



global environmental solutions

Magino Gold Project

Project Description Report

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PRODIGY
GOLD INCORPORATED

Project Description Report

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EXECUTIVE SUMMARY

A separately bound Executive Summary is available in French and English.

ACRONYMS

°C	Degrees Celsius
%	Percent
The Agency	Canadian Environmental Assessment Agency
AANDC	Aboriginal Affairs and Northern Development Canada
ABA	Acid Base Accounting
ANFO	Ammonium Nitrate Fuel Oil
API	Algoma Power, Inc.
ARD	Acid Rock Drainage
Argonaut	Argonaut Gold Incorporated
ATV	All Terrain Vehicle
CACC	Central Ambulance Communication
CCME	Canadian Council of Ministers of the Environment
CCOHS	Canadian Centre for Occupational Health and Safety
CDA	Canadian Dam Association
CEA	Cumulative Effects Assessment
CEAA	Canadian Environmental Assessment Act
CEPA	Canadian Environmental Protection Act
CFDC	Community Futures Development Corporation
CFIA	Canadian Food Inspection Agency
CIC	Carbon in Column
CIP	Carbon in Pulp
CIS	Carbon in Solution
Class EA	Class Environmental Assessment
CO	carbon monoxide
CO ₂	carbon dioxide
COR	Certificate of Recognition
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
cm	centimetre
CN	Canadian National Railway Company
CP	Canadian Pacific Railway
CWS	Canadian Wildlife Service

ACRONYMS (CONTINUED)

Cyanide Code	International Code for Management of Cyanide at Gold Mining Operations
DFO	Department of Fisheries and Oceans
DFP	Dubreuilville Forest Products, Ltd
EA	Environmental Assessment
EAA	Environmental Assessment Act
EASR	Environmental Activity and Sector Registry
EBA	EBA Engineering Consultants, a Tetra Tech Company
ECA	Environmental Compliance Approval
EEM	Effluent Effects Monitoring
EIS	Environmental Impact Study
ENE	Energy News Environment
ESA	Endangered Species Act, 2007
FAL	Freshwater Aquatic Life
GHG	Greenhouse Gas
gm/t	Grams per tonne
ha	hectare
HADD	Harmful Alternation or Disruption or Destruction
HC	Health Canada
HCL	Hydrochloric Acid
IHSA	Infrastructure and Health Safety Association
ISO	International Organization for Standardization
kg	kilogram
km	kilometre
km ²	square kilometre
KPI	Key Performance Indicator
kV	kilovolt
LIO	Land Information Ontario
LIDAR	Light Detection and Ranging
LSA	Local Study Area
m	metres
m ³	cubic metres
mm	millimetres

ACRONYMS (CONTINUED)

MAC	Mining Association of Canada
Magino	Magino Gold Mines, Ltd.
MEND	Mine Environmental Neutral Drainage
Mg/L	milligrams per litre
MMER	Metal Mining Effluent Regulations
MNDM	Ontario Ministry of Northern Development and Mines
MNR	Ministry of Natural Resources
MoE	Ministry of Environment
MoL	Ministry of Labour
MoT	Ministry of Transportation
m/s	metres per second
Mt	millions of tonnes
MTCS	Ontario Ministry of Tourism, Culture and Sport
MTCU	Ministry of Training Colleges and Universities (Ontario)
Municipality	Municipality of Wawa
MW	Megawatt
NO _x	oxides of nitrogen
NAD	North American Datum
NAG	Non-acid Generating
NHIC	Natural Heritage Information Centre
NPRI	National Pollutant Release Inventory
NRCan	Natural Resources Canada
OHS	Occupational Health and Safety
OMNR	Ontario Ministry of Natural Resources
OPP	Ontario Provincial Police
PAG	Potentially Acid Generating
PDR	Project Description Report
PFS	Pre-Feasibility Study
PM	Particulate Matter
Prodigy	Prodigy Gold Incorporated
Project	Magino Gold Project
PSA	Project Study Area

ACRONYMS (CONTINUED)

PWQO	Provincial Water Quality Objectives
RISC	Resource Inventory Standards Committee
RSA	Regional Study Area
SAG	Semi-autogeneous Grinding
SARA	Species at Risk Act
SARO	Species at Risk in Ontario
SFL	Sustainable Forest License
SLR	SLR Consulting, Ltd.
SO ₂	sulfur dioxide
t	tonnes
t/d	tonnes per day
TDS	Total Dissolved Solids
T and E	Threatened and Endangered
TK	Traditional Knowledge
ToR	Terms of Reference
TMF	Tailings Management Facility
TSS	Total Suspended Solids
UTM	Universal Transverse Mercator
VEC	Valued Ecosystem Component
VOC	Volatile Organic Compound
WNS	White-nosed Syndrome
WRMF	Waste Rock Management Facility

GLOSSARY

Acid Rock Drainage	When rock surfaces containing sulphides (sulfur compounds) are exposed to air and rain/snow a reaction can occur with the elements in the rock resulting in acidification of the water run-off, which in turn causes metals and various salts to dissolve in the water, potentially causing environmental harm.
Anoxia	A total depletion in the level of oxygen, an extreme form of hypoxia or "low oxygen".
Anthropogenic	Caused by human manipulation or activities; can be either constructional (e.g. artificial levee) or destructional (quarry).
Artesian	Water rising to the surface under internal hydrostatic pressure.
Bedrock	The solid rock that underlies loose material, such as soil, sand, clay, or gravel.
Benthic	The collection of organisms living on lake bottoms.
Benthic Invertebrates	Organisms without backbones that live in or on the bottom sediments of rivers, streams, and lakes.
Berm	Low mound of soil or gravel, typically built to divert surface flows.
Bog	Peat-covered areas or peat-filled depressions with a high water table and a surface carpet of mosses, chiefly sphagnum. The water table is at or near the surface in the spring, and slightly below during the remainder of the year. Bogs are generally highly acidic and low in biodiversity.
Boreal	Relating to the forest areas of the Northern Temperate Zone that are dominated by coniferous trees such as spruce, fir and pine.
Brownfield	Abandoned or underused industrial and commercial facilities available for re-use.
Bryophytes	Plants that have no roots, leaves, or stems. Mosses, hornworts, and liverworts belong to this group.
C-Horizon	The third deepest soil zone in ABC soil, unaltered by weathering and made up of parent rock, as well as other minerals immediately above the bedrock. It consists chiefly of weathered, partially decomposed rock.
Calcareous	Composed of or containing calcium or calcium carbonate. Calcareous rocks contain as much as 50 percent calcium carbonate.
Carbon in Pulp	An extraction technique for the recovery of gold. The gold is dissolved into a cyanide solution, and then extracted by absorption onto carbon particles that are passed through the mixture.

GLOSSARY (CONTINUED)

Carbon in Leach	A method of recovering gold and silver from fine ground ore by simultaneous dissolution and adsorption of the precious metals onto fine carbon in an agitated tank of ore solids/solution slurry.
Carbon in Solution	A similar technique as described above, except the gold is first dissolved by the cyanide solution, which is then passed through tanks filled with carbon particles.
Catena	A sequence of soil profiles that occur down a slope.
Clast	A rock fragment or grain resulting from the breakdown of larger rocks.
Colluvial	A loose deposit of rock debris accumulated through the action of gravity at the base of a cliff or slope.
Colluvium	Materials deposited as a result of down slope movements due to gravity, such as rock falls, landslides and debris flows, including talus slopes and mantles of weathered bedrock.
CombiNox Process	Process for destroying cyanide in tailings.
Cyanide Code	A voluntary initiative for the gold mining industry and the producers and transporters of cyanide used in gold mining. The code is intended to complement an operation's existing regulatory requirements.
Diamicton	A general term for unsorted, unstratified rock debris that is composed of a wide range of particle sizes and could be formed by a variety of different processes.
Diorite	A granular igneous (volcanic) rock.
Doré	A doré bar is a semi-pure alloy of gold and silver, usually created at the site of a mine. It is then transported to a refinery for further purification.
Esker Ridge	A long winding ridge of stratified sand and gravel, which occurs in glaciated and formerly glaciated regions.
Felsic	Rocks generally high in feldspar and quartz of igneous origin.
Fen	Carbon accumulating wetlands (either peat or marl), or wetlands on carbonate substrates, with a persistent groundwater supply and characterized by indicator plant and moss species with low tree cover.
Fines	Particles smaller than average in a mixture of materials varying in size. Fine material passes through a standard screen on which coarser fragments are retained.

GLOSSARY CONTINUED

Fluvial Deposit	Inorganic material that has been sorted and transported by streams and rivers.
Forage Fish	Forage fish serve as food for larger freshwater predators. Usually smaller than 15 centimetres (six inches) in length, these small bait fish make up most of the fish found in lakes and rivers.
Glaciofluvial	Glaciofluvial deposits consist of material that has been transported, sorted and deposited by melt water from a glacier or inland ice sheet.
Glaciolacustrine Deposits	Sediments deposited into lakes that have come from glaciers.
Gleysol	A wetland soil that is usually saturated for most or all of the growing season develops a characteristic gleyic colour pattern.
Granodiorite	An intrusive igneous rock similar to granite. It usually contains abundant biotite mica and hornblende, giving it a darker appearance than true granite.
Holocene Epoch	The latest interval of geologic time, covering approximately the last 11,700 years of the Earth's history. The sediments of the Holocene, both continental and marine, cover the largest area of the globe of any epoch in the geologic record.
Humic	Substances that are formed by the microbial degradation of dead plant matter.
Hypolimnetic Water	The dense, bottom layer of water in a thermally-stratified lake. It is the layer that lies below the thermocline.
Hypoxia	Reduced dissolved oxygen content of a body of water detrimental to aerobic organisms.
Ice-contact	Pertains to sediments deposited against, on top of, or in tunnels underneath a glacier or ice sheet.
Igneous Rock	Igneous (volcanic) rock is formed through the cooling and solidification of magma or lava. Igneous rock may form with or without crystallization, either below the surface as intrusive (plutonic) rocks or on the surface as extrusive (volcanic) rocks.
Leaching	The extraction of certain materials from a carrier into a liquid.
Lichen	Numerous complex plantlike organisms made up of an alga and a fungus growing together on a solid surface.

GLOSSARY CONTINUED

Lithological	The description of rock types; the physical characteristics of a rock, including colour, composition, and texture.
Littoral	The part of a sea, lake or river that is close to the shore and often includes extensive areas of wetland.
Low-grade ore	The portion of mined ore with a lower gold content.
Mafic	A silicate mineral or rock that is rich in magnesium and iron.
Massive Bedding	A homogeneous rock structure without stratification.
Matrix	The groundmass of smaller grains in which larger particles are supported.
Megafauna	Large animals such as deer, moose and bear.
Mesotrophic	Lakes with an intermediate level of productivity. These lakes are commonly clear water lakes and ponds with beds of submerged aquatic plants and medium levels of nutrients.
Metamorphic	The original rock is subjected to heat (temperatures greater than 150°C to 200°C) and pressure causing profound physical and/or chemical change.
Metasediment	Metamorphic rock of sedimentary origin.
Metavolcanic	A type of metamorphic rock produced by a volcano, either as lava or tephra, and subjected to high pressures and temperatures, causing the rock to recrystallize.
Moraine	Accumulation of rock debris of any size carried by a glacier and deposited upon melting, often in ridges.
Morphology	In biology, morphology is the study of the form and structure of organisms and their specific structural features.
Oligotrophic	Lakes with low primary productivity as the result of low nutrient content. These lakes have low algal production and consequently often have very clear waters, with high drinking-water quality. Oligotrophic lakes are most common in cold regions underlain by bedrock.
Oligo-mesotropic	Lakes with low to moderate nutrient content.
Ore	Blasted rock up to one meter in size containing gold.
Organic Deposits	Soils formed from decaying plant matter in environments where accumulation exceeds decomposition; peat.

GLOSSARY CONTINUED

Outwash Deposits	Glaciofluvial sand and gravel deposited by large rivers carrying meltwater over land away from the ice front during deglaciation.
Peat	Organic soil.
Periphyton	A complex mixture of algae, cyanobacteria, heterotrophic microbes, and detritus that is attached to submerged surfaces in most aquatic ecosystems. It serves as an important food source for invertebrates, tadpoles and some fish.
Phytoplankton	Tiny photosynthetic animals occurring in aquatic environments.
Piezometer	A device which measures the pressure of groundwater based on relative water columns.
Piscivorous	A carnivorous diet that consists largely of fish, although a piscivorous diet may also include foods such as aquatic insects.
Podzol	The typical soils of coniferous or boreal forests.
Polishing Pond	Polishing ponds are designed to increase the environmental compatibility and quality of effluents from preceding treatments. Their primary purpose is to improve the quality of the water before it is recharged into natural stream and lakes.
Process Plant	Facilities including buildings, grinding mills, pipes, tanks, chemical feed, and electrical and control systems used to extract the gold from the ore.
Pyrite	A common mineral that consists of iron disulfide, has a pale brass-yellow color and metallic luster, and is burned in making sulfur dioxide and sulfuric acid. It can also be responsible for acid rock drainage (ARD) when it weathers and breaks down under the influence of rainfall and snowmelt.
Pyroclastic	Pyroclastics are clastic (broken) rocks composed solely or primarily of volcanic materials.
Robinson-Superior Treaty	The Robinson Treaty for the Lake Superior region, commonly called Robinson-Superior Treaty, was entered into agreement on September 7, 1850, at Sault Ste. Marie, Ontario between Ojibwe Chiefs inhabiting the Northern Shore of Lake Superior from Pigeon River to Batchawana Bay, and The Crown.
Riffle-pool	Riffle-pool sequence channels are composed of migrating pools and transverse bars called riffles and occur on gradients less than one to two percent.

GLOSSARY CONTINUED

Riparian Vegetation	Plant life and the ecosystem that exists along a waterway.
Schist	A medium-grade metamorphic rock with medium to large grains of mica flakes in often flaky parallel layers.
Sediment	A naturally occurring material that is broken down by processes of weathering and erosion and is subsequently transported by the action of wind, water, or ice.
Silica	A white or colorless crystalline compound, occurring abundantly as quartz, sand, flint, agate, and many other minerals and used to manufacture a wide variety of materials, especially glass and concrete.
Silicate	Rocks and minerals composed of silicon, oxygen, and at least one metal.
Silt	A granular material of a size somewhere between sand and clay whose mineral origin is quartz and feldspar.
Slurry	A thin, sloppy fluid mixture of a pulverized solid with a liquid, often used as a convenient way of handling solids in bulk. Slurries behave in some ways like thick fluids, flowing under gravity and being capable of being pumped if not too thick.
Stratigraphy	A branch of geology that studies rock layers and layering (stratification). It is primarily used in the study of sedimentary and layered volcanic rocks.
Striations	Scratches, commonly parallel, on smooth rock surfaces formed by abrasion by debris underneath a flowing glacier.
Substrate	A surface on which an organism grows or is attached.
Tailings	The materials left over after the extraction and separation of valuable material from non-valuable material of an ore/rock.
Till	Till or glacial till is unsorted glacial sediment. Glacial till is the part of glacial drift deposited directly by the glacier; its content may vary from clays to mixtures of clay, sand, gravel and boulders.
Trophic Level	A group of organisms that occupy the same position in a food chain.
Varve (rhythmite)	Visible annual layers of deposition of silts and clays.
Wetlands	A land area that is saturated with water, either permanently or seasonally, such that it takes on the characteristics of a distinct ecosystem.
Zooplankton	Tiny animals found near the surface in aquatic environments.

1. INTRODUCTION

1.1 General Information

1.1.1 Project Overview

Prodigy Gold Incorporated (Prodigy) proposes to develop the Magino Gold Project (“Project”), which is situated at a past-producing mine site, as a brownfield project. The Project is located in Northern Ontario, 14.5 kilometres (km) southeast by road from the town of Dubreuilville and 69.5 km by road from Wawa (Figure 1-1).

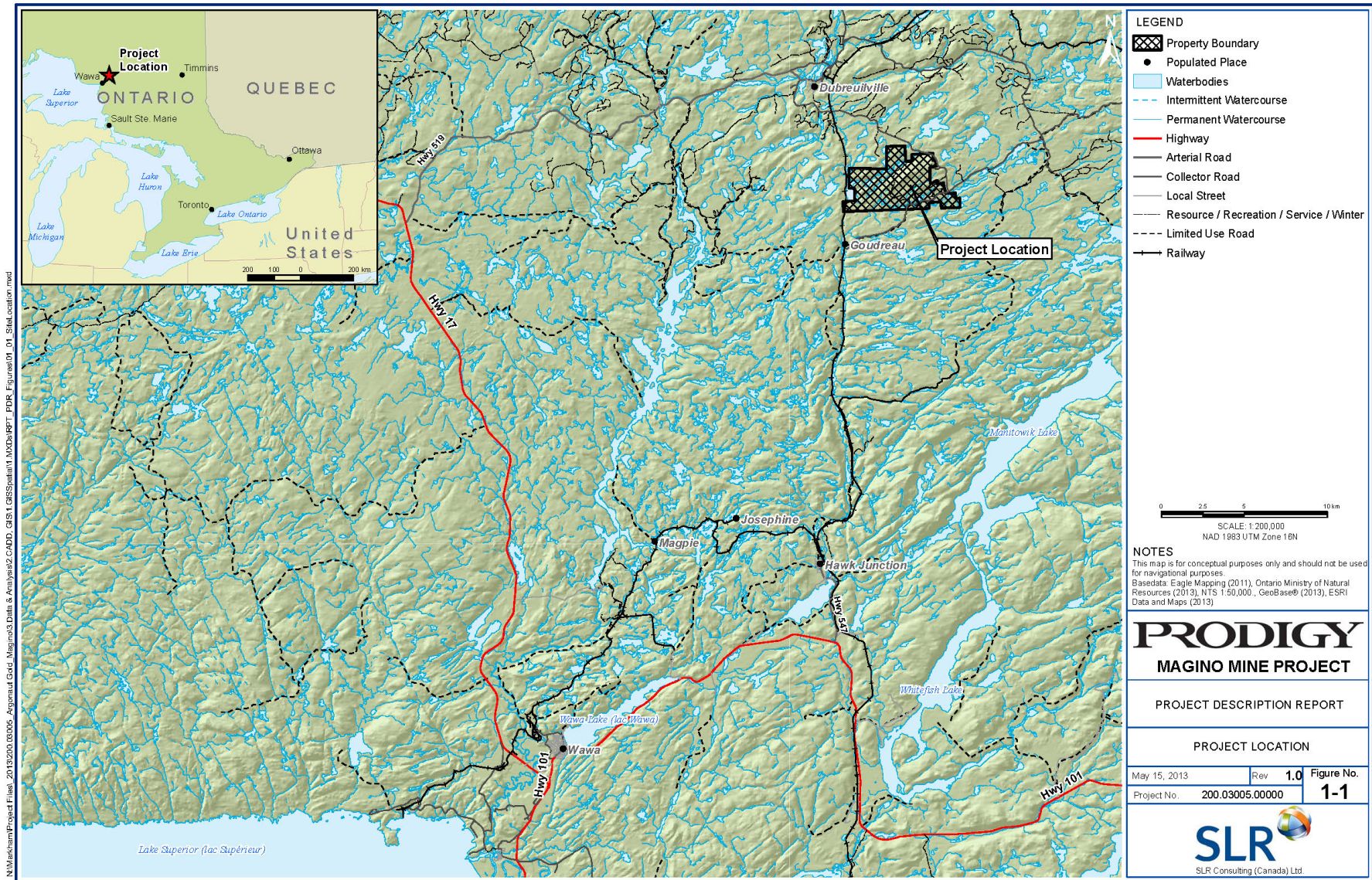
The Project involves the mining of up to approximately 60 million tonnes (Mt) of ore and approximately 160 Mt of waste rock from an open pit in the same location as the past-producing underground mine. Project facilities include a primary ore crusher, a conveyor, a crushed rock stockpile, a process plant to extract the gold, a low-grade ore stockpile, a waste rock management facility (WRMF), a tailings management facility (TMF), explosives magazines, camp accommodation, administration offices, laboratory facilities, non-mining waste facilities, maintenance and constructing facilities, and warehouses. Infrastructure development will include relocating a local public road and a power line, internal haul and access roads, a power line and substation, step-down transformers, and water supply and sewage treatment systems.

The past-producing mine is considered “temporarily suspended” under the Ontario Mining Act, Regulation 240/00, and the associated Mine Rehabilitation Code of Ontario and Prodigy has submitted notification of intent to enter a stage of redevelopment to the Ministry of Northern Development and Mines (MNDM). While most of the old mine infrastructure has been removed, a number of additional closure measures are required under the Final Closure Plan. These additional measures include closure of the existing tailings facility and other activities that deal with the industrial sewage works, power lines, the landfill, refuse, and some buildings. The underground workings flooded when mining ceased and were subsequently sealed to prevent entry. It is anticipated that the closure objectives for the existing infrastructure will be met concurrently with the proposed redevelopment activities.

