on site to produce doré (gold with silver) bars for shipment off site.
- A tailings management area (approximate surface area of 800 ha) to provide a minimum storage capacity of 115 Mt for tailings over the projected mine life. The maximum projected dam heights are expected to be in the range of 20 to 25 m above grade.
- Water collection, management, distribution and treatment systems.
- A 230 kilovolt transmission line, connecting the site to the existing Hydro One Networks Inc. line approximately 17 km northeast of the proposed RRP site.
- Re-alignment of an 11 km segment of gravel-surfaced Highway 600 in accordance with Provincial approval requirements, for public safety reasons and in order to fully access the ore body.
- Development a new East Access Road to provide continued access to Marr Road properties that would otherwise be disrupted by RRP development.
- Aggregate operations to supply construction materials for mine and road development.
- Associated buildings, facilities and infrastructure, including: a maintenance garage, warehouse and administration complex, fuel storage and refuelling area, laydown area(s), explosives manufacturing and storage facilities, access roads and non-hazardous waste facilities.

### 6.3 Project Phases

**Reference: Volume 2, Section 4.18**

Primary construction phase activities will include:

- Completion of engineering studies and environmental approvals processes;
- Procurement and movement of construction materials to identified laydown areas;
- Initiation of open pit mine development and portal development for underground mining operations (potentially only during the operations phase);

- Preparation of onsite mineral waste handling facilities, including tailings management area dams;
- Establishment of watercourse diversions, intake structures and site drainage works;
- Construction of associated buildings and facilities, and fuel tank farm;
- Construction of the Highway 600 re-alignment and Pinewood River crossing, and the East Access Road, and redirection of local traffic; and
- Construction and energizing of a 230 kilovolt transmission line.

Activities that will be carried out during the operations phase are anticipated to include:

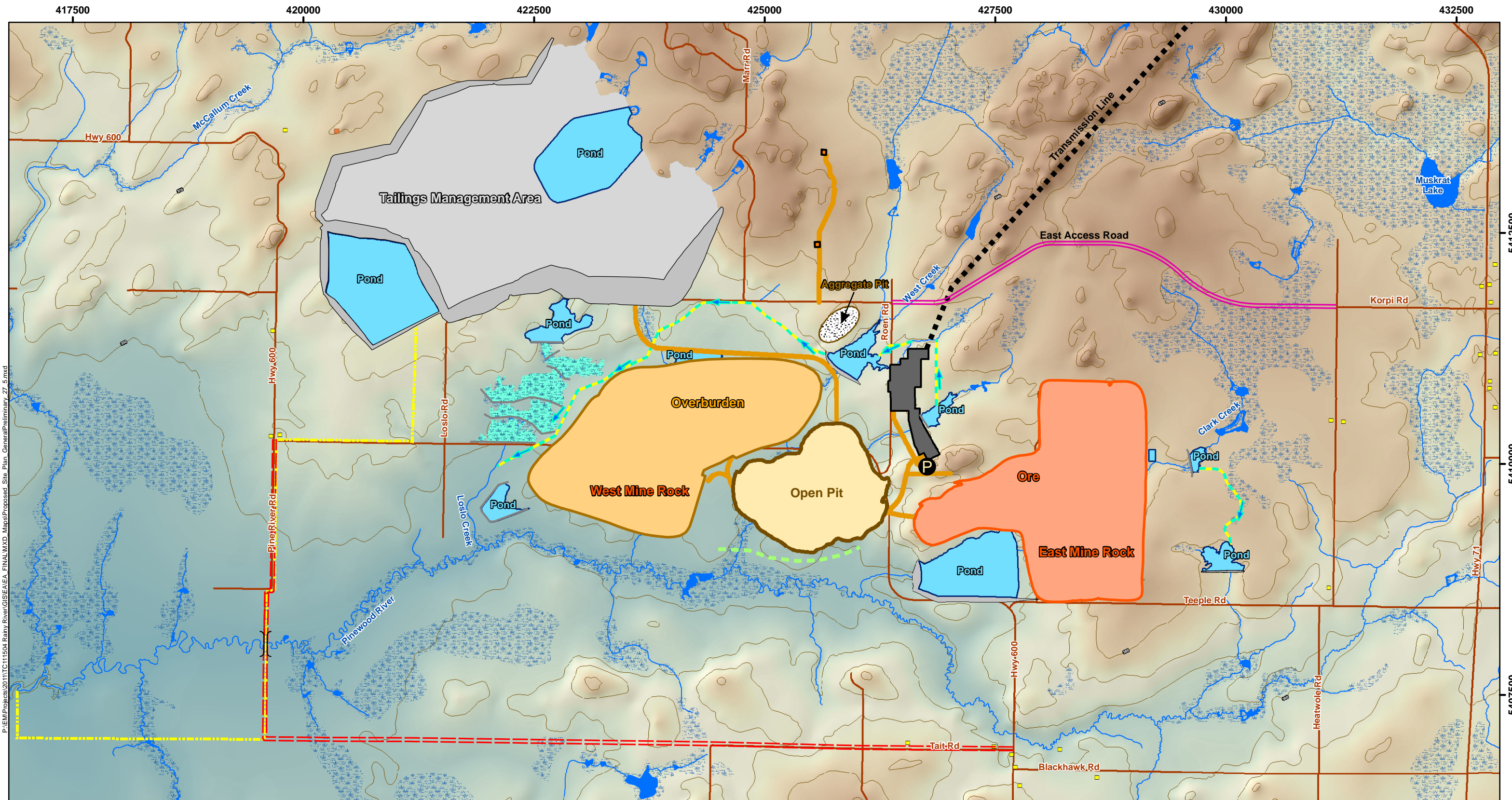
- Ore and mine rock extraction;
- Ore processing;
- Mineral waste management (overburden, mine rock stockpiles and tailings);
- Water collection, management, distribution and treatment;
- Ongoing environmental management; and
- Progressive site reclamation where practical.

Decommissioning phase activities will consist of the closure and reclamation of the various project components, including the 230 kilovolt transmission line. A demolition landfill is proposed onsite for non-hazardous materials. The proposed watercourse diversions and re-aligned Highway 600 will remain in place. Ongoing environmental monitoring and site management will occur as needed after decommissioning activities are completed.

Post-closure activities will be primarily related to maintenance of the site and environmental monitoring, pending the creation of the pit lake.

Construction is proposed to commence after completion of the Federal and Provincial EA process, currently projected for 2014. Operation is planned to start in 2016 and continue for 16 years. Closure and decommissioning is therefore anticipated to begin in 2032 and continue actively for approximately two years. This will be followed by a passive closure phase of up to approximately 94 years while the open pit is flooding. A final period of decommissioning of less than one year will occur once the open pit is fully flooded.





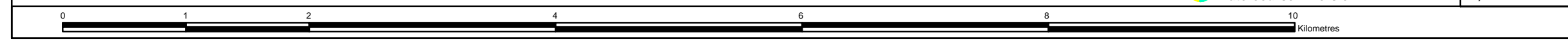
P:\EM\Projects\2011\TC111504 Rainy River\GIS\EA\EA\_FINAL\MXD Maps\Proposed Site Plan\_General\ Preliminary\_27\_5.mxd

<b>LEGEND</b> <ul style="list-style-type: none"> <li><span style="color: yellow;">■</span> Residence-House</li> <li><span style="color: brown;">■</span> Lodging Cabin-Occasional Use</li> <li><span style="color: red;">—</span> Roads</li> <li><span style="color: brown;">—</span> Contours, 10 m interval (LIO-MNR)</li> <li><span style="color: blue;">—</span> Watercourses</li> <li><span style="color: lightblue;">—</span> Low-lying Area</li> </ul>		<b>Elevation Colour Ramp</b>  High ground (max elev. 418 m) Low ground (min elev. 340 m)		<b>Proposed Site Features</b> <ul style="list-style-type: none"> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">P</span> Underground Portal</li> <li><span style="border: 2px solid black; border-radius: 50%; padding: 5px;"> </span> Open Pit</li> <li><span style="background-color: black; width: 10px; height: 10px; display: inline-block;"></span> Plant Site / Ancillary Facilities</li> <li><span style="background-color: orange; width: 10px; height: 10px; display: inline-block;"></span> Explosives Facilities</li> <li><span style="border-bottom: 2px dashed yellow; width: 20px; display: inline-block;"></span> Water Management Pipelines</li> <li><span style="border-bottom: 2px dashed red; width: 20px; display: inline-block;"></span> Major Watercourse Crossing</li> <li><span style="border-bottom: 2px solid orange; width: 20px; display: inline-block;"></span> Site Roads</li> <li><span style="background-color: lightblue; width: 10px; height: 10px; display: inline-block;"></span> Pond</li> <li><span style="border: 1px dashed black; border-radius: 50%; padding: 2px;"> </span> Aggregate Pit</li> <li><span style="background-color: lightgrey; width: 10px; height: 10px; display: inline-block;"></span> Tailings Management Area</li> <li><span style="background-color: orange; width: 10px; height: 10px; display: inline-block;"></span> Overburden / West Mine Rock Stockpile</li> <li><span style="background-color: red; width: 10px; height: 10px; display: inline-block;"></span> Ore / East Mine Rock Stockpile</li> <li><span style="border-bottom: 2px dashed green; width: 20px; display: inline-block;"></span> Pit Protection Berm / Access Road</li> <li><span style="background-color: lightblue; width: 10px; height: 10px; display: inline-block;"></span> Constructed Wetland</li> <li><span style="background-color: grey; width: 10px; height: 10px; display: inline-block;"></span> Dams</li> <li><span style="border-bottom: 2px dashed red; width: 20px; display: inline-block;"></span> Highway Re-alignment</li> <li><span style="border-bottom: 2px solid pink; width: 20px; display: inline-block;"></span> East Access Road</li> <li><span style="border-bottom: 2px dashed black; width: 20px; display: inline-block;"></span> Transmission Line</li> <li><span style="border-bottom: 2px solid green; width: 20px; display: inline-block;"></span> Watercourse Diversion</li> </ul>	
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**Source / Notes:**  
 - Road data extracted from Land Information Ontario, Ontario Road Network, MNR  
 - Background topographic and elevation data extracted from MNR Land Information Ontario  
 - Only major facilities are shown. Connecting infrastructure and supporting facilities are generally not shown.

Datum: NAD83  
 Projection: UTM Zone 15N

<b>RAINY RIVER PROJECT</b>	
<b>Conceptual Site Plan Layout</b>	
PROJECT N <sup>o</sup> : TC111504	FIGURE: S-2
SCALE: 1:39,500	DATE: October 2013







## **7.0 DESCRIPTION OF THE ENVIRONMENT**

### **Reference: Volume 2, Section 5**

The description of the existing environment is based on extensive baseline studies conducted since 2008, with studies of some aspects continuing into 2013. The objectives of the baseline studies are to:

- Help inform project designs;
- Allow an assessment of likely project environmental effects; and
- Provide a reference for future environmental monitoring.

### **7.1 General Description**

The RRP site land and surrounding areas are heavily impacted by historic and ongoing farming operations, as well as by forestry operations. Areas of regenerating abandoned farmland are evident throughout the RRP site (and NLSA). The majority of the RRP site is cleared, and where tree cover is present, it is dominated by mixed popular forest, which is indicative of disturbed lands recovering from past forestry and farming activities, or regrowth following past fires.

Access to the RRP site is available from the existing Highway 600, a gravel-surfaced, two-lane road that passes through the RRP site, which connects to Highway 71 (paved). Highway 71 provides connections to Emo and Fort Frances, and from Fort Frances to Thunder Bay by means of Highway 11. Highway 71 connects northward with TransCanada Highway 17 near Kenora. The closest existing railway access for the RRP is located at Emo (Canadian National Railway). The RRP site is currently serviced by a local transmission line.

The RRP site area is positioned within the upper portion of the Pinewood River watershed. The Pinewood River drains to the Rainy River approximately 37 km downstream of the site. The Rainy River is an international waterway, between Minnesota and Ontario, flowing into Lake of the Woods and the Arctic watershed. A number of small tributaries drain from the general RRP site area to the Pinewood River. There are no lakes located within, or adjacent to, the RRP site footprint.

There are no Areas of Natural and Scientific Interest, Provincially Significant Wetlands or Federal / Provincial Parks within or proximal to the general RRP site area.

The RRP site does not overlap with any Federal lands, First Nation reserve lands or lands under land claim and the RRP itself is located primarily on private lands. The Rainy Lake Reserve 17b located east of the proposed transmission line connection point is the closest reserve to the RRP, and is positioned upstream of the proposed mine site.

**7.2 Climate, Air Quality and Sound**  
**Reference: Volume 2, Section 5.3**

The climate of the RRP site is typical of that of northwestern Ontario, experiencing warm summers and cold winters, with the bulk of the precipitation occurring during the warm weather months. The nearest Environment Canada climate station is located at Barwick, Ontario. A climate station was set up at the RRP site in 2010. There are no large urban centres and industrial sources near the RRP. Background air quality and sound levels are therefore typical of rural, low-density agricultural regions.

**7.3 Physiography, Soils and Geology**  
**Reference: Volume 2, Section 5.4**

Terrain in the RRP site area transitions from upland, bedrock controlled lake areas to the northeast, to lower-lying, to gently undulating terrain to the southwest. The Pinewood River system which drains most of the RRP site area, occupies a broad lacustrine plain. Lands in the immediate RRP site vicinity are typically gently rolling to flat, with wetlands occurring in low-lying areas, and rounded bedrock outcrops and subcrops occurring in upland areas. Overburden in the area is clay-rich and stone poor, with thicknesses in the order of 20 to 30 m in areas closer to the RRP site, where not disrupted by bedrock exposures. Shallow peat deposits are widespread in low-lying areas.

The RRP is positioned within the Rainy River Greenstone Belt that forms part of the 900 km long, east-west trending Wabigoon Subprovince of the Canadian Shield. Locally, the RRP deposit is hosted within a zone of mafic volcanics infolded with younger metavolcanics with lesser representation of metasediments. Gold mineralization is associated with sulphide formations consisting of pyrite, sphalerite, chalcopyrite and galena stringers and veins, and disseminated pyrite, and with later formed quartz-pyrite-chalcopyrite veins and veinlets. Static and kinetic geochemical testing indicates that the ore and a substantive portion of the mine rock are potentially acid generating.

**7.4 Hydrology and Hydrogeology**  
**Reference: Volume 2, Sections 5.6 and 5.7**

The Pinewood River is a low gradient system with a watershed of 575 km<sup>2</sup>. Local creek catchments draining to the Pinewood River range in size from less than 10 km<sup>2</sup> to approximately 25 km<sup>2</sup>. The creeks generally originate in rocky uplands, but also frequently originate from or pass through headwater wetland systems. Hydrological systems to the northeast of the RRP site show an abrupt transition to larger lake systems in bedrock dominated terrain.

Regional hydrological data are available from four Water Survey of Canada stations: two on the Pinewood River and two on the much larger Rainy River. More limited flow data are available for RRP local creek systems. Data from the Pinewood River at Highway 617 are particularly



relevant to the local study area because they are on the same river system (the Pinewood River); data are collected year-round; the station is currently active; and the watershed is comparatively small allowing for direct prorated data derivations for other site area watersheds. Peak stream flows occur in the spring, with a secondary smaller peak flow in the late fall. Low flows occur in the late winter, and more variably during the late summer and early fall. The average annual runoff for the RRP site area is approximately 195 mm.

The groundwater regime is governed by the overall structure and hydraulic properties of the overburden and bedrock sequences, and by the local topography and associated surface watercourses. Infiltration to the groundwater system is limited by the pervasive clay and clay till substrates that characterize the area. There is a broad network of residential / agricultural water supply wells in the area, which are mainly screened in the more permeable, but discontinuous coarse till unit below the clay till horizon, with some wells being screened in the upper fractured bedrock zone.

## **7.5 Surface Water, Sediment and Groundwater Quality**

**Reference: Volume 2, Sections 5.6.3, 5.8 and 5.7.5**

An extensive network of water quality monitoring stations has been set up for the RRP, with 14 stations having been sampled at monthly intervals since June 2010. Additional water quality samples are collected periodically in association with seasonal aquatic studies. Surface water quality in the area is generally quite good, with all parameters typically meeting Provincial Water Quality Objectives (PWQO) for the protection of aquatic life and Canadian Environmental Quality Guidelines (CEQG) for the protection of aquatic life except for iron and dissolved aluminum; and on occasion antimony, chromium, cobalt, vanadium and zinc. It is not unusual for baseline water quality to exceed PWQO and CEQG for various metals as a result of heavy suspended solids loadings under high flow conditions, water concentration effects due to ice formation and evaporation, and other factors such as disturbance to streams by cattle.

Sediment quality has generally been quite good with all parameters generally meeting Provincial Sediment Quality Guidelines (PSQG) and Federal CEQG, with the exception of total organic carbon. Total organic carbon values can be elevated because of naturally high organic content such as that associated with wetlands and wetland drainages, or due to agricultural runoff.

Analytical results for RRP site drill holes and wells showed that a number of groundwater samples exceeded Federal or Provincial drinking water guidelines for total dissolved solids, turbidity, iron and manganese; with occasional exceedances for barium, chloride and antimony. The very high values recorded for turbidity, likely reflecting clay content, suggest that a majority of the drill holes / wells were not fully developed / purged prior to sampling. Results from a Municipal and private wells showed generally good water quality, with occasional exceedances of drinking water objectives for some parameters.

**7.6 Aquatic Resources**  
**Reference: Volume 2, Section 5.8**

The RRP is somewhat unique from an environmental perspective, in that there are no lakes located within, or adjacent to the main RRP site. While limited bait fishing does occur within certain project area creeks, the area does not support a significant commercial or recreational fishery. In addition, the creeks present within the RRP site often encounter zero flow during dry periods.

Studies of fisheries and aquatic resources have been carried out for the RRP from 2008 through 2013, including multi-season studies. In the general vicinity of the RRP area the Pinewood River shows typical widths of 10 to 15 m, with wider sections associated with beaver impoundments and drowned oxbows. Summer water depths are typically 0.9 to 1.7 m, with maximum summer water depths in the order of 2 m. Substrates consist of clays and silts, with some detritus. Gravel, rock or cobble substrates are sparse and contribute little to in stream habitat / cover for fish. Turbidity is high because of erosion of the clay and silt substrates, and agricultural drainage inputs. Beaver dams are frequent and present periodic obstacles to fish passage in the NLSA.

The smaller creeks / Municipal drains, which flow into the Pinewood River (Loslo Creek / Cowser Drain, Marr Creek, West Creek, Clark Creek / Teeple Drain, Tait Creek and Blackhawk Creek) typically exhibit summer widths of 0.5 to 3 m, except where they are impounded by beaver dams, with upper creek reaches being smaller, generally from <0.5 to 1.5 m and frequently exhibiting intermittent flow. Headwater areas of many of these tributary creek systems are associated with wetland systems. Beaver impoundments are frequent.

Large-bodied fish species (Northern Pike, Brown Bullhead and White Sucker) were found only in the Pinewood River and not in the smaller tributaries, with the exception of White Sucker (also found in Loslo Creek and Clark Creek). Walleye and Yellow Perch occur further downstream in the Pinewood River, but not in the general area of the RRP site. Lake Sturgeon are known to occur in the Rainy River, and three fish were captured in the lower reaches of the Pinewood River in 2013, approximately 27 km downstream of the proposed RRP open pit. Appendix I-1 provides a comprehensive list of Latin and common names for fish species.

Small-bodied fish of several species are abundant within the Pinewood River mainstem as well as in its tributaries. These tributaries likely provide seasonal refuge from predators and contribute to the overall productivity of the Pinewood River system. All fish species present in the system are spring / early summer spawners.

Area benthic communities exhibit a low-to-moderate abundance, with a relatively poor representation of taxa used as indices for characterization and comparison of benthic invertebrate communities, due to the lack of larger substrate particles and dominant clay-silt conditions.

**7.7 Vegetation Communities**  
**Reference: Volume 2, Section 5.9**

The RRP and environs occur within the Agassiz Clay Plain Ecoregion, which extends from Lake of the Woods in the west to Fort Frances in the east, and from the United States border northward. The Pinewood River watershed is dominated by mixed Poplar and Black Spruce forests, and by non-forested areas (mainly agricultural lands), together with wetlands. Note that Appendix J-1 provides a comprehensive list of Latin and common names for vegetation.

The local area shows an even greater preponderance of mixed poplar forests, which occupy greater than 50% of the landscape, together with wetlands and agricultural lands. Wetlands are comprised mainly of treed and open fens, together with wetland thickets and marsh areas. Agricultural lands are mainly pasture and hay fields. Poplar forests comprised principally of Trembling Aspen are indicative of disturbed lands as Trembling Aspen are a successional species.

**7.8 Wildlife**  
**Reference: Volume 2, Section 5.10**

Wildlife surveys conducted in the years 2009 through 2013 have focused principally on birds and to a lesser extent on mammals, amphibians and dragonflies / damselflies. A major focus was placed on SAR. The area exhibits a relatively high diversity of avian and mammalian species, indicative of the diversity of available habitats (forest, wetlands, fields and shrublands), and the transitional (or near transitional) position of the study area relative to the Great Lakes, Boreal and Prairie regions. Appendix J-1 provides a comprehensive list of Latin and common names for wildlife species.

The SAR known to occur in the RRP environs are listed in the Table S-5.

RRR has been working closely with the MNR in support of meeting permitting requirements of the Ontario *Endangered Species Act* since June of 2010. The company has also been supporting a two-year research study in collaboration with both the MNR as well as Trent University. Permits are only expected to be required for a limited number of species.

**7.9 Population and Demographics**  
**Reference: Volume 2, Section 5.13.2**

The proposed RRP is located in the Township of Chapple. The area has eight townships (Alberton, Chapple, Dawson, Emo, La Vallee, Morley, Rainy River and Sioux Narrows - Nestor Falls) with an average of 817 residents each, the largest of which is Emo with a population of 1,252. The largest community in the HRSA is Fort Frances, located on the border with the United States, with a population of 7,952 as of the 2011 Census. It serves as the service hub for the area offering medical, business, recreational and legal services.

**7.10 Community Infrastructure and Services**  
**Reference: Volume 2, Section 5.13.4**

Given that the region has experienced population declines, service capacity may be able to handle additional demands which could be experienced by these communities in the event of population increases either temporarily in the construction phase or permanently in operations phase of the RRP.

The Riverside Health Care Facilities is the Rainy River District health care provider. Riverside Health Care Facilities operates four facilities: La Verendrye Hospital (Fort Frances), Emo Health Centre (Emo), Rainy River Health Centre (Rainy River) and Rainy Crest long term care facility in Fort Frances.

The region is well serviced and accessible from Highways 71, 11 and 600. The Canadian National Railway runs east-west through the region and within 40 km of the RRP site with links to Winnipeg (Manitoba), Thunder Bay (Ontario) and Duluth (Minnesota). Fort Frances has regular commercial air service.

**7.11 Regional Economy**  
**Reference: Volume 2, Section 5.13.3**

Mining is a key economic activity in northwestern Ontario. There are no operating mines in the Rainy River District. The closest operating gold mines are in the Red Lake District (Red Lake Gold Mine, Goldcorp Inc. approximately 245 km to the northwest). The next closest mine is the Lac des Iles Mine owned by North American Palladium Ltd. which produces platinum group metals and is located 320 km east-northeast of the RRP site. There are currently approximately 70 major exploration projects where mineral exploration and/or development is occurring in northwestern Ontario.

The Crossroute Forest overlaps with the Rainy River District and the RRP area. The Sustainable Forest License for the Crossroute Forest is held by Resolute Forest Products (formerly AbitibiBowater) who are responsible for harvest management, inventories and planning.

Agriculture remains an important component of the regional economy. Livestock production was the most important commodity (beef cattle and dairy) both of which are common in the study area.

Recreation and tourism in the region is mainly related to outdoor pursuits such as hunting, fishing, camping, snowmobiling, and hiking. The tourism sector is highly dependent on United States-based visitation.

**7.12 Traditional Knowledge and Land Use**  
**Reference: Volume 2, Section 5.11**

Opportunities for TK / TLU consultations were offered to the following First Nations between July 2012 and February 2013:

- Anishinaabeg of Naongashiing First Nation (Big Island);
- Buffalo Point First Nation;
- Mishkosiminiziibiing (Big Grassy River) First Nation;
- Naicatchewenin First Nation;
- Naotkamegwanning (Whitefish Bay) First Nation;
- Ojibways of Onigaming First Nation; and
- Rainy River First Nations.

The following First Nations worked closely with Rainy River Resources to collect TK / TLU information:

- Mishkosiminiziibiing (Big Grassy River) First Nation;
- Naicatchewenin First Nation; and
- Rainy River First Nations.

TK / TLU sessions were held with several of the notification Aboriginal groups including: Couchiching First Nation, Mitaanjigamiing (Stanjikoming) First Nation, and Seine River First Nation.

The TK / TLU studies were led by Ms. Stacey Jack, RRR Community Coordinator. Ms. Jack is a licensed Archaeologist, who, as a resident of the District and member of the Couchiching First Nation, has extensive knowledge of regional history. Stacey has worked extensively with area First Nations over the past 20 years, including a leadership role in the development of the Manitou Mounds National Historic Site which is located approximately 35 km south of the RRP site. In support of the TK / TLU studies, data sharing agreements were signed with these First Nations to ensure that sensitive information is protected and held strictly between the First Nations and RRR.

The Métis Nation of Ontario is in the process of completing a TK / TLU study and technical review of the EA report. RRR anticipates that as part of the consultation process with the Métis Nation of Ontario an addenda outlining any follow-up programs or agreements may need to be submitted in parallel with the final EA report review.

Through these consultations, no traditional activities were identified within the RRP area. RRR has committed to undertaking a joint water quality monitoring and reporting program with the area First Nations as part of the existing monthly water quality monitoring program carried out

by RRR. The program will be funded by RRR and form an integral part of the overall environmental management program as it relates to First Nations TK, and assurances of maintaining water quality and by extension aquatic life protection.

Big Grassy River First Nation undertook a second independent review that was provided to the company on October 18, 2013. The review concluded that additional work with the community was required and RRR has committed to continuing the close engagement with the community in support of project development.

**7.13 Cultural Heritage Resources**  
**Reference: Volume 2, Section 5.12, 5.15 and 5.16**

The cultural pre-European contact history of the Rainy River District is similar to that in eastern Manitoba and northern Minnesota, and can be divided into the following generalized temporal and cultural sequences: Late Paleo (circa 9000 to 6000 BC), Shield Archaic (circa 6000 to 500 BC) and Middle / Late Woodland (circa 500 BC to AD 1600), and Historic (circa AD 1600 to present).

Prior to the Stage 2 work associated with the RRP, there were only two previously recorded archaeological registered sites within 15 km of the RRP. Little information is known about these sites but they appear to be surface collections of unknown age. Two ground-based Stage 1 field assessments and surveys of areas associated with the proposed development of the RRP were undertaken during 2010 and 2011. During the 2012 and 2013 Stage 2 archaeological assessment within the RRP NLSA, eight pre-contact archaeological sites and six historic sites were located and recorded for a total of fourteen archaeological sites. Preliminary application of the Stage 3 criteria, indicate that four pre-contact archaeological sites and two historic archaeological sites will require Stage 3 excavations. Further Stage 4 work may also be required depending on the Stage 3 results. Consultation with Aboriginal people will continue throughout the archaeological research.

Unterman McPhail Associates and Jean Simonton, Heritage Consultant, undertook a survey to identify cultural heritage landscapes and built heritage resources within the study area. Twenty-one sites were identified which could be generally described as: rural landscapes (agriculture), township survey, transportation (roadscape), settlement (hamlet), agricultural farm complexes, residences and recreation (trail).



Table S-5: SAR Known to Occur in the RRP Environs

Species Common Name	ESA	SARA
<b>Birds</b>		
Barn Swallow	T	-
Bobolink	T	-
Whip-poor-will	T	T
American White Pelican	T	NAR
Bald Eagle	SC	NAR
Canada Warbler	SC	T
Common Nighthawk	SC	T
Golden-winged Warbler	SC	T
Olive-sided Flycatcher	SC	T
Peregrine Falcon (migrant)	SC	SC
Red-headed Woodpecker	SC	T
Short-eared Owl	SC	SC
<b>Mammals</b>		
Little Brown Myotis (bat)	E	-
Northern Myotis (bat)	E	-
<b>Reptiles</b>		
Snapping Turtle	SC	SC

Notes: ESA - *Endangered Species Act*, SARA - *Species at Risk Act*  
 E – Endangered, NAR – Not at Risk, SC – Special Concern, T – Threatened

## **8.0 EVALUATION OF ALTERNATIVES**

### **8.1 Project Alternatives**

**Reference: Volume 2, Section 6.1; Appendix O**

Three alternatives have been identified for the RRP, which include:

- Proceed with the RRP in the near term, as planned;
- Delay the RRP until circumstances are more favourable; or
- Abandon the RRP.

Proceeding with the RRP as planned would involve highly significant positive effects to the local and regional economies, and to the preservation of community character, especially given the current long term downturn in the forestry sector. The only project alternative that meets the intended project purpose is to proceed with the RRP in the near term, as planned.

### **8.2 Alternative Methods**

Alternative methods of carrying out the RRP have been considered with respect to the following elements:

- Mining;
- Minewater management;
- Mine rock and overburden management;
- Processing;
- Process plant effluent treatment;
- Tailings management;
- Buildings, facilities and areas (including process plant and explosives facility);
- Aggregates;
- Water supply;
- Site water management;
- Solid waste management;
- Domestic sewage treatment;
- Highway 600 re-alignment;
- Site access and transport routes;
- Power supply;
- Transmission line routing; and
- Reclamation and closure.

The assessment of alternative methods considers the advantages and disadvantages of each alternative method based on a series of performance objectives, evaluation criteria and indicators, to define a preferred alternative for each of the major project components, or



activities. This approach, with minor variations, has been implemented successfully for a number of other mining project-related EAs in Ontario that were subsequently approved by the Ontario Minister of the Environment or Federal Minister of the Environment as applicable.

The evaluation of alternatives was conducted with due consideration of comments received, and discussions held, with the general public, local landowners, Aboriginal communities and government reviewers. Information received through this process helped to confirm the choice of alternatives considered and the relative importance of individual performance objectives.

### **8.2.1 Mining** **Reference: Volume 2, Section 6.3**

The choice of a mining method (or methods) is a function of: the geometry and character of the ore body in relation to the surrounding geology and terrain, ore grade and costs relative to resource value (reflective of commodity pricing), available technologies, and environmental sensitivities. The available alternatives for mining of the RRP ore body are:

- Open pit mining;
- Underground mining; and
- Combination of open pit and underground mining.

Open pit mining methods are best suited to near-surface, low grade, high tonnage operations, and this method was selected for mining the major portion of the RRP ore body. Underground mining methods are better suited to deeper, higher grade, better traceable ore zones. Portions of the RRP ore zone lend themselves to underground mining. The preferred mining alternative is therefore a combination of open pit and underground mining. Open pit mining on its own is financially and technically viable, but is not optimal. Underground mining on its own is not economically viable. Open pit mining generates far more waste (mine rock and overburden) compared with underground mining, but these wastes can be managed in an environmental responsible manner.

### **8.2.2 Minewater Management** **Reference: Volume 2, Section 6.4**

Minewater that collects in the open pit and underground mine requires treatment for the removal of suspended solids, trace metals, ammonia residuals from the use of ammonia-based blasting agents, and potentially residual hydrocarbons from occasional hydraulic oil and fuel leaks from heavy equipment. The most frequent minewater treatment methods include use of sumps (in pit or underground) to remove bulk suspended solids and residual hydrocarbons, followed by settling / aging ponds to remove suspended solids and residual ammonia. Residual ammonia is also most commonly managed at source through the selection and management of explosives use.

The minewater management alternatives considered for the RRP after collection are:

- Integrate minewater with tailings management area operations either directly or through process plant operations; or
- Develop a separate, dedicated minewater treatment and management system.

An integrated site water management system was selected as the preferred alternative, as this system is fully capable of providing capacity for effective minewater treatment, and is able to take advantage of water management facilities already planned for the site, irrespective of mine water management needs. Development of a separate minewater treatment pond system would add considerable and unnecessary costs with no tangible technical or performance benefit, and would unnecessarily increase the overall mine footprint and environmental effects.

### **8.2.3 Mine Rock and Overburden Management**

**Reference: Volume 2, Section 6.5**

The RRP will generate an estimated 70 to 80 Mt of overburden and 350 to 400 Mt of mine rock over the life of the mine. Almost all of these mineral wastes will be generated by open pit mining. Approximately 40% of the mine rock is expected to be potentially acid generating (PAG) and will have to be managed for acid rock drainage potentials. Site topography at the RRP site is favourable for management of all mineral wastes. It is proposed to place these materials in two separate locations, with one location being primarily for PAG materials and low grade ore, and the other being primarily for overburden and non-potentially acid generating (NPAG) mine rock. A significant advantage for PAG mine rock management at the RRP site is the existence of high-quality clay overburden that will be used in dam construction, progressive reclamation and mine closure works.

The most critical aspects to consider when selecting a suitable location(s) for mineral waste disposal are the following:

- Haul distance from the open pit;
- Property ownership;
- Distance to nearest receptors for sound control;
- Potential for runoff and seepage control;
- Effects on sensitive wildlife, particularly SAR;
- Effects on waters frequented by fish; and
- Effects on local access routes.

Following an initial screening of preliminary stockpile alternatives, five alternative stockpile locations were selected for detailed evaluation:

- Alternative A: Northwest Alternative;
- Alternative B: South Alternative;
- Alternative C: Clark Creek Basin;
- Alternative D: Northeast Alternative; and
- Alternative E: West Alternative.

From an overall perspective, Alternatives C and E were rated as the preferred alternatives, with Alternative C being preferred for PAG mine rock and low grade ore stockpiling, and Alternative E for stockpiling overburden and NPAG mine rock. Alternative A was rejected as being cost prohibitive and located because of likely disturbance effects to local residents. Alternative B was rejected outright because of an inability to comply with MOE sound guidelines at Black Hawk area receptors. Alternative D was rejected because of costs, and service / access limitations.

#### **8.2.4 Processing** **Reference: Volume 2, Section 6.6**

Various proven and theoretically possible methods are available for liberating gold from gold-bearing ores, but only a limited number of alternatives are viable and proven at a commercial scale. Methods such as mercury amalgamation, aqua regia gold dissolution and ammonium thiosulphate (or thiosulfate) dissolution are not considered viable alternatives. As a result, the only potentially applicable, commercially viable methods for recovering gold from RRP ores are cyanidation, gravity concentration and flotation concentration. Cyanide use is the industry standard for gold processing and safe procedures for cyanide handling and subsequent detoxification are well established. Alternatives considered for RRP ore processing are the following:

- Whole ore cyanidation;
- Gravity recovery;
- Flotation concentrate recovery; and
- Combination of non-cyanide and cyanide recovery.

The preferred alternative is a combination of non-cyanide and cyanide recovery; namely gravity concentration coupled with whole ore cyanidation. Flotation concentrate recovery would still require cyanidation of the concentrate, or off-site shipment of the concentrate to a separate location for cyanidation, and is not cost competitive, and offers no environmental advantage.

#### **8.2.5 Process Plant Effluent Management** **Reference: Volume 2, Section 6.7**

Cyanide will be used in the RRP process plant for gold dissolution and recovery per standard industry practice. The effluent generated by this process will contain both cyanide and cyanide

compounds, and will require treatment prior to release to the environment. Cyanide and metallo-cyanide complexes are inherently unstable and can be treated using various technologies. Mill effluent treatment is typically integrated with management of tailings and extensive water reclaim back to the mill, to optimize final effluent quality and to minimize the final quantity of treated water discharged to the environment. Proven alternative technologies considered for process plant effluent treatment include:

- In-plant cyanide destruction and heavy metal precipitation using the SO<sub>2</sub>/Air treatment process, followed by natural degradation in the tailings management area;
- Process plant tailings slurry discharge to the tailings management area with use of natural degradation in the tailings management area pond as the sole means of cyanide destruction and heavy metal precipitation; and
- Process plant tailings slurry discharge to the tailings management area with use of natural degradation for the destruction of cyanide and the precipitation of heavy metals, coupled with hydrogen peroxide destruction of residual cyanide.

In-plant SO<sub>2</sub>/Air treatment, followed by natural degradation (as a polishing step), was selected as the preferred technology train, as this alternative produces the best quality effluent at all stages in the system, and is therefore environmentally superior to the other alternatives.

### **8.2.6 Tailings Management** **Reference: Volume 2, Section 6.8**

The RRP will generate an estimated 110 to 120 Mt of tailings from ore processing, over the entire mine life. The tailings slurry will be treated in the process plant to destroy cyanide and to render any associated dissolved heavy metals into solid phase, before being discharged to a fenced tailings management area for further effluent treatment (extended aging) and permanent storage of the tailings solids. Test work has shown that the tailings are PAG and will require management to prevent the development of deleterious drainage.

The standard method of tailings disposal for northern Ontario mining operations is permanent surface impoundment behind tailings dams to ensure containment. Tailings discharged to a tailings management area can be discharged at conventional densities in the range of 40 to 55% solids by weight; or they can be discharged as thickened tailings with solids contents upwards to 70% or more by weight. Other possible tailings deposition strategies include utilizing the tailings underground as part of a paste backfill, or filtering the tailings within the process plant and trucking the tailings to a stockpile for permanent storage. Thickened tailings, filtered tailings and paste backfill alternatives were not considered appropriate for the RRP.

From a set of preliminary options for tailings management area locations, four alternatives were selected for more detailed assessment:

- Alternative A: Northwest Alternative;
- Alternative B: Loslo Creek Basin Alternative;
- Alternative C: Clark Creek Basin Alternative; and
- Alternative D: South Alternative.

Alternatives A and D do not overprint waters frequented by fish. The other two alternatives both overprint small creek systems.

Alternative B (Loslo Creek Basin alternative) was selected as the overall preferred alternative based on its achieving preferred ratings in four of the six performance categories (cost, technical applicability, human environment and amenability to reclamation) and acceptable ratings in the remaining two categories (service the site effectively and natural environment). All other tailings management area alternatives attained unacceptable ratings in three or more of the six categories and were therefore rated as unacceptable overall.

### **8.2.7 Buildings, Facilities and Areas** **Reference: Volume 2, Section 6.9**

Options for locating the majority of building and infrastructure facilities for the RRP are dictated by the positioning of the open pit, the tailings management area, mine rock and overburden stockpiles, and by geographic constraints (foundation conditions in the case of the process plant complex, and regulated separation distances in the case of explosives facilities). This section only considers alternatives to siting the process plant complex and explosives facilities. The positioning of connectors (mine site roads, pipelines and the onsite electrical distribution system) is essentially constrained by the location of facilities that they are intended to service. Alternatives to connector locations are therefore not considered.

Selection of a suitable process plant site for the RRP is constrained by the following factors:

- Proximity to the open pit for ease and economics of ore transport;
- Setback from open pit for blast fly rock protection;
- Foundation conditions; bedrock near surface for key facilities;
- Property boundaries and proximity to offsite receptors (local residences); and
- SAR sensitivities.