Prodigy is committed to developing and operating the Project safely with the goal of zero harm to personnel or adverse impacts to health. The company will minimize environmental effects of the Project and ensure that socio-economic benefits to the local area are realized. Prodigy is also designing the mine for closure, which means the plans and designs will incorporate features that ensure closure is effective and durable. Closure will include a pit lake and a reclaimed WRMF and TMF. After the cessation of mining, the process plant, buildings and infrastructure will be removed, with the exception of those facilities which could have future beneficial use. To the extent practicable, closure activities and site reclamation will be conducted concurrently during the operational period.

1.2 Proponent Information

Prodigy is a wholly owned subsidiary of Argonaut Gold Incorporated (Argonaut) and holds 100 percent (%) of the land tenure that comprises the Project area.



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Incorporated in December 2009, Argonaut (www.argonautgold.com) is a successful Canadian gold mining company with two operating mines and two advanced development projects. The two operating mines include the El Castillo gold mine in Durango, Mexico and the La Colorada gold-silver mine in Sonora, Mexico. The advanced gold exploration projects include the San Antonio gold project in Baja California Sur, Mexico, and the Magino Project in Ontario, Canada. Argonaut also has an additional portfolio of exploration properties located in Canada and the States of Sonora and Durango in Mexico.

The El Castillo gold mine, which is located 100 km north of the city of Durango, is an operating open pit and heap leach gold mine. The mine commenced construction in 2007 with commercial production starting in 2008. It contains over 100 Mt of gold-bearing ore and a similar quantity of waste rock. It is being mined at an average rate of just under 60,000 tonnes per day (t/d).

The La Colorada mine property is located approximately 40 km southeast of Hermosillo, Sonora State, Mexico. It is located at a historic mine district that has been producing since the late 1800's. The La Colorada mine, which was re-started in early 2012, also mines from an open pit and produces gold and silver using heap leaching. Over the next eight years, Argonaut will be mining 33 Mt of ore and 120 Mt of waste rock at an average rate of 53,000 t/d mined.

Argonaut has an experienced management team with a successful background in managing mining companies and operations. The management team has been involved in all phases of mining including exploration, development, construction, operations, and closure in various countries including Chile, Peru, Argentina, Mexico and the U.S.A. They have also been directly involved with mine water management programs including water evaporation and treatment, overall site-wide water management, and ground and surface water pollution control systems under stringent regulatory requirements.

The board of directors includes, amongst others, the past president of the Meridian and FMC Gold Companies, the former head of Mergers and Acquisitions for UBS Securities Canada Inc., a mining engineer with nearly 50 years of experience in the mineral industry, the past Senior Vice President, Exploration, for Cyprus Amax Minerals Company, responsible for world-wide exploration and business development, the past president of Minnova Inc., the successor company to Falconbridge Copper, and team members who have worked internationally with Noranda, Newmont and other large mining companies.

1.2.1 Address of Proponent and Address of Project

Prodigy Gold Incorporated
Attention: Michelle Tanguay
Box 209, 3 Dree Road
Dubreuilville, Ontario
P0S 1B0
Michelle.Tanguay@argonautgold.com

1.2.2 Corporate Contacts

Peter C. Dougherty
President and Chief Executive Officer

Curtis K. Turner
Corporate Development Officer
Argonaut Gold Incorporated
9604 Prototype Court
Reno, NV 89521
Curtis.Turner@argonautgold.com

1.3 Project History

The gold deposit at the Project, which was first discovered in 1917, was mined by underground methods from 1935 to 1942 and again from 1987 until 1992. Exploration drilling programs on the mine property have been on-going since 2000. Prodigy initiated planning activities in 2011 to reactivate development and gold production. Prodigy was acquired by Argonaut in December 2012.

1.4 Consultation with First Nations and Métis

The Canadian Environmental Assessment Agency (the Agency) has identified the following Aboriginal Groups as potentially impacted by the Project: The Agency is requesting Prodigy engage with these groups during the Environmental Assessment (EA) process.

- Michipicoten First Nation – Contacted by Prodigy in February 2012;
- Missanabie Cree First Nation – Contacted by Prodigy in August 2011;
- Métis Nation of Ontario – Contacted by Prodigy in June 2012;
- Pic Moberg First Nation; and
- Red Sky Métis Independent Nation.

At the outset, the focus of the consultation program has been on undertaking a preliminary assessment of potential Treaty and asserted Aboriginal right holders. As such, there have been a series of meetings (as listed below) with the Michipicoten First Nation, the Missanabie Cree and the Métis Nation of Ontario in an attempt to understand which potential Aboriginal/Treaty rights, if any, are asserted.

In recent correspondence with the Agency, they requested that the Red Sky Independent Métis Nation, as well as the Pic Moberg First Nation be included, as appropriate, in Prodigy's consultation program.

Prodigy's consultation to date has had regard to, and has been somewhat tempered by the fact that the Michipicoten First Nation are the aboriginal group nearest the Project and that they hold Treaty rights under the Robinson-Superior Treaty.

A detailed communication log is being prepared as part of the environmental assessment process. Table 1-1 presents a summary of communications to date.

Table 1-1: First Nations and Métis Consultation Summary

DATE	EVENT	ATTENDEES	CONTENT
Michipicoten First Nation (MFN)			
Feb 6, 2012 to Aug 2012	Meeting	Gordon Mohs, Fred Mason, MFN Chief	Overview of Project and provided Chief an electronic copy of the Preliminary Economic Assessment along with some hardcopy maps of the Project area.
May 9, 2012	Meeting	Gordon Mohs and Fred Mason personal meeting with MFN Band Manager at Michipicoten Band office.	Various items were discussed including Aboriginal Environmental Technical Training Program and employment opportunities.
May 9, 2012	Luncheon	Gordon Mohs and Fred Mason attended luncheon with membership at Michipicoten	Two members submitted resumes to Fred Mason for positions at the mine. Two other members talked of hunting traditionally done in the area of Magino Mine.
Aug 23, 2012	Meeting	Fred Mason, Gordon Mohs and Ricardo Rojas meet with MFN Chief and Council.	Following introductions, Fred Mason presents PowerPoint on the Project and opens the floor for discussion.
Dec 5, 2012	Meeting	From Michipicoten: MFN Chief and Band Manager From Prodigy: Fred Mason, Curtis Turner (Corporate Development Officer) and Gordon Mohs	Training opportunities discussed. Discussion of expectations if development proceeds.
Feb 21, 2013	Meeting	Curtis Turner and Michelle Tanguay meet with MFN Band Manager at Michipicoten.	Discussion of the Work Plan
May 1, 2013	Meeting	Curtis Turner, Michelle Tanguay and DPRA (consultants to Prodigy) meet with Lynn Lavigne, Economic Development Officer at Michipicoten First Nation	Discussion of Work Plan.

DATE	EVENT	ATTENDEES	CONTENT
Missanabie Cree First Nation (MCFN)			
Oct 11, 2012	Meeting	MCFN Chief, Fred Mason	Fred Mason initial meeting with Chief.
Aug 12, 2012	Attend MCFN 20 th Annual Gathering August 12 th to 15 th	Fred Mason, Gordon Mohs, Raven Louie, Michelle Tanguay attend MCFN Gathering	Large gathering of Missanabie Cree people. Over 250 estimated to be in attendance. Day 1 (Aug 12): A question and answer session after presentation included discussions of many topics: members talked of rights, Traditional Knowledge (TK), impacts, and also wanted to know about opportunities, royalties, community benefits, etc. The Elders asked if Prodigy would be prepared to do a presentation to them in November.
Nov 16, 2012	Attend MCFN/ Prodigy Meeting at the MCFN offices in Sault Ste. Marie, November 16 th , 2012	Fred Mason, Michelle Tanguay, Gordon Mohs, Curtis Turner (Prodigy /Argonaut) with MCFN Chief, two MCFN Councillors, three MCFN Representatives, and MCFN administrator	MCFN Chief provided an overview of the Missanabie and provided a 'Historical Overview' handout. Curtis Turner provided a background of himself and Argonaut and his vision of what would come; that he expected to see little change. Fred Mason provided an update on the Status of the Project. Michelle Tanguay summarized Regulatory Reporting Requirements, providing clarification of different reports and studies: Project Description Report (PDR), Baseline, Pre-Feasibility Study (PFS), Environmental Impact Study (EIS). Fred Mason noted that the goal was to have Report completed by 2013.
Métis Nation of Ontario (MNO)			
Aug 23, 2012	Casual Meeting	Gordon Mohs at MNO Annual General Assembly (AGA)	Gordon Mohs introduced to several Métis representatives in Sault Ste. Marie by MNO Director.
Aug 24, 2012	Dinner Meeting	Fred Mason & Gordon Mohs dinner meeting with MNO Director, President of MNO Sault Ste. Marie Council, MNO Wawa Representative, and four other MNO Representatives. Dave Bell of MNM also in attendance	Discussion between Prodigy and the MNO about the Project. Summary of the Project and status report provided. MNO reps included senior representatives from Lands, Resources & Consultation group, and senior Regional Coordinators.
Sep 17, 2012	Meeting	MNO Representative, MNO Region 2 Councillor, Fred Mason, Gordon Mohs	PowerPoint overview of Project provided and a copy of the presentation left behind. Met with MNO rep for Education and Training. She expressed that she and the head of Regional Employment and Training would like to work closely with Prodigy to develop appropriate programs.

DATE	EVENT	ATTENDEES	CONTENT
Métis Nation of Ontario (MNO)			
Nov 27, 2012	Meeting	Fred Mason, Gordon Mohs, Michelle Tanguay, Lyndsie Gangnon (Prodigy), Curtis Turner (Argonaut), and representatives from both Sault Ste. Marie Consultation Region and the Thunder Bay Consultation Region and MNO Executives in attendance: MNO Director, MNO Wawa Representative, MNO Director (Intergovernmental Affairs), MNO Region 2 Councillor and seven other MNO Representatives.	Fred Mason initiated discussions with PowerPoint presentation including a discussion on Project status and PDR.

1.5 Consultation with Community and Regional Groups

Since 2011, Prodigy has been informing the local communities of the plans for the Project. In October 2012, Prodigy hosted two open houses in Wawa and Dubreuilville. The resulting comments and questions were generally very positive. Participants asked questions regarding employment, timing, construction, and operation of the mine. Prodigy held additional meetings in early 2013 to actively engage the public and stakeholder groups in discussions on the proposed Project and studies associated with the EA process. Prodigy recognizes the importance of meaningful and ongoing engagement throughout the life of the Project, and in particular, during the EA and permitting processes.

Other consultations undertaken to date with public and/or stakeholder groups are listed in Table 1-2. In addition, Prodigy has conducted interviews with some local businesses and the Algoma Workforce Investment Committee. Prodigy believes this list is close to being complete, but will add others that are identified during the review of this Project Description Report (PDR).

Table 1-2: Community and Regional Group Communications

STAKEHOLDER	DATE	MEANS OF COMMUNICATION
Northeast Superior Mayors' Group	April 2, 2012	Video presentation
Wawa general public	October 23, 2012	Open House
Dubreuilville general public	October 24, 2012	Open House

STAKEHOLDER	DATE	MEANS OF COMMUNICATION
Ontario Works	November 7, 2012	Interview
Municipality of Wawa	November 27, 2012	Interview
North Algoma Literary Coalition	November 27, 2012	Interview
Regional Employment Help Centre	November 27, 2012	Interview
Algoma District Services Administration Board	November 27, 2012	Interview
Township of Dubreuilville	November 27- 28, 2012	Telephone Interview
Economic Development Corporation of Wawa	November 28, 2012	Interview
Superior East Community Futures Development Corporation	November 28, 2012	Interview
Township of Chapleau	November 29, 2012	Telephone Interview
Municipality of Wawa	January 23, 2013	General Update
Wawa Family Health Team	February 1, 2013	Interview
Rotary Club of Wawa	February 5, 2013	Interview
Confederation College	February 5, 2013	Interview
Township of Hornpayne	February 6, 2013	Telephone Interview
Dubreuilville Economic Development Council	February 6, 2013	Meeting
Michipicoten High School	March 5, 2013	Meeting
Municipality of Wawa	March 28, 2013	General Update
Dubreuilville Town Council	April 22, 2013	Slide Presentation Review of Working Draft of PDR
Dubreuilville Public	April 23, 2013	Slide Presentation Review of Working Draft of PDR
Wawa Town Council	April 30, 2013	Slide Presentation Review of Work Draft of PDR
Wawa Public	May 1, 2013	Slide Presentation Review of Working Draft of PDR
Northeast Superior Mayor's Group meeting-	June 3, 2013	Video Presentation

1.6 Project Regulatory Requirements

This PDR is intended to meet the requirements of both the Agency and the Province of Ontario to initiate the environmental review of the Project.

1.6.1 Federal

Federal environmental assessment is regulated under the Canadian Environmental Assessment Act (CEAA), 2012, S.C. 2012, c. 19, s. 52. Under CEAA, 2012, only projects identified in the Regulations Designating Physical Activities (Regulations), SOR/2012-147 may require a Federal EA. Pursuant to Section 15(c) of the Regulations, the Project is considered a “Designated Project” as it will involve the *“construction, operation, decommissioning and abandonment of a gold mine, other than a placer mine, with an ore production capacity of 600 t/d or more”*.

The Agency is the federal decision-making and coordinating authority. The Agency reviews the PDR and conducts a public review and comment period upon its acceptance. The purpose of the comment period is to seek input from Federal authorities, Aboriginal groups, and the public in order to determine whether an EA is required for the Project.

Factors that the Agency considers in determining whether an EA is required are described in Section 8: Screening, Part 10 A: Screening Decisions, as follows:

- i) The description of the designated project provided by the proponent;
- ii) The possibility that the carrying out of the designated project may cause adverse environmental effects;
- iii) Any comments received from the public within 20 days after the posting of the notice; and
- iv) The results of any relevant study conducted by a committee established under Sections 73 or 74.

Section 5 of the CEAA describes the *“environmental effects that are to be taken into account in relation to an act or thing, a physical activity, a designated project or a project”*. In reviewing Section 5, it has been determined by Prodigy that the Project will be subject to an EA.

The Project will encroach close to three named lakes and will utilize approximately three small unnamed lakes and several small ponds. Re-routing of natural drainage courses within the McVeigh Creek, Herman Lake and Webb-Goudreau Lake watersheds will also be required. The use of these water bodies may require Fish Habitat Compensation Plans. These are discussed in Section 3.0 of this document, along with a description of mitigation options that are being considered.

The Project will remove groundwater from the future pit, resulting in a lowering of the groundwater levels adjacent to the pit. To the extent groundwater is pumped from wells to supplement the surface water supplies, local lowering of groundwater levels will occur around

these wells. Total groundwater extractions will exceed the 200,000 cubic meters (m³)/year trigger for potential description as a project under CEAA.

Planned discharges from any mining features into McVeigh Creek will be regulated under the Metal Mining Effluent Regulations (MMER) using the protocols outlined under the Effluent Effects Monitoring (EEM) requirements. MMER regulates the deposit of mine tailings and other waste matter produced during mining operations into natural waters, which may or may not be fish bearing. It applies to new and existing mines that exceed an effluent flow rate of 50 m³ per day or deposit deleterious substances such as waste rock into water bodies and watercourses. MMER places specific limits on discharge concentrations to ensure aquatic life is protected.

The adequacy of the effluent regulations is assessed under EEM requirements, which enforce monitoring protocols to evaluate the potential effects of effluents on fish, fish habitat and the use of fisheries resources. Effluent discharge can be permitted if it can be demonstrated that it falls within a defined pH range, is below concentration limits, and is not acutely lethal to rainbow trout. The EEM are intended to determine if the effluent limits prescribed in the CEAA are protective.

Subsections of the MMER require Fish Habitat Compensation Plans to be approved by the Department of Fisheries and Oceans (DFO) for companies using fish-bearing waters to ensure no net loss.

1.6.2 Provincial Requirements

Environmental Assessment

In Ontario, the Environmental Assessment Act (EAA) provides for two types of EA processes:

- i) Individual EAs; and
- ii) Streamlined EAs.

Individual EAs

Individual EAs are typically carried out for large, and/or complex projects that have the potential for significant environmental effects and major public interest. An Individual EA is completed by the proponent and includes:

- i) Consultation with government agencies and the public;
- ii) Consideration and evaluation of alternatives; and
- iii) Management of potential environmental effects.

The Individual EA is initiated with the preparation of a Terms of Reference (ToR) which must be approved by the Minister before the EA can be completed. The ToR serves as a work plan for the EA. Once the EA has been completed, consistent with the ToR, project approval from the Minister and Cabinet is required before the project can be constructed. The timeline for the government review and decision on the final EA report is approximately 30 weeks.

Streamlined EAs

Streamlined EAs apply to specified groups or classes of projects that are carried out routinely and have predictable environmental effects that can be readily managed. The streamlined process allows proponents to undertake a more efficient and timely process in order to fulfill the requirements of the EAA. Streamlined EAs allow for a level of assessment to vary with the nature of the project and the potential for environmental effects. Projects within a streamlined process are:

- Pre-approved or exempt (the Minister's approval is not required);
- Conditional upon being planned according to the streamlined process; and
- Not required to conduct a higher level of assessment such as an Individual EA.

Ontario's Streamlined EA processes are divided into ten Class Environmental Assessments (Class EAs) and three project regulations. The timeline for completion of the streamlined processes will be significantly less than for Individual EAs, but will vary depending on the applicable process.

Class EAs are planned and developed in accordance with a pre-approved Class EA process. A Class EA project does not require any further approval under the EAA if the planning process set out in the pre-approved Class EA is followed. However, the Minister of Environment has the authority to order the Class EA project to be changed to an Individual EA, generally referred to as a "Part II Order".

Process

In Ontario, MNDM is the lead ministry responsible for coordinating the process leading to the issuance of all provincial mineral development permits. MNDM has developed a "One Window" coordination process to facilitate the permitting and approvals process. This process does not replace or override any regulatory or consultation timelines.

The Province of Ontario will appoint a Project Coordinator who will be responsible for distributing the Project Description and other requirements and consulting with affected parties. Within 30 days of receiving the Project Description, each ministry contact provides a preliminary list of potential regulatory licenses, permits and approvals, as well as a preliminary assessment of potential information requirements.

The Government of Ontario will assess the Project to determine the Crown's obligations to consult with Aboriginal communities. The Lead Ministry has the responsibility for coordinating the Crown's consultation. It will ensure a coordinated approach to the government's consultation with Aboriginal communities if the Project requires approvals or decisions by other ministries. The Project Coordinator will also coordinate public consultation and will track and monitor all project approvals and permitting.

Environmental Compliance Approvals

Recent amendments to the Environmental Protection Act and the Ontario Water Resources Act came into effect in 2011 resulting in the need for companies to apply for an Environmental

Compliance Approval (ECA) from the Ministry of the Environment (MoE) when project activities will impact the environment. It applies to all companies whose environmental interactions are beyond those covered under the Environmental Activity and Sector Registry (EASR). The ECA sets out legally enforceable rules of operation, including effluent limits and monitoring requirements, which aim to protect the natural environment against emissions, discharges and wastes from daily operations. An ECA will be required for a variety of mine activities including disposal of pit water, disposal of treated sewage effluent, treatment and disposal of pit runoff, and the generation of dust through blasting.

The ECA will require monitoring of the quality of water discharged from the Project and its effects on the aquatic environment. These will be harmonized with the requirements of the EEM program under the MMER to avoid duplication of sampling effort and reporting.

Permits

A permit to take and discharge water will be required under the MoE's Water Resources Act. Permits for construction aggregate may be required under the Aggregate Resources Act, if sufficient material cannot be located within the disturbed footprint of the Project.

Closure Plan

The Ontario Mining Act deals with surface water and groundwater, as well as biological factors under Parts 5 and 6, Schedule 1 of Ontario Regulation 240/00, as amended by O. Reg. 304/07 Mine Development and Closure, under Part VII of the Act. In Ontario, proponents cannot commence, or recommence, mining operations until a certified Closure Plan and associated Financial Assurances are in place.

1.6.3 Regulatory Consultation

Prodigy initiated a consultation process with the relevant agencies in 2011 with a goal towards developing positive working relationships and ensuring that they understood the regulatory and assessment requirements for re-opening the Magino Mine. Discussions with the agencies have provided information that aided in the baseline study design and implementation and the identification of stakeholders. A list of the agencies consulted and the results of the meetings are provided in Table 1-3.