The currently proposed site for the process plant complex is the only site which meets all of the site selection criteria, and there are no other reasonable alternative sites.

The location of the explosives plant and magazine is based on the following criteria:

- Safe operational setbacks in accordance with regulatory provisions;

- Distance to the open pit and underground operation;
- Distance to traffic routes; and
- SAR sensitivities.

Only two potential areas met the above criteria for selection of an explosives plant site, one north of the open pit and east of the tailings management area, and the other west of the overburden stockpile. The first alternative was selected to ensure non-interference with other RRP facilities and traffic, and the safety of the general public.

### **8.2.8 Aggregates** **Reference: Volume 2, Section 6.10**

Aggregates are required for concrete manufacture, tailings management area dam filter zones, road construction, development of laydown areas and other incidental needs. Aggregate materials required for these needs will consist of sand, gravel and crushed rock. The bulk of the tailings management area dams will be constructed with clay till derived from pit stripping overburden wastes, which are not considered aggregate from the regulatory perspective.

Aggregate materials (sand, gravel and crushed rock) can be obtained from the following alternative sources:

- NPAG mine rock;
- Project lands quarry sources;
- Project lands sand and gravel sources;
- Off property sand and gravel sources; and
- Off property quarry sources.

The NPAG mine rock alternative involving crushing was selected as preferred for coarse aggregate, and for fine aggregate where local sand and gravel sources are not available, as NPAG material will already be available as a mining waste product. Project lands quarry sources are preferred for some types of concrete manufacture, and for Highway 600 and East Access Road construction. Project lands sand and gravel sources were selected as being acceptable for site uses. Off property sand and gravel, and quarry, sources were rejected, principally because of higher costs associated with transportation distances, and because of increased potential disturbance to local residents associated with additional trucking on local roads.

### **8.2.9 Water Supply** **Reference: Volume 2, Section 6.11**

Allowing for extensive water recycle (approximately 92% of process plant requirements), the annual average water demand for the RRP is projected at 3,000,000 m<sup>3</sup>/a, with most of this demand being for water that will be permanently stored within the tailings void space and



therefore lost from the system. Project-generated water additions to the system will include minewater estimated at approximately 1,130,000 m<sup>3</sup>/a, once steady state is reached, and increased runoff associated with site development landform changes, estimated at approximately 2,880,000 m<sup>3</sup>/a over the base case at full development (Year 15). The resultant water balance therefore projects a net average annual water surplus. A large water inventory will be maintained to ensure an uninterrupted water supply for process operations through all periods of the year and under all hydrological conditions, including prolonged drought conditions.

Alternatives considered for the RRP water supply are the following:

- Take water directly from the Pinewood River;
- Capture site drainage water (site runoff);
- Take water from other area watercourses, lakes and ponds; and
- Groundwater.

The preferred water supply alternative is to capture runoff from site area watersheds in combination with supplementation by direct water taking from the Pinewood River to build an initial water inventory to support the start of ore processing. The capture of runoff from the majority of site area catchments is required in any event for tailings management area construction and for mineral stockpile runoff management, such that the added costs and environmental effects of using this water for processing are minimal. Long term water taking from the Pinewood River is not necessary and is not proposed. Taking water from area lakes (Off Lake and/or Burditt Lake) is cost prohibitive and confers no environmental advantage compared with other alternatives and is not proposed for operations or as a contingency supply. The use of groundwater is recommended for the initial supply of potable water and to support early construction operations, but is otherwise lacking in capacity to meet site needs.

#### **8.2.10 Site Water Management**

**Reference: Volume 2, Section 6.12**

The primary objectives of the water management system are to generate a reliable water source for process plant operations, and to optimize the quality and quantity of site effluent released to the environment so as to meet applicable regulatory requirements and guidelines. An integrated and adaptable water management system is required to achieve these objectives in a sustained and responsive manner. Given this context, there are no site water management alternatives in the general sense of alternatives assessed elsewhere in this document. Rather, an integrated and flexible water management system has been developed to meet the RRP and environmental needs.



**8.2.11 Solid Waste Management**  
**Reference: Volume 2, Section 6.13**

Hazardous solid waste will be shipped off site to a licensed landfill or other facility approved to receive such wastes. Hydrocarbon affected soils could potentially be remediated on site using approved methodologies which have demonstrated effectiveness. Consequently, the only alternatives considered for solid waste management were:

- Truck waste offsite to a Township of Chapple landfill;
- Truck waste offsite to another alternate existing licensed landfill; or
- Develop an onsite landfill.

Use of an incinerator was not considered as the alternative is too costly and this alternative produces air emissions which could be difficult to mitigate, reducing the likelihood of meeting the air quality environmental compliance criteria.

The preferred alternative is to use the existing Township of Chapple landfill which has been shown to have sufficient capacity, while retaining capacity for others. This alternative is more economic, will continue an existing relationship with the Township of Chapple, will not infringe on other users of offsite landfills and will be environmentally responsive.

**8.2.12 Domestic Sewage Management**  
**Reference: Volume 2, Section 6.14**

There will be a need to manage and treat domestic sewage from the onsite workforce during both the construction and operation phase of the RRP, as well as during the active phase of decommissioning. The alternatives considered for domestic sewage treatment at the RRP site include:

- Septic tank(s) and tile field(s);
- Package sewage treatment plant; and
- Offsite treatment.

The preferred alternative is to use a package sewage treatment plant, whether it is a rotating biological contactor, a sequencing batch reactor or a membrane bioreactor, as these systems provide the best quality effluent and greatest reliability, despite somewhat increased capital and operating costs.

**8.2.13 Highway 600 Re-alignment**  
**Reference: Volume 2, Section 6.15**

The RRP open pit will overprint the existing gravel-surfaced, two-lane Highway 600, requiring re-alignment of a portion of Highway 600 to maintain local access along Highway 600, and to

enable traffic to avoid the RRP site. A Feasibility Study of Highway 600 rerouting alternatives was carried out by TBT Engineering, supported by discussions with the Township of Chapple, MTO and local residents.

Four re-routing alternatives were considered in the area south and west of the RRP site, with all alternatives connecting to the west terminus of Tait Road and extending along various routings from this location across the Pinewood River to reconnect with Highway 600, by way of Pine River Road or Loslo Road. Alternatives A, B and D all had substantive cross-country alignment portions. Alternative C follows Township road allowances. Lengths of new road associated with the four alternatives range from 4.3 to 6.4 km, and all alternatives require a new bridge crossing of the Pinewood River.

Alternative C was selected as the preferred alternative, primarily because it follows existing road allowances, is supported and preferred by the Township of Chapple, and because it has fewest numbers of bends and turns. The cost estimate for this alternative was greater than for some other alternatives.

#### **8.2.14 Power Supply** **Reference: Volume 2, Section 6.17**

Up to 5 megawatts of power will be required during construction and commissioning, and up to approximately 57 megawatts for RRP operations. The existing local electrical grid is not capable of meeting this power demand. Access to additional power is therefore required. The power supply alternatives considered for the RRP are:

- An approximately 16.6 km, 230 kilovolt transmission line to connect to the grid; or
- Diesel-fired generators on the RRP site.

The transmission line alternative is the most cost effective and environmentally responsive alternative. Use of onsite diesel-fired power generation is not supportable on economic, environmental and socio-economic grounds, including considerations relating to fuel transport on local roads, and increased air emissions associated with the diesel generation alternative.

#### **8.2.15 Transmission Line Routing** **Reference: Volume 2, Section 6.18**

The nearest transmission line capable of meeting the RRP electrical needs is a 230 kilovolt transmission line that links Kenora to Fort Frances. At its nearest point, the 230 kilovolt Hydro One Networks transmission line is approximately 16 km northeast of the plant site. Four transmission line routing alternatives were considered:

- Alternative A: construct along high ground to the northeast of the site;
- Alternative B: shortest direct route to the Hydro One Networks transmission line;

- Alternative C: similar to Alternative B but maintains a setback from residences; and
- Alternative D: construct along the existing road network.

From an overall perspective, Alternative A is preferred as land access for this alternative is already available to RRR, or can reasonably be obtained in the case of those portions of the right-of-way positioned on Crown lands; and because there is less potential for conflicts or concerns from local residents, as this routing is the most removed from local residences. Alternatives B and C share limitations and uncertainties regarding land availability, and potential public concern due to proximity to residences along a portion of the route. Alternative D has good construction access, but is located very close to a number of residences, and is therefore likely to generate aesthetic concerns and concerns over exposure to electromagnetic fields.

#### 8.2.16 Reclamation and Closure Reference: Volume 2, Section 6.19

A number of alternatives were considered in relation to the various aspects of site reclamation and closure, namely in relation to the:

- **Open pit:** preferred alternatives are enhanced flooding and/or partially backfilling the open pit with tailings (coupled with enhanced flooding), provided that security of the underground workings can be guaranteed.
- **Underground mine:** preferred alternative is flooding of the underground workings;
- **Mineral stockpiles:** preferred alternatives are simple and complex covers, as appropriate, with engineered covers to be used for the prevention of acid rock drainage potentials for PAG materials;
- **Tailings management area:** preferred alternative is enlarged central ponded area (water cover), surrounded by a perimeter zone of tailings covered with overburden, providing the best balance of environmental protection, cost and risk control;
- **Buildings and equipment:** preferred alternatives are re-use where practically feasible; and destruction, removal and/or disposal according to applicable regulations where re-use is not feasible;
- **Infrastructure (roads, pipelines, transmission lines):** preferred alternatives are to leave in place where other uses are applicable; or remove and dispose of where no other uses are known or likely; and
- **Site drainage (ditching, ponds and creek diversions):** preferred alternatives are generally to stabilize site area ditching and leave it in place; breach (remove) water

management and sediments ponds and restore the pond sites; and to leave the re-aligned West Creek, Clark Creek, unnamed drainages at the process plant / stockpile pond and associated ponds in place.

## **9.0 EFFECTS ASSESSMENT, MITIGATION AND PROPOSED SIGNIFICANCE**

### **9.1 Valued Ecosystem and Valued Socio-Economic Components** **Reference: Volume 2, Section 7.2**

The identification of Valued Ecosystem Components (VECs) and VSECs were used to help focus the assessment of environmental effects, including the application of avoidance and mitigation measures to reduce or eliminate potential effects. VECs and VSECs are those aspects of the natural and human environment that are particularly notable or valued. Data from environmental and socio-economic baseline studies, including personal interviews and literature sources, have been used to identify VECs and VSECs for the RRP on the basis of their meeting one or more of the following criteria:

- Area of notable biological diversity;
- Significant habitat for locally important species;
- Significant habitat for uncommon, rare or unusual species;
- SAR;
- Important corridor or linkage for fish and/or wildlife movement;
- Sensitive receiving water environment;
- Other notable species or species groups;
- Indicator of environmental health;
- Important component to the function of other ecosystem elements or functions;
- Aboriginal cultural significance;
- Economic, social or cultural significance (such as identified through TK);
- Educational, scientific, or aesthetic interest;
- Provincial, Federal or International significance; and
- Administrative significance.

For each VEC or VSEC identified, the potential effect is analysed, mitigation or enhancement proposed and an assessment of significance made. Best professional judgement was used in carrying out the effects analysis, incorporating information from available sources, including opinions and perspectives expressed by the various stakeholders and Aboriginal communities through the EA process. Where appropriate, specific analytical methods and tools have been used to support the effects analysis; including laboratory tests, mass balance calculations, statistical packages and various types of models.

Criteria used to evaluate significance included consideration of magnitude / geographic extent, duration, frequency, and ecological / socio-economic context of each effect, as well as whether or not the effect is likely to occur. The direction of the effect (positive or negative) is also considered for socio-economic effects.

The sections that follow provide an overview of the environmental effects analysis and proposed significance, summarized in Tables S-6 to S-15. The titles include references to where the reader can find additional information in Volume 2 of the Final EA Report.

## **9.2 Effects Analysis**

### **9.2.1 Air Quality and Sound**

**Reference: Volume 2, Sections 7.3 and 7.4**

Air quality emissions were modelled to predict RRP site area air quality. The potential effect associated with air emissions is an increase in the airborne concentrations of key pollutants in the vicinity of the RRP site, with the potential to adversely affect air quality. With the appropriate mitigation, the magnitude and geographic extent of any effects on air quality are considered to be low while the duration of the effect on air quality is medium-term, with emissions to the atmosphere throughout the operational life of the RRP site. The effects are readily reversible, as the air quality effects will cease once the mining and ore processing activities cease (anticipated 16 year mine life) upon closure and reclamation. The overall effect of air emissions, including fugitive dusts, is therefore considered to be minor, as they are limited in geographic extent, limited in magnitude, and reversible.

Project-related greenhouse gas emissions will result from onsite fuel combustion and other mining and ore processing activities. The estimated maximum emission from the RRP is very low, and equivalent to approximately 0.02% of Canada's 2010 emissions.

Sound emissions will vary over the life of the RRP from lower levels during construction and early operations phases, and increasing gradually to the projected peak in 2020. Beyond 2020 as the open pit continues to deepen and as the stockpiles produce increased shielding, sound levels will begin to decrease, and will decline further once open pit operations cease in about 2026. Sound mitigation measures such as selection of quieter equipment are inherent to the current design of the RRP site and are reflected in the sound model predictions. The modelled sound contours for RRP site demonstrate compliance with applicable MOE guidelines.

### **9.2.2 Streamflow, Aquatic Habitats and Species**

**Reference: Volume 2, Section 7.5 and 7.6**

The RRP is somewhat unique from an environmental perspective, in that there are no lakes located within, or adjacent to the main RRP site. While limited bait fishing does occur within certain project area creeks, the area does not support a significant commercial or recreational fishery. In addition, the creeks present within the RRP site often encounter zero flow during dry periods.

Project effects are restricted to the minor creeks in the immediate vicinity of the site, including the Loslo Creek / Cowser Municipal Drain, Marr Creek, West Creek, Clark Creek / Teeple

Municipal Drain, and the Pinewood River. Development of the RRP will result in impacts to the local creeks and the Pinewood River due to direct habitat displacement (overprinting) and habitat modifications such as channel re-alignment (creeks only); and more indirect pathways such as flow reductions effluent discharge or a combination of the above (creeks and river). The Pinewood River will not be directly altered by any proposed mining works.

Local creeks expected to be directly overprinted by the mine features in whole or in part, include from east to west:

- Clark Creek / Teeple Municipal Drain;
- West Creek;
- Marr Creek; and
- Loslo Creek / Cowser Municipal Drain.

The remaining upstream portions of these creeks not overprinted directly by mine facilities or infrastructure, will require flow diversion or interception to avoid the upstream flows from interacting with the developed mine areas.

Potential effects on creek flows and water quality will vary from system to system as various portions of the drainages are overprinted by Project components or incorporated into the RRP integrated water management system. The tailings management area and all stockpiles will incorporate perimeter ditching to intercept runoff and seepage to enable redirection of the drainage to the RRP water treatment systems and ensure appropriate water quality standards are met prior to release of excess waters.

For the Pinewood River, the annual change in river flow due to RRP development will be a function of the capture of watershed that would otherwise flow directly into the river, less the effect of returning of site excess water being returned to the Pinewood River, either through the constructed wetland or by pipeline further downstream (below the McCallum Creek outlet). The net effect will be to reduce Pinewood River flow as measured below the McCallum Creek outlet by approximately 3.45% during an average flow year during early operation, transitioning to a projected overall net gain in flow in the Pinewood River for an average flow year in later mine life of 0.3%.

A combined aquatic habitat displacement or alteration of approximately 26 ha is anticipated. This will result in a harmful alteration disruption or destruction of fish habitat. Accordingly, a No Net Loss Plan and compensation strategy to offset unavoidable effects to fish habitat is being developed with associated regulatory agencies in consultation with the local communities. A blended offset strategy of watershed restoration with like for like habitat compensation is proposed. RRR has committed to supporting water quality and general habitat improvement activities within the Pinewood River watershed along with development of appropriate compensation efforts focused primarily on the establishment of onsite habitat in ponds and



diversions, to offset the RRP habitat losses. Draft versions of these documents are provided in Appendices X-1, X-2 and X-3.

**9.2.3 Groundwater**  
**Reference: Volume 2, Section 7.7**

Modelling of the proposed open pit anticipates that the zone of influence, defined by 1 metre of drawdown that will eventually develop from the dewatered open pit, is expected to extend approximately 2.5 to 3.5 km from the edge of the open pit in the base case scenario, by the end of mining.

The predicted reduction in the average groundwater flow contribution to the Pinewood River during mine operations is estimated to be three percent of the mean daily flow for the Pinewood River as measured below the McCallum Creek outlet. Mitigation measures primarily consist of returning captured groundwater as part of the overall RRP water discharge to the Pinewood River during the period of mine operations to minimize adverse flow effects to the river, especially during low flow conditions; and accelerating open pit inflow following mine closure, to the extent practicable.

**9.2.4 Vegetation and Terrestrial Habitat**  
**Reference: Volume 2, Section 7.8**

The primary forest cover types within the natural environment local study area in terms of areal extent are:

- Hardwood forest (47.6% coverage);
- Coniferous swamp (18.3% coverage);
- Coniferous forest (9.9% coverage);
- Agricultural land (7.7%); and
- Meadow marsh and shallow marsh (4.6%).

The majority of the RRP footprint overlaps with the hardwood forest community type (mainly aspen-birch), with an anticipated direct displacement of 1,144 ha of hardwood forest community.

Mitigation measures have been incorporated into site planning, with efforts focused on developing a compact site plan with development, where practical, on lands which have been previously disturbed as a result of past anthropogenic disturbance such as logging or agricultural development.

**9.2.5 Terrestrial and Avian Species**  
**Reference: Volume 2, Section 7.9 to 7.14**

Development of RRP components will affect both terrestrial and avian species through the direct loss of habitat and sound levels in the local vicinity. Development of the Project will also result in an increased risk of mortality due to collisions with vehicles. Many of the species affected will find suitable habitat adjacent to the RRP given the homogeneous forest cover of the area and abundant alternative habitat.

Mitigation measures have been incorporated into site planning, with efforts focused on developing a compact site plan with development, where practical, on lands which have been previously disturbed as a result of past anthropogenic disturbance such as logging or agricultural development. Clearing of habitat will be restricted to periods outside of breeding and nesting seasons for various avian species.

**9.2.6 Species at Risk**  
**Reference: Volume 2, Section 7.15 and 7.16**

RRR has worked collaboratively with the MNR on SAR management planning in support of project permitting since 2010. This has included the funding of a collaborative research study along with the MNR and Trent University.

No locally significant plant communities have been identified although two Provincially rare plant species were found.

A number of mitigation measures will be employed as part of RRP project development and operation to reduce potential adverse impacts to the species. These measures include:

- Placement of project components and development of a compact project footprint, in consultation with the MNR, to minimize the number of habitat locations which are affected by project components; and
- Habitat compensation (for Eastern Whip-poor-will) and active protection of known suitable habitat will encourage use by affected individuals.

**9.2.7 Traditional Land Use**  
**Reference: Volume 2, Section 7.17**

RRR has contacted the following First Nation communities and the Métis with respect to providing TK / TLU information. These communities are:

- Anishinaabeg of Naongashiing First Nation (Big Island);
- Buffalo Point First Nation;

- Mishkosiminiziibiing (Big Grassy River) First Nation;
- Naicatchewenin First Nation;
- Naotkamegwanning (Whitefish Bay) First Nation;
- Ojibways of Onigaming First Nation;
- Naicatchewenin First Nation; and
- Métis Rainy River Lake of the Wood Regional Consultation Committee Region #1.