Table 1-3: Regulatory Communications

AGENCY	DATE	ATTENDEES	PURPOSE and MESSAGE	MEANS OF COMMUNICATION	RESULTS and ACTIONS IDENTIFIED
Central Ambulance Communication (CACC)	2012-06-27	PRODIGY: Michelle Tanguay CACC: Terry McMillan, Manager of CACC; Daniel Blancetter, Algoma District Ambulance	PURPOSE: access and location map for safety MESSAGE: ensuring updated activities and locations are communicated to provincial and municipal emergency agencies	in person Daniel Blanchette; call-in Terry MacMillan	RESULTS: map sent to CACC ACTIONS: updates to map, when required, to be sent to CACC
Ministry of Environment (MoE)	2012-06-27	PRODIGY: Michelle Tanguay MoE: Jacinth Gilliam-Price	PURPOSE: discussion on permit to take water application MESSAGE: proponent requested update on application	phone call	RESULTS: permit application 3853-8TALWU still under review ACTIONS: call back if notification not received by August 7th
Ministry of Natural Resources (MNR)	2012-07-09	PRODIGY: Michelle Tanguay MNR: Shawn Fortin	PURPOSE: discussion on Provincial EA process MESSAGE: background on Project given	phone call	RESULTS: MNR EA coordinator - Tina Webb (Sudbury) ACTIONS: first contact is Shawn Fortin - follow-up is with Tina Webb
MNR	2012-07-19	PRODIGY: Michelle Tanguay MNR: Bruce Moore; Shawn Fortin	PURPOSE: discussion on patent hold and freehold land reservations and permitable activities MESSAGE: understanding on how reservations and permits are utilized for land activities, background on potential reservation issues for Project	in person (Wawa office)	RESULTS: permits required for shoreline work and non-mineral exploration trails ACTIONS: get Randy Sedore, Land Manager (Argonaut) to make table of reservation for Magino lands
Ontario Provincial Police (OPP)	2012-07-21	PRODIGY: Michelle Tanguay; Martin Gauvin OPP: Chris Wray	PURPOSE: vehicular accident, truck roll over MESSAGE: OPP called out to incident	in person (Dree Road)	RESULTS: incident report ACTIONS: incident report forthcoming, requirement to produce insurance
Ministry of Northern Development (MNDM)	2012-07-25	PRODIGY: Michelle Tanguay; Ricardo Rojas MNDM: Deborah Stephenson	PURPOSE: site inspection for closure (Mining Act and closure plan) MESSAGE: full inspection of site	in person (Magino Site)	RESULTS: inspection report ACTIONS: inspection report expected in fall

AGENCY	DATE	ATTENDEES	PURPOSE and MESSAGE	MEANS OF COMMUNICATION	RESULTS and ACTIONS IDENTIFIED
MNDM	2012-08-27	PRODIGY: Michelle Tanguay MNDM: Tony Scarr	PURPOSE: reservation issues on patents and leases MESSAGE: information on lease process generally and specific to our situation- will be screened by MNR and MoE	telephone	RESULTS: information given ACTIONS: need to have discussions with our engineering group to delineate exactly what will be required as far as the acquisition of lands and particularly those that require the area within the 120-metre reservation, prior to completing a notice of intent to go to lease
MNDM	2012-08-27	PRODIGY: Michelle Tanguay MNDM: David Bell	PURPOSE: discuss closure plan MESSAGE: MNDM would like the closure plan "wedded" to supersede all previous. Follow Federal CEAA template for PDR	telephone	RESULTS: information given ACTIONS: required to incorporate outstanding closure into new closure plan for Project; follow CEAA template for PDR
MNDM	2012-08-28	PRODIGY: Michelle Tanguay MNDM: David Bell	PURPOSE: thank you for Tony Scarr contact and summary of findings MESSAGE: n/a	email	RESULTS: n/a ACTIONS: n/a
Infrastructure and Health and Safety Association (IHSA)	2012-08-29	PRODIGY: Michelle Tanguay IHSA: Scott Needs	PURPOSE: discuss Ontario Ministry of Training Colleges and Universities (MTCU) training authority process MESSAGE: background on MTCU and distribution of different arms of Occupational Health and Safety (OHS) in Ontario. Certificate of Recognition (COR) certification	telephone	RESULTS: information given ACTIONS: COR certification starting in ON. MTCU training authority required for all training
Ministry of Labour (MoL)	2013-01-17	PRODIGY: Michelle Tanguay; Ricardo Rojas MoL: Peter Algruso; Kristy Cumming; Mine Managers and Safety Managers, Northwestern Region	PURPOSE: meeting of the Mines MESSAGE: n/a	in person	RESULTS: sharing experiences ACTIONS: standardization in safety communication, plans to meet at intervals
MoE	2013-02-23	PRODIGY: Michelle Tanguay MoE: Carrie Hutchison	PURPOSE: Class EAs and Individual EA MESSAGE: n/a	phone call	RESULTS: information given ACTIONS: n/a

AGENCY	DATE	ATTENDEES	PURPOSE and MESSAGE	MEANS OF COMMUNICATION	RESULTS and ACTIONS IDENTIFIED
MNR	2013-02-25	PRODIGY: Michelle Tanguay MNR: Shawn Fortin	PURPOSE: bypass road and reservations MESSAGE: n/a	in person	RESULTS: discussion ACTIONS: general pre-information of on bypass road will be addressed during EA
MoE	2013-02-27	PRODIGY: Michelle Tanguay MoE: Ross Lashbrook	PURPOSE: Class EAs and Individual EA MESSAGE: n/a	phone call	RESULTS: information given ACTIONS: background information on the voluntary Individual EA process
MNDM	2013-03-04	PRODIGY: Michelle Tanguay, Allison Rippin Armstrong, Curtis Turner MNDM: Gordon MacKay; Stephen DeVoe; David Bell SLR: Stephen Morison	PURPOSE: general discussion on Project and process MESSAGE: n/a	in person	RESULTS: n/a ACTIONS: n/a
Canadian Environmental Assessment Agency (the Agency)	2013-03-05	PRODIGY: Michelle Tanguay The Agency: Darla Cameron; Anjala Puvananathan SLR: Stephen Morison	PURPOSE: general discussion on Project and process MESSAGE: n/a	in person	RESULTS: n/a ACTIONS: n/a
MNR	2013-03-28	PRODIGY: Michelle Tanguay, Joel Bernard MNR: Kelly Ellis; Mary Lynn Mckenna	PURPOSE: Magpie Forest Management Plan 2013/2014 MESSAGE: n/a	in person	RESULTS: discussion on proposed activities ACTIONS: provide with plans that will summarize the Project to develop approach for forest resources with MNR
The Agency	2013-04-15	PRODIGY: Michelle Tanguay The Agency: Amiel Blajchman	PURPOSE: high-level review of Working Draft PDR submitted on 4/8/2013 MESSAGE: Provided some high-level comments on telephone (see minutes). Several members had not had the time to review the report	teleconference; approximately one hour long	RESULTS: The Agency followed up with a written "Checklist for PDR Review" on 4/19/2013 ACTIONS: Prodigy is having the Draft PDR revised based on the group's comments
The Agency	2013-04-19	PRODIGY: Michelle Tanguay; The Agency: Amiel Blajchman	PURPOSE: initial high-level review of PDR Working Draft for any gaps MESSAGE: The Agency delivered its comments on the PDR Working Draft	e-mail	RESULTS: document received ACTIONS: Prodigy is having the Draft PDR revised based on the comments

AGENCY	DATE	ATTENDEES	PURPOSE and MESSAGE	MEANS OF COMMUNICATION	RESULTS and ACTIONS IDENTIFIED
MoE (Energy News Environment [ENE]), MNDM, MNR, MoL, CEAA	2013-04-19	PRODIGY: Michelle Tanguay; Allison Rippin-Armstrong MoE (ENE): Kirk Crosson; Shannon Innis; Ross Lashbrook; Katherine Close; Eva Macizek MDMN: Dave Bell; Stephen DeVos; Ed Solonyka; Anthony Pace; Scott Cousineau MNR: Shawn Fortin; Marie Ditner MoL: Ron Hauguth The Agency: Stephanie Davis SLR: Stephen Morison; Ian Hutchison; Rich Dettore; Michael Roy; Vicki Burt	PURPOSE: high-level review of Working Draft PDR submitted on 4/8/2013 MESSAGE: provided some high level comments on phone (see minutes). Several members had not had the time to review the report	teleconference; approximately 1 1/2 hours long.	RESULTS: group provided constructive comments on the document. ACTIONS: Prodigy is having the Draft PDR revised based on the group's comments
MoE	2013-04-22	PRODIGY: Michelle Tanguay MoE: Kirk Crosson, Senior Environmental Officer, Sudbury District; Trisha Westman, Area Supervisor (Acting) SLR: Stephen Morison; Ian Hutchison; Rich Dettore	PURPOSE: general Project update MESSAGE: discussed a wide range of various topics (see minutes)	in person meeting at Sault Ste. Marie offices, 70 Foster Drive, Suite 110	RESULTS: Several follow-up action items for Prodigy ACTIONS: Various
MNR	2013-04-30	PRODIGY: Michelle Tanguay MNR: Seve Level; Doris Zagar SLR: Dale Leadbeater	PURPOSE: information gathering MESSAGE: MNR provided information baitfish, trapline & bear management areas	in person meeting	RESULTS: information exchanged, actions established ACTIONS: * MNR to submit e-mail requesting list of identified Threatened and Endangered (T & E) species * SLR to contact MNR Species at Risk biologist regarding bats * SLR to consider added whip-poor-will surveys * SLR to contact Virginia Thompson regarding bear trap hair DNA study
MNR	2013-05-01	PRODIGY: Michelle Tanguay MNR: Wendy LeClair; Marie Ditner SLR: Dale Leadbeater	PURPOSE: information gathering MESSAGE: provided information on fish and fish stocking	notes	RESULTS: contacts identified ACTIONS: Marie Ditner & Virginia Thompson to be Magino contacts

1.6.4 Municipal Requirements

The Project is located outside of the local municipalities of Dubreuilville and Wawa and is in an unorganized township and is therefore not subject to Municipal laws. However, there may be specific infrastructure components that may overlap with the municipal regulatory requirements, for example, non-mining waste disposal. Prodigy is working with the municipalities to identify these specific components and to put collaborative plans in place.

Prodigy plans continued consultation with the regulatory agencies and municipalities throughout the EA and permitting processes

1.7 Project Description Report

This PDR has been prepared by SLR Consulting (Canada) Ltd. located in Markham, Ontario. Information presented in this PDR has been provided by Prodigy and developed by SLR. EBA Engineering Consultants, a Tetra Tech Company (EBA), provided much of the background information, the community and First Nation consultation descriptions, and the environmental baseline information contained in Section 8.0. References to the EBA information and other references are contained in Section 12.0.

Section 2.0 of this PDR provides information on the Project. Sections 3.0 and 4.0 describe the proposed mine and waste management facilities. Section 5.0 discusses the potential emissions and discharges. Section 6.0 discusses alternatives to various Project features, Section 7.0 describes the Project's life cycle and Section 8.0 describes the environmental conditions.

Section 9.0 describes the potential environmental effects, while Sections 10.0 and 11.0 deal with the consultations completed to date and planned for the future. Photos of the Project area are provided in Appendix A. Appendix B explains how the Sections and subsections of this report comply with the Agency and the Province of Ontario requirements and templates.

2. PROJECT INFORMATION

2.1 General Description

2.1.1 Regional Overview

The Project is located in Finan Township, approximately 40 km northeast of Wawa, Ontario. It can be accessed via a 14 km, all-weather gravel road (Goudreau Road) from Dubreuilville to the North (Figure 1-1). Dubreuilville is located on Highway 519, approximately 30 km east of the junction of the Trans-Canada Highway and Highway 519.

The town of Dubreuilville, population of over 600, is the closest community. Mining and ore processing are currently being carried out in the vicinity of the Project. The Island Gold Mine (operated by Richmond Mines Inc.) is 1.5 km east of the Property, and the Eagle River Mine (Wesdome Gold Mines) is 80 km to the west. The Hemlo Operations (Barrick Gold Corp.) are located approximately 150 km to the northwest. General labour and experienced workers are available in Wawa, Sault Ste. Marie and Thunder Bay. Workers will also be available from local communities such as Dubreuilville, and settlements such as Goudreau, Josephine, Magpie and Hawk Junction.

The mean annual temperature for the area is slightly above the freezing point at one degree Celsius (°C). The average July temperature is 20°C and the average January temperature is 15°C. The average annual precipitation has been estimated at approximately 815 millimetres (mm) with the highest rainfall in September. Snow typically falls from October to May, with the peak from November to March.

The Project is located in the geological Wawa Subprovince of the Canadian Shield. The topography of the area is characterized by low ridges and hills (up to 50 metres (m) of relief), flanked by generally flat areas of glacial outwash, swamps, numerous ponds, lakes and bogs. Photos of the Project area are provided in Appendix A.

2.1.2 Project Overview

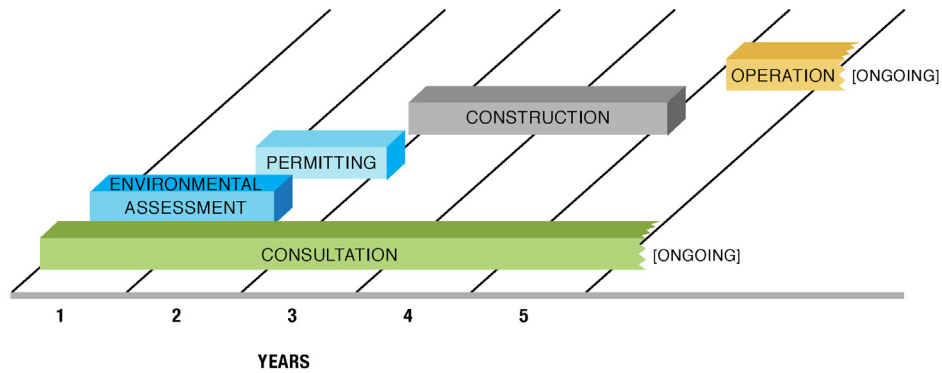
The Project is expected to extend over an approximately 20-year period after regulatory approvals are received. This period includes the following phases:

Site Preparation & Construction: 1 ½ to 2 years

Open Pit Mining: 7 to 8 years (during process plant operations)

Process Plant Operations: 14 to 15 years

Completion of Closure & Reclamation: 2 to 3 years



Mining is expected to be completed during the first 7 to 8 years of the operational phase. During this period approximately 60 Mt of ore and 160 Mt of waste rock will be mined. Approximately 30 Mt of the ore, the portion with the lower gold content (also referred to as low grade ore) will be stockpiled for processing during the second half of the 14- to 15-year operating period. The following mining and process plant production rates in t/d are projected:

	Average	Maximum
Mining (7 to 8 years) Ore:	25,000 t/d	30,000 t/d
Waste Rock:	65,000 t/d	75,000 t/d
Total:	90,000 t/d	105,000 t/d
Ore Processing (14 to 15 years)	12,500 t/d	15,000 t/d

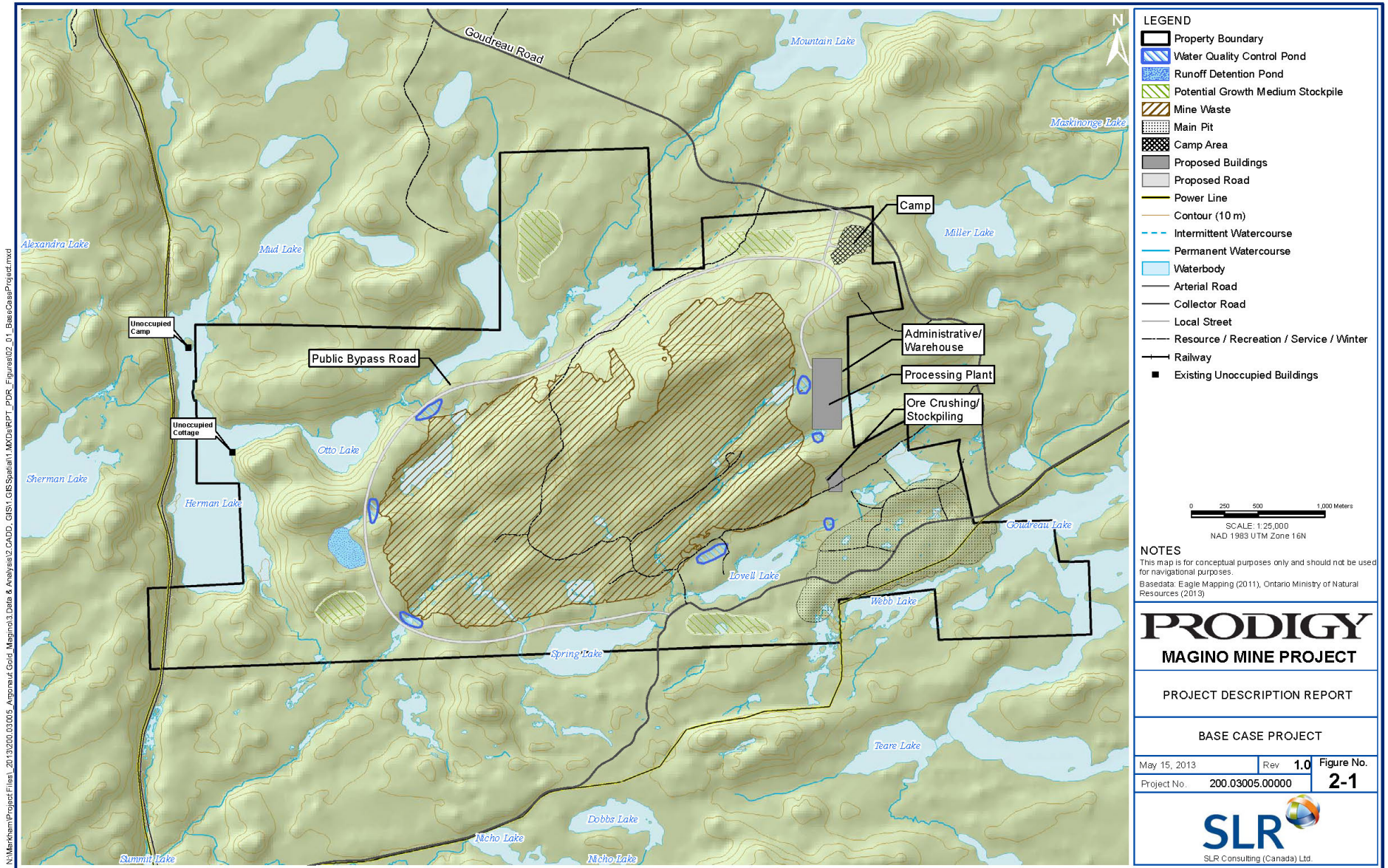
2.1.3 Project Layout

The proposed layout of mine site infrastructure is shown in Figure 2-1. This layout shows the general footprint of the open pit, approximate locations of the internal access and haul roads, crusher facilities, the process plant, and the camp site. As the design for these facilities evolves, refinements and changes to this layout will occur.

2.2 Project Location

2.2.1 Location

The Project area is located within the Territorial District of Algoma. It is centered at Universal Transverse Mercator (UTM) 689049E 5351422N (North American Datum [NAD] 83 Zone 16U).



Land Ownership:

The Project area is on land owned by the provincial Crown, which includes sub-surface rights. Current dispositions for the Project include 7 leased parcels, 7 patented claims, and 57 mining claims, as described in Table 2-1.