While the RRP will be situated on primarily private lands, RRR is continuing to work with the First Nations and Métis to ensure protection of Aboriginal treaty rights. TK / TLU consultations have not identified traditional activities within the RRP area by the Aboriginal communities that have participated thus far in studies, including Naicatchewenin First Nation, Rainy River First Nations as well as Big Grassy River First Nation. Some study participants have stated that the RRP was not an area of intensive use in the distant past, but it is understood that traditional activities may have taken place there.

As a result of the First Nation independent review of the draft EA Report (Version 1), the RRR has stated that it will remain open to working with communities.

#### **9.2.8 Socio-economic** **Reference: Volume 2, Sections 7.18 to 7.20**

The RRP has the potential through the generation of very significant employment and business opportunities, to change or influence the population and demographics of the local and regional communities, principally in a positive manner. These potential changes are particularly important considering recent downturns in the forestry and tourism economies that have plagued the region and generated a net outgrowth of populations. Improvements to the employment and business economies will also improve the local and regional tax base. Traffic volumes on local roads and highways will increase with proposed RRP activities during construction and to a lesser extent during operations and decommissioning. There is also the requirement to re-align Highway 600 and to provide alternate access to Marr Road through development of an east access road. The expected traffic changes area within the design capacities of the roads affected.

#### **9.2.9 Human Health** **Reference: Volume 2, Section 7.21**

Human health can potentially be affected by air and sound emissions, and by treated effluents discharged to surface waters, or seepage into groundwater. No such effect is expected as the RRP will comply with applicable criteria for emissions which are dominantly health-based.

**9.2.10 Cultural Heritage Resources**

**Reference: Volume 2, Sections 7.22 and 7.23**

Construction of the RRP may affect archaeological sites through the disturbance and/or removal of soils during construction and/or operation which potentially contain the remains of archaeological sites. Proposed RRP facilities are expected to overprint a number of cultural heritage resource sites pending final site design during detailed engineering. Avoidance has been possible for several other archaeological sites identified but is not expected to be practical for the remainder. The RRP may also affect late 19th and early 20th century built heritage features. RRR has committed to undertaking a mitigation program consisting of an illustrated history of the study area.

**Table S-6: Significance Determinations of Residual Effects after Mitigation, Construction Phase – Natural Environment**

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Air Quality	Principal air quality constituents emitted from the site will be dust and associated metals from the following sources: road dust emissions; open pit overburden stripping and stockpiling; and site preparation for construction.	No	Dust emissions from roads and stockpiles will be controlled through use of water sprays; water cannon sprays will be employed to control dust emissions from stockpiles and handling activities; site roadways will be maintained in good condition; a fugitive dust best management practices plan will be prepared to identify all sources and outline all measures of mitigation.	Air quality modeling shows that with mitigation, as proposed, concentrations of NOx, HCN, key metals, PM <sub>tot</sub> , PM <sub>10</sub> and PM <sub>2.5</sub> are expected to meet MOE air quality standards for the site specific emissions, at the property line.	Adverse effects potentially involve human health, and locally and regionally important plant and wildlife species and communities.	With the appropriate mitigation, effects are considered to be minor and confined to the immediate mine site area.	Short-term: Effects will occur throughout the construction period (2 years).	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level I	Level III	Level I	Not significant	
Greenhouse Gases	Project-related greenhouse gas emissions will mainly derive from on site mobile heavy equipment fuel combustion, explosive detonation, and from diesel power generation (limited use, construction phase only).	No	Efforts were made to develop a compact site, thereby reducing transportation needs and minimizing equipment movement, and in turn reducing fuel consumption; onsite diesel power generation will be required until the transmission line has been commissioned; utilizing more fuel efficient trucks for transport; and, maintaining site equipment in good working order.	With mitigation measures proposed, CO <sub>2</sub> emissions are expected to be less than 0.06% of the target CO <sub>2</sub> emission reduction for Canada and confined to the immediate RRP site area.	Climate change has the potential to positively and negatively affect species and habitats on a local scale; effects of any single Project and local scale effects are too small to distinguish from background conditions.	Effects are considered to be minor (less than 0.06% of the target CO <sub>2</sub> emission reduction for Canada) and confined to the immediate mine site area.	Short-term: Construction phase effects will occur throughout the construction period (2 years).	Effect is expected to be continuous through construction and operation of the mine.	Emissions will cease at mine closure.	Magnitude of effect too small to be measured; emissions will cease at closure.	Effect will occur
					Level III	Level I	Level I	Level III	Level I	Not significant	
Sound	Sound will result from equipment movement, periodic blasting at the plant site and road realignments, construction activities, haulage and stockpiling operations.	No	The selection of quieter equipment, including but not limited to the following items: quiet mining trucks, electric drive excavators, and emergency diesel generators with silencers/mufflers; also the favourable positioning of equipment, and time constraints on operations.	With mitigation as proposed, sound levels at adjacent properties are expected to meet MOE guidelines for day-time and night-time effects.	Adverse effects potentially include disturbance to local residents and to sensitive wildlife species.	Effects are considered to be minor and confined to the immediate mine site area.	Short-term: Construction phase effects will occur throughout the construction period (2 years).	Effect is expected to be continuous through construction and operation of the mine. Blasting during construction phase is expected to be infrequent.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level I	Level III	Level I	Not significant	
Vibration	Mine site development will exhibit vibration from blasting (explosive usage) and from overpressure which is a shock wave generated from blasting.	No	The maximum charge size per delay will be restricted to 1,000 kg to manage blast vibration and blast overpressure.	With the control of charge sizes, as proposed, vibration and overpressure levels are predicted to be below the MOE NPC-119 cautionary limits at offsite receptors and confined to the immediate mine site area.	Adverse effects will generate ground borne vibration and overpressure levels at points of reception.	Effects are considered to be minor (predicted vibration and overpressure levels are not expected to exceed the MOE NPC-119 cautionary limits at offsite receptors) and confined to the immediate mine site area.	Short-term: Construction phase effects will occur throughout the construction period (2 years).	Effect is expected to occur infrequently.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level II	Level I	Level I	Level I	Level I	Not significant	

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Minor Creek Systems	Mine site development will impact local creeks and rivers from direct habitat displacement (overprinting); habitat modifications (channel re-alignment); potential water quality changes; and, potential indirect effects from flow reductions in the Pinewood River.	Yes	Efforts made to develop a compact site to limit the areal extent of disturbance to creeks; design of infrastructure using best management practices; and, implement water management systems to collect, monitor and treat as required. Active revegetation at closure will minimize length of time that areas are exposed to erosion and sediment transport. Fish habitat compensation will be provided to offset losses that cannot be otherwise mitigated.	With implementation of mitigation measures, as proposed, including re-routing portions of West Creek and Clark Creek, and providing fish habitat compensation through No Net Loss Plans, equivalent and/or compensatory ecological functions for these creek systems will be maintained.	Adverse effects to local creek systems would involve commonplace and widespread ecological communities, typical of small headwater creek systems in the area.	Effects are considered to be minor (4% of the NRSA), confined to the immediate mine site area and compensated in accordance with the <i>Fisheries Act</i> .	Long-term: impacts to local creek systems will extend beyond the life of the project.	Effect is expected to be continuous through construction and operation and decommissioning of the mine.	Effects are not reversible following closure but the minor creek systems will be compensated to offset the effects.	Overall effects are considered to be generally minor, localized and not reversible (effects will be compensated for to offset the non reversibility component).	Effect will occur
					Level II	Level I	Level III	Level III	Level III	Not significant	
Pinewood River	Impacts to the Pinewood River during the construction phase will be minor and may consist of treated effluent release, and diminished flows from creeks reporting to the Pinewood River and direct water taking from the Pinewood River. These impacts will begin to be felt in the second half of the construction period or beginning of the operational period.	Yes	Effluent treatment designed to produce a high quality effluent consistent with protection of aquatic life. Water taking from the Pinewood River will be restricted to thresholds that will not adversely affect aquatic life.	Runoff and seepage discharges to the Pinewood River expected to be consistent with attainment of protection of aquatic life guidelines, or scientifically defensible equivalents. Direct and indirect water taking from the river intended to minimize adverse flow effects.	Dominant local river system which supports commonplace and widespread ecological communities.	Flow effects are considered to be minor (<20% during average and high flow years; with flow enhancement during low flow periods); water quality to be maintained at levels suitable for protection of aquatic life.	Long-term: Construction phase effects will occur starting in the construction period and persist through the mine closure phase. Adverse water quality effects are not expected to occur.	Effect is not expected to be felt until the second half of the construction period.	Effects are reversible following mine closure (over a very long time period).	Flow effects considered to be minor; adverse water quality effects are not anticipated.	Effect will occur
					Level II	Level I	Level III	Level II	Level II	Not significant	
Groundwater	There are no anticipated effects of any significance on the groundwater system as a result of construction activities.	No	None proposed.	There are no anticipated effects of any significance on the groundwater system as a result of construction activities.	No meaningful adverse effects anticipated.	No meaningful adverse effects anticipated.	Short-term: Any minor impacts from construction would be limited to the construction period (2 years).	No meaningful adverse effects anticipated.	Any effects are readily reversible.	No anticipated adverse effects.	Effect will not likely occur
					Level I	Level I	Level I	Level I	Level I	Not significant	
Vegetation Communities and Rare Plants	Completed mine site development will displace an estimated 2,192 ha including habitat supporting two rare plant species.	No	Efforts were made to develop a compact site with avoidance of riparian and other sensitive habitats to the extent practical; water spraying to manage dust; and, transplantation of rare plant species. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of commonplace and widespread plant communities and species, concentrated within the immediate mine site area.	Adverse effects will generally involve commonplace and widespread plant species.	Effects are considered to be minor (8.5% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor (effected vegetation communities are common in the NLSA), localized and reversible.	Effect will occur
					Level II	Level I	Level III	Level III	Level I	Not significant	



System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Ungulates	Mine site development will displace an estimated 1,720 ha of woodlands and adjacent areas providing deer habitat. Additional effects are potentially associated with general disturbance and vehicular collisions. Minor disruption to wildlife habitat linkage is possible.	No	Efforts made to develop a compact site with avoidance of riparian and other sensitive habitats to the extent practical; Tailings management area will be fenced; speed limits and wildlife warning signs; pre-treatment of tailings slurry. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of ungulate habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	White-tailed Deer are ubiquitous within the NLSA. Winter deer yard habitat is common throughout the NRSAs. Low density of moose within the NRSAs.	Effects are considered to be minor (6.4% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level II	Level I	Level III	Level III	Level I	Not significant	
Furbearers	Mine site development will displace an estimated 1,777 ha of habitat. Additional effects are potentially associated with general disturbance, vehicular collisions and attraction to food wastes. Minor disruption to wildlife habitat linkage is possible.	No	Efforts made to develop a compact site with avoidance of riparian and other sensitive habitats to the extent practical; speed limits and wildlife warning signs; pre-treatment of tailings slurry. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of furbearer habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will generally involve commonplace and widespread furbearer species.	Effects are considered to be minor (6.7% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level II	Level I	Level III	Level III	Level I	Not significant	
Bats	Mine site development will displace an estimated 82 ha of woodland habitat. Additional effects are potentially associated with general disturbance, vehicular collisions.	No	Efforts made to develop a compact site with avoidance of riparian and other sensitive habitats to the extent practical; speed limits and wildlife warning signs; and, pre-treatment and monitoring of tailings. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of habitat potentially used by bats, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Northern Myotis and Little Brown Myotis are recognized as SAR in Ontario.	Effects are considered to be minor (<0.1% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Migratory Birds	Mine site development will displace woodland, wetland, and open country habitat (1,352, 261 and 522 ha, respectively). Additional effects are potentially associated with general disturbance, vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; protection of compensatory habitat; sound abatement; speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of migratory bird habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will generally involve commonplace and widespread species, together with some SAR and regionally rare species.	Effects are considered to be minor (7.7% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Raptors and Ravens (including Bald Eagle)	Mine site development will not displace raptor nests. Effects are associated with general disturbance, potential vehicular collisions and attraction to food wastes by scavenging birds.	No	Efforts made to develop a compact site with avoidance sensitive habitats to the extent practical; avoidance of nesting habitat until nests are vacant; monitoring of Bald Eagle nests; speed limits; wildlife warning signs; and, proper waste disposal. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of raptor and raven habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will generally involve commonplace raptor species and one species Provincially listed as Special Concern.	Effects are considered to be minor as no nests raptor nests will be removed and disturbance will be minimized during the active nesting period.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	



System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Amphibians	Mine site development will displace woodland and wetland habitat (1,352 and 420 ha, respectively). Additional effects are potentially associated with vehicular collisions and water quality.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; speed limits and wildlife warning signs; pre-treatment of tailings slurry to ensure TMA ponds are not toxic to wildlife. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of amphibian habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will generally involve commonplace and widespread species.	Effects are considered to be minor (6.3% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level II	Level I	Level III	Level III	Level I	Not Significant	
SAR – Little Brown Myotis	Addressed above under the heading Bats										
SAR – Northern Myotis	Addressed above under the heading Bats										
SAR – Eastern Whip-poor-will	Mine site development will displace 1,352 ha of woodland habitat and 95 ha of rock barren habitat, and a number of known breeding territories. Additional effects are potentially associated with general disturbance, potential vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; protection of compensatory habitat; continued research; sound abatement; and speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Eastern Whip-poor-will breeding territories and habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc. Short-term effects offset by compensatory habitat as part of anticipated overall net benefit agreement.	Adverse effects will involve a species which is designated as Threatened under both the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (5.1% of the NLSA), and from 13 to 17 breeding territories; and confined to the immediate mine site area; adverse effects to be compensated for through the <i>Endangered Species Act</i> .	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible; provision of overall benefits compensation.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
SAR – Bobolink	Mine site development will displace 385 ha of open country habitat, and a number of known breeding territories. Additional effects are potentially associated with general disturbance and vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; protection of compensatory habitat; sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Bobolink breeding territories and habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc. Short-term effects offset by compensatory habitat as part of anticipated overall net benefit agreement.	Adverse effects will involve a species which is designated as Threatened under both <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (2.0% of the NLSA); and confined to the immediate mine site area; adverse effects to be compensated for through the <i>Endangered Species Act</i> .	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible; provision of overall benefits compensation.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
SAR – Barn Swallow	Mine site development will displace 2 barn structures used for nesting and open country and wetland habitat used for foraging (277 and 262 ha, respectively). Additional effects are potentially associated with general disturbance, vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; provision of surrogate nesting structures; sound abatement; and speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Barn Swallow nesting sites and habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc. Short-term effects offset by compensatory habitat as part of anticipated overall net benefit agreement.	Adverse effects will involve a species which is designated as Threatened under both the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (2.0% of the NLSA) and confined to the immediate mine site area; adverse effects to be compensated for through the <i>Endangered Species Act</i> if required.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible; provision of overall benefits compensation.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Common Nighthawk	Mine site development will displace woodland, rock barren, and shrub habitat (1,352, 11 and 79 ha, respectively). Additional effects are potentially associated with general disturbance, vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; provision of compensatory habitat; sound abatement; light pollution reduction; and speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Common Nighthawk habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is designated as Special Concern under the <i>Endangered Species Act</i> and as Threatened under <i>Species at Risk Act</i> .	Effects are considered to be minor (5.1% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Golden Winged Warbler	Mine site development will displace 79 ha of shrub land and 419 ha of suitable woodland habitat. Additional effects are potentially associated with general disturbance and vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; indirect provision of compensatory habitat; sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Golden Winged Warbler habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is designated as Special Concern under the <i>Endangered Species Act</i> and as Threatened under <i>Species at Risk Act</i> .	Effects are considered to be minor (1.9% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Olive-sided Flycatcher	Mine site development will displace 507 ha of wetland and 124 ha of coniferous woodland habitat. Additional effects are potentially associated with general disturbance and vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; indirect provision of compensatory habitat; sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Olive-sided Flycatcher habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is designated as Special Concern under the <i>Endangered Species Act</i> and as Threatened under <i>Species at Risk Act</i> .	Effects are considered to be minor (2.4% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Special Concern Species – Canada Warbler	Mine site development will displace 1,352 ha of woodland habitat and, specifically, just 18 ha in areas where this species was observed. Additional effects are potentially associated with general disturbance and vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; indirect provision of compensatory habitat; sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Canada Warbler habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is designated as Special Concern under the <i>Endangered Species Act</i> and as Threatened under <i>Species at Risk Act</i> .	Effects are considered to be minor (4.8% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Red-headed Woodpecker	Mine site development will displace 1,352 ha of woodland habitat. Additional effects are potentially associated with general disturbance and vehicular collisions.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Red-headed Woodpecker habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is designated as Special Concern under the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (4.8% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Short-eared Owl	Mine site development will displace 522 ha of open country and meadow march habitat. Additional effects are potentially associated with general disturbance and vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; indirect provision of compensatory habitat sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Short-eared Owl habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is designated as Special Concern under the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (2.0% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Snapping Turtle	Mine site development will displace 507 ha of wetland habitat. Additional effects are potentially associated with general disturbance, vehicular collisions.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; speed limits and wildlife warning signs; pre-treatment of tailings slurry to ensure TMA ponds are not toxic to wildlife. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Snapping Turtle habitat, centred on the mine site area. Reduced potential exposure to vehicular traffic and site effluents, etc.	Adverse effects will involve a species which is designated as Special Concern under the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (1.9% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Provincially Rare Species – Black-billed Magpie	Mine site development will displace 385 ha of agricultural and cultural meadow habitat. Additional effects are potentially associated with general disturbance, vehicular collisions.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; sound abatement; speed limits; pre-treatment of tailings. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Black-billed Magpie habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve Provincially rare species.	Effects are considered to be minor (2.0% of the NLSA) and confined to the immediate mine site area.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Provincially Rare Species – Lilypad Clubtail	Mine site development will not displace any habitat which is typical for this species. No roads will be established in areas where this species was observed.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; and, speed limits. Active revegetation and at closure will restore habitats.	No anticipated displacement of habitat for this species.	Adverse effects will involve Provincially rare species.	Mine site development will not displace any habitat which is typical for this species.	Long-term: Effects will persist for the life of the project, and will take several years for forest habitats to re-establish following active reclamation at closure.	Overall effects are considered to be negligible.	Overall effects are considered to be negligible.	Overall effects are considered to be negligible.	Unlikely
					Level III	Level I	Level III	Level I	Level I	Not significant	
Provincially Rare Species – Horned Clubtail	Mine site development will not displace any habitat which is typical for this species. Roads which will be established in areas where this species was observed will have negligible effects.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; and, speed limits. Active revegetation and at closure will restore habitats.	No anticipated displacement of habitat for this species.	Adverse effects will involve Provincially rare species.	Mine site development will not displace any habitat which is typical for this species.	Medium-term: Effects will persist for the life of the project.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level II	Level III	Level I	Not significant	

Notes: NA: not applicable; NR: not rated  
 Tables 7-47 to 7-56 (Volume 2) were revised per the CEA Agency comment on the draft EA Report (Version 2) that a column be added to identify whether the VEC/VSEC is linked (Yes or No) to any of the following five criteria per Section 5 of CEEA (2012):

- changes to components of the environment within Federal jurisdiction;
- changes to the environment that would occur on Federal or transboundary lands;
- changes to the environment that are directly linked or necessarily incidental to Federal decisions;
- effects of changes to the environment on Aboriginal peoples; or
- effect of changes to the environment that are directly linked or necessarily incidental.

Level I	Level II	Level III
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Table S-7: Significance Determinations of Residual Effects after Mitigation, Construction Phase - Human Environment

VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Land Use Planning	Mining is consistent with current land use planning for the area. No discernable effect.	No	None proposed.	None anticipated.	NA	NA	NA	NA	NA	NA	NA	NA
Mineral Exploration	May limit access to resources held by other mineral exploration interests (negative).	No	None proposed.	Limited access to portions of a few properties held by one mineral exploration company.	NR	NR	NR	NR	NR	NR	NR	Likely
					Level III	Level I	Level I	Level II	Level III	Level II	Not significant	
Forestry	Removal of areas of potential forest harvesting and management activities (negative).	No	Efforts were made to develop a compact site to the extent practical; and, any commercial timber harvested from areas developed in association with the RRP site will be made available to current licence holders.	Removal of areas of potential forest harvesting comprising less than 1% of the Crossroute Forest Management Area.	Important regional land use that supports mills in both Barwick and Fort Frances.	Removal of less than 1% of the Crossroute Forest Management Area for forest production.	Effect is confined to the HLSA.	Effect lasts beyond closure.	Effect occurs continuously.	Reversible at closure (albeit with difficulty and at a high cost).	Not significant	Likely
					Level III	Level I	Level I	Level III	Level III	Level II	Not significant	
Agriculture and Adjacent Residents	Potential for impacts on adjacent residents and farm operations from sound, air quality, and water quality/supply; decreased availability of agricultural land; however, may sustain agricultural use in the region with off farm income opportunities (predominantly negative).	No	Efforts were made to optimize the mine footprint; provide pasture and to offset pasture lands that will be displaced by the RRP; continuing land settlement negotiations with local agricultural producers directly impacted by the RRP.	Removal of 16.4% of land currently used for agriculture in the HLSA; will affect a few adjacent land owners, with such lands having been purchased. Sound, vibration and air quality affects to adjacent residences will be consistent with MOE guidelines for receptor protection.	Agriculture is and has been an important regional land use and economic driver in the region.	Removal of 16.4% of land currently used for agriculture in the HLSA; affects a few adjacent land owners.	Effect is confined to the HLSA.	Effect lasts beyond closure.	Effect will occur continuously.	Effect is reversible in the long term.	Not significant	Likely
					Level III	Level II	Level I	Level III	Level III	Level II	Not significant	
Hunting	Loss or displacement of land used for hunting and impacts to species hunted (negative).	No	Minimize mine footprint; see also wildlife mitigation measures.	Long-term, reversible or largely reversible, loss of 1.5% of WMU 10 supporting ungulates (mainly deer) that are considered widespread and abundant. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Hunting is an important current land use that helps to support the tourism industry in the region.	Loss of 1.5% of WMU 10; ungulates are considered widespread and abundant; creation of the TL corridor may create additional access for hunters in the region.	Effect is confined to the HLSA.	Effect lasts until closure.	Effect will occur continuously.	Effect is reversible in the long term.	Not significant	Likely
					Level III	Level I	Level I	Level II	Level III	Level II	Not significant	



VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Trapping	Overprinting of private land traplines and impacts to species trapped (negative).	Unknown Yes	Minimize mine footprint; see also wildlife mitigation measures.	Long-term, reversible or largely reversible, loss of 13.9% and 38% of the area of two traplines.	No information regarding trapping was presented during Aboriginal consultation, discussions and meetings. The trapper contracted by RRR operates additional licensed traplines in the Rainy River District outside of the HLSA.	Loss of 13.9% and 38% of two traplines.	Effect is confined to the HLSA.	Effect lasts until closure.	Effect will occur continuously.	Effect is reversible in the long term.		Likely
					Level II	Level I	Level I	Level II	Level III	Level II	Not significant	
Fishing	Loss of waterbodies used for fishing; effects to sport fish in these water bodies (negative).		Effects will be mitigated through formation of a Fisheries Working group to develop a RRP No Net Loss Plan; see also fisheries and water resources mitigation measures.	Limited, if any, effects to sport fishing in the Pinewood River or creeks impacted by the RRP; four bait fishers will have portions of their license areas affected. Fisheries effects to be offset by No Net Loss Plan.	Noted by one bait fisher as important; local residents fish in larger, more productive water bodies located outside of the HLSA.	Limited, if any, sport fishing in the Pinewood River or creeks impacted by the RRP; four bait fishers will have portions of their license areas affected.	Effect is confined to the HLSA.	Effect lasts until closure.	Effect will occur continuously.	Effect is reversible with difficulty in the long term.		Likely
					Level II	Level I	Level I	Level II	Level III	Level II	Not significant	
Other Outdoor Recreation Uses	Overprinting a portion of Richardson Trail (south part of the trail); changes in enjoyment of natural / wilderness areas due to sound and air emissions; and, increases in traffic on Highways.	No	Refer to mitigations for air and sound emissions and traffic. Working with local land owners to enhance Richardson Trail components.	A portion of Richardson Trail will be overprinted by the TMA. Reduced potential exposure to noise and air emissions, consistent with MOE guidelines.	Other recreation activities are limited in the HLSA; Richardson Trail is an important recreation use trail for local residents.	A portion of Richardson Trail will be overprinted by the TMA.	Effect is confined to the HLSA.	Effect lasts until closure.	Effect will occur continuously.	Effect is reversible in the long term.		Unlikely
					Level II	Level I	Level I	Level II	Level III	Level II	Not significant	
Economics	Expenditures during construction and operation will stimulate the economy, creating jobs and income in industries in the region and throughout Ontario (positive).	No	Enhancement measures involve those directed at trying to optimize regional participation in employment, training and procurement.	Expenditures during construction and operation will stimulate the economy, creating jobs and income in industries in the region and throughout Ontario, with potential for enhancement of effects (positive).	Employment and income effects highly-valued in an area facing prolonged economic difficulties.	Low in comparison to the Provincial economy; large in comparison to the regional economy.	Effect is experienced across the region; low magnitude effects across Ontario.	Effect lasts until closure is completed.	Effect will occur continuously.	Effect is reversible with closure, although long-term effects may persist.	Effect is expected to help promote significant economic growth in the region.	Effect will occur
					Level III	Level III	Level II	Level II	Level III	Level II	Significant	
Demographics and Population	Project development would be expected to provide economic opportunities that would help to slow the current out-migration of people from the region, the populations of most areas (other than First Nation reserves) are in decline. (Net effect is positive.)	No	Enhancement measures involve those directed at trying to optimize local participation in the Project, including opportunities for Aboriginal communities.	Project development is expected to reverse the current population decline and contribute to low levels of population growth, but will not result in a large population change.	The Project will create employment and contribute to the stability of community populations.	Project development is expected to reverse decline and contribute to low levels of growth, but will not result in a large population change.	Effects will be experienced across the region.	Effects will occur for the life of the Project.	Effect will occur continuously during the life of the Project.	Reversibility depends on long-term economic performance in the area.	Effect is expected to help sustain or promote modest growth in population.	Effect will occur
					Level III	Level II	Level II	Level II	Level III	Level II	Significant	

VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Housing and Accommodation	Project development would help with maintaining regional incomes in a stressed market place, thereby contributing to improved housing stability. (Net effect is positive.)	No	Enhancement measures involve those directed at trying to optimize local participation in the Project, including opportunities for Aboriginal communities which will improve housing stability.	Effects will reverse shrinkage of housing stock and support prices, particularly in communities close to the site.	Housing stability contributes to the regional economy and to the stability of families.	Effects will reverse shrinkage of housing stock and support prices, particularly in communities close to the site.	Effects limited to communities within 100 km of site.	Effects will occur for the life of the Project.	Effect will occur continuously during the life of the Project.	Reversibility depends on long-term economic performance of region.	Effect will help to maintain current housing market viability.	Effect will occur
					Level III	Level II	Level II	Level II	Level III	Level II	Significant	
Public Utilities	Additional demands expected due to population increases which is positive in a region where there is decline in demands.	No	Ongoing discussions about potential additional demands with municipalities and service providers.	Additional demands expected due to population increases which is positive in a region where there is decline in demands.	Subject of ongoing discussion between RRR and municipalities and service providers.	Low to moderate in the context of declining population (capacity in most systems).	Effects will occur in some HRSA communities.	Effect will occur for the life of the Project.	Effect will occur continuously during the life of the Project.	Effect is reversible at closure.	Effect will sustain demands for existing services or provide a tax base upon which more service upgrades can be achieved.	Effect will occur
					Level II	Level II	Level II	Level II	Level III	Level II	Significant	
Community and Social Services	Most workers are expected to derive from the local population, which will help to sustain community services. These services are currently not over-taxed. (Net effect has both positive and negative aspects associated.)	No	Enhancement measures involve worker and multi-stakeholder consultation, linking workers with services, and training programs.	Most workers expected to derive from the local population, such that the effect is mainly one of sustaining demand for existing services.	Regional community services are critical to overall community health and well-being.	Effect is mainly one of sustaining demand for existing services.	Effects will be experienced across the region.	Effect will occur for the life of the Project.	Effect will occur continuously during the life of the Project.	Reversible.	Effect is expected to help to maintain the current status of community and social services.	Effect will occur
					Level III	Level I	Level II	Level II	Level III	Level I	Not significant	
Highway Traffic – Construction Phase	Project development will increase traffic volumes on local roads and highways.	No	Enforcement of speed limits, driver training, scheduling of major equipment deliveries in off hours, roadway design (turning lanes), general road maintenance and other measures.	Project development will increase traffic volumes on local roads and highways.	Traffic volumes and vehicle safety are critical to the region.	Existing road and highway systems are readily capable of sustaining increased traffic volumes and loads; and, effects can be managed using mitigation measures.	Effects will be experienced in only certain portions of Highway 11 between Fort Frances and the intersection with Highway 71.	Effects will occur only during peak construction months.	Effect will occur intermittently with some degree of regularity during shift changes.	Effect is reversible in the short term.	Existing road and highway systems are readily capable of sustaining the projected increased traffic volumes and loads.	Effect will occur
					Level II	Level I	Level II	Level I	Level II	Level I	Not significant	
Human Health	Dust, noise and vibration generation arising from construction activities. Dust may contain contaminants of potential concern, particularly heavy metals that could potentially bioaccumulate; release of spilled materials that could affect human health; and, traffic accidents resulting in direct physical injury.	No	Ensure all applicable occupational health and safety legislation standards are met; provision of legislated secondary containment; utilize best management practices for industrial hygiene hazard control; operate the RRP so as to meet applicable health and environmental standards; prevent any chemical spills from entering the environment.	With mitigation, as proposed, the magnitude of contaminant release is expected to be small and within applicable Provincial and Federal emission and discharge criteria. No credible health risk to residents or consumers of fish and wildlife. Occupational health and safety legislation standards to be met.	The health and safety of RRR employees, neighbours and the general public is a priority for RRR.	The magnitude of contaminant release is expected to be small and within applicable Provincial and Federal emission and discharge criteria. No credible health risk to residents or consumers of fish and wildlife.	No credible health effects anticipated for area residents.	Effect is confined to the HLSA.	Effect is expected to occur infrequently/not at all.	Effect is reversible at closure.	Overall effects are considered not significant.	Unlikely
					Level III	Level I	Level I	Level I	Level I	Level II	Not significant	



VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Archaeological Resources	Construction of the RRP may affect archaeological sites through disturbance and/or removal of soils during construction and/or operation which potentially contain remains of archaeological sites. Activities that could have the greatest affect on cultural heritage resources include: clearing, grubbing, stripping, excavation and basting during construction and expansion of stockpiles and TMA during operations.	No	The RRP layout has been adjusted so that three pre-contact archaeological sites initially identified as at risk will no longer be affected by the RRP.	Land clearing, excavation, and road construction have the potential to effect archaeological sites, but will be mitigated prior to effects occurring; currently no known sites within the RRP footprint.	Cultural heritage resources are of high importance, particularly to Aboriginal peoples.	Land clearing, excavation, and road construction have the potential to effect archaeological site (i.e., data loss or destruction), but will be mitigated prior to effects occurring; currently no known sites within the RRP footprint.	Sites are relatively small and occur in less than 1% of the RRP and will not contribute to overall environmental impact.	Effects will be permanent unless mitigation measures (i.e., site avoidance or protective measures) are possible.	Effect is expected to occur infrequently/not at all.	Effects will be permanent unless mitigation measures (i.e., site avoidance or protective measures) are possible.	Range of mitigation measures available for archaeological site.	Unlikely
					Level III	Level II	Level I	Level III	Level I	Level III	Not significant	
Built Heritage Resources and Cultural Heritage Landscapes	Construction and operation of the RRP may impact, either directly or indirectly, a variety of built heritage resource and cultural heritage landscape features.	No	Efforts made to develop a compact site with avoidance of sensitive areas to the extent practical; RRR has committed to undertaking a mitigation program consisting of an illustrated history of the study area.	A total of 4 built heritage resources / cultural heritage landscapes will be directly impacted by project components.	Built heritage resources and cultural heritage landscapes contribute to the character, history and sense of place of an area and are of high importance.	None of these sites / features are designated under the OHA, or included in a municipal heritage inventory or register.	Direct effects are localized and restricted to the HLSA.	Effects to the directly affected sites are permanent, with mitigation undertaken by documenting them before removal.	Direct effects are infrequent; indirect effects will be continuous.	Effects will be permanent unless mitigation measures (i.e., site avoidance or protective measures) are possible.	Overall effects are considered not significant.	Effect will occur
					Level III	Level I	Level I	Level III	Level III	Level III	Not significant	

Notes: NA: not applicable; NR: not rated  
 Tables 7-47 to 7-56 (Volume 2) were revised per the CEA Agency comment on the draft EA Report (Version 2) that a column be added to identify whether the VEC/VSEC is linked (Yes or No) to any of the following five criteria per Section 5 of CEEA (2012):

- changes to components of the environment within Federal jurisdiction;
- changes to the environment that would occur on Federal or transboundary lands;
- changes to the environment that are directly linked or necessarily incidental to Federal decisions;
- effects of changes to the environment on Aboriginal peoples; or
- effect of changes to the environment that are directly linked or necessarily incidental.

Level I	Level II	Level III
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Table S-8: Significance Determinations of Residual Effects after Mitigation, Operation Phase – Natural Environment

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Air Quality	Principal air quality constituents emitted from the site will be dust and associated metals from the following sources: road dust emissions; dust from managing mine rock, ore and overburden stockpiles; dust from the primary crusher; and, dust from mining activities within the open pit (i.e., drilling and blasting).	No	Dust emissions from roads and stockpiles will be controlled through use of water sprays; water cannon sprays will be employed to control dust emissions from stockpiles and handling activities; site roadways will be maintained in good condition; a fugitive dust best management practices plan will be prepared to identify all sources and outline all measures of mitigation.	Air quality modeling shows that with mitigation, as proposed, concentrations of NO <sub>x</sub> , HCN, key metals, PM <sub>tot</sub> , PM <sub>10</sub> and PM <sub>2.5</sub> are expected to meet MOE air quality standards for the site specific emissions, at the property line.	Adverse effects potentially involve human health, and locally and regionally important plant and wildlife species and communities.	With the appropriate mitigation, effects are considered to be minor and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation). Effects will not persist beyond the life of the Project.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level II	Level III	Level I	Not significant	
Greenhouse Gases	Project-related greenhouse gas emissions will mainly derive from on site mobile heavy equipment fuel combustion, explosive detonation, and from offsite power generation (limited use, construction phase only).	No	Efforts were made to develop a compact site, thereby reducing transportation needs and minimizing equipment movement, and in turn reducing fuel consumption; use of a transmission power line instead of onsite diesel power during operations; utilizing more fuel efficient trucks for transport; and, maintaining site equipment in good working order.	CO <sub>2</sub> emissions are expected to be less than 0.06% of the target CO <sub>2</sub> emission reduction for Canada and confined to the immediate RRP site area.	Climate change has the potential to positively and negatively affect species and habitats on a local scale; effects of any single Project and local scale effects are too small to distinguish from background conditions.	Effects are considered to be minor (less than 0.06% of the target CO <sub>2</sub> emission reduction for Canada) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation). Effects will not persist beyond the life of the Project.	Effect is expected to be continuous through construction and operation of the mine.	Emissions will cease at mine closure.	Magnitude of effect too small to be measured; emissions will cease at closure.	Effect will occur
					Level III	Level I	Level II	Level III	Level I	Not significant	
Sound	Sound will result from open pit operations, and from associated mineral waste and ore, haulage and stockpiling operations.	No	The selection of quieter equipment, including but not limited to the following items: quiet mining trucks, electric drive excavators, and emergency diesel generators with silencers/mufflers; also the favourable positioning of equipment, and time constraints on operations.	With mitigation, as proposed, sound levels at adjacent properties are expected to meet MOE guidelines for day-time and night-time effects.	Adverse effects potentially include disturbance to local residents and to sensitive wildlife species.	Effects are considered to be minor and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation). Effects will not persist beyond the life of the Project.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level II	Level III	Level I	Not significant	
Vibration	Mine site development will exhibit vibration from blasting (explosive usage) and from overpressure which is a shock wave generated from blasting.	No	The maximum charge size per delay will be restricted to 1,000 kg to manage blast vibration and blast overpressure.	With the control of charge sizes, as proposed, vibration and overpressure levels are predicted to be below the MOE NPC-119 cautionary limits at offsite receptors and confined to the immediate mine site area.	Adverse effects will generate ground borne vibration and overpressure levels at points of reception.	Effects are considered to be minor (predicted vibration and overpressure levels are not expected to exceed the MOE NPC-119 cautionary limits at offsite receptors) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation). Effects will not persist beyond the life of the Project, and substantively decrease once open pit operations are completed.	Effect is expected to occur intermittently, possibly with some degree of regularity.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level II	Level I	Level II	Level II	Level I	Not significant	