Table 2-1: Magino Project Dispositions

DISPOSITION TYPE	NUMBER	CLAIM NUMBERS
Leases – Mining Rights Only	1	722481
Leases – Mining and Surface Rights	6	581951, 581948, 581949, 581950, 581952, 581953
Patents – Surface and Mining Rights	7	2048, 2049, 2050, 2051, 2052, 2053, 2102
Mining Claims	57	<u>1110086</u> , <u>1118352</u> , <u>1174399</u> , <u>1174400</u> , <u>1174401</u> , <u>1174849</u> , <u>1234858</u> , <u>1235583</u> , <u>1235584</u> , <u>4218043</u> , <u>4218044</u> , <u>698646</u> , <u>698647</u> , <u>698648</u> , <u>698649</u> , <u>698650</u> , <u>698651</u> , <u>698652</u> , <u>698653</u> , <u>698654</u> , <u>698655</u> , <u>698656</u> , <u>698657</u> , <u>698660</u> , <u>698661</u> , <u>698662</u> , <u>698664</u> , <u>698665</u> , <u>698666</u> , <u>698667</u> , <u>698668</u> , <u>698669</u> , <u>711129</u> , <u>809963</u> , <u>809967</u> , <u>809968</u> , <u>809969</u> , <u>809970</u> , <u>809971</u> , <u>809972</u> , <u>827520</u> , <u>841257</u> , <u>841258</u> , <u>841259</u> , <u>841270</u> , <u>847804</u> , <u>847805</u> , <u>847806</u> , <u>847807</u> , <u>847814</u> , <u>4262081</u> , <u>4262082</u> , <u>4262085</u> , <u>4218037</u> , <u>4218038</u> , <u>4218052</u> , <u>711133</u> , <u>884901</u>

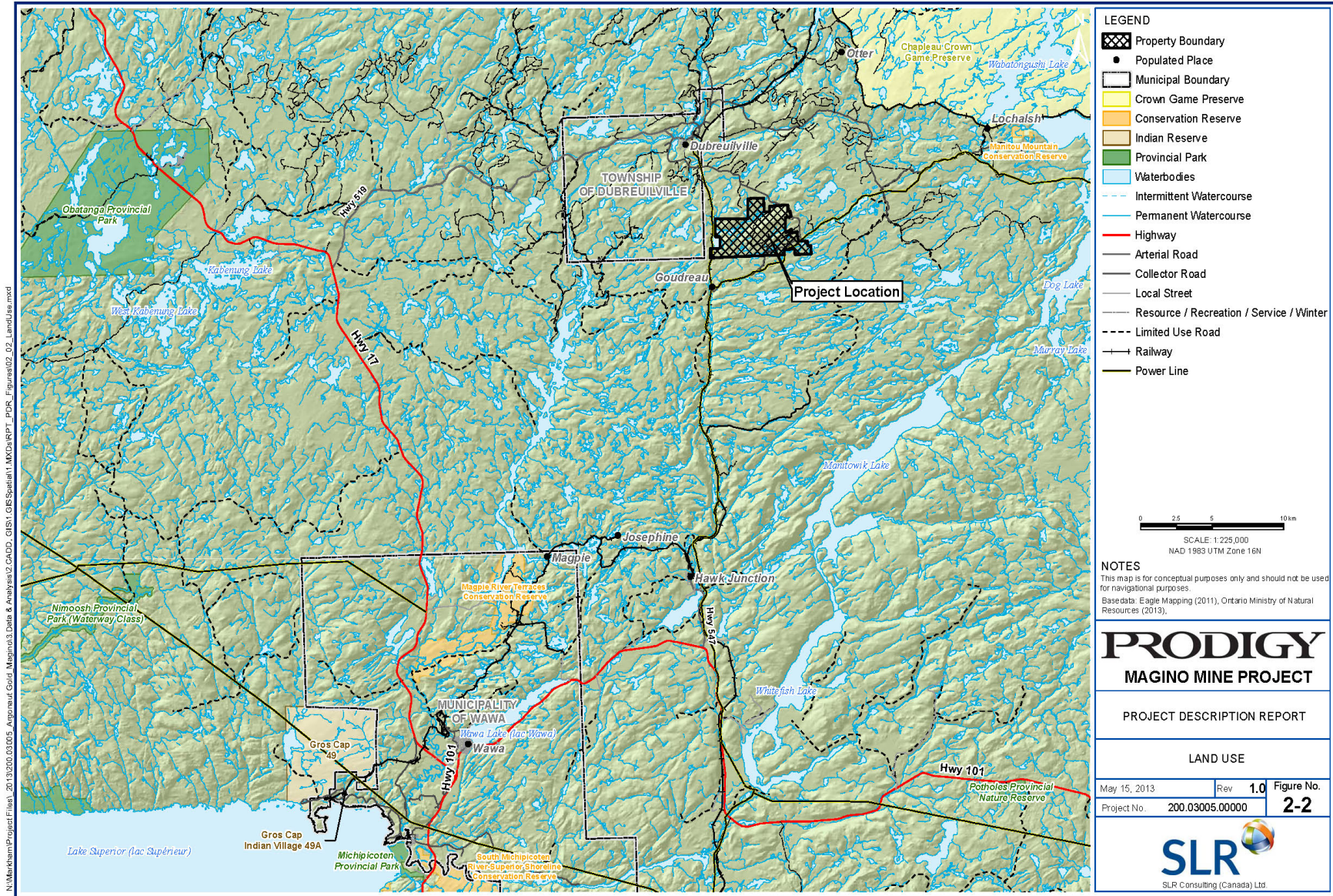
2.2.2 Land and Water Use

2.2.2.1 Historic Land Use

The area around Goudreau and Lochalsh (Figure 2-2) has been prospected for many years. In the early 1900s, the discovery of iron mineralized rock in the Michipicoten area southwest of Wawa led to a search for similar deposits along the iron ranges further north. Iron formations containing pyrite in sufficient quantity to form the basis of a mining industry were found about two miles east of Goudreau. Between 1916 and 1919, about 250,000 tonnes (t) of pyrite were produced.

Gold was discovered in 1918 near Goudreau, with prospecting and mining continuing since then. Records show that gold production in the Goudreau area was somewhat sporadic.

When gold was discovered on the Project property on what is now patent hold claim 2050, McCarthy-Webb Goudreau Mines, Limited (McCarthy-Webb Goudreau Mines) was formed to develop the claim group in 1925.



Between 1925 and 1933, McCarthy-Webb Goudreau Mines excavated test pits and trenches on the property. In 1935, Algoma Summit started underground development and production continued through to 1938. Towards the end of 1938, control of the property passed to Magino Gold Mines, Ltd. (Magino) and the mine was closed in 1942.

The Magino property lay dormant until 1972, when exploration was initiated. Mining and construction of a 400 t/d mill began in 1987. The mine closed in mid-1992 due to high operating costs and the underground workings were allowed to flood. Exploration was re-initiated in 2000 and has continued at the Project site since then.

2.2.2.2 Treaty Rights

The Prodigy development occurs entirely within the Robinson-Superior Treaty area. The Michipicoten and Pic Moberg First Nations are the two Aboriginal groups with Treaty rights.

The Michipicoten First Nation reserve is located approximately 50 km south of the project; and the Pic Moberg First Nation reserve is situated approximately 100 km northwest.

2.2.2.3 Current Land Use

Mining

There are currently two active gold mines operating in the Wawa area; the Island Lake Gold Mine and Eagle River Mine (Pace, 2012). The Island Lake Gold Mine facility is adjacent and east of the Project and has produced more than 100,000 ounces of gold since 2007 (Richmont Mines, 2012).

The Eagle River Mine is located 50 km west of Wawa, is owned and operated by Wesdome Gold Mines (Wesdome Gold, 2012a). The company also owns two other mining properties north of Wawa (Mishi and Magnacon) and has been operating since 1995 (Pace, 2012). In 2010, the mining company was the second major employer for the Municipality of Wawa, employing 180 residents (Economic Development Corporation of Wawa, 2010; Wesdome Gold, 2012b).

Mining exploration activities have begun increasing in the areas surrounding the Project area. There are multiple mining claims staked in the areas surrounding the existing Eagle River and Island Gold operations. A number of companies, including Augustine Ventures Incorporated, Cline Mining Corporation, Conquest Resources Limited, Dianor Resources Incorporated, Giyani Gold Corporation, Hudson River Minerals Incorporated, Lakeland Resources Incorporated, Richmont Mines Limited, Argonaut Gold Incorporated, and Strike Minerals Incorporated, are completing drilling and mining exploration activities in areas known to contain gold deposits (Pace, 2012).

Recreational Use

Local and regional residents take part in a number of recreational pursuits throughout the region. These activities primarily include hunting, fishing/ice fishing, hiking, mountain biking, canoeing/kayaking, cross-country skiing, snowshoeing, snowmobiling, and riding ATVs (All

Terrain Vehicles). In the winter, the Ontario Federation of Snowmobilers Clubs maintains over 100 km of trails throughout the region. From Wawa, snowmobile trails connect south to Sault Ste. Marie, north to Hearst, and east to Timmins.

Snowmobilers travelling from Sault Ste. Marie have the added option of accessing the region by Algoma Central Railway. The route offers a unique 'request stop' program. Snowmobilers can request an unofficial stop location along the tracks and connect with the snowmobile trail. Hawk Junction is often a popular start-off point for snowmobilers accessing the trails by train.

Recreational fishing occurs at Goudreau and Herman lakes, which are considered to have high fisheries values and where there are cottages and camps. (Figure 2-1) There is occasional fishing at Webb, Goudreau and Herman lakes, but no other lakes within the mine footprint area appear to be fished.

Inhabited and Abandoned Settlements

In addition to the communities in the local and regional study areas, the area surrounding the Project includes uninhabited and abandoned settlements; cottages and cabins seasonally occupied by local and regional residents; outfitters and hunting and fishing lodges, as well as space for a variety of recreational pursuits.

These communities were established at the turn of the 19th century with the construction of the railroad and when resource development projects began moving into the area. However, by the end of the Second World War there was a decline in the resource sector and many residents began moving away from these small communities. Today, there are no permanent residences left in these communities, but several retain their original structures. Within the region surrounding the Project area, five 'abandoned' settlements have been identified:

- Goudreau
- Lochalsh
- Dalton Station
- Dalton Mills
- Michipicoten Harbour

Goudreau is still a location used for summer homes and a base for logging operations. Michipicoten Harbour (adjacent to Michipicoten First Nation) was once used as a deep water port.

Cottages and Cabins

There are cottages and cabins in the region surrounding the Project area. These retreats are used primarily by local and regional residents either intermittently year-round or seasonally. Residents farther afield (for example, in Sault Ste. Marie and Thunder Bay) also maintain cottages and cabins in the area; including a number of Americans.

There is a camp on the island within Herman Lake and a cottage on the eastern shore of that lake, as shown on Figure 2-1. These both appear to be unused and the island camp falls

outside of the Project area. A records search is being undertaken to establish ownership. Public consultation and socio-economic work undertaken to date has not identified any additional cottages or cabins in or immediately adjacent to the Project area. Other than the above, the closest habitable structures that have been located occur outside the Project area, 5 to 10 km to the north, and in the settlement of Goudreau, approximately 3 km to the southwest.

Outfitters/Lodges

A number of outfitters and hunting/fishing lodges operate in the region. These outfitting operations cater primarily to tourists travelling from outside of the region. Local residents may also use these establishments as a means of accessing the land/water, obtaining supplies, and/or accommodations. A number of fishing species such as pike, muskies, walleye, bass, and trout populate the inland lakes, rivers, and streams. Popular hunting varieties include: moose, bear, deer, and waterfowl.

First Nations

The extent to which the First Nations and Métis engage in traditional activities in the Project area is still being established.

2.2.2.4 Towns and Communities

The closest communities to the Project include the town of Dubreuilville, approximately 14 km to the north and Wawa, approximately 40 km to the southwest. Sault Ste. Marie is located approximately 310 km to the south and is the closest large community to the Project.

2.2.2.5 Land, Water and Resource Management Plans

The property is within the Unorganized Area of Finan Township and does not have municipal zoning designations.

The Project site is located within Ontario Regulation #102/89, Zoning Order for the Territorial District of Algoma. Under Section 9(d) of the Order, mining, including pits, quarries, and wayside pits or quarries, is considered a permitted use. Other relevant permitted uses include:

- 9(g) temporary bunkhouses or mobile homes used exclusively for the accommodation of persons engaged in mining activities prior to mining production (to a maximum of 100 persons);
- 9(i) water storage uses;
- 9(j) public utilities; and
- 9(k) operation of a railway.

Since the Project is located on Crown land, the development is governed by the provincial land use policy. This policy proposes development mainly within the Wawa, Chapleau, Nipigon, and Sault Ste. Marie Districts General Use Area (G2694) for Integrated Multiple Resources Management. According to the Ministry of Natural Resources (MNR, 2006), the primary activities in the area are forest management, mineral exploration, mining, hydroelectric power

generation, tourism, and Crown land recreation. Management of this area is also governed by the general policies contained in Wawa District Land Use Guidelines (Ontario Ministry of Natural Resources, 1983), including Tourism section C:8 (1992).

There are restrictions on land disposition and activities near designated trout lakes, remote tourism lakes and remote tourism lodge lakes.

Area forests are managed under the Magpie Forest Management Plan, which is administered by Dubreuilville Forest Products (DFP), Ltd. The area south of Webb Lake is managed under the Algoma Forest Management Plan, administered by Clergue Forest Management, Inc. and Sustainable Forest License (SFL) #543357. Forest management is the responsibility of the Wawa District, Ontario MNR.

Values acknowledged and recognized within the forest management planning process include: bear management areas, cultural heritage, fisheries and wetlands, land values and existing roads, resource-based tourism, trap-line areas, and wildlife and forestry.

The existing on-site landfill is administered under Roll# 5727 490 002 02400.

The Project site is located outside of and southwest of the Chapleau Crown Game Preserve (Figure 2-2).

The Project is not located within waters or lands administered by the Canada Port Authority and the lands have not been used as a marine terminal.

2.3 Regulatory Process and Schedule

2.3.1 Federal Involvement

2.3.1.1 Federal Financial Support

No Federal financial support is proposed or anticipated for the Project.

2.3.1.2 Federal Lands

The Project is situated on lands administered by the Ontario MNR. No federal lands will be used for the purpose of carrying out the Project, as described.

2.3.1.3 Federal Legislative or Regulatory Requirements

As outlined in Section 1.6.1 above, the Project will likely be subject to federal legislative requirements, as well as those administered by provincial and municipal agencies. A number of permits, licenses and other authorizations will be required prior to the commencement of construction. The list of permits and authorizations that may be required are presented in Table 2-2.

A preliminary schedule is provided in Figure 2-3.

Table 2-2: Preliminary List of Required Approvals and Permits

FEDERAL		
REGULATORY AGENCY	ACT AND/OR REGULATION	PERMIT, AUTHORISATION OR APPROVAL
Canadian Environmental Assessment Agency	<i>Canadian Environmental Assessment Act (CEAA)</i>	Environmental Assessment Approval
Department of Fisheries and Oceans Canada (DFO)	Fisheries Act	Fish Habitat Authorization
	<i>Fisheries Act; Metal Mining Effluent Regulations (MMER)</i>	Authorisation to deposit deleterious substance in waters frequented by fish if MMER Sec. 5 applies or a specific site is added to Sched. 2
	Metal Mining Effluent Regulations; Environmental Effects Monitoring	N/A
	<i>Fisheries Act [Sec. 35 (1)] governs alteration of or harm to fish-bearing waters</i>	When Harmful Alteration or Disruption or Destruction (HADD) is contemplated, DFO must issue an Authorisation in advance-usually including a Habitat Compensation Agreement or equivalent action
Environment Canada	<i>Canadian Environmental Protection Act</i>	Compliance requirement
	<i>Canadian Council of Ministers of the Environment (CCME) Code of Practice for storage tanks</i>	Compliance requirement
	<i>Fisheries Act; Regulations for wastewater effluent monitoring and reporting</i>	Compliance requirement
	<i>National Pollutant Release Inventory (NPRI)</i>	Requirement to comply with annually-updated Substances List
	<i>Canadian Environmental Protection Act; Regulations (Environmental Emergencies)</i>	Requirement for certification of compliance or, if substance and volume warrant, submit report to Env. Canada confirming preparation of an Environmental Emergency Plan.
	<i>Species at Risk Act (SARA) [Sec. 73, Sec. 79]</i>	A Permit or Agreement may be required if a Species at Risk Act (SARA)-registered species, its residences, or critical habitat, may be affected
	<i>Migratory Birds Convention Act (Sec. 5.0, 5.1 (1)-(2); Migratory Birds Regulations [Sec. 4 (1), (11)].</i>	Compliance requirement. Scientific Permit to be acquired for study purposes
	<i>Environmental Assessment Act 2012 [Environmental Affects section, 5. (1) (c) (iv)]</i>	Archaeological assessment to ensure protection of a "site or thing that is of historical, archaeological, paleontological or architectural significance"

FEDERAL		
REGULATORY AGENCY	ACT AND/OR REGULATION	PERMIT, AUTHORISATION OR APPROVAL
Natural Resources Canada	<i>Canadian Environmental Protection Act; Regulations (Environmental Emergencies)</i>	Compliance requirement may trigger need for a Licence for an Explosives Factory and Magazine
	<i>Explosives Act, Sections 7-9; Explosives Regulations c.599 Part III</i>	Licences for magazines, permits for vehicles for transportation, permits for importation, permits for purchase and possession, and certificates for storage
Transport Canada	<i>Transportation of Dangerous Goods Act; Regulations (Part 7 -Emergency Response Assistant Plan)</i>	Compliance requirement (SOR/2008-34)
	<i>Transportation of Dangerous Goods Act (Part 8 - Accidental Release)</i>	Compliance requirement (SOR/2011-239)
	<i>Transportation of Dangerous Goods Act; Regulations (Part 9 - Road)</i>	Compliance requirement (SOR/2008-34)
	<i>Transportation of Dangerous Goods Act (Sec. 31); Regulations (Part 14 - Permit for Equivalent Level of Safety)</i>	Permit requirement (SOR/2011-239)
	<i>Navigable Waters Protection Act (Part 1 - Approval of Works); Regulations (CRC, c1232)</i>	Approval of works

PROVINCE OF ONTARIO		
REGULATORY AGENCY	ACT AND/OR REGULATION	PERMIT, AUTHORISATION OR APPROVAL
Electrical Safety Authority	<i>ON Electrical Safety Code</i>	Approval
Hydro One	<i>Ontario Environmental Assessment Act; Class Environmental Assessment for Minor Transmission Facilities</i>	Class Environmental Assessment (Class EA)
Independent Electricity System Operator	<i>Electricity Act; Ontario Electrical Distribution Safety 22/04, Sections 4 and 6-8</i>	Connection assessment and approval
Ministry of Community Safety and Correctional Services	<i>Fire Protection and Prevention Act; O. Reg. 388/97 (updated as 213/07) (Fire Code)</i>	Requirement to ensure safety of all equipment, systems, processes, structures and fuels on a work site
Ministry of Environment (MoE)	<i>Environmental Protection Act [Sec. 14(1)]; O. Reg. 419/05 (Air Quality); noise is controlled via the Act itself and via Noise Pollution Control (NPC) guides, e.g., NPC-232. Federal rather than Ontario jurisdiction is contemplated for control of rail noise and vibration</i>	Environmental Compliance Approval (ECA) for operations-related air and noise emissions up to certain thresholds; Notification of Exceedances; Abatement Plans; Audits
	<i>Environmental Protection Act [Sec. 19]; O. Reg. 255/11</i>	ECA for operations-related discharge or any contaminant into any part of the environment except water
	<i>Environmental Protection Act; O. Reg. 347/90 (Waste Management - General). For oil-water separators, reference is: Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste (Dec. 2009)</i>	ECA for a broad range of site-related waste management activities. Registration of a Waste Generation Facility
	<i>Water Resources Act; O. Reg. 129/04 (Licensing Sewage-Works Operators)</i>	Licence required for operators of sewage works (operations which collect and treat sewage waste)
	<i>Water Resources Act (Sec. 53) (Industrial Sewage Works)</i>	ECA required for operation of a sewage works or tailings management facility
	<i>Water Resources Act (Sec. 34); O. Reg. 387/04 (Taking Water)</i>	Permit required to take water for domestic and industrial use
	<i>Environmental Protection Act; O. Reg. 560/94 (Metal Mining Effluent Monitoring and Limits)</i>	Compliance requirement when >50m ³ /per day of process or overflow effluent or cooling water is to be discharged from a "plant" (workings, facility, disposal site or mill)
	<i>Environmental Protection Act; O. Reg. 224/07 (Spill Plans); O. Reg. 222/07 (Environmental Penalties)</i>	Spill Prevention and Contingency Plan is to be prepared prior to approval of a mine plant. Penalty is assessed by a designated Director if undertaking presents as lacking environmental due diligence

PROVINCE OF ONTARIO		
REGULATORY AGENCY	ACT AND/OR REGULATION	PERMIT, AUTHORISATION OR APPROVAL
MoE (continued)	<i>Environmental Protection Act; O. Reg. 232/98 (Landfilling Sites)</i>	Although O. Reg. 268/98 as amended (268-11) applies only to large municipal-waste-only landfill sites (Part II), the Act allows for a discretionary requirement for financial assurance for a landfill's contingency plans (Part IV) and closure/post-closure care
	<i>Environmental Protection Act; O. Reg. 903 (Wells) amended as O Reg. 372/07</i>	Obtain Well Technician Licence, keep Log and Field Notes, complete a Well Report and affix a Well Tag (if well is cased)
	<i>Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste (Dec. 2009)</i>	Obtain Well Technician Licence, keep Log and Field Notes, complete a Well Report and affix a Well Tag (if well is cased)
	<i>Ontario Environmental Assessment Act; Electricity Projects Regulation 116/01; Section 3</i>	Environmental Assessment Approval or screening
Ministry of Health and Long-Term Care	<i>Safe Drinking Water Act; O. Reg. 248/03 (Lab Licensing); O. Reg. 170/03 (System Operator/Owner to use Licensed Lab)</i>	Approval for operation of a non-municipal, non-residential water system; water-works permit for the system itself; operator/owner to use licensed testing lab; and certificate for System Operator
Ministry of Labour (MoL)	<i>Occupational Health and Safety Act, Section 29 (2) and (3) and Mines and Mining Plants Regulation 854, section 22</i>	Pre-development Review Process
Ministry of Natural Resources (MNR)	Conservation Authorities Act. NOTE: A Regional Authority may alter or divert watercourses and conduct associated works on land in the area of its authority. Such an Authority does not currently exist for the Project regional area; this area would have to be added to the Act by amendment and a specific regulation enacted. If the requirement to alter a watercourse or alter/stabilise a shoreline should occur on Crown land, then Environment Canada and the Fisheries Act would govern	Regional Authority would conduct the works or order the conduct of the works through an Agreement with an owner within the regulated area
	<i>Fish and Wildlife Conservation Act; O. Reg. 664/98 (Fish Licensing), Part IV</i>	Licence required to collect fish for scientific purposes and to transport fish for such purpose
	<i>Fish and Wildlife Conservation Act Section 8.(3) and (5)</i>	Authorization to remove beaver dam
	<i>Aggregate Resources Act, Part II (aggregate licence), Part V (aggregate permits); O. Reg. 44/97 (472/09)</i>	Permit or Licence required in order to obtain aggregate and/or operate a pit/quarry for obtaining aggregate

PROVINCE OF ONTARIO		
REGULATORY AGENCY	ACT AND/OR REGULATION	PERMIT, AUTHORISATION OR APPROVAL
MNR (continued)	<i>Crown Forests Sustainability Act, Part III (Forest Resources Licence); O. Reg. 167/95 (353/12) (Charges, Maintenance Obligations)</i>	Licence required for harvesting timber
	<i>Endangered Species Act, Sections 16-20 (Agreements, Permits and Other Instruments); O. Reg. 242/08 (Exemptions)</i>	Permit required for unavoidable disturbance to a Listed Species; other requirements may include reporting, furnishing of security and rehabilitating damaged habitat or enhancing an equivalent area
	<i>Forest Fires Prevention Act; O. Reg. 207/96 [(64/10)]</i>	Permit required for burning of brush and debris, and establishing a buffer zone around a burn area
	<i>Lakes and Rivers Improvement Act, Section 14</i>	Approval
	<i>Lakes and Rivers Improvement Act</i>	Location Approval, Plans, and Specification Approval
	<i>Public Lands Act; O.Reg. 453/96</i>	Work Permit
	<i>Public Lands Act; O.Reg. 973</i>	Land Use Permit
	<i>Public Lands Act, Section 20</i>	License of Occupation
	<i>Public Lands Act; O.Reg. 349/98</i>	Work Permit
	<i>Public Lands Act; PL.4.10.02</i>	Work permit
	<i>Ontario Environmental Assessment Act; Class Environmental Assessment for Activities of the Ministry of Northern Development and Mines under the Mining Act</i>	Class Environmental Assessment
Ministry of Northern Development and Mines (MNDM)	<i>Mining Act, Section 140(d)</i>	Approval of Closure Plan
	<i>Mining Act; Consultation and arrangements with Aboriginal Communities at Early Exploration</i>	N/A
	<i>Ontario Environmental Assessment Act; MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario (Declaration Order MNR-71)</i>	Class EA
	<i>Ontario Environmental Assessment Act; Class Environmental Assessment for MNR Resource Stewardship and Facility Development Projects</i>	Class EA

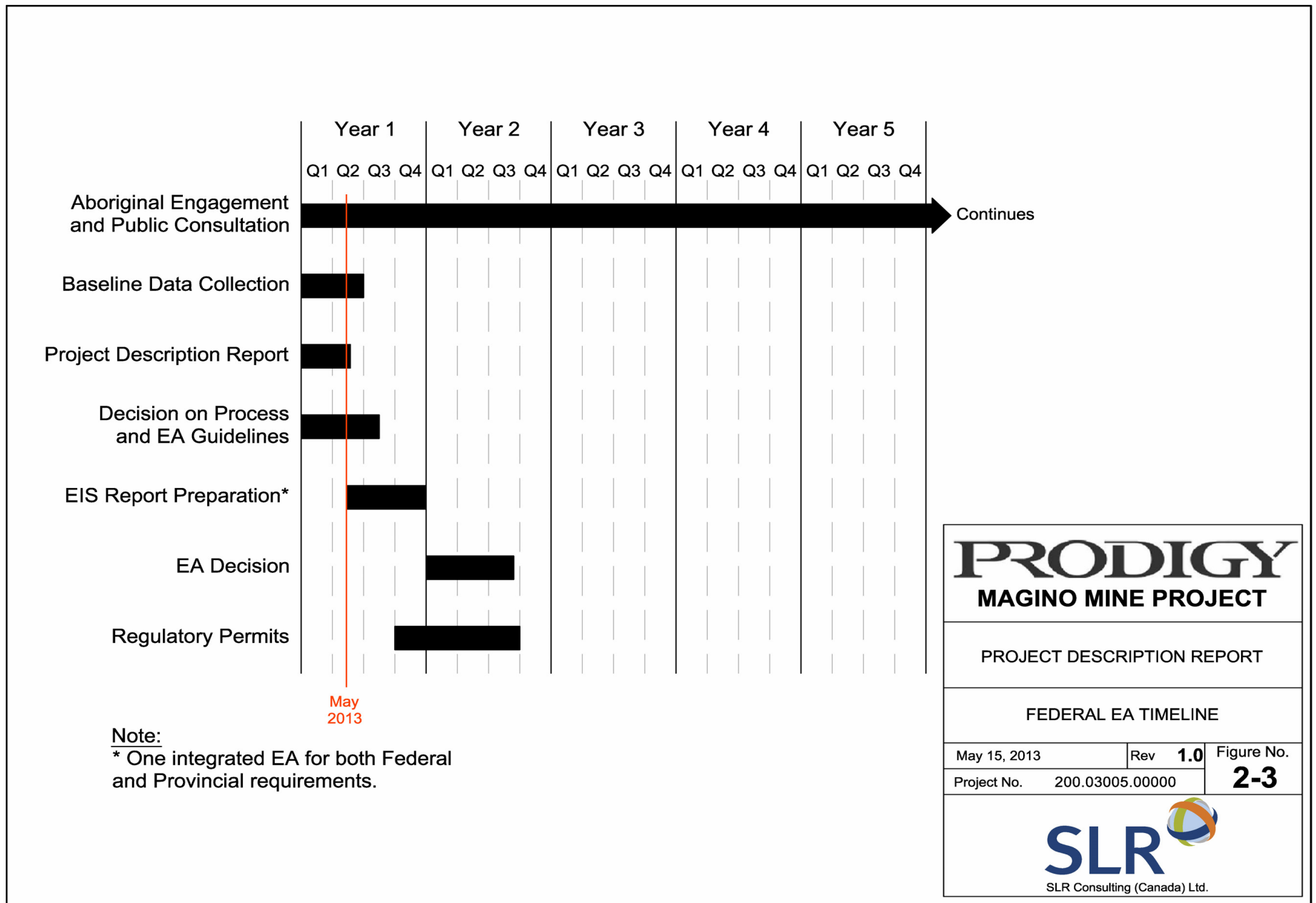
PROVINCE OF ONTARIO		
REGULATORY AGENCY	ACT AND/OR REGULATION	PERMIT, AUTHORISATION OR APPROVAL
MNDM (continued)	<i>Mining Act, Part VII, Sections 140, 141, 143 and 145 (Financial Assurance); O. Reg. 307/12 (Mine Development and Closure under Part VII of the Act) (amends 240/00)</i>	Both Advanced Exploration and intent to commence or re-commence Mine Production require Notice of Project Status, filing of Certified Closure Plan and proof of consultation about same with Aboriginal groups
	<i>Mining Act, Part VII, Section 141 (1) (b) (Public Notice)</i>	Proponent required to provide Public Notice to the Director of Mine Rehabilitation [appointed under Part VII of the Act, Sec. 153(2)] at the "prescribed time and in the prescribed manner"
Ministry of Transportation	<i>Public Transportation and Highway Improvement Act, Sections 31, 34, 38</i>	Entrance Permit required for constructing an entrance or access to a provincial highway. Encroachment Permit required for installation of works upon, under or within the limits of a provincial right-of-way. Commercial Signage Permit required for sign on provincial highway
	<i>Public Transportation and Highway Improvement Act, Sections 31, 34, 38</i>	Building Permit and Land-Use Permit: Commercial-Level - Comprehensive and Major: These instruments are subject to Environmental Assessment and Ministry project requirements
	<i>Environmental Assessment Act</i>	Class Environmental Assessment Approval
Ontario Energy Board	<i>Ontario Energy Board Act, Section 92</i>	Order pursuant to Energy Board Act
Ontario Ministry of Tourism, Culture and Sport	<i>Ontario Heritage Act, Part IV; O. Reg. 09/06 (Criteria for Determining Cultural Heritage Value or Interest)</i>	Archaeological assessment to ensure protection of a "cultural heritage" site or site of "significance" in an unorganised territory or municipality

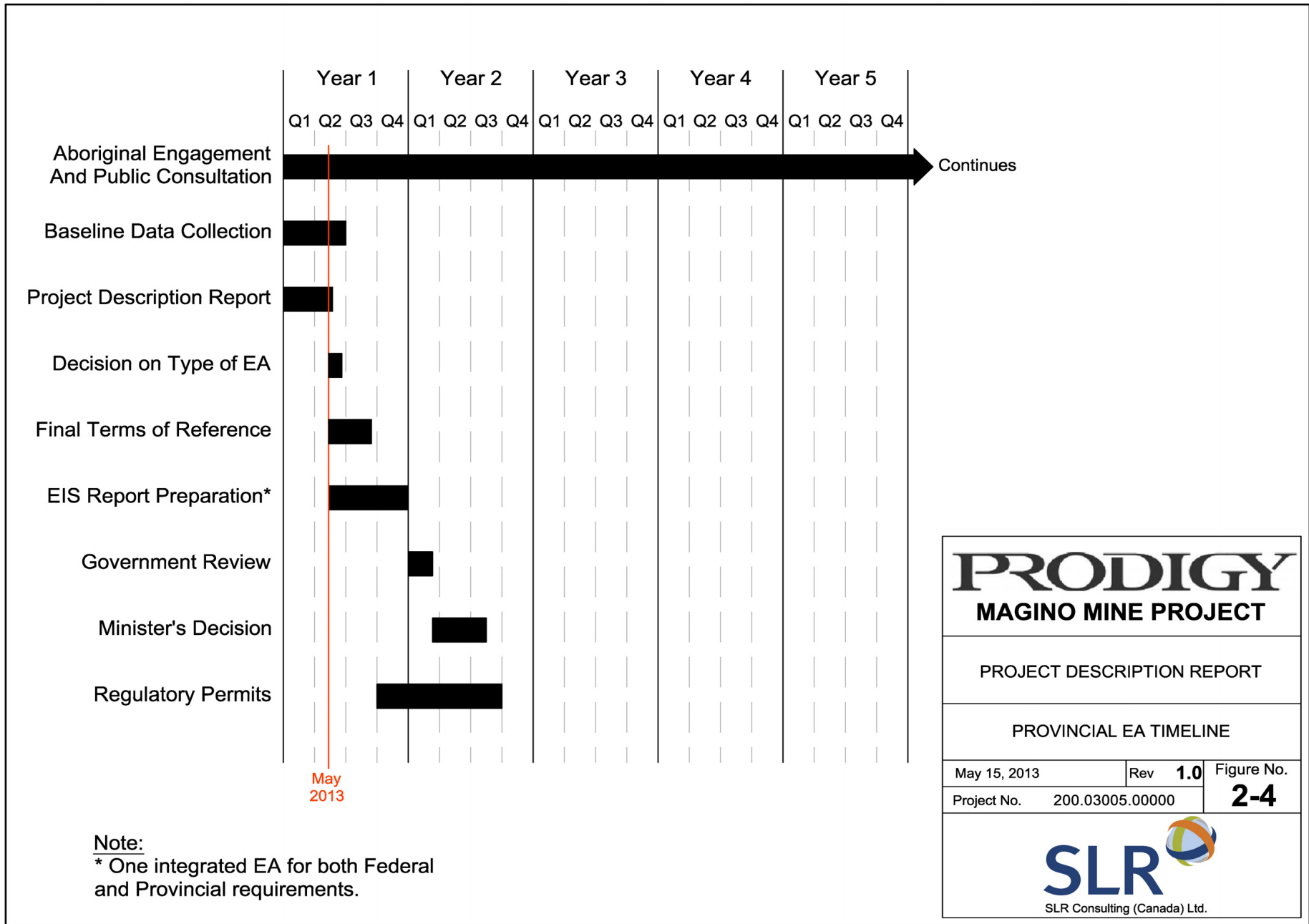
2.3.2 Provincial Involvement


As it is anticipated that the Project will require both a Federal EA and several separate Class EA's, a more streamlined and efficient process is suggested. Prodigy has submitted a request to the Ontario Ministry of the Environment to combine the Federal and Class EA's into one Individual EA through the process of a Voluntary Agreement. Many of the Project components interact and cumulative impacts need to be addressed in a complete and thorough process. A single EA will ensure a comprehensive and technically sound assessment that will take into account individual Project elements, the entire Project site, and the surrounding area.

A list of the permits and authorizations that may be required are provided in Table 2-2.

A preliminary schedule is provided in Figure 2-4.





PRODIGY		
MAGINO MINE PROJECT		
PROJECT DESCRIPTION REPORT		
PROVINCIAL EA TIMELINE		
May 15, 2013	Rev 1.0	Figure No.
Project No. 200.03005.00000	2-4	
 SLR Consulting (Canada) Ltd.		

2.4 Environmental Studies

There are no regional environmental studies that may be relevant in the context of the proposed Project. Prodigy is aware of a Bat DNA Study that may be conducted by MNR in the Project area in the summer of 2013 and will be consulting the investigators. Information from this study will be utilized as appropriate in conducting the EA. MNR also conducted a Bear DNA study in Wildlife Management Unit 32 as part of a population trend analysis. While the Project is located within Unit 32, this study is not expected to be relevant to the EA process.

3. MINE DEVELOPMENT INFRASTRUCTURE AND ACTIVITIES

3.1 Site Description and Geology

The topography of the area is characterized by low ridges and hills (up to 50 m of relief), flanked by generally flat areas of glacial outwash, swamps, and numerous lakes and bogs. The area is free of permafrost.

The Project is located in the geological Wawa Subprovince of the Canadian Shield. The local bedrock geology consists of felsic to intermediate pyroclastic (volcanic) metavolcanic rocks grading into mafic (silicate) metavolcanic rocks. These are typically separated by units of sulphide, oxide and carbonate-iron formations. Medium-to coarse-grained quartz diorite sills and dikes intrude the metavolcanic and metasediment units, which include banded iron, carbonate and semi-massive to massive sulphides. A Granodiorite sill intrudes the mafic metavolcanics within the Project area, is east-north-east-striking and has a steep northerly dip. Its surface expression, which is at least 1,800 m long and up to 300 m wide, contains the gold mineralization.

Glacial deposits overlay the bedrock and include till, glaciofluvial sediments and glaciolacustrine sediments. More recent organic deposits overlay the glacial deposits in certain areas. A few colluvial areas occur and include rock fall and other colluvium.

Organic deposits are found in association with bogs and fens that can vary widely in terms of the vegetation conditions they support. Shrubs, spruce trees, rushes, horsetails, sedges, Labrador tea and Sphagnum moss are typically present in various combinations in the wetlands. Woody debris can be found at depth within the peat.

3.2 Gold Mineralization

Gold mineralization occurs in mineralized veins within the Webb Lake Granodiorite stock. The veins are usually 2 to 4.5 m wide and have a strike length of 25 to 70 m. The zones are folded in places, producing mineable widths of up to 10 m. The zones dip at about the same angle as the foliation, have a vertical plunge, and are aligned in an east-north-east direction. Weak bleaching and silica flooding are the distinguishing features of the zones. Silica flooding consists of incipient pale grey quartz replacing the foliated granodiorite. Gold content is directly related to the amount of silica flooding.

The veins consist of discrete pale grey to pale green to almost white quartz and vary in width up to 0.45 m. They have a strike length of several metres to 35 m. Gold values are distributed erratically within the veins. The veins are folded in places, with gold concentrated in the fold noses.

3.3 Geotechnical Considerations

The surficial deposits include cobbles, sands and silts, and organic material. These materials are suitable for construction and mine reclamation materials. Lighter structures such as camp

housing, administrative buildings, warehouses, etc. can be constructed on them with the appropriate preparation, which may include the removal of some materials.

The surficial deposits are also considered suitable for the construction of the waste rock and tailings management facilities. It may be necessary in some instances to excavate down several metres in order to remove less suitable loose materials. Surface deposits are likely not suitable for the construction of impermeable liners or other water containment features. Providing for seepage control will likely involve vertical barriers or horizontal liners. Geotechnical characterization will be completed during the design stages of the Project.

Bedrock at the Project is considered very competent and suitable as foundation material for larger process equipment such as crushers and grinding mills. The structural characteristics of the bedrock, such as faults and fractures, will control the final design of the pit slopes. Geologic and geotechnical studies of the bedrock involving 2,500 m of diamond (core) drilling to depths of 150 to 300 m have been conducted and results indicate the pit slopes will be stable. Data will continue to be analyzed to optimize pit wall designs.

3.4 Open Pit Development

3.4.1 Mining

The open pit will cover approximately 80 to 85 hectares (ha) and will range in depth to approximately 300 m below ground surface (Figure 2-1). The side slopes will be benched to provide for slope stability and space for mine truck access ramps and roads.

Mining will be conducted by drilling and blasting zones of the rock and using a shovel or loader and mine trucks to remove the blasted material. The mined ore to be processed will be hauled by mine trucks to the primary crusher; while the low-grade ore will be hauled to a dedicated stockpile. The waste rock will be conveyed to the WRMF. These features are shown on Figure 2-1.

The open pit will be dewatered as mining proceeds downward using sump pumps and pipelines, and possibly extraction wells drilled into the pit walls as well. When mining starts, very little groundwater will be extracted. The amount will gradually increase with mining depth and reach a maximum of between 3,000 and 4,000 m³/day (or 1,000,000 to 1,500,000 m³/year). This extraction rate will cause a lowering of groundwater levels immediately adjacent to the pit rim and out to approximately a few hundred metres based on preliminary three dimensional groundwater modelling.

3.4.2 Equipment

Sufficient equipment will be provided to perform the following activities:

- Strip overburden in advance of mining;
- Construct surface water diversion channels and embankments, dams, ditching and sedimentation ponds;
- Drill and blast the rock to be mined;

- Pump mine water;
- Load and haul ore from the pit to the primary crusher and low-grade ore to stockpile;
- Load and haul waste material from the pit to the waste dump;
- Slurry discharge by pipeline and spiggoting of tailings;
- Recycle pumping of water from the TMF and water quality control ponds;
- Maintain all the mine work areas, in-pit haul roads, waste dump access roads and safety berms, crushed coarse ore stockpile, and external haul roads; and
- Build and maintain in-pit drainage structures.

Typically, the type of major equipment that will be provided will include, amongst other items:

- Drills to allow blasting to occur;
- Loading equipment with a capacity of 15 to 20 m³; and
- Mine trucks, up to a 250 t capacity.

Additional auxiliary equipment will include:

- Track dozers;
- Motor graders;
- Excavators;
- Backhoe or small front end loaders;
- Tire handlers;
- Lift trucks;
- Water trucks;
- Personnel carriers;
- Maintenance trucks;
- Fuel/lube trucks;
- Mobile lighting equipment;
- Pickup trucks;
- Fork lifts;
- Tractor trailers; and
- Compactors.

The primary duties assigned to the auxiliary equipment will be:

- Maintenance of access roads, non-mining waste storages and conveyance, service ramps, safety berms, sumps, dust control equipment etc.; and
- Maintaining access to mine waste management facilities (waste rock and tailings) and stockpiles.

Specific equipment requirements will be determined based on the life of the mine, the annual production schedule, the mine work schedule, and equipment shift production estimates. The equipment will be acquired or leased.

Mining will likely be conducted year round with scheduled maintenance programs for heavy equipment in two 12-hour shifts per day.

3.5 Processing

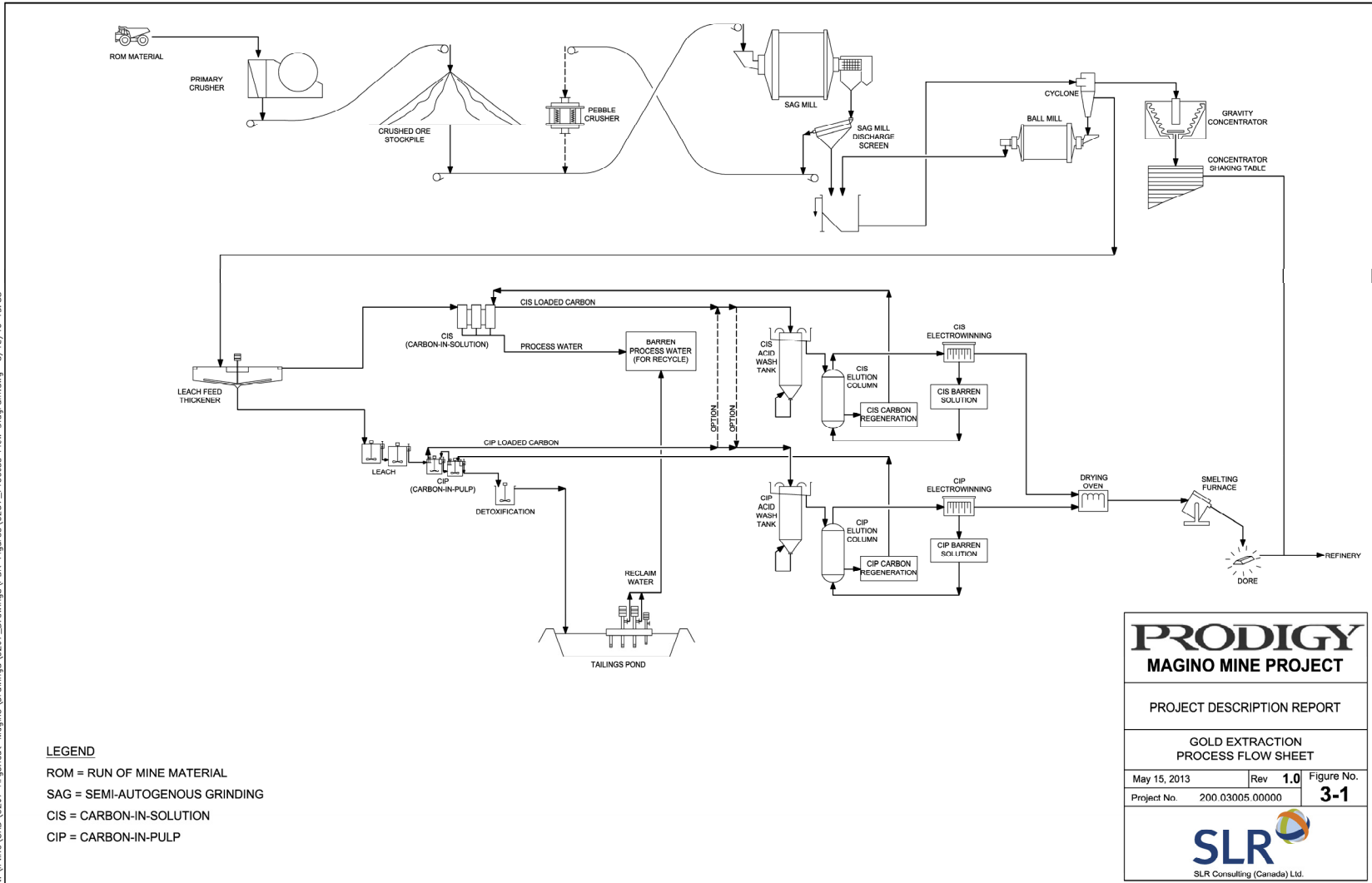
3.5.1 Overview

Gold recovery from the ore will include primary crushing, grinding, cyanide leaching, gold recovery, and treatment of the tailings to destroy the cyanide.

The main components of the crusher and process plant will include (Figure 3-1):

- Primary crusher;
- Coarse ore stockpile and reclaim;
- Semi-autogenous Grinding (SAG) mill, pebble crusher, ball mill and cyclone cluster circuit;
- Vibrating trash screen and thickener;
- Leach feed distribution tank and leaching tanks;
- Gravity concentration;
- Carbon in Pulp (CIP) circuit; as well as possibly a Carbon in Solution (CIS) circuit;
- Acid wash vessel;
- Carbon strip vessel and electro winning cells;
- Filter press and induction furnace;
- Carbon reactivation;
- Tailings circuit;
- Water circuits;
- Electrical power distribution;
- Process monitoring systems; and
- Automated control systems.

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Together with the agitated leaching process, both the CIP method, as well as possibly the CIS method will be used to extract gold from the ore. These processes are expected to recover from 90% to 94% of the available gold.

Most of the above listed facilities will be housed within a large industrial building on a concrete foundation. Some of the larger tanks, such as the leaching tanks, will be located adjacent to the building. The process plant will operate year round in two 12-hour shifts per day, with scheduled downtime for equipment maintenance.

3.5.2 Primary Crushing – Coarse Ore Stockpile and Reclaim

Ore will be hauled from the pit to the primary crusher. Crushed ore will be transferred by conveyor to a coarse ore stockpile.

3.5.3 Ore Preparation

Ore from the coarse stockpile will be ground in two stages to a much smaller size, typically less than 35 mm, that is suitable for feed into the grinding circuit. Crushed ore will be transferred by conveyor to the process plant that consists of a SAG mill, a pebble crusher circuit, and a ball mill.

Water addition, coupled with the use of cyclones and thickeners, will be used to produce slurry that is suitable for leaching and gold recovery.

3.5.4 Gold Recovery

Gold will be recovered using an industry standard process plant applying proven technology. It does not utilize new or unproven technologies, or any new metallurgical processes.

Initially any free gold will be extracted using a gravity circuit. The agitated cyanide leach circuit will operate a single line of leaching tanks. Agitators will be utilized to mix the slurry. A specific level of cyanide will be applied to the slurry to maintain a concentration that will extract the gold from the ore and a pH of 10.9 to 11.0 will be maintained within the tanks using calcium oxide. The resultant solution and “pulp” containing the gold will be sent to a CIP circuit and possibly through a CIS circuit to absorb the gold onto the carbon contained in these circuits.

After the carbon is loaded with gold it is pumped to a wash vessel. The carbon will be washed using hydrochloric acid (HCL), neutralized with water, and transferred to the carbon-stripping tank where the gold is stripped from the carbon using a hot caustic solution. This solution is fed into electro winning cells, which are then used to precipitate the gold onto stainless steel knitted mesh cathodes.

The gold sludge collected at the cathode sludge tank will be transferred via a sludge filter pump to the sludge filter press. Following moisture reduction in a drying oven, the gold sludge will be stored in the refinery safe until it is smelted in a furnace for pouring of Doré bullion as the final product.

After stripping the gold, the eluted carbon will be transferred to a dewatering screen to remove carbon fines and water. It will then be reactivated for reuse by roasting it in a kiln. The reactivated carbon is then re-used in the CIP and Carbon in Column (CIC) circuits. New carbon will be added to make up for the carbon losses through attrition.

3.5.5 Tailings Circuit

The “barren” ore slurry from the CIP circuit will be thickened in a large tank and then treated for removal of cyanide using either Sulfur Oxide (SO₂)/air (Inco Process), Caro's acid, or the “CombiNox” process to destroy the remaining cyanide. All three of these methods are being tested and the results will be used to determine the most suitable approach for the final design of a cyanide destruction plant for the Project.

3.5.6 Water Circulation

The process plant will circulate approximately 15,000 to 25,000 m³ of water per day. The majority of the process water will be obtained through recirculation from the various thickeners in the plant, recycled from the tailings and pumped from the pit. For further discussion see Section 4.0 on the Project's Water Balance.

3.5.7 Reagent Handling

Lime will be shipped by the supplier in bags and unloaded at the warehouse. To comply with pH safety regulations, the bags will be transferred to the preparation tanks and the basic solution pump to the leaching process via pipelines, when needed.

Cyanide will be purchased in dry form (sodium cyanide) and delivered in bags inside wooden boxes or in International Organization for Standardization (ISO) containers, or in a liquid form in tanker trucks as required by safety and environmental regulations. The containers will be delivered and stored in a secured warehouse. The cyanide will then be placed in the preparation tanks and the cyanide solution will then be pumped to the gold leaching process via a pipeline. Both the cyanide and lime solutions will be pumped to the SAG mill, ball mill, or leaching tanks, depending on the process selected.

Prodigy will become a signatory to the International Code for Management of Cyanide at Gold Mining Operations (Cyanide Code) prior to the Project becoming operational. The Cyanide Code contains a far reaching and comprehensive set of principles and standards of practice. Cyanide producers and transporters are subject to the applicable portion of the Cyanide Code. These address production, transport, storage, the use of cyanide, and the decommissioning of cyanide facilities. They include requirements related to financial assurance, accident prevention, emergency response, public reporting, and stakeholders involvement and verification procedures.

3.6 Transportation

3.6.1 Project Access and Bypass Roads

The main access to the Project is from Highway 17 (Trans-Canada Highway) via Highway 519 and Goudreau Road (Figure 3-3). Highway 17 is a paved road operated and maintained by the Ontario Ministry of Transportation (MoT). Highway 519 is a paved road also operated and maintained by the Ontario MoT. Goudreau Road is an all-weather gravel road owned by the provincial Crown and maintained and operated by the Ontario MNR on an as-needed basis when funding is available. Goudreau Road is open for public use and is also used to access the neighbouring Island Gold Mine operated by Richmond Mines, Inc., as well as the recreational area of Goudreau, located southwest of the property (Figure 1-1).

For this Project, Goudreau Road will be used primarily to support mine operations by allowing for the transport of crew, supplies, and equipment into the site and the transport of gold Doré bars from the site. Vehicles are likely to be a combination of buses, personal vehicles (cars, pick-up trucks), tractor-trailers, and armoured vehicles.

Heavier loads, particularly during the construction of the Project may be brought in by the Northern Bypass road (also referred to as Road 48) that extends from the east side of Dubreuilville southwards to the Project. This latter road has a bridge capable of supporting heavier loads over the Magpie River in the Dubreuilville area (Figure 3-2).

Upgrades to the Goudreau and possibly the Northern Bypass roads to improve reliability for the anticipated increases in traffic and loading may include gravel re-surfacing, repairs to the cable guide rails, ditching and culvert improvements, and re-alignment to reduce sharp corners and steep grades. With the completion of these upgrades, the ongoing maintenance requirements for the road are not expected to increase significantly beyond the current requirements.

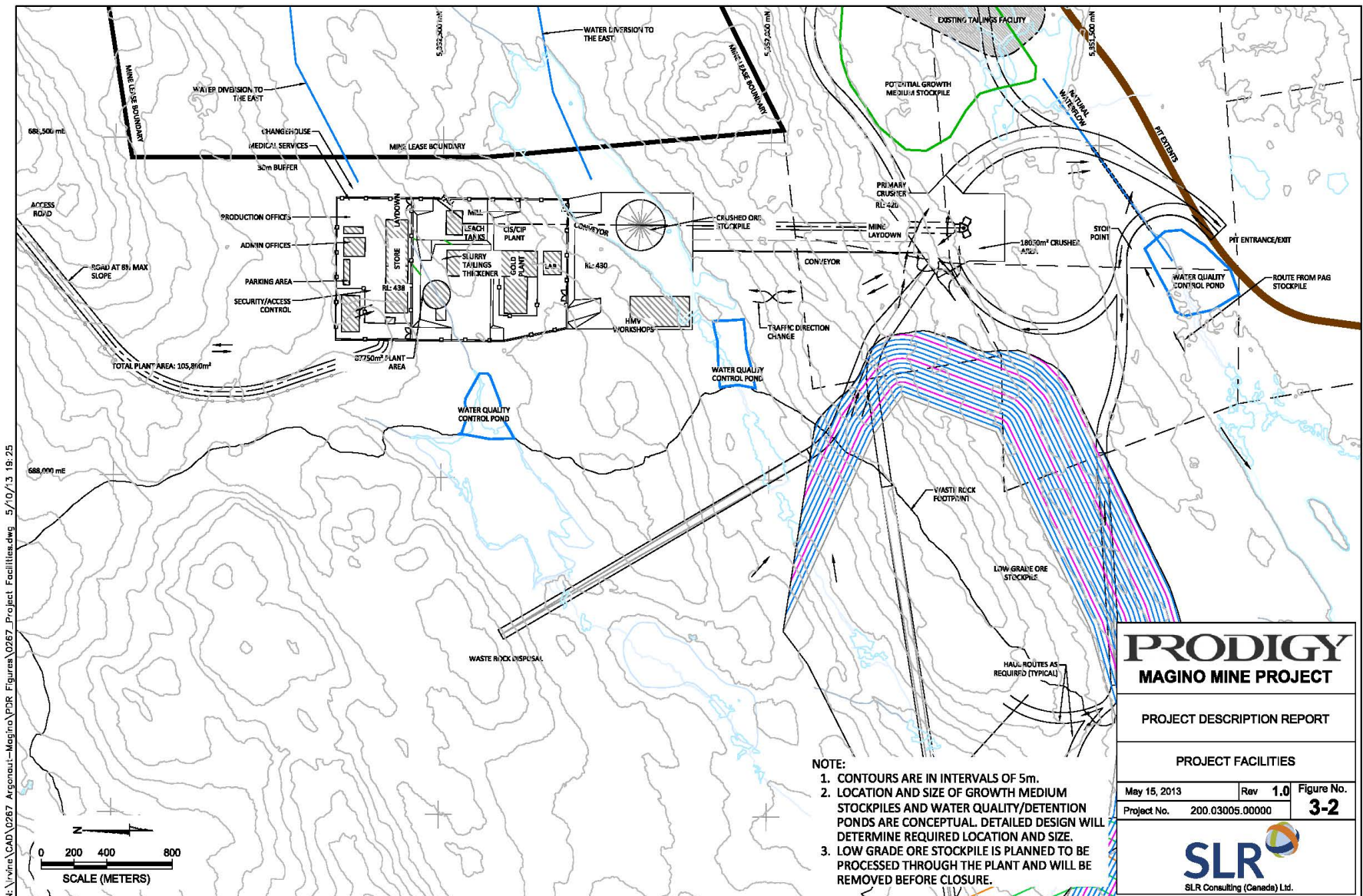
A new seven to eight km-long public by-pass road will be required and constructed to the northwest and west of the mine, to allow for independent vehicle access from Dubreuilville to the settlement of Goudreau. The tentative route is shown on Figure 2-1 and will be refined as the Project planning and design advances. This road will replace the current public road that passes through the proposed pit area (Figure 2-1).

3.6.2 On-site Roads

There are numerous gravel roads in good condition within and near the Project, which were built to service previous mining operations and drilling programs.

New two way service roads internal to the Project area will be constructed to connect the process plant, the office/maintenance/warehouse complex, mine camp facilities, the explosives storage facility and the tailings management facility.

A mine haul road that can accommodate the mine trucks will also be required. The mine haul road will be designed in accordance with the specifications for mine road construction in the Province of Ontario.



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These proposed roads are shown on Figures 2-1 and 2-2 and total between five and 10 km in length (excluding any roads contained in the pit and in the footprint of the waste rock and tailings management facilities).

3.7 Ancillary Infrastructure

Accommodation for the work force will be provided within the local communities, and in an on-site camp (See Figure 2-2 for proposed location). Other ancillary infrastructure includes security fencing and guarded gates, parking areas, mine truck and vehicle maintenance shops, administrative offices, warehouses, laboratories, and vehicle fuelling and maintenance facilities.

3.8 Chemicals, Fuels and Explosives Handling and Storage

Chemicals, fuels, and explosives will be required in the day-to-day operation of the mine. Appropriate emergency procedures for response to chemical, fuel, and explosive incidents will be implemented within the various Environmental Management systems that will be developed for the Project. These will be designed to be compliant with the Canadian Environmental Protection Act (CEPA), Environmental Emergency Regulations, and the Ontario Environmental Protection Act.

3.8.1 Chemicals

Chemicals, including but not limited to, cyanide, lime, HCL, ammonium nitrate, oil, diesel fuel, gasoline, and sodium hydroxide, will be used in the daily operation of the mine. All chemicals will be handled and stored to meet regulatory requirements, standards, and industry best practices.

3.8.2 Fuel

A fuel depot, fuelling stations, and fuel trucks for the mine's mobile equipment fleet will be provided. These will include storage tanks and pumps for diesel and gasoline. High-flow pumps will be used for mobile equipment with large fuel tanks, such as mine haul trucks. Propane will likely be used on site for heating and other purposes and stored in appropriately sized and designed tanks at the facilities where it will be needed.

Storage and dispensing facilities will be designed and constructed to be compliant with the CEPA Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations and the Canadian Council of Ministers of the Environment (CCME) environmental code of practice for fuel storage tanks (CCME, 2003). Equipment that does not normally work in the fuel depot area will be serviced with a fuel truck.

It is not anticipated that natural gas will be used since there are no supply pipelines in the general area. Building heat will likely be provided through the use of propane and electrical heating.

3.8.3 Explosives

Blasting operations will be carried out by licensed contractors. The Project will primarily utilize Ammonium Nitrate Fuel Oil (ANFO) for blasting, but may also use emulsion products if wet conditions are encountered. Explosives will be manufactured, handled, and stored on the property in a manner that facilitates an efficient blasting program and meets the requirements of the Natural Resources Canada (NRCan) Explosives Act and the Explosives Regulatory Division. All applicable NRCan explosives licenses will be obtained and the use of explosives will be conducted in keeping with DFO Guidelines for the Use of Explosives in or near Canadian Fisheries Water (1998). The transport of explosives will be compliant with Transport of Dangerous Goods Regulations.

3.9 Power Requirements

An existing 44 kilovolt (kV) power line owned by Algoma Power, Inc. (API) is currently servicing the property. This circuit originates near Highway 101, south of Hawk Junction, and provides power to the towns of Hawk Junction and Dubreuilville, as well as the settlements of Goudreau, Lochalsh and Missanabie (Figure 2-1).

The maximum power needs of the Project are estimated to be approximately 30 megawatts (MW). The existing single-circuit 44 kV system cannot accommodate this additional load and will need to be upgraded. In addition, the line across the area where the pit will be excavated will have to be relocated. The existing main transformer on the property is in operational condition; however it will be replaced with a main substation for the Project. This new substation will be located close to the grinding circuits where most of the required power will be consumed. On-site power for the various Project ancillary facilities will be distributed via overhead lines.

The power supply to the office/warehouse building and mine equipment maintenance building will go through step-down transformers. The power supply to all the site exterior lighting will be through single-phase, pole-mounted transformers. All major motors will be soft-started to reduce the in-rush current and improve the power factor and harmonic emissions.

Alternatives for delivering the additional power to the Project, as well as alternative routes for the lines to be relocated away from the pit area are currently being evaluated in consultation with API.

3.10 Water Supply

Fresh water will be required during the start-up of the process plant and TMF, thereafter makeup water for the plant and potable water for the facilities will be required on an ongoing basis during operations. The start-up water will be obtained from water that is impounded naturally within the TMF when the initial retaining embankment is constructed, from the existing tailings facility, from local lakes that have adequate capacity, and potentially from groundwater supply wells. Start-up water required is estimated to be on the order of 250,000 to 500,000 m³.

Operational water process makeup requirements (fresh water that is required in addition to the re-cycled water) are preliminarily estimated to be in the 4,000 to 6,000 m³/day range (or 1.5 to

2.0 million m³/year) during the early years of Project operations when there is limited water available from the pit area. As the pit expands more recycled water will become available and the need for makeup water will reduce (see discussion in Section 3.4.1). By year seven of the Project there will potentially be a surplus of approximately 1,500 to 2,500 m³/day (or 0.5 to 0.9 million m³/year) when the pit becomes fully developed and maximizes the capture of surface and groundwater. These estimate water flows take into account the re-use of water collected in the pit, and reflect the amount of natural runoff and groundwater that is potentially required.

A relatively small quantity of potable water amounting to approximately 100 m³/day (or approximately 40,000 m³/per year) will be required for the camp, the mine and the process plant. This supply will be obtained from local lakes and/or groundwater wells in the Project area and filtered and treated before use.

Potential sources of make-up water that have a significant catchment area are the lakes that drain to the northwest of the Project, i.e. Herman Lake, and northeast of the Project; i.e. Goudreau Lake. Other sources will include the runoff water from the process plant, the waste management units and potentially groundwater.

The associated infrastructure will include a subsurface water intake structure in the selected lake or lakes, a pump station and pipelines to convey the water to the intended use locations or the TMF. To the extent groundwater supplies are developed, wells, well pumps, and pipelines would also be needed. If utilized, groundwater supplies are not expected to contribute a significant proportion of the total water supply. Separate process makeup and potable water supply systems will be provided.

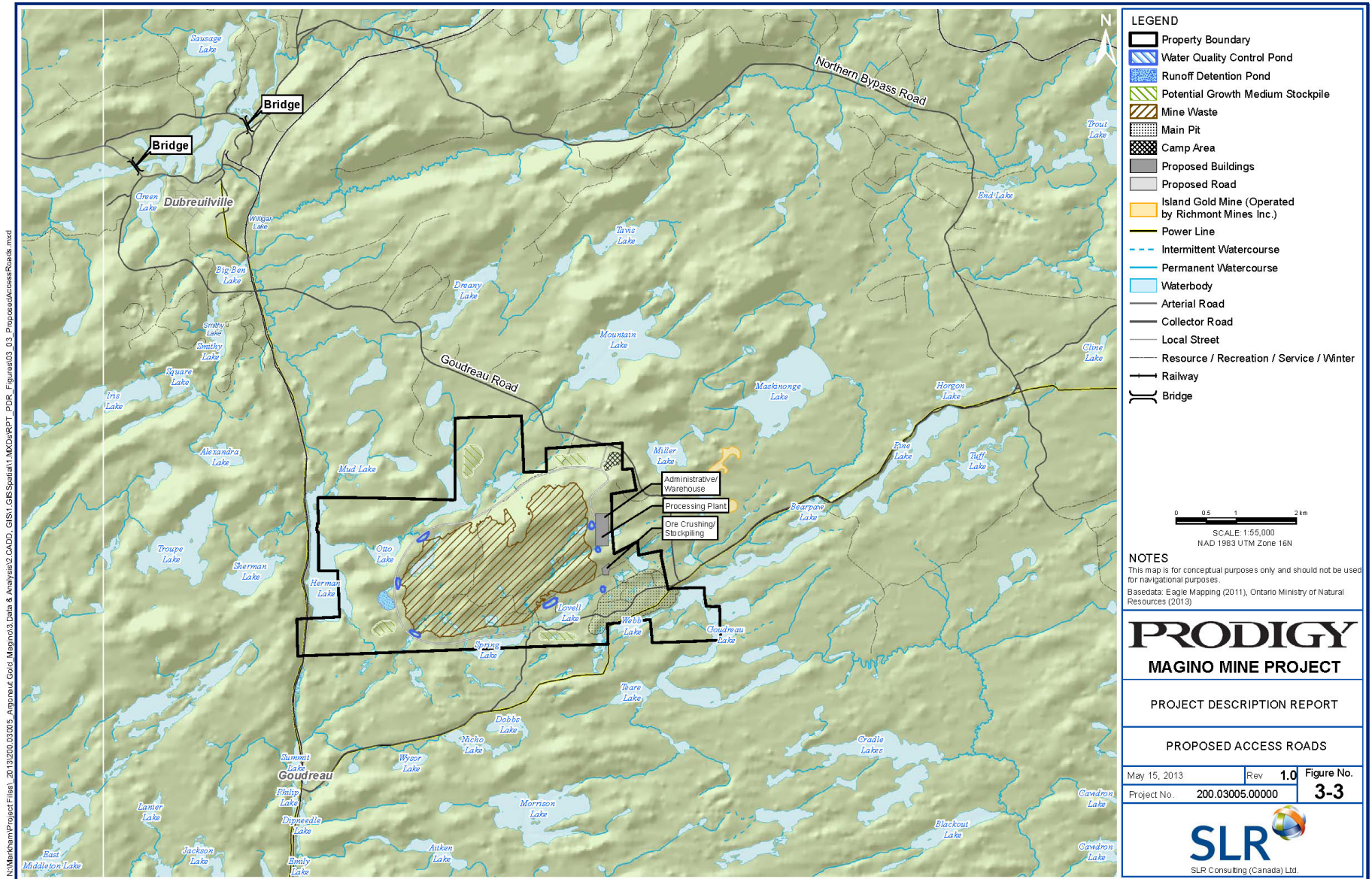
3.11 Site Drainage

Site drainage will generally include subsurface drains under the waste rock and tailings management areas to remove shallow groundwater and prevent contact with the mine wastes. Ditches and berms will be used to control surface flows and various types of water storage ponds will collect and manage waters that may be impacted by mining activities. Examples of such ponds are indicated on Figure 3-3.

3.12 Health, Safety and Environmental Controls

Health, Safety and Environmental controls will include a series of operational plans with which the mine operators will be required to comply. The management structure will include project and corporate health and safety and environmental managers to oversee the implementation of the plans and to provide for the necessary operator training and the associated environmental monitoring plans and systems.

A comprehensive environmental monitoring program will be designed to monitor air quality, surface and groundwater quality, and key terrestrial and aquatic habitats. The collected data will be compared to established standards or Project-specific target values to determine whether any unexpected environmental impacts could occur. The monitoring plans will also include a description of the adaptive management response actions and contingencies to be implemented in the event that trends towards exceedances are observed.



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3.13 Aggregate Requirements

Aggregate sources will be needed for concrete manufacture, tailings dam filter zones, subsurface drains, road beds, foundations, erosion protection measures in surface water diversion ditches and spillways, and other infrastructure uses.

Based on site geotechnical investigations conducted to date, the glaciofluvial sands and gravels in the Lovell Lake open pit area are likely to be suitable. The bedrock is structurally sound and can be blasted, crushed and screened to suitable sizes for various uses. The aggregate used for construction at the Project site will be clean and chemically inert. Any bedrock that is derived from the pit area will be inspected by a qualified geologist and tested for Acid Rock Drainage (ARD) if necessary, to ensure that only Non-acid Generating (NAG) material is used for construction purposes.

To the maximum extent possible, the required aggregate will be obtained from the areas that will be disturbed for the mine development; i.e. predominantly from the pit area and the footprint of the waste rock and tailings management facilities. Before any of these materials are excavated, the topsoil and growth media will be removed and stockpiled for later use during reclamation activities.

Further field exploration and laboratory testing will be conducted to confirm the availability of sufficient materials and their physical and chemical characteristics.

3.14 Closure Plan

Closure of the mine will include the following:

- The open pit will be allowed to fill with ground and surface water over time and will be closed as a flow-through deep lake. For safety, a fence will be constructed around the perimeter of the pit until it has filled. Littoral aquatic habitat will be provided around the outer rim of the pit once the lake levels stabilize, in order to maintain long-term stability and enhance aquatic habitat. The groundwater levels adjacent to the pit rim will also recover to approximately their current levels.
- Excess operational water in the TMF will be removed, treated if necessary, and discharged. During operations, the tailings will be deposited in a manner that promotes consolidation by using drainage systems and a surface slope that is convenient for closure (i.e. drains and an area where surface flow can enter a natural drainage course). During the closure, any surface grading that remains to be done will be completed and the surface of the TMF will be covered with soil and vegetated. The outer embankments will also be graded and vegetated, starting during the operational phase and completed once processing ceases.
- The WRMF will be graded, covered with topsoil and vegetated. As for the TMF embankment above, this reclamation work will commence during mining.

- The crusher will be removed and the area will be graded, covered with topsoil and vegetated.
- The access and haul roads and the ore stockpile areas will be graded and left in a condition that minimizes erosion and supports re-vegetation.
- The process plant will be demolished and moved off site for disposal, recycle of the materials, or for re-use. Vertical concrete and steel structures will be demolished. Any remaining concrete will be cleaned before it is covered. The area in which the plant is located will be covered with topsoil and vegetated.
- The water supply systems will be demolished and the materials (pumps, pipes, etc.) will be recycled.
- Inert demolition materials such as concrete, steel and lumber that are not recycled will be disposed of in the WRMF; other materials will be disposed of in appropriate licensed facilities.
- The camp site and the various buildings will either be demolished and the area reclaimed, or, depending on the preference of local stakeholders, certain buildings and their associated access roads will be retained.

A Closure Plan will be submitted in accordance with Ontario Regulation (O.Reg.) 240/00 as amended by O.Reg. 194/06 Mine Development and Closure under Part VII of the Mining Act and Mine Rehabilitation Code of Ontario.

4. MINE WASTE DISPOSAL FACILITIES

4.1 Waste Rock Management Facility

The waste rock not used for constructing the TMF will be disposed of in the shallow valley in the north-eastern portion of the Project area (Figure 4-1). It will cover an area of approximately 145 ha and range in height up to 100 m (from its lowest point). This area also includes sufficient space for the 30 Mt low grade ore stockpile that will be placed closer to the process plant location. Prior to waste rock disposal, topsoil and growth media will be removed from the footprint area and stockpiled to the north of the facility for progressive reclamation activities (Figure 4-1). This waste rock will be end dumped in lifts and graded to a suitable reclamation slope at a later stage.

Most of the remainder of the waste rock will be used to construct a containment embankment for the tailings. The majority of this rock will be spread in lifts and compacted to provide the structural strength of the containment embankment in accordance with the Canadian Dam Association (CDA) and Mining Association of Canada (MAC) guidelines to minimize the risk to the surrounding environment. The remaining waste rock will be placed in lifts along the outer rim of the TMF and will be graded to flatten the slopes in order to allow concurrent reclamation to start along these outer edges during the operational phase of mining (Figure 4-2). The approximate final shape of the combined TMF and WRMF, at the end of the open pit mining phase (Section 2.1.2), is shown in 3-D on Figure 4-3.

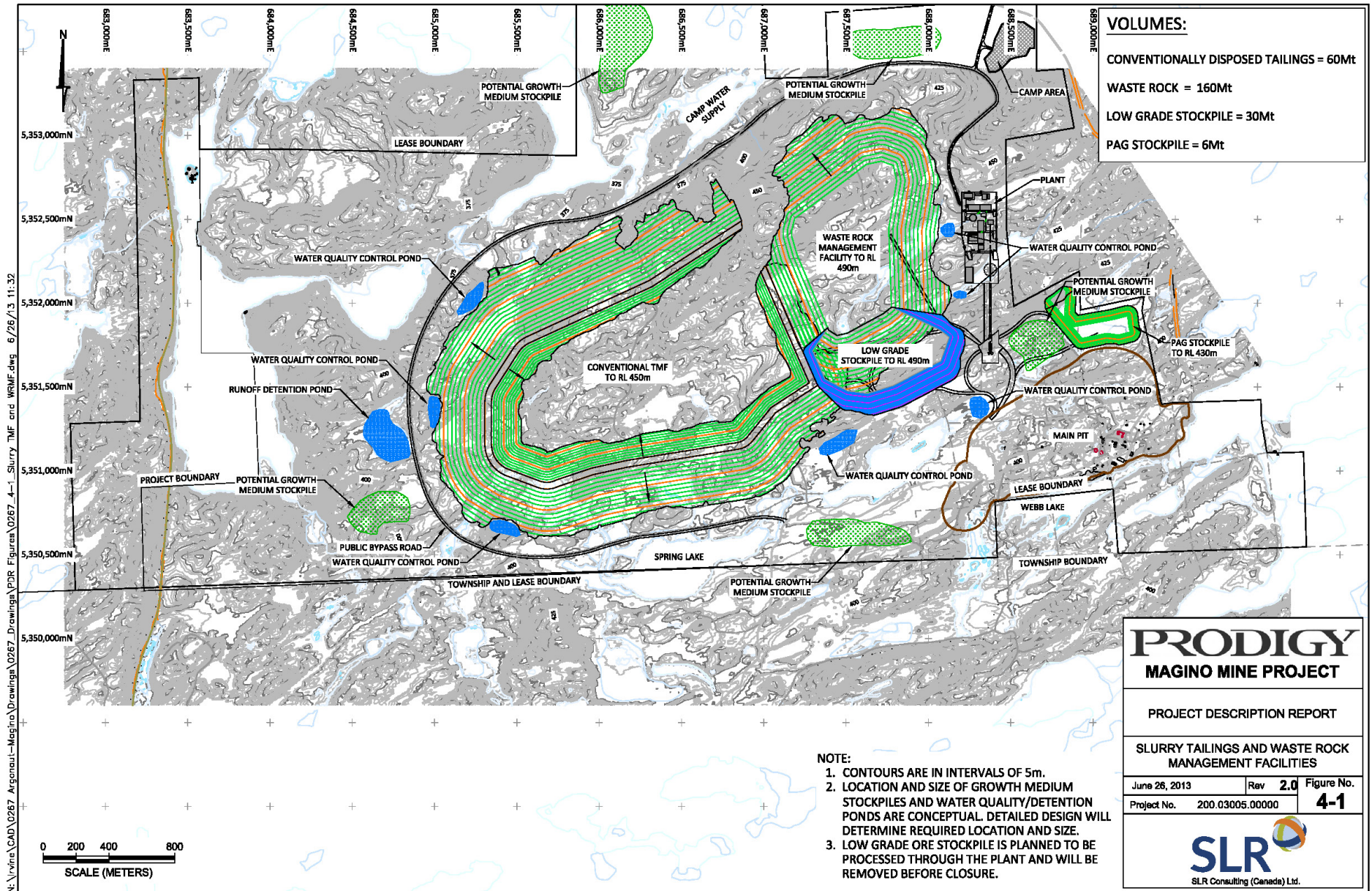
Approximately 97% of the waste rock is anticipated to be NAG based on static Acid-Base Accounting (ABA) testing. The remaining approximately 3% of Potentially Acid Generating (PAG) waste rock will be segregated and stored in a separate area of the WRMF, close to the pit rim (Figure 4-1). This smaller facility will be designed and constructed to control any ARD that may discharge and would likely include run-on diversions, runoff collection, and storage for recycle or treatment and discharge. Potential seepage to groundwater could be controlled by sub-surface drains.

Humidity cell testing of both the waste rock and the low grade ore has been initiated to refine the assessment of their potential to impact water quality.

Surface diversion ditches will be provided, as necessary, around the outside of deposited waste rock to minimize any run-on. Runoff from un-reclaimed waste rock surfaces and disturbed areas will be routed through detention ponds to allow suspended solids to settle out before the water is either discharged under permit, pumped back to the plant or the TMF for re-use, or used for dust control.

4.2 Slurry Tailings Management Facility

The area covered by the proposed conventional slurry TMF is approximately 285 ha, including the TMF. The maximum thickness of the stored tailings will range up to 50 m. Slurried tailings will be conveyed by pipeline from the plant and spigotted around the perimeter of the TMF. The surface of the tailings will form a sloped “beach” allowing for a pond to form at the lowest part.



VOLUMES:
 CONVENTIONALLY DISPOSED TAILINGS = 60Mt
 WASTE ROCK = 160Mt
 LOW GRADE STOCKPILE = 30Mt
 PAG STOCKPILE = 6Mt

**PRODIGY
 MAGINO MINE PROJECT**

PROJECT DESCRIPTION REPORT

SLURRY TAILINGS AND WASTE ROCK
 MANAGEMENT FACILITIES

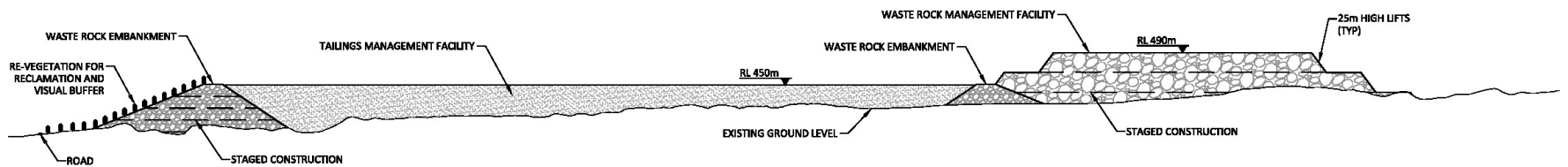
June 26, 2013	Rev 2.0	Figure No.
Project No. 200.03005.00000		4-1



- NOTE:**
1. CONTOURS ARE IN INTERVALS OF 5m.
 2. LOCATION AND SIZE OF GROWTH MEDIUM STOCKPILES AND WATER QUALITY/DETENTION PONDS ARE CONCEPTUAL. DETAILED DESIGN WILL DETERMINE REQUIRED LOCATION AND SIZE.
 3. LOW GRADE ORE STOCKPILE IS PLANNED TO BE PROCESSED THROUGH THE PLANT AND WILL BE REMOVED BEFORE CLOSURE.

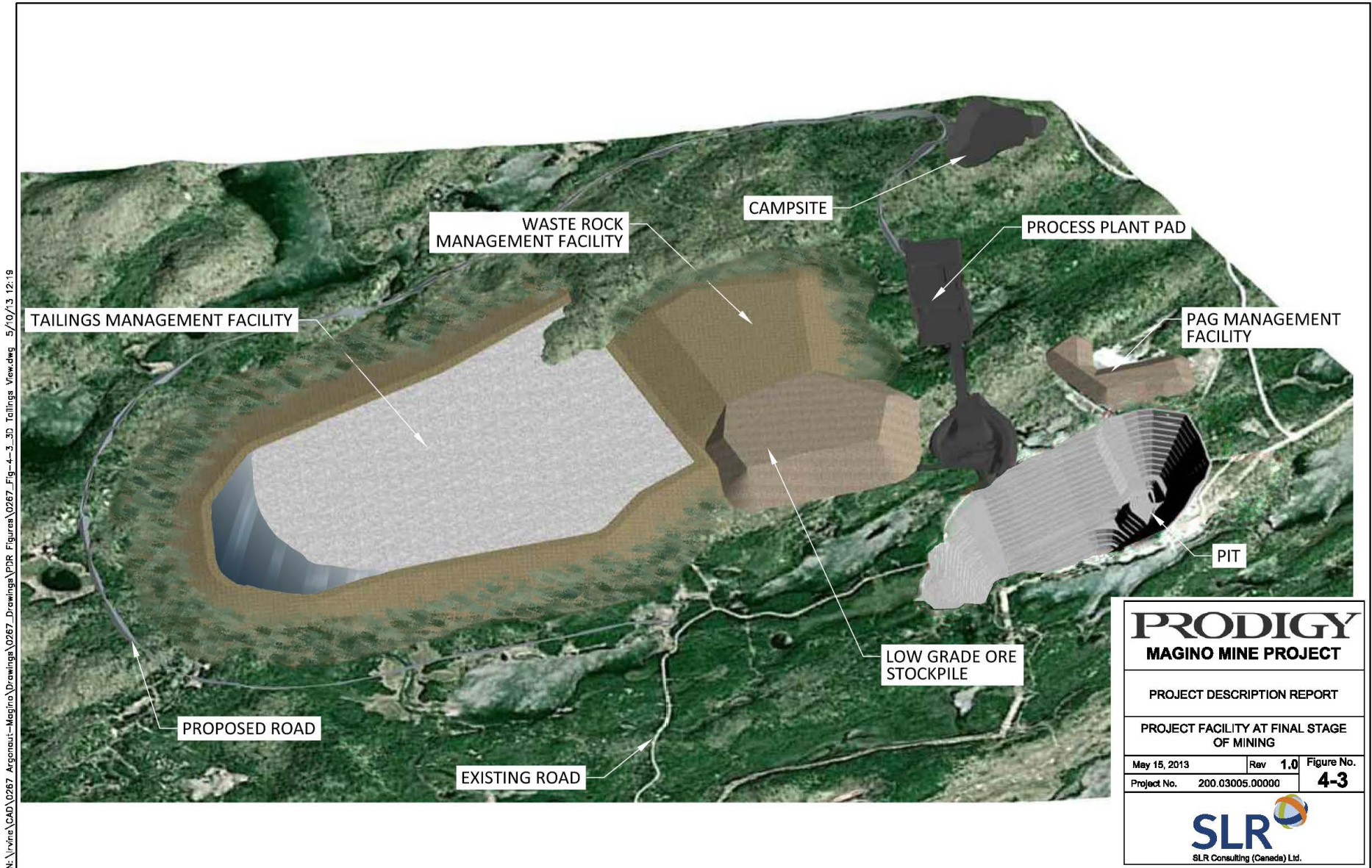
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SECTION A1 TYPICAL SECTION THROUGH TAILINGS AND WASTE ROCK MANAGEMENT FACILITIES

PRODIGY		
MAGINO MINE PROJECT		
PROJECT DESCRIPTION REPORT		
CROSS SECTION THROUGH TAILINGS AND WASTE ROCK MANAGEMENT FACILITIES		
May 15, 2013	Rev 1.0	Figure No.
Project No. 200.03005.00000	4-2	
 <small>SLR Consulting (Canada) Ltd.</small>		



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Water will then be collected from this pond by using barge mounted pumps and recycled back to the plant.

Seepage controls will be provided to prevent seepage of tailings water from the TMF to the extent to which it may result in water quality impacts or exceedances of applicable standards. The upstream faces of the waste rock containment embankment will likely be lined. Seepage cut-off walls along the upstream toe of the embankment that extend down to a sound bedrock toe, will potentially be required. Alternatively, an impermeable liner will be considered. Seepage from the TMF will be collected in one or more water quality control ponds where it will be recycled back to the TMF or the plant, or treated, as necessary, and discharged to the natural drainage systems. (Figure 4-1)

4.3 Low Grade Ore Stockpile

The low grade ore stockpile will be integrated into the waste rock pile and located as close to the plant as practical (Figure 4-1). It will be provided with similar drainage controls as described in waste rock management above.

4.4 Geotechnical Considerations

A geotechnical drilling and test pitting program was completed in 2012. The program consisted of eight boreholes and 18 test pits within the proposed waste rock dump and tailings management facility sites to characterize the geotechnical parameters, stability, and depth of the overburden and bedrock. Additional geotechnical data were collected from the hydrogeology drilling program, also completed in 2012. Samples from representative soil units were collected during the investigations and were subjected to further index testing and characterization.

4.5 Water Management

4.5.1 Water Management Plan

A comprehensive water management plan for the Project will be approved and implemented prior to commencing construction. The purpose of this plan will be to minimize water demands and the need for water treatment to protect the environment, while also providing sufficient make-up water. The plan will cover the various phases of the Project including construction, operations, closure, and post-closure.

The fundamental approach that will be adopted in the plan includes the following elements:

- To the extent practicable, design the mine's facilities to minimize the impacts to the environment that need to be mitigated.
- Divert natural runoff away from, and around, areas disturbed by the mining and processing activities.

- Provide detention storage for runoff from disturbed areas to allow suspended particles to settle out. The water will then be discharged under a permit, recycled to the process plant, or pumped to the TMF for re-use. Compliant water may also be used for dust control and progressive reclamation (Figure 4-1).
- Collect and store waters that contain, or potentially contain, elevated dissolved metals when precipitation comes into contact with mined materials. A typical pond system is shown on Figure 4-1. The water will be recycled to the process plant or pumped to the TMF for re-use.
- Provide for sufficient impacted water storage in the TMF and the water quality control ponds to prevent discharges during extreme wet periods.
- Maximize the recycling of all mine waters, thereby minimizing the need for make-up from surface and/or groundwater.
- Provide treatment of stored waters requiring discharge in order to meet applicable discharge and receiving water standards, as necessary.

Process water may be sourced from surface water, groundwater, or a combination of both. Studies are also underway to determine potential sources of water to meet operational requirements. Water will be managed on site with a series of pipes, ditches, and detention and storage ponds.

4.5.2 Project Water Balance

The Project Water Balance is being developed to establish the size and quantity of water quality control ponds and detention ponds in order to determine the need for and size of a water treatment plant if required, and to assess the project make-up water demands required from a local water source. A visual representation of the Project Water Balance is shown on Figure 4-4. Preliminary results are discussed in Section 3.10.

4.5.2.1 Pit

During mining operations, groundwater seepage and surface water from precipitation and snowmelt will collect in the open pit. This water will be pumped to a water quality control pond or ponds for storage and then recycled to the process plant, or used for dust control if it is of suitable quality. Some of the collected water may need to be treated and discharged.

4.5.2.2 Tailings Management Facility

Precipitation, snowmelt, runoff, and water released from the deposited tailings as they consolidate, will be collected in the TMF and recycled to the process plant. Consolidation water from the deposited tailings will be collected in water quality control ponds and pumped back into the TMF or recycled to the process plant.

Drains will be provided beneath the TMF to convey the natural groundwater in the area to the downstream lakes. The TMF will be provided with seepage controls to prevent any impacts to the quality of the groundwater that migrates to the lakes above applicable standards. These

controls could include engineered vertical seepage barriers, horizontal impermeable liners, or combinations of these.

4.5.2.3 Waste Rock Management Facility

Seepage water and runoff from the WRMF will be routed to the detention pond or ponds. Water from these ponds will be discharged to a natural drainage, providing down gradient water quality objectives are met. If needed, the water will be pumped to a water quality control pond and recycled to the process plant.

4.5.3 Mine Pit Dewatering

Dewatering of the pit will be accomplished using sumps to collect inflowing water and pumps and pipelines to remove the water from the pit to allow mining to continue in relatively dry conditions. The water will be stored and recycled or treated and discharged. During snowmelt and heavy rainfall periods water is expected to pond in the low lying areas of the pit. The pit will be designed and mined to create areas that can tolerate temporary flooding while mining is conducted in higher lying and drier areas.

4.5.4 Site Runoff Controls

Water will be conveyed around the site by a network of sediment controls, ditches, pipes, pumps, and sumps. The final locations of this infrastructure are being determined. The open pit will have diversion ditches located around its perimeter to intercept runoff water and divert it away from the pit, thus minimizing dewatering and treatment requirements.

From the process plant, contact runoff that has been impacted by mining activities will be routed to a water quality control pond or ponds. Water from these ponds will be used for dust control purposes for the Project. Water that needs to be discharged from the ponds will be treated if necessary and then discharged into a natural drainage.

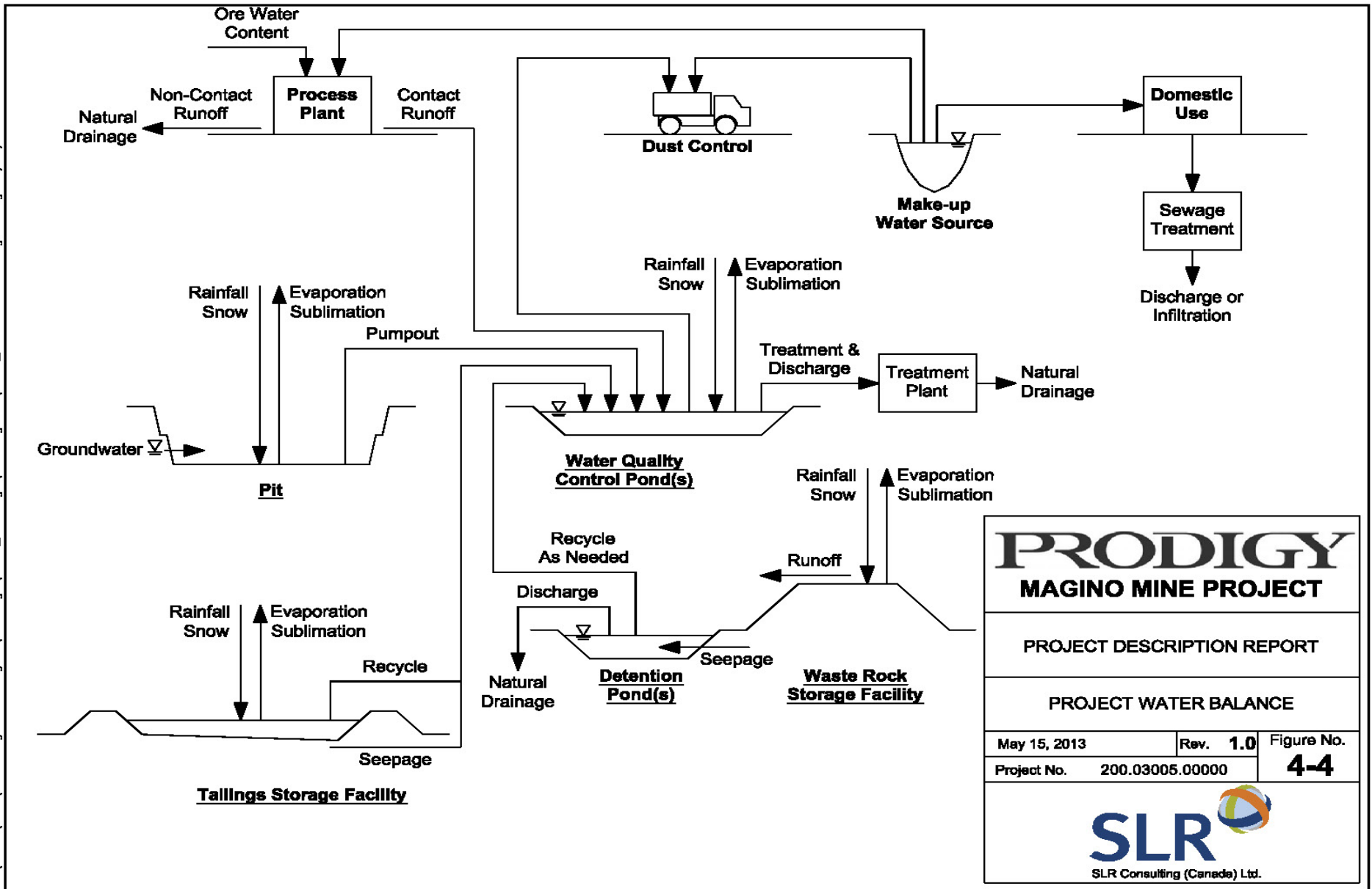
There is potential for mine-impacted water to run off from both the WRMF and other site infrastructure. By placing interception ditches immediately down gradient of these facilities, impacted water can be captured, recycled, or treated prior to release to the environment. This will be accomplished with a series of ditches and flow diversion berms.

Runoff water from natural, undisturbed surfaces will be routed through the site, to the maximum extent practicable, in order to minimize flow reduction in the downstream natural water bodies.

4.5.5 Water Treatment and Discharge

Water impacted by mining activities typically contains elevated levels of suspended solids and dissolved metals and salts, as well as nitrates and possibly ammonia associated with blasting activities. Suspended solids typically require treatment by detention ponds to allow the suspended particles to settle out. Mine-affected waters can be treated by both active and passive methods, depending upon the concentrations of constituents to be treated and the flow rates. Active treatment typically includes physical/chemical neutralization/coagulation/filtration

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PRODIGY MAGINO MINE PROJECT

PROJECT DESCRIPTION REPORT

PROJECT WATER BALANCE

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plants. The standards to be applied to site discharge are yet to be determined, but will, at a minimum, need to meet MMER and the requirements of the provincial Environmental Compliance Approval. Ambient water quality standards (CCME or Provincial Water Quality Objectives [PWQO]) and site-specific water quality objectives, or background concentrations will also have to be met in the receiving streams and lakes.

Other sources of impacted water are sewage from camp housing and offices, workshops, and laboratories. Package sewage treatment plants will be used to treat these waters. For smaller isolated sources of sewage, septic tanks and leach fields may also be used.

Treated water will be discharged to either the TMF for reuse, or to the receiving environment. Alternative locations for discharge point/s will be identified and a preferred location selected during the EA process to minimize impacts to the quantity and quality of receiving waters.

5. PROJECT EMISSIONS, DISCHARGES AND WASTE MANAGEMENT

5.1 Air Emissions

It is expected that air emissions from the Project will include mobile sources, stationary sources, and fugitive emissions.

Fugitive Dust

Fugitive sources of airborne emissions include excavations, blasting, tailings facilities, stockpiles, waste dumps, haul roads, and wind erosion. The emission most expected to be associated with these material movements is Particulate Matter (PM) less than ten microns (PM_{10}). There are health issues with the dispersal of some contaminants, particularly antimony, arsenic, cobalt, copper, lead, molybdenum, nickel, zinc, selenium, and mercury. The Ontario Ministry of the Environment (MoE) has health-based standards for each of these contaminants. Fugitive dust management will be a component of the management plans and monitoring for effectiveness of controls (blast management, application of dust suppressants, watering of roads, and placement of stockpiles) will be evaluated regularly against the dispersion modelling and the predictions to ensure proactive management.

Mobile Sources

Mobile sources of emissions will include heavy equipment, supply vehicles, personnel vehicles, and haul trucks. Mobile sources contribute to the accumulation of PM_{10} , respirable PM less than 2.5 microns ($PM_{2.5}$), carbon monoxide (CO), carbon dioxide (CO_2), oxides of nitrogen (NO_x), sulphur dioxide (SO_2) and volatile organic compounds (VOCs). These emissions will be minimized greatly by the effective implementation of a maintenance program for the mobile equipment serving the mine as the condition of the equipment is a contributing or mitigating factor relating to these emissions.

Stationary Sources

Gaseous emissions are the main type of emissions generated from stationary equipment. These include the combustion of fuels in generators and the drying, roasting and smelting within the processing plant.

Gaseous emissions are mitigated at planning due to the financial considerations associated with refining operations to maximize fuel and save power. Consideration of energy efficiency is inherent in the planning process and selection of equipment. It is expected that optimization of operations to continually improve efficiencies and minimize fuel consumption will be undertaken throughout the life of the mine.

Greenhouse Gases

Emission reduction or abatement technology will be employed where possible. This will be a consideration during refined engineering and procurement.

It is expected that the Project will have emissions that require reporting to the Federal National Greenhouse Gas Inventory and it will also be required to adhere to the provincial Greenhouse Gas Emissions Reporting Regulations.

The proposed 2014 on-road, heavy duty vehicle emissions regulations preclude the purchase for use of any non-compliant support vehicles at mine sites. The support vehicles at the Project site are expected to be Class 2B and Class 3 heavy-duty vehicles and would have emission limit regulations for CO₂, NO_x and methane. These regulations will also require annual fleet model reporting that is aligned under existing CEPA provisions.

5.2 Noise

The major sources of noise include blasting, mobile equipment operations (particularly backing up alarm systems) and to a lesser extent the larger, fixed processing equipment such as those used for crushing and milling. Noise emissions are primarily a concern for the human health of personnel on site, and to a lesser extent, wildlife that may utilize the area. There are no nearby residents and the closest seasonally, potentially occupied cottage is located at Herman Lake, which is approximately 1.5 km to the west of the WRMF and approximately 4.0 km from the mine and process plant.

Open air noises will be more audible than those from operations that will be enclosed or housed within structures. Baseline noise levels will be evaluated and noise sources/emissions modelled for consideration in the engineering and design of the site.

5.3 Site Runoff

The majority of site runoff is not anticipated to pose a concern with regards to water quality. Quality impacts could occur in runoff from disturbed areas and where water comes into contact with tailings. These potential impacts are being considered in the engineering design phase as described above. It is also anticipated that a number of mitigation measures will be incorporated in the EA.

5.4 Mine Water

During open pit mining operations the pit will become a sink resulting in groundwater flowing from the surrounding area towards it. Since the groundwater table is at or near the surface this will happen early in the life of the mine. As the open pit depth increases, the hydraulic gradient between the base of the pit and the surrounding surface water bodies will increase. This will result in an increased flux rate to the open pit and a lowering of the water table surrounding it.

As described above, water that collects in the pit may contain elevated suspended solids and metals, blast residue (ammonia), and nutrients.

5.5 Tailings Management Facility

The conventional slurry tailings facility is being designed to provide sufficient retention and holding capacity to remove the need to discharge water during operations. Water from the tailings facility will be recycled back to the process plant or treated and discharged.

5.6 Sewage

It is estimated that between 80 and 100 m³/day of waste water may be generated at the facility. This waste will be treated in package plants and discharged to a wetland, a water body, or the TMF under an Environmental Compliance Approval from the Ontario MoE.

5.7 Non-Mining Waste Management

5.7.1 Solid Non-hazardous Waste

Wastes in this category include food scraps, cardboard, plastics, metal tins, glass, scrap metal, wood, and paper. It is estimated that approximately 300 to 500 kilograms (kg)/day will be produced.

On-site solid, non-hazardous waste separation will be conducted and the recyclable materials will be divided into two categories: materials that can be re-used on site; and recyclables that can be shipped off site to appropriate recycling facilities. Prodigy is a member of the local Dubreuilville Recycling Committee and is working to identify the potential for coordinated recycling efforts. Currently there is a market for scrap metal and aluminum, which is collected locally in Dubreuilville for recycling.

Prodigy is evaluating local community landfills to establish their suitability to receive the wastes that are not recycled. Other options that will be considered include composting of certain wastes to provide additional organic material for the reclamation activities and possibly constructing an on-site landfill in the event it is not feasible to dispose of waste at local community landfills.

5.7.2 Inert Waste

Bulk inert waste such as bricks, concrete, lumber and drywall generated by construction or demolition activities will either be recycled off site or managed on site by disposal within the WRMF.

5.7.3 Hazardous Waste

Hazardous waste will be collected, temporarily stored on site and then transported to a permitted suitable hazardous waste disposal facility.

6. PROJECT ALTERNATIVES

6.1 Introduction

This section describes the Project alternatives considered during the preparation of the PDR and those that will be considered during preparation of the EA.

6.2 Mining Method

There are no feasible alternative mining methods to the open pit mining proposed as the base case in this PDR.

The Magino ore body is well suited for open pit mining because the gold grades (concentrations) are low, approximately 1.0 grams per tonne (gm/t), and the gold is disseminated over an area that is up to 300 m wide, much too wide for underground mining. Gold also occurs near the surface, which is also not amenable to mining by underground methods. Furthermore, the higher grades of gold that were feasible to mine using underground methods have already been extracted during past mining activities.

6.3 Waste Rock Management

WRMF alternatives are limited to consideration of a slightly different configuration and deposition method.

The area that can be used for both waste rock and tailings management is limited to the valley located between the two roughly east-west oriented ridgelines located north of the proposed pit. The WRMF cannot be moved to the east because it would eliminate the north-south site access along the eastern property boundary, or to the south because of the presence of the pit. Moving the management area to the west or the north would result in greater impacts to the existing lakes and is therefore considered environmentally inferior and has not been pursued (Figure 2-1).

Alternatives that are being considered and which will be further developed in the EA include two different methods of depositing the waste rock:

- End dumping (top down) in high lifts (over 50 m) and then grading and reclaiming; and
- Placement of the rock from the bottom up in thin lifts (5 to 10 m) and reclaiming.

A smaller footprint and higher waste pile will also be considered, although it is likely that the currently proposed footprint provides an appropriate balance between minimizing the physical disturbance and the visual impact, which would be caused by a higher waste pile with a smaller footprint.

6.4 Tailings Management

Generally, there are two basic methods for managing tailings. The first, which is presented in the base case, involves depositing tailings as slurry (i.e. a mixture of process water and ground up

solids) behind a containment embankment. Typically, the embankment can be constructed using waste rock, naturally occurring earthen materials, or the coarser (sandier) fraction of the tailings themselves. The coarser fraction is separated by the use of cyclones. This latter method of embankment construction has been rejected as infeasible due to the shape of the valley, which requires a relatively large volume of embankment material since it is shallow and requires a long dike (Figure 4-2). Management of the slurry tailings behind an embankment constructed predominantly from waste rock has therefore been selected as the base case alternative.

The second method involves filtering the treated tailings and dry-stacking them using either a conveyor or trucks to transport them, a dozer to spread them, and a compactor. This alternative is being further evaluated.

6.5 Process Plant

Process plant and lab work is currently underway to refine the design of the plant. Alternative gold extraction methods such as Carbon in Leach (CIL) and Heap Leaching were considered, but have not been pursued further.

The CIL alternative is similar to the CIP method, but as it returned a gold recovery a few percent less than CIP it was not selected.

The heap leaching alternative involves crushing the ore, stacking it on lined pads and leaching out the gold using buried drip systems that distribute a high pH (10.5) cyanide solution over the heaped material. The resultant “pregnant solution” is then collected and the dissolved gold it contains is extracted using carbon adsorption and an electro-winning process. This alternative has been eliminated since it results in much lower gold recoveries and increased closure costs.

Using ground ore and a process plant, such as the one selected for the PDR, is conventional and is widely used throughout the world in the gold mining industry. Cyanide has been used for more than a century for the recovery of precious metals and is capable of quantitatively recovering the gold in the most efficient, economical and environmentally acceptable manner. Cyanide is the reagent of choice employed by mining operations throughout the world and is responsible for recovery of over 90% of the annual gold production. With the advent of the Cyanide Code in 2003 and its associated institute located in Washington, D.C., a far reaching and comprehensive set of principles and standards of practice have been created and sanctioned by many international organizations.

In preparing the PDR, other process plant locations were considered. These were approximately 300 and 500 m north of the pit rim respectively and to the south west of the base case location. The current layout provided in Figure 4-1 is preferred over these two locations for the following reasons:

- It is out of the way of all waste rock and tailings management facilities;
- It allows for the nearby placement of the low-grade stockpile for improved economics and environmental concerns;
- It removes any concerns about sufficient distance between vibrations generated by blasting that will occur in the pit and the process plant and other support infrastructure; and

- It minimizes future resource development constraints since it is furthest from any potentially mineralized areas that may occur around the pit rim.

6.6 Administrative Complex

Since this is a relatively minor aspect of the Project, alternatives have not been considered. The appropriate type of facilities will be selected and the location of these will be conveniently located between the camp and the process plant as shown (Figure 2-2).

6.7 Camp

Since the local communities within reasonable commute from the Project are small (Dubreuilville and Wawa) compared to the size of the work force that will be needed (300 to 400 persons), provision is being made to install and operate a camp with accommodations, food and recreational facilities on the Project site.

Two camp locations were initially considered and the one located at the north-east corner of the Project site (Figure 4-1) has been selected. The alternative site was located near the western end of the Project site, approximately 300 to 500 m to the east of Herman Lake. The current location is preferred since it:

- Prevents disturbing the area to the east of Herman Lake;
- Allows for shorter travel distance and time for personnel living at the camp; and
- Is closest to the main access road (Goudreau Road).

6.8 Transportation

Alternative road transportation methods were studied including road, rail and air. Several road alignments for accessing the site were considered and the two approaches incorporated in this PDR were selected.

6.8.1 Project Access

The alternative access road approaches considered, but which are not expected to be evaluated further, are:

- The existing road from Hawk Junction, which is located approximately 24 km to the south of the Project (Figure 1-1). This alignment would likely require the construction of several bridges over larger creek and stream crossings and potentially significant improvements to the road.
- Use of the existing southern segment of the road from Hawk Junction with a new northern 15 km segment of road east of the existing Canadian National Railway (CN) rail line. The alignment for this new section of road would have to be determined and would depend on a

number of factors including the terrain, stream crossings, and land ownership. The number and size of any required bridges would also have to be determined.

These alternatives were not pursued any further, since they involve a major permitting and approvals effort, require landowner and easement agreements, and would result in a significant environmental disturbance during the refurbishing and new construction activities.

Upgrades to the two bridges in Dubreuilville to accommodate the heavy loads associated with mine construction are not considered necessary, since loads of up to 65 tonnes (t) can be accommodated on the bridge located on the Northern Bypass Road. The bridge on Goudreau Road is rated for 20 t.

6.8.2 Rail

The Magino property is connected to the rail sidings of Lochalsh (owned by Canadian Pacific Railway (CP), 14 km to the east of the Project) and Dubreuilville (owned by CN, 12 km to the northwest) by means of existing gravel roads.

In order to transport heavy equipment and supplies to the Project, Prodigy is considering the construction of a rail siding approximately 1.5 to 2.0 km south of Dubreuilville in the south-west quadrant of the CN rail and Goudreau Road crossing.

A 6 km rail spur linking the main line at Goudreau to the Project was also considered. However, it was not considered viable because its use would not be sufficient to justify the cost and the additional land disturbance.

6.8.1 Air

Air transport was also considered, including the construction of an airstrip on the Project site. It was not considered viable because its use would not be sufficient to justify the cost, the additional land disturbance, and the additional operational management requirements.

6.9 Closure Plan

After consideration, the following alternatives to the closure plan were not considered viable for the Project:

- Pit backfilling with the waste rock. This alternative is not being considered further as it involves re-handling approximately 160 Mt of material with its associated impacts. These include land disturbance and Greenhouse Gas (GHG) emissions from the use of equipment and result in making the Project economically infeasible. In addition, it would have a limited benefit in that approximately 125 to 150 ha could be restored to similar but not necessarily identical conditions to those that existed prior to mining and since the waste rock would not completely fill the pit, it would still be closed as a flow-through lake. Even without pit backfilling, the WRMF would be reclaimed with suitable vegetation, but would have a different topography from pre-mining conditions.

- Pit backfilling with waste rock and tailings. This approach has similar disadvantages to backfilling with only waste rock. Approximately between 325 and 350 ha