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Minor Creek Systems	Mine site development will impact local creeks and rivers from direct habitat displacement (overprinting); habitat modifications (channel re-alignment); potential water quality changes; and, potential indirect effects from flow reductions in the Pinewood River.	Yes	Efforts made to develop a compact site to limit the areal extent of disturbance to creeks; design of infrastructure using best management practices; and, implement water management systems to collect, monitor and treat as required. Active revegetation at closure will minimize length of time that areas are exposed to erosion and sediment transport. Implementation of No Net Loss Plans to offset adverse effects.	With implementation of mitigation measures, as proposed, including re-routing portions of West Creek and Clark Creek, and providing fish habitat compensation through No Net Loss Plans, equivalent and/or compensatory ecological functions for these creek systems will be maintained.	Adverse effects to local creek systems would involve commonplace and widespread ecological communities, typical of small headwater creek systems in the area.	Effects are considered to be minor (4% of the NRSA), confined to the immediate mine site area and compensated in accordance with the <i>Fisheries Act</i> .	Effects will persist throughout the period of the mine development (construction and operation) and beyond the life of project.	Effect is expected to be continuous through construction and operation and decommissioning of the mine.	Effects are not reversible following closure but the minor creek systems will be compensated to offset the effects.	Overall effects are considered to be generally minor, localized and not reversible (effects will be compensated for to offset the non reversibility component).	Effect will occur
					Level II	Level I	Level III	Level III	Level III	Not significant	
Pinewood River	Once fully operational, a collective watershed of approximately 21 km <sup>2</sup> will report directly/indirectly to the TMA, thereby diminishing flows in the river; TMA effluent discharges have the potential to affect river water quality.	Yes	Extensive water recycle to minimize discharge volumes; timing of TMA effluent discharges designed to minimize adverse flow effects to river, especially during low flow conditions; effluent treatment designed to produce a high quality effluent consistent with protection of aquatic life.	Final effluent expected to be consistent with attainment of protection of aquatic life guidelines, or scientifically defensible equivalents, in the Pinewood River. Water return to the river intended to minimize adverse flow effects to low levels.	Dominant local river system which supports commonplace and widespread ecological communities.	Flow effects are considered to be minor (<20% during average and high flow years; with flow enhancement during low flow periods); water quality to be maintained at levels suitable for protection of aquatic life.	Effects will persist throughout the period of the mine development (construction, operation, and well into the mine closure phase). Adverse water quality effects are not expected to occur.	Effect is expected to be continuous through construction and operation of the mine, and well into closure for flow effects.	Effects are reversible following mine closure (over a very long time period).	Flow effects considered to be minor; adverse water quality effects are not anticipated.	Effect will occur
					Level II	Level I	Level III	Level III	Level II	Not significant	
Groundwater	Groundwater drawdown of 1 m, extending approximately 4 km to the east and west and 3.5 km to the north and south (from the pit at the end of mine operations) and long term reduction of groundwater contribution to Pinewood River.	No	Return groundwater to Pinewood River during operations, especially during low flow conditions; optimize groundwater seepage quality through SO <sub>2</sub> /air treatment; manage site for ARD control; accelerate open pit inflow following mine closure to the extent practical; and, implement a water quality and flow monitoring program.	Proposed mitigation measures will ensure that adjacent well users are not adversely affected; and that groundwater discharged directly or indirectly to the Pinewood River will be such that protection of aquatic life guidelines, or defensible equivalents, can be met or maintained in the Pinewood River.	Groundwater helps to maintain Pinewood River base flow conditions, but effect is constrained by low permeability soils; local residents draw their water supply from both shallow and deeper wells.	Effects are considered to be minor (the net effect on percentage flow reductions to the Pinewood River is limited because of low permeability soils).	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for regional waters to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure (over a very long time period).		Effect will occur
					Level II	Level I	Level III	Level III	Level II	Not significant	
Vegetation Communities and Rare Plants	Mine site development will displace an estimated 2,192 ha including habitat supporting two rare plant species.	No	Efforts were made to develop a compact site with avoidance of riparian and other sensitive habitats to the extent practical; water spraying to manage dust; and, transplantation of rare plant species. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of commonplace and widespread plant communities and species, concentrated within the immediate mine site area.	Adverse effects will generally involve commonplace and widespread plant species.	Effects are considered to be minor (8.5% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure (over a very long time period).	Overall effects are considered to be generally minor (effected vegetation communities are common in the NLSA), localized and reversible.	Effect will occur
					Level II	Level I	Level III	Level III	Level I	Not significant	

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Ungulates	Mine site development will displace an estimated 1,720 ha of woodlands and adjacent areas providing deer habitat. Additional effects are potentially associated with general disturbance and vehicular collisions. Minor disruption to wildlife habitat linkage is possible.	No	Efforts made to develop a compact site with avoidance of riparian and other sensitive habitats to the extent practical; Tailings management area will be fenced; speed limits and wildlife warning signs; pre-treatment of tailings slurry. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of ungulate habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	White-tailed Deer are ubiquitous within the NLSA. Winter deer yard habitat is common throughout the NRSA. Low density of moose within the NRSA.	Effects are considered to be minor (6.4% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level II	Level I	Level III	Level III	Level I	Not significant	
Furbearers	Mine site development will displace an estimated 1,777 ha of habitat. Additional effects are potentially associated with general disturbance, vehicular collisions and attraction to food wastes. Minor disruption to wildlife habitat linkage is possible.	No	Efforts made to develop a compact site with avoidance of riparian and other sensitive habitats to the extent practical; speed limits and wildlife warning signs; pre-treatment of tailings slurry. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of furbearer habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will generally involve commonplace and widespread furbearer species.	Effects are considered to be minor (6.7% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level II	Level I	Level III	Level III	Level I	Not significant	
Bats	Mine site development will displace an estimated 82 ha of woodland habitat. Additional effects are potentially associated with general disturbance, vehicular collisions.	No	Efforts made to develop a compact site with avoidance of riparian and other sensitive habitats to the extent practical; speed limits and wildlife warning signs; and, pre-treatment and monitoring of tailings. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of habitat potentially used by bats, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Northern Myotis and Little Brown Myotis are recognized as SAR in Ontario.	Effects are considered to be minor (<0.1% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Migratory Birds	Mine site development will displace woodland, wetland, and open country habitat (1,352, 261 and 522 ha, respectively). Additional effects are potentially associated with general disturbance, vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; protection of compensatory habitat; sound abatement; speed limits; pre-treatment of tailings slurry to ensure TMA ponds are not toxic to wildlife. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of migratory bird habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will generally involve commonplace and widespread species, together with some SAR and regionally rare species.	Effects are considered to be minor (7.7% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Raptors and Ravens (including Bald Eagle)	Mine site development will not displace raptor nests. Effects are associated with general disturbance, potential vehicular collisions and attraction to food wastes by scavenging birds.	No	Efforts made to develop a compact site with avoidance sensitive habitats to the extent practical; avoidance of nesting habitat until nests are vacant; monitoring of Bald Eagle nests; speed limits; wildlife warning signs; and, proper waste disposal. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of raptor and raven habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will generally involve commonplace raptor species and one species Provincially listed as Special Concern.	Effects are considered to be minor as no nests raptor nests will be removed and disturbance will be minimized during the active nesting period.	Effects will persist throughout the period of the mine development (construction and operation). Effects will not persist beyond the life of the Project.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level II	Level III	Level I	Not significant	



System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Amphibians	Mine site development will displace woodland and wetland habitat (1,352 and 420 ha, respectively). Additional effects are potentially associated with vehicular collisions and water quality.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; speed limits and wildlife warning signs; pre-treatment of tailings slurry to ensure TMA ponds are not toxic to wildlife. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of amphibian habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will generally involve commonplace and widespread species.	Effects are considered to be minor (6.3% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
SAR – Little Brown Myotis	Addressed above under the heading Bats										
SAR – Northern Myotis	Addressed above under the heading Bats										
SAR – Eastern Whip-poor-will	Mine site development will displace 1,352 ha of woodland habitat and 95 ha of rock barren habitat, and a number of known breeding territories. Additional effects are potentially associated with general disturbance, potential vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; protection of compensatory habitat; continued research; sound abatement; speed limits; and, pre-treatment of tailings. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Eastern Whip-poor-will breeding territories and habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc. Short-term effects offset by compensatory habitat as part of anticipated overall net benefit agreement.	Adverse effects will involve a species which is listed as Threatened under both the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (5.1% of the NLSA), and from 13 to 17 breeding territories; and confined to the immediate mine site area; adverse effects to be compensated for through the <i>Endangered Species Act</i> .	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible; provision of overall benefits compensation.	Effect will occur
SAR – Bobolink	Mine site development will displace 385 ha of open country habitat, and a number of known breeding territories. Additional effects are potentially associated with general disturbance and vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; protection of compensatory habitat; sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Bobolink breeding territories and habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc. Short-term effects offset by compensatory habitat as part of anticipated overall net benefit agreement.	Adverse effects will involve a species which is listed as Threatened under both the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (2.0% of the NLSA); and confined to the immediate mine site area; adverse effects to be compensated for through the <i>Endangered Species Act</i> .	Effects will persist throughout the period of the mine development (construction and operation), and it will take only a few years for open country habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible; provision of overall benefits compensation.	Effect will occur
SAR – Barn Swallow	Mine site development will displace 2 barn structures used for nesting and open country and wetland habitat used for foraging (277 and 262 ha, respectively). Additional effects are potentially associated with general disturbance, vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; provision of surrogate nesting structures; sound abatement; speed limits; and, pre-treatment of tailings. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Barn Swallow nesting sites and habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc. Short-term effects offset by compensatory habitat as part of anticipated overall net benefit agreement.	Adverse effects will involve a species which is listed as Threatened under both the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (2.0% of the NLSA) and confined to the immediate mine site area; adverse effects to be compensated for through the <i>Endangered Species Act</i> if required.	Effects will persist throughout the period of the mine development (construction and operation), and it will take only a few years for open country habitats for foraging to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible; provision of overall benefits compensation.	Effect will occur

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Special Concern Species – Common Nighthawk	Mine site development will displace woodland, rock barren, and shrub habitat (1,352, 11 and 79 ha, respectively). Additional effects are potentially associated with general disturbance, vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; provision of compensatory habitat; sound abatement; light pollution reduction; speed limits; and, pre-treatment of tailings. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Common Nighthawk habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is listed as Special Concern under the <i>Endangered Species Act</i> and as Threatened under <i>Species at Risk Act</i> .	Effects are considered to be minor (5.1% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Golden Winged Warbler	Mine site development will displace 79 ha of shrub land and 419 ha of suitable woodland habitat. Additional effects are potentially associated with general disturbance and vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; indirect provision of compensatory habitat; sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Golden Winged Warbler habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is listed as Special Concern under the <i>Endangered Species Act</i> and as Threatened under <i>Species at Risk Act</i> .	Effects are considered to be minor (1.9% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Olive-sided Flycatcher	Mine site development will displace 507 ha of wetland and 124 ha of coniferous woodland habitat. Additional effects are potentially associated with general disturbance and vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; indirect provision of compensatory habitat; sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Olive-sided Flycatcher habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is listed as Special Concern under the <i>Endangered Species Act</i> and as Threatened under <i>Species at Risk Act</i> .	Effects are considered to be minor (2.4% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Canada Warbler	Mine site development will displace 1,352 ha of woodland habitat and, specifically, just 18 ha in areas where this species was observed. Additional effects are potentially associated with general disturbance and vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; indirect provision of compensatory habitat; sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Canada Warbler habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is listed as Special Concern under the <i>Endangered Species Act</i> and as Threatened under <i>Species at Risk Act</i> .	Effects are considered to be minor (4.8% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Red-headed Woodpecker	Mine site development will displace 1,352 ha of woodland habitat. Additional effects are potentially associated with general disturbance and vehicular collisions.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Red-headed Woodpecker habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is listed as Special Concern under the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (4.8% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Special Concern Species – Short-eared Owl	Mine site development will displace 522 ha of open country and meadow march habitat. Additional effects are potentially associated with general disturbance and vehicular collisions.	Yes	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; indirect provision of compensatory habitat sound abatement; and, speed limits. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Short-eared Owl habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve a species which is listed as Special Concern under the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (2.0% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Special Concern Species – Snapping Turtle	Mine site development will displace 507 ha of wetland habitat. Additional effects are potentially associated with general disturbance, vehicular collisions.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; speed limits and wildlife warning signs; pre-treatment of tailings slurry to ensure TMA ponds are not toxic to wildlife. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Snapping Turtle habitat, centred on the mine site area. Reduced potential exposure to vehicular traffic and site effluents, etc.	Adverse effects will involve a species which is designated as Special Concern under the <i>Endangered Species Act</i> and <i>Species at Risk Act</i> .	Effects are considered to be minor (1.9% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Provincially Rare Species – Black-billed Magpie	Mine site development will displace 385 ha of agricultural and cultural meadow habitat. Additional effects are potentially associated with general disturbance, vehicular collisions.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; avoidance of the breeding bird season; sound abatement; speed limits; and, pre-treatment of tailings. Active revegetation and at closure will restore habitats.	Long-term, reversible or largely reversible, residual displacement of Black-billed Magpie habitat, centred on the mine site area. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Adverse effects will involve Provincially rare species.	Effects are considered to be minor (2.0% of the NLSA) and confined to the immediate mine site area.	Effects will persist throughout the period of the mine development (construction and operation), and it will take several years for forest habitats to re-establish following active reclamation at mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	
Provincially Rare Species – Lilypad Clubtail	Mine site development will not displace any habitat which is typical for this species. No roads will be established in areas where this species was observed.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; and, speed limits. Active revegetation and at closure will restore habitats.	No anticipated displacement of habitat for this species.	Adverse effects will involve Provincially rare species.	Mine site development will not displace any habitat which is typical for this species.	Overall effects are considered to be negligible.	Overall effects are considered to be negligible.	Overall effects are considered to be negligible.	Overall effects are considered to be negligible.	Unlikely
					Level III	Level I	Level I	Level I	Level I	Not significant	
Provincially Rare Species – Horned Clubtail	Mine site development will not displace any habitat which is typical for this species. Roads which will be established in areas where this species was observed will have negligible effects.	No	Efforts made to develop a compact site with avoidance of sensitive habitats to the extent practical; and, speed limits. Active revegetation and at closure will restore habitats.	No anticipated displacement of habitat for this species.	Adverse effects will involve Provincially rare species.	Mine site development will not displace any habitat which is typical for this species.	Effects will persist throughout the period of the mine development (construction and operation).	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor, localized and reversible.	Effect will occur
					Level III	Level I	Level III	Level III	Level I	Not significant	

Notes: NA: not applicable; NR: not rated  
 Tables 7-47 to 7-56 (Volume 2) were revised per the CEA Agency comment on the draft EA Report (Version 2) that a column be added to identify whether the VEC/VSEC is linked (Yes or No) to any of the following five criteria per Section 5 of CEEA (2012):

- changes to components of the environment within Federal jurisdiction;
- changes to the environment that would occur on Federal or transboundary lands;
- changes to the environment that are directly linked or necessarily incidental to Federal decisions;
- effects of changes to the environment on Aboriginal peoples; or
- effect of changes to the environment that are directly linked or necessarily incidental

Level I	Level II	Level III
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**Table S-9: Significance Determinations of Residual Effects after Mitigation, Operation Phase - Human Environment**

VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Land Use Planning	Mining is consistent with current land use planning for the area. No discernable effect.	No	None proposed.	None anticipated.	NA	NA	NA	NA	NA	NA	NA	NA
Mineral Exploration	May limit access to resources held by other mineral exploration interests (negative).	No	None proposed.	Limited access to portions of a few properties held by one mineral exploration company.	NR	NR	NR	NR	NR	NR	NR	Likely
					Level III	Level I	Level I	Level II	Level III	Level II	Not significant	
Forestry	Removal of areas of potential forest harvesting and management activities (negative).	No	Efforts were made to develop a compact site to the extent practical; and, any commercial timber harvested from areas developed in association with the RRP site will be made available to current licence holders.	Removal of areas of potential forest harvesting comprising less than 1% of the Crossroute Forest Management Area.	Important regional land use that supports mills in both Barwick and Fort Frances.	Removal of less than 1% of the Crossroute Forest Management Area for forest production.	Effect is confined to the HLSA.	Effect lasts beyond closure.	Effect occurs continuously.	Reversible at closure (albeit with difficulty and at a high cost).		Likely
					Level III	Level I	Level I	Level III	Level III	Level II	Not significant	
Agriculture and Adjacent Residents	Potential for impacts on adjacent residents and farm operations from sound, air quality, and water quality/supply; decreased availability of agricultural land; however, may sustain agricultural use in the region with off farm income opportunities (predominantly negative).	No	Efforts were made to optimize the mine footprint; provide pasture and to offset pasture lands that will be displaced by the RRP; continuing land settlement negotiations with local agricultural producers directly impacted by the RRP.	Removal of 16.4% of land currently used for agriculture in the HLSA; will affect a few adjacent land owners, with such lands having been purchased. Sound, vibration and air quality affects to adjacent residences will be consistent with MOE guidelines for receptor protection.	Agriculture is and has been an important regional land use and economic driver in the region.	Removal of 16.4% of land currently used for agriculture in the HLSA; affects a few adjacent land owners.	Effect is confined to the HLSA.	Effect lasts beyond closure.	Effect will occur continuously.	Effect is reversible in the long term.		Likely
					Level III	Level II	Level I	Level III	Level III	Level II	Not significant	
Hunting	Loss or displacement of land used for hunting and impacts to species hunted (negative).	No	Minimize mine footprint; see also wildlife mitigation measures.	Long-term, reversible or largely reversible, loss of 1.5% of WMU 10 supporting ungulates (mainly deer) that are considered widespread and abundant. Reduced potential exposure to noise, vehicular traffic, and site effluents, etc.	Hunting is an important current land use that helps to support the tourism industry in the region.	Loss of 1.5% of WMU 10; ungulates are considered widespread and abundant; creation of the TL corridor may create additional access for hunters in the region.	Effect is confined to the HLSA.	Effect lasts until closure.	Effect will occur continuously.	Effect is reversible in the long term.		Likely
					Level III	Level I	Level I	Level II	Level III	Level II	Not significant	

VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Trapping	Overprinting of private land traplines and impacts to species trapped (negative).	Unknown	Minimize mine footprint; see also wildlife mitigation measures.	Long-term, reversible or largely reversible, loss of 13.9% and 38% of the area of two traplines.	No information regarding trapping was presented during Aboriginal consultation, discussions and meetings. The trapper contracted by RRR operates additional licensed traplines in the Rainy River District outside of the HLSA.	Loss of 13.9% and 38% of two traplines.	Effect is confined to the HLSA.	Effect lasts until closure.	Effect will occur continuously.	Effect is reversible in the long term.		Likely
					Level II	Level I	Level I	Level II	Level III	Level II	Not significant	
Fishing	Loss of waterbodies used for fishing; effects to sport fish in these water bodies (negative).	Yes	Effects will be mitigated through formation of a Fisheries Working group to develop a RRP No Net Loss Plan; see also fisheries and water resources mitigation measures.	Limited, if any, effects to sport fishing in the Pinewood River or creeks impacted by the RRP; four bait fishers will have portions of their license areas affected. Fisheries effects to be offset by No Net Loss Plan.	Noted by one bait fisher as important; local residents fish in larger, more productive water bodies located outside of the HLSA.	Limited, if any, sport fishing in the Pinewood River or creeks impacted by the RRP; four bait fishers will have portions of their license areas affected.	Effect is confined to the HLSA.	Effect lasts until closure.	Effect will occur continuously.	Effect is reversible with difficulty in the long term.		Likely
					Level II	Level I	Level I	Level II	Level III	Level II	Not significant	
Other Outdoor Recreation Uses	Overprinting a portion of Richardson Trail (south part of the trail); changes in enjoyment of natural / wilderness areas due to sound and air emissions; and, increases in traffic on Highways.	No	Refer to mitigations for air and sound emissions and traffic. Working with local land owners to enhance Richardson Trail components.	A portion of Richardson Trail will be overprinted by the TMA. Reduced potential exposure to noise and air emissions, consistent with MOE guidelines.	Other recreation activities are limited in the HLSA; Richardson Trail is an important recreation use trail for local residents.	A portion of Richardson Trail will be overprinted by the TMA.	Effect is confined to the HLSA.	Effect lasts until closure.	Effect will occur continuously.	Effect is reversible in the long term.		Unlikely
					Level II	Level I	Level I	Level II	Level III	Level II	Not significant	
Economics	Expenditures during construction and operation will stimulate the economy, creating jobs and income in industries in the region and throughout Ontario (positive).	No	Enhancement measures involve those directed at trying to optimize regional participation in employment, training and procurement.	Expenditures during construction and operation will stimulate the economy, creating jobs and income in industries in the region and throughout Ontario, with potential for enhancement of effects	Employment and income effects highly-valued in an area facing prolonged economic difficulties.	Low in comparison to the Provincial economy; large in comparison to the regional economy.	Effect is experienced across the region; low magnitude effects across Ontario.	Effect lasts until closure is completed.	Effect will occur continuously.	Effect is reversible with closure, although long-term effects may persist.	Effect is expected to help promote significant economic growth in the region.	Effect will occur
					Level III	Level III	Level II	Level II	Level III	Level II	Significant	
Demographics and Population	Project development would be expected to provide economic opportunities that would help to slow the current out-migration of people from the region, the populations of most areas (other than First Nation reserves) are in decline.(Net effect is positive.)	No	Enhancement measures involve those directed at trying to optimize local participation in the Project, including opportunities for Aboriginal communities.	Project development is expected to reverse the current population decline and contribute to low levels of population growth, but will not result in a large population change.	The Project will create employment and contribute to the stability of community populations.	Project development is expected to reverse the decline and contribute to low levels of growth, but will not result in a large population change.	Effects will be experienced across the region.	Effects will occur for the life of the Project.	Effect will occur continuously during the life of the Project.	Reversibility depends on long-term economic performance in the area.	Effect is expected to help sustain or promote modest growth in population.	Effect will occur
					Level III	Level II	Level II	Level II	Level III	Level II	Significant	

VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Housing and Accommodation	Project development would help with maintaining regional incomes in a stressed market place, thereby contributing to improved housing stability. (Net effect is positive.)	No	Enhancement measures involve those directed at trying to optimize local participation in the Project, including opportunities for Aboriginal communities which will improve housing stability.	Effects will reverse shrinkage of housing stock and support prices, particularly in communities close to the site.	Housing stability contributes to the regional economy and to the stability of families.	Effects will reverse shrinkage of housing stock and support prices, particularly in communities close to the site.	Effects limited to communities within 100 km of site.	Effects will occur for the life of the Project.	Effect will occur continuously during the life of the Project.	Reversibility depends on long-term economic performance of region.	Effect will help to maintain current housing market viability.	Effect will occur
					Level III	Level II	Level II	Level II	Level III	Level II	Significant	
Public Utilities	Additional demands expected due to population increases which is positive in a region where there is decline in demands.	No	Ongoing discussions about potential additional demands with municipalities and service providers.	Additional demands expected due to population increases which is positive in a region where there is decline in demands.	Subject of ongoing discussion between RRR and municipalities and service providers.	Low to moderate in the context of declining population (capacity in most systems).	Effects will occur in some HRSA communities.	Effect will occur for the life of the Project.	Effect will occur continuously during the life of the Project.	Effect is reversible at closure.	Effect will sustain demands for existing services or provide a tax base upon which more service upgrades can be achieved.	Effect will occur
					Level II	Level II	Level II	Level II	Level III	Level II	Significant	
Community and Social Services	Most workers are expected to derive from the local population, which will help to sustain community services. These services are currently not over-taxed. (Net effect has both positive and negative aspects associated.)	No	Enhancement measures involve worker and multi-stakeholder consultation, linking workers with services, and training programs.	Most workers expected to derive from the local population, such that the effect is mainly one of sustaining demand for existing services.	Regional community services are critical to overall community health and well-being.	Effect is mainly one of sustaining demand for existing services.	Effects will be experienced across the region.	Effect will occur for the life of the Project.	Effect will occur continuously during the life of the Project.	Reversible	Effect is expected to help to maintain the current status of community and social services.	Effect will occur
					Level III	Level I	Level II	Level II	Level III	Level I	Not significant	
Highway Traffic – Construction Phase	Project development will increase traffic volumes on local roads and highways.	No	Enforcement of speed limits, driver training, scheduling of major equipment deliveries in off hours, roadway design (turning lanes), general road maintenance and other measures.	Project development will increase traffic volumes on local roads and highways.	Traffic volumes and vehicle safety are critical to the region.	Existing road and highway systems are readily capable of sustaining increased traffic volumes and loads; and, effects can be managed using mitigation measures.	Effects will be experienced in only certain portions of Highway 11 between Fort Frances and the intersection with Highway 71.	Effects will occur only during peak construction months.	Effect will occur intermittently with some degree of regularity during shift changes.	Effect is reversible in the short term.	Existing road and highway systems are readily capable of sustaining the projected increased traffic volumes and loads.	Effect will occur
					Level II	Level I	Level II	Level I	Level II	Level I	Not significant	
Highway Traffic – Operations Phase	Project development will increase traffic volumes on local roads and highways.	No	Request enforcement of speed limits, driver training, scheduling of major equipment deliveries in off hours, roadway design (turning lanes), general road maintenance and other measures.	Project development will increase traffic volumes on local roads and highways.	Traffic volumes and vehicle safety are critical to the region.	Existing road and highway systems are readily capable of sustaining increased traffic volumes and loads; and, effects can be managed using mitigation measures.	Effects will be experienced in only certain portions of Highway 11 between Fort Frances and the intersection with Highway 71.	Effects will occur during the operations of the Project.	Effect will occur intermittently with some degree of regularity during shift changes.	Effect is reversible in the long term.	Existing road and highway systems are readily capable of sustaining the projected increased traffic volumes and loads.	Effect will occur
					Level II	Level I	Level II	Level II	Level II	Level II	Not significant	

VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Human Health	Possible release of contaminants of potential concern, particularly heavy metals that could potentially bioaccumulate; release of spilled materials that could affect human health; and, traffic accidents resulting in direct physical injury.	No	Ensure all applicable occupational health and safety legislation standards are met; provision of legislated secondary containment; utilize best management practices for industrial hygiene hazard control; operate the RRP so as to meet applicable health and environmental standards; prevent any chemical spills from entering the environment.	With mitigation, as proposed, the magnitude of contaminant release is expected to be small and within applicable Provincial and Federal emission and discharge criteria. No credible health risk to residents or consumers of fish and wildlife. Occupational health and safety legislation standards to be met.	The health and safety of RRR employees, neighbours and the general public is a priority for RRR.	The magnitude of contaminant release is expected to be small and within applicable Provincial and Federal emission and discharge criteria. No credible health risk to residents or consumers of fish and wildlife.	No credible health effects anticipated for area residents.	Effect is confined to the HLSA.	Effect is expected to occur infrequently/not at all.	Effect is reversible at closure.	Overall effects are considered not significant.	Unlikely
					Level III	Level I	Level I	Level I	Level I	Level II	Not significant	
Archaeological Resources	Construction of the RRP may affect archaeological sites through disturbance and/or removal of soils during construction and/or operation which potentially contain remains of archaeological sites. Activities that could have the greatest affect on cultural heritage resources include: clearing, grubbing, stripping, excavation and basting during construction and expansion of stockpiles and TMA during operations.	No	The RRP layout has been adjusted so that three pre-contact archaeological sites initially identified as at risk will no longer be affected by the RRP.	Land clearing, excavation, and road construction have the potential to effect archaeological sites, but will be mitigated prior to effects occurring; currently no known sites within the RRP footprint.	Cultural heritage resources are of high importance, particularly to Aboriginal peoples.	Land clearing, excavation, and road construction have the potential to effect archaeological sites (i.e., data loss or destruction), but will be mitigated prior to effects occurring; currently no known sites within the RRP footprint.	Sites are relatively small and occur in less than 1% of the RRP and will not contribute to overall environmental impact.	Effects will be permanent unless mitigation measures (i.e., site avoidance or protective measures) are possible.	Effect is expected to occur infrequently/not at all.	Effects will be permanent unless mitigation measures (i.e., site avoidance or protective measures) are possible.	Range of mitigation measures available for archaeological site.	Unlikely
					Level III	Level II	Level I	Level III	Level I	Level III	Not significant	
Built Heritage Resources and Cultural Heritage Landscapes	Construction and operation of the RRP may impact, either directly or indirectly, a variety of built heritage resource and cultural heritage landscape features.	No	Efforts made to develop a compact site with avoidance of sensitive areas to the extent practical; RRR has committed to undertaking a mitigation program consisting of an illustrated history of the study area.	Additional buildings beyond those 4 affected during the construction phase may require demolition as a public safety measure.	Built heritage resources and cultural heritage landscapes contribute to the character, history and sense of place of an area and are of high importance.	None of these sites / features are designated under the OHA, or included in a municipal heritage inventory or register.	Direct effects are localized and restricted to the HLSA.	Effects to the directly affected sites are permanent, with mitigation undertaken by documenting them before removal.	Direct effects are infrequent; indirect effects will be continuous.	Effects will be permanent unless mitigation measures (i.e., site avoidance or protective measures) are possible.	Overall effects are considered not significant.	Effect may occur
					Level III	Level I	Level I	Level III	Level III	Level III	Not significant	

Notes: NA: not applicable; NR: not rated  
 Tables 7-47 to 7-56 (Volume 2) were revised per the CEA Agency comment on the draft EA Report (Version 2) that a column be added to identify whether the VEC/VSEC is linked (Yes or No) to any of the following five criteria per Section 5 of CEA (2012):

- changes to components of the environment within Federal jurisdiction;
- changes to the environment that would occur on Federal or transboundary lands;
- changes to the environment that are directly linked or necessarily incidental to Federal decisions;
- effects of changes to the environment on Aboriginal peoples; or
- effect of changes to the environment that are directly linked or necessarily incidental

Level I	Level II	Level III
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**Table S-10: Significance Determinations of Residual Effects after Mitigation, Maintenance Phase – Natural Environment**

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Air Quality	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
Greenhouse Gases	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NR	NR	NR	NR	NR	NR	NA
					NA	NA	NA	NA	NA	NA	
Sound	Additional sound may be generated as part of aggregate operations for maintenance of roads.	No	Time constraints on some operations; use of quieter equipment.	Additional sound may be generated as part of aggregate operations for maintenance of roads.	No meaningful adverse ecosystem effects; activities will occur in conjunction with ongoing mine operations.	Effects are considered to be minor and confined to the immediate mine site area.	Medium-term: maintenance activities will occur throughout the life of the project.	Activities will take place intermittently, on an as-required basis.	Effect is readily reversible at mine closure.	Magnitude of effect is too small to be distinguished from regular operational activities.	Effect will occur.
					Level I	Level I	Level II	Level II	Level I	Not significant.	
Vibration	Additional vibration may be generated as part of aggregate operations for maintenance of roads.	No	Time constraints on some operations; use of quieter equipment.	NA	No meaningful adverse ecosystem effects; activities will occur in conjunction with ongoing mine operations.	Effects are considered to be minor and confined to the immediate mine site area.	Medium-term: maintenance activities will occur throughout the life of the project.	Activities will take place intermittently, on an as-required basis.	Effect is readily reversible at mine closure.	Magnitude of effect is too small to be distinguished from regular operational activities.	Effect will occur.
					Level I	Level I	Level II	Level II	Level I	Not significant.	
Minor Creek Systems	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Pinewood River	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Groundwater	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	



System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Vegetation Communities and Rare Plants	Maintenance of the transmission line will require ongoing regular clearing of vegetation.	No	Clearing of vegetation will be carried out using mechanical means only – no herbicides are proposed.	Inhibited growth of vegetation along the transmission line corridor, which will begin to reverse immediately upon cessation of clearing at closure.	Adverse effects will generally involve commonplace and widespread plant species.	Effects are considered to be minor and confined to the immediate transmission line area.	Effects will persist throughout the period of the mine development (construction and operation), but will re-establish following mine closure.	Effect is expected to be continuous through construction and operation of the mine.	Effects are reversible following mine closure.	Overall effects are considered to be generally minor (affected vegetation communities are common in the NLSA), localized and reversible.	Effect will occur
					Level II	Level I	Level III	Level III	Level I	Not significant	
Ungulates	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Furbearers	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Bats	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Migratory Birds	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Raptors and Ravens (including Bald Eagle)	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Amphibians	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
SAR – Little Brown Myotis	Addressed above under the heading Bats										
SAR – Northern Myotis	Addressed above under the heading Bats										

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
SAR – Eastern Whip-poor-will	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
SAR – Bobolink	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
SAR – Barn Swallow	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Common Nighthawk	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Golden Winged Warbler	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Olive-sided Flycatcher	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Canada Warbler	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Red-headed Woodpecker	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	



System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Special Concern Species – Short-eared Owl	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Snapping Turtle	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Provincially Rare Species – Black-billed Magpie	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Provincially Rare Species – Lilypad Clubtail	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	
Provincially Rare Species – Horned Clubtail	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA
					NR	NR	NR	NR	NR	NR	

Notes: NA: not applicable; NR: not rated  
 Tables 7-47 to 7-56 (Volume 2) were revised per the CEA Agency comment on the draft EA Report (Version 2) that a column be added to identify whether the VEC/VSEC is linked (Yes or No) to any of the following five criteria per Section 5 of CEAA (2012):

- changes to components of the environment within Federal jurisdiction;
- changes to the environment that would occur on Federal or transboundary lands;
- changes to the environment that are directly linked or necessarily incidental to Federal decisions;
- effects of changes to the environment on Aboriginal peoples; or
- effect of changes to the environment that are directly linked or necessarily incidental.

Level I	Level II	Level III
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**Table S-11: Significance Determinations of Residual Effects after Mitigation, Maintenance Phase - Human Environment**

VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Land Use Planning	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Mineral Exploration	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Forestry	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Agriculture and Adjacent Residents	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Hunting	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Trapping	No effects related to maintenance activities beyond those assessed as part of construction or operations.	Unknown	None proposed.	NA	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Fishing	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Other Outdoor Recreation Uses	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Economics	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Demographics and Population	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	

VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Housing and Accommodation	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	NA	NA
Public Utilities	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NR	NR	NR	NR	NR	NR	NR	NR
					NA	NA	NA	NA	NA	NA	NA	NA
Community and Social Services	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NR	NR	NR	NR	NR	NR	NR	NR
					NA	NA	NA	NA	NA	NA	NA	NA
Highway Traffic – Construction Phase	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NR	NR	NR	NR	NR	NR	NR	NR
					NA	NA	NA	NA	NA	NA	NA	NA
Highway Traffic – Operations Phase	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NR	NR	NR	NR	NR	NR	NR	NR
					NA	NA	NA	NA	NA	NA	NA	NA
Human Health	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NR	NR	NR	NR	NR	NR	NR	NR
					NA	NA	NA	NA	NA	NA	NA	NA
Archaeological Resources	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NR	NR	NR	NR	NR	NR	NR	NR
					NA	NA	NA	NA	NA	NA	NA	NA
Built Heritage Resources and Cultural Heritage Landscapes	No effects related to maintenance activities beyond those assessed as part of construction or operations.	No	None proposed.	NA	NR	NR	NR	NR	NR	NR	NR	NR
					NA	NA	NA	NA	NA	NA	NA	NA

Notes: NA: not applicable; NR: not rated  
 Tables 7-47 to 7-56 (Volume 2) were revised per the CEA Agency comment on the draft EA Report (Version 2) that a column be added to identify whether the VEC/VSEC is linked (Yes or No) to any of the following five criteria per Section 5 of CEAA (2012):

- changes to components of the environment within Federal jurisdiction;
- changes to the environment that would occur on Federal or transboundary lands;
- changes to the environment that are directly linked or necessarily incidental to Federal decisions;
- effects of changes to the environment on Aboriginal peoples; or
- effect of changes to the environment that are directly linked or necessarily incidental.

Level I	Level II	Level III
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Table S-14: Significance Determinations of Residual Effects after Mitigation, Post Reclamation Phase – Natural Environment

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
Air Quality	None expected.	No	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Greenhouse Gases	None expected.	No	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Sound	None expected.	No	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Vibration	None expected.	No	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Minor Creek Systems	Creek diversions and compensation / NNL areas will become naturalized.	Yes	Monitoring.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Pinewood River	Water taking for TMA and open pit flooding will continue for several years into the restoration phase. After about 3 to 4 years, water taking for the TMA will cease and flows formerly captured by the TMA basin will be returned to the Pinewood River.	Yes	Monitoring Pinewood River flows to ensure that that stated amounts are not exceeded. Possible reductions in water taking during extreme low flow conditions (5 to 10 percentile years). Rapid stabilization of the TMA pond allows for more rapid return of TMA watershed contribution to the Pinewood River.	Water taking for TMA and open pit flooding will continue for several years into the restoration phase. After about 3 to 4 years, water taking for the TMA will cease and flows formerly captured by the TMA basin will be returned to the Pinewood River. Diversions to the open pit will continue for several tens of years beyond the closure phase.	Dominant local river system which supports commonplace and widespread ecological communities.  Level II	Flow effects are considered to be minor (<20% during average and high flow years; with flow enhancement during low flow periods); water quality to be maintained at levels suitable for protection of aquatic life.  Level I	Long-term: Water taking and TMA flooding and related effects are expected to persist for 4 to 5 years under average Pinewood River flow conditions. Diversions to the open pit will continue for several tens of years beyond the closure phase.  Level III	Effect is expected to have seasonal regularity; water taking will be continuous during the open water period.  Level II	Effects of water taking are readily reversible upon cessation of water taking.  Level I	Flow effects considered to be minor and greatly reduced compared to the operations phase once TMA water takings are completed; adverse water quality effects are not anticipated.  Not significant	
Groundwater	None expected.	No	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Vegetation Communities and Rare Plants	Areas reclaimed during closure will become naturalized and plant communities will become established.	No	Monitoring.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Ungulates	Populations will naturally re-establish themselves in the area.	No	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Furbearers	Populations will naturally re-establish themselves in the area.	No	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Bats	Populations will naturally re-establish themselves in the area.	No	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Migratory Birds	Populations will naturally re-establish themselves in the area.	Yes	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Raptors and Ravens (including Bald)	Populations will naturally re-establish themselves in the area.	No	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
Amphibians	Populations will naturally re-establish themselves in the area.	No	None proposed.	NA	NA NR	NA NR	NA NR	NA NR	NA NR	NA NR	
SAR – Little Brown Myotis	Addressed above under the heading Bats										
SAR – Northern Myotis	Addressed above under the heading Bats										

System / Component / Feature	Potential Effect	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation					Overall Significance	Likelihood
					Value of System, Component, Feature or Situation	Magnitude / Geographic Extent	Duration	Frequency	Reversibility		
SAR – Eastern Whip-poor-will	Populations will naturally re-establish themselves in the area.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
SAR – Bobolink	Populations will naturally re-establish themselves in the area.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
SAR – Barn Swallow	Populations may naturally re-establish themselves in the area.	Yes	Structures may be left in place to provide suitable nesting habitat.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Common Nighthawk	Populations will naturally re-establish themselves in the area.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Golden Winged Warbler	Populations will naturally re-establish themselves in the area.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Olive-sided Flycatcher	Populations will naturally re-establish themselves in the area.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Canada Warbler	Populations will naturally re-establish themselves in the area.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Red-headed	Populations will naturally re-establish themselves in the area.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Short-eared Owl	Populations will naturally re-establish themselves in the area.	Yes	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
Special Concern Species – Snapping Turtle	Populations will naturally re-establish themselves in the area.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
Provincially Rare Species – Black-billed Magpie	Populations will naturally re-establish themselves in the area.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
Provincially Rare Species – Lilypad Clubtail	Populations will naturally re-establish themselves in the area.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	
Provincially Rare Species – Horned Clubtail	Populations will naturally re-establish themselves in the area.	No	None proposed.	NA	NA	NA	NA	NA	NA	NA	
					NR	NR	NR	NR	NR	NR	

Notes: NA: not applicable; NR: not rated  
 Tables 7-47 to 7-56 (Volume 2) were revised per the CEA Agency comment on the draft EA Report (Version 2) that a column be added to identify whether the VEC/VSEC is linked (Yes or No) to any of the following five criteria per Section 5 of CEEA (2012):

- changes to components of the environment within Federal jurisdiction;
- changes to the environment that would occur on Federal or transboundary lands;
- changes to the environment that are directly linked or necessarily incidental to Federal decisions;
- effects of changes to the environment on Aboriginal peoples; or
- effect of changes to the environment that are directly linked or necessarily incidental

Level I	Level II	Level III
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**Table S-15: Significance Determinations of Residual Effects after Mitigation, Post Reclamation Phase - Human Environment**

VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Land Use Planning	None expected.	No	None proposed	None expected.	NA	NA	NA	NA	NA	NA		NA
Mineral Exploration	None expected.	No	None proposed	None expected.	NR	NR	NR	NR	NR	NR		NA
Forestry	Areas of potential forest harvesting and management activities will begin to re-establish (positive).	No	None proposed.	Areas of potential forest harvesting and management activities will begin to re-establish (positive).	Important regional land use that supports mills in both Barwick and Fort Frances.	Portions of previously disturbed areas may be returned to other uses.	Effect is confined to the HLSA.	Effect lasts beyond closure.	Effect occurs continuously.	NA		Likely
					Level III	Level I	Level I	Level III	Level III	NR	Not significant	
Agriculture and Adjacent Residents	Some areas may be made available for agricultural activities as they become restored (positive).	No	None proposed.	Some areas may be made available for agricultural activities as they become restored (positive).	Agriculture is and has been an important regional land use and economic driver in the region.	Portions of previously disturbed areas may be returned to other uses.	Effect is confined to the HLSA.	Effect lasts beyond closure.	Effect will occur continuously.	NA		Likely
					Level III	Level I	Level I	Level III	Level III	NR	Not significant	
Hunting	Closure and reclamation of the site may allow some areas to be re-opened to hunting activities and will allow for re-establishment of game populations (positive).	No	None proposed.	Closure and reclamation of the site may allow some areas to be re-opened to hunting activities and will allow for re-establishment of game populations (positive).	Hunting is an important current land use that helps to support the tourism industry in the region.	Portions of previously disturbed areas may be returned to other uses.	Effect is confined to the HLSA.	Effect lasts beyond closure.	Effect will occur continuously.	NA		Likely
					Level III	Level I	Level I	Level III	Level III	NR	Not significant	
Trapping	Closure and reclamation of the site may allow some areas to be re-opened to trapping activities and will allow for re-establishment of furbearer populations (positive).	Unknown	None proposed.	Closure and reclamation of the site may allow some areas to be re-opened to trapping activities and will allow for re-establishment of furbearer populations (positive).	No information regarding trapping was presented during Aboriginal consultation, discussions and meetings. The trapper contracted by RRR operates additional licensed traplines in the Rainy River District outside of the HLSA.	Portions of previously disturbed areas may be returned to other uses.	Effect is confined to the HLSA.	Effect lasts beyond closure.	Effect will occur continuously.	NA		Likely
					Level II	Level I	Level I	Level III	Level III	NR	Not significant	
Fishing	Pre-development water bodies will be permanently impacted; no effects anticipated to water bodies established as compensation under the No Net Loss Plan.	No	None proposed.	Pre-development water bodies will be permanently impacted; no effects anticipated to water bodies established as compensation under the No Net Loss Plan.	Local residents fish in larger, more productive water bodies located outside of the HLSA.	Limited, if any, sport fishing in the Pinewood River or creeks impacted by the RRP.	Effect is confined to the HLSA.	Effect lasts beyond closure.	Effect will occur continuously.	NA		Likely
					Level II	Level I	Level I	Level III	Level III	NR	Not significant	



VSEC	Potential Effect (and direction)	Section 5 Link	Proposed Mitigation or Enhancement	Residual Effect	Residual Significance After Mitigation or Enhancement						Overall Significance	Likelihood
					Socio-economic Context	Magnitude	Geographic Extent	Duration	Frequency	Reversibility		
Other Outdoor Recreation Uses	Habitat restoration will allow some potential for outdoor recreational uses on portions of the property, provided that these are compatible with overall restoration objectives, and general public safety.	No	Working with local land owners to enhance Richardson Trail components where practicable.	Habitat restoration will allow some potential for outdoor recreational uses on portions of the property, provided that these are compatible with overall restoration objectives, and general public safety.	Other recreation activities are limited in the HLSA; Richardson Trail is an important recreation use trail for local residents.	A portion of Richardson Trail will be overprinted by the TMA.	Effect is confined to the HLSA.	Effect lasts beyond closure.	Effect will occur continuously.	NA		Likely
					Level II	Level I	Level I	Level III	Level III	NR	Not significant	
Economics	Effects evaluated as part of project closure and decommissioning. See Tables 7-53 and 7-54.	No	None proposed.	See closure and decommission phase residual effects.	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Demographics and Population	Effects evaluated as part of project closure and decommissioning. See Tables 7-53 and 7-54.	No	None proposed.	See closure and decommission phase residual effects.	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Housing and Accommodation	Effects evaluated as part of project closure and decommissioning. See Tables 7-53 and 7-54.	No	None proposed.	See closure and decommission phase residual effects.	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Public Utilities	Effects evaluated as part of project closure and decommissioning. See Tables 7-53 and 7-54.	No	None proposed.	See closure and decommission phase residual effects.	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Community and Social Services	Effects evaluated as part of project closure and decommissioning. See Tables 7-53 and 7-54.	No	None proposed.	See closure and decommission phase residual effects.	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Highway Traffic – Construction Phase	Effects evaluated as part of project closure and decommissioning. See Tables 7-53 and 7-54.	No	None proposed.	See closure and decommission phase residual effects.	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Highway Traffic – Operations Phase	Effects evaluated as part of project closure and decommissioning. See Tables 7-53 and 7-54.	No	None proposed.	See closure and decommission phase residual effects.	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Human Health	Effects evaluated as part of project closure and decommissioning. See Tables 7-53 and 7-54.	No	None proposed.	See closure and decommission phase residual effects.	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Archaeological Resources	Effects evaluated as part of project closure and decommissioning. See Tables 7-53 and 7-54.	No	None proposed.	See closure and decommission phase residual effects.	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	
Built Heritage Resources and Cultural Heritage Landscapes	Effects evaluated as part of project closure and decommissioning. See Tables 7-53 and 7-54.	No	None proposed.	See closure and decommission phase residual effects.	NA	NA	NA	NA	NA	NA		NA
					NR	NR	NR	NR	NR	NR	NR	

Notes: NA: not applicable; NR: not rated

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- effect of changes to the environment that are directly linked or necessarily incidental

Level I	Level II	Level III
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**10.0 EFFECTS OF THE ENVIRONMENT ON THE PROJECT**  
**Reference: Volume 2, Section 8**

Five potential effects the environment could have on the RRP were identified and assessed based on guidance provided from regulatory agencies and experience with other mine EAs:

- Water supply availability (both insufficient and excess water);
- Increased mine water volumes;
- Natural hazards;
- Climate change; and
- SAR designations.

Where applicable, RRP components have taken the above considerations into account and used conservative design criteria as part of the overall project design in order to mitigate potential negative outcomes from fluctuations in environmental conditions. Climate change is not considered to be a significant environmental factor due to the widely differing time scales over which both the project and climate change take place. The overall all effect of climate change across the complete ensemble of climate change projections on the RRP site will be a net, best estimate increase of 100 mm in site runoff, by year 2080. Climate change is therefore predicted to improve the ability to mitigate potential environmental impacts in the longer term. New SAR designations or changes to the level for listing species may require additional approvals, if those species are affected by project operations.

**11.0 MALFUNCTIONS AND ACCIDENTS**  
**Reference: Volume 2, Section 9**

The risk of potential malfunctions and accidents for the RRP was identified from a variety of sources. An assessment using a standard risk assessment matrix was carried out and identified potential malfunctions and accidents are considered to have an acceptable level of risk, given the proposed management and mitigation plans.

**12.0 CUMULATIVE AND RESIDUAL EFFECTS, AND CONCERNS**  
**Reference: Volume 2, Sections 10 and 11**

**12.1 Cumulative Effects**

There are a number of exploration, construction, forestry and other industrial projects of varying scope and scale within and adjacent to the Rainy River District. Some of these projects are of short duration, others are geographically removed from the RRP, while others have limited direct environmental impacts. None of these projects are anticipated to contribute to any negative cumulative environmental effects with the RRP.

**12.2 Residual Effects**

The residual effects identified were assessed for significance. A predicted, residual environmental effect is not likely to be significant, if:

- It is of low magnitude and/or geographic extent, or;
- Of short term duration including residual effects; or
- Is likely to occur very infrequently (or not at all) with little potential for long-lasting effects.

Similarly, the effect is not likely to be significant, if the effect has low, or limited, importance to the natural environment or human environment, for whatever reason.

No significant, negative environmental effects were identified for the RRP, after mitigation (Tables S-4 to S-15).

The following significant positive environmental effects of the RRP were identified:

- Expected to help sustain or promote modest growth in population;
- Will help to maintain current housing market viability;
- Effect will sustain demands for existing services or provide a tax base upon which more service upgrades can be achieved; and
- Effect is expected to help to maintain the current status of community and social services.

**12.3 Concerns and Issues**

Through the voluntary issuance of a draft ToR and two draft EA Reports as well as other measures outlined above, RRR has made extra efforts to obtain feedback regarding the RRP not dictated by regulatory requirements. This has resulted in a very extensive consultation

record (Appendix D). While RRR has received positive feedback regarding the RRP and its potential to bring opportunity to an economically depressed area (such as demonstrated in Volume 2 Section 3.7), concerns have been expressed by stakeholders and Aboriginal groups regarding the project.

RRR has responded to resolve these issues and concerns by a variety of means including:

- Alteration to the RRP where appropriate (Table S-4);
- Provision of further information or greater clarity on information already provided, including additional environmental baseline studies during 2013;
- Revision to documentation; and/or
- Discussions and meetings with the individuals or groups involved.

Nonetheless, as with all major industrial developments, a number of stakeholder and Aboriginal group concerns remain. The primary concerns expressed are summarized in Table S-16 along with the proposed approach to reduce and remove the concern.



**Table S-16: Summary of Concerns and Proposed Approach to Resolve**

Outstanding Concern or Issue	Proposed Approach to Reduce and Remove Concern
<b>Stakeholders</b>	
Additional engineering detail was requested by Government agencies regarding certain project elements, including closure planning	To be resolved through ongoing meetings and provision of additional information within environmental approval applications once additional engineering detail is available
Potential impacts to surface water and groundwater, quality and quantity through the development of the RRP	Assessment of the potential effects will continue through the construction and operations phase of the RRP, including ongoing monitoring to confirm impact predictions summarized in the final EA Report. If appropriate, design changes will be made to ensure compliance with environmental approvals
Development and operation of the RRP is expected to impact local aquatic resources and wildlife, largely through displacement of habitat. While compensation will be made in accordance with regulatory requirements, there is a concern that the effects could be greater than anticipated	Follow up monitoring is proposed to assess the impacts of the RRP on the local environment. Reclamation once operations cease will return the site to a naturalized setting which will encourage the return of wildlife to the site

Outstanding Concern or Issue	Proposed Approach to Reduce and Remove Concern
<b>Aboriginal Groups</b>	
<p><b>TK / TLU:</b> Concern was expressed regarding the role of TK / TLU in the EA and future project planning, the availability of studies lead by each First Nations community and information sharing.</p>	<p>Traditional Knowledge/Traditional Land Use (TK/TLU) data has been widely collected for the RRP, including from the closest communities of Big Grassy River First Nation, Rainy River First Nations and Naicatchewenin First Nation. All TK/TLU sessions were community driven, meaning that the method of data collection was community specific. No TK/TLU data has been identified for the Project area specifically. The majority of the data has been broad and overreaching, which Rainy River Resources (RRR) will continue to respect as it serves as the basis for First Nations' unique relationship to the land. TK/TLU collection will continue; information collected will be appropriately considered for construction, operation and closure phases. For example, RRR will further investigate the historical travel corridor and incorporate appropriately any new information that may become available.</p> <p>RRR will share results of the TK/TLU data sessions in a non-public First Nations forum(s).</p>

Outstanding Concern or Issue	Proposed Approach to Reduce and Remove Concern
<p><b>Aquatic Resources:</b> Comments were provided regarding the potential for impacts to local water quality and fisheries.</p>	<p>RRR will commit to a joint water quality monitoring and reporting program with the area First Nations as part of the existing monthly water quality monitoring program which is currently carried out by RRR. The program will be funded by RRR and form an integral part of the overall environmental management program as it relates to First Nations traditional knowledge and assurances of maintaining water quality and by extension, aquatic biota protection. The program will be developed jointly with the First Nations in lead-up to the initiation of mine construction.</p>
<p><b>Communication of Information:</b> The First Nations wish to be kept up to date on the Project, including any potential changes.</p>	<p>RRR will continue to communicate closely with First Nations regarding the Project.</p>
<p><b>Environmental Monitoring:</b> Ensure that First Nations have an active role in monitoring plans and programs.</p>	<p>RRR has an open invitation for First Nations to participate in all baseline and environmental monitoring programs, including Whip-poor-will, where appropriate and to share monitoring results. RRR will continue to advise of the opportunity at public forums in order to encourage anyone who's interested to participate.</p>
<p><b>Cultural Awareness Training:</b> Provide cultural awareness training for those working at the mine.</p>	<p>All RRR staff will undergo cultural awareness training. Temporary contractors will undergo an awareness program as part of the regular induction program when working at the mine.</p>
<p><b>Lake Sturgeon:</b> Consider obtaining new information on Sturgeon.</p>	<p>Additional information related to Lake Sturgeon and the Rainy River First Nations management program will be added to the Final EA Report. RRR has committed to a program of close coordination with Rainy River First Nations in support of the pre-existing First Nation Watershed Program and water quality protection. Company funding will be provided as part of the fisheries compensation program to further water quality enhancement programs for the Pinewood and similar agriculturally-impacted waterways.</p>
<p><b>Baseline Health Information:</b> The Proponent may wish to contact the Seven Generations School and/or MNR to obtain additional information.</p>	<p>RRR will reach out to the Seven Generations Education Institute and/or the MNR to obtain any additional information on baseline health of animals and fish.</p>
<p><b>Closure Planning:</b> Describe what the mechanisms are to deliver a successful closure plan over time, including incorporation of TK and community engagement activities.</p>	<p>First Nations will play an active role in the development of the mine Closure Plan, including development of the monitoring and mitigation programs. While the Closure Plan will be completed prior to construction, RRR will consult on significant revisions periodically during operations to ensure incorporation of TK and best management practices.</p>
<p><b>Wildlife Studies:</b> Investigate whether there will be changes to ungulates.</p>	<p>Monitoring programs targeted at ungulates (moose, deer) will be coordinated with First Nations.</p>

Outstanding Concern or Issue	Proposed Approach to Reduce and Remove Concern
<p><b>First Nation Water Supply:</b> Concern expressed regarding the potential for effects to water supply from the RRP.</p>	<p>RRR would be pleased to assemble a map showing the locations of the closest First Nation community water supply intakes on receipt of the locations/coordinates.</p>
<p><b>First Nation Member Health:</b> The First Nations wish to be kept up to date on the Project, including any potential changes. It is suggested that the Proponent and the First Nations work together through a committee to mitigate any potential social problems with workers staying in nearby villages and camps. The largest issue is the potential for more drugs and alcohol to be brought in and consumed in the area.</p>	<p>While the Draft EA has shown no impacts to First Nations or non-Aboriginal people's health, any new information that has a potential to impact health will be provided to First Nations.</p> <p>RRR will work with First Nations to ensure employee overall well-being. Programs to highlight the dangers of drug use combined with drug testing will be implemented.</p>
<p>The Métis Nation of Ontario is in the process of completing a TK / TLU and technical review of the RRP EA Report.</p>	<p>RRR anticipates that as part of the consultation process, an addendum outlining any additional follow-up programs or agreements may need to be submitted in parallel with the final EA Report review.</p>

### **13.0 MONITORING AND ENVIRONMENTAL MANAGEMENT PLANS AND ENVIRONMENTAL APPROVALS**

**Reference: Volume 2, Sections 13 and 15**

#### **13.1 Monitoring and Environmental Management Plans**

The Federal EIS Guidelines and the Approved Provincial ToR both require development of a monitoring framework for compliance and effects monitoring, as part of the EA process, with consideration being given to comments put forward by government agencies, Aboriginal groups and other stakeholders, including any follow-up monitoring programs (FMPs) developed through the Federal EA process. Monitoring details will be defined in part through the environmental approvals and permitting process that will follow EA approval.

In accordance with *Canadian Environmental Assessment Act, 2012*, the purpose of the FMP is to:

- Verify the accuracy of the EA of a designated project; and
- Determine the effectiveness of any mitigation measures.

In addition, the FMP is expected to:

- Provide for adaptive management in the event environmental effects are different from expected, new information becomes available, or mitigation measures prove to be less effective than anticipated;
- Communicate the FMP results to RRP stakeholders who are party to the program, and to provide for their input into program results; and
- The FMP applies to the construction, operation, decommissioning, and post-closure phases of the RRP, as appropriate.

The EA Report provides a framework for components to be included in the FMP. In developing and carrying out the FMP, particular focus is provided through *Canadian Environmental Assessment Act, 2012* on determining the effectiveness of mitigation and adaptive management measures as related to Aboriginal peoples and Aboriginal and Treaty rights. RRR expects that it will be responsible to carry out the FMP and further, that the involved Federal and Provincial agencies and authorities will be responsible for ensuring implementation of the FMP, with input as appropriate from involved Aboriginal groups and other stakeholders.

The FMP addresses monitoring relating to the following aspects:

- Air quality;
- Sound and vibration;

- Geochemistry;
- Surface water systems;
- Groundwater systems;
- Terrestrial systems and SAR;
- Public health and safety;
- TLU;
- Heritage resources;
- Cultural heritage landscapes and built heritage resources;
- Traffic volume; and
- Accommodations.

For each aspect, information is provided in the monitoring framework regarding: monitoring context and objectives, methods for measuring effects, adaptive management measures, and reporting of results. The FMP will also track the nature and status of commitments made through the EA process.

The EA Report also provides a framework for the development of environmental management plans, which are *“tool[s] that can be used to ensure that proper measures and controls are in place in order to decrease the potential for environmental degradation during all phases of project development, and to provide clearly defined action plans and emergency response procedures to account for human and environmental health and safety”*.

It is anticipated the environmental management system will consider the following areas as significant environmental aspects of the RRP (although they may not be represented by individual management plans depending on the final environmental management system framework):

- Recycling and waste reduction program;
- Mine rock management;
- Water management;
- General waste management;
- Hazardous materials management;
- Fuel handling and storage;
- Fugitive dust management;
- Sound management;
- Wildlife management;
- Traffic management;
- Cultural awareness;
- Heritage protection;
- Emergency response; and
- Response to malfunctions and accidents.

Aspects that may have an increased potential environmental effect will generally have greater operational (management) controls.

### 13.2 Environmental Approvals

In order to construct, operating and close the RRP, a large number of environmental approvals will be required from various levels of government as detailed in Volume 2 Section 15 of the final EA Report.

Environmental approvals related to the *Fisheries Act*, *Navigable Waters Protection Act* and *Explosives Act* could be required. It is expected that the overprinting of waters frequented by fish by tailings and mine rock stockpiles will be necessary and will require a listing under Schedule 2 of the Federal Metal Mining Effluent Regulation, pursuant to the *Fisheries Act*. This process requires a standalone alternatives assessment for mineral waste disposal is appended to the final EA Report (Appendix P).

The *Ontario Water Resources Act*, the *Ontario Environmental Protection Act*, the *Mining Act*, the *Public Lands Act*, the *Ontario Planning Act* and the *Ontario Heritage Act* contain associated regulations, guidelines and policies stipulating that relevant aspects of the natural and/or human use environments are to be protected against undue disturbance from industrial and other sources, except as provided through the granting of permits, approvals and authorizations. Provincial approvals may be required under some of these and other Provincial statutes.

The planning of the Township of Chapple excluding Crown land is guided by the Township Official Plan is a policy document, adopted by Township Council under the provisions of the Provincial *Ontario Planning Act*. RRR has initiated discussions with the Township of Chapple related to the anticipated zoning amendments required for RRP development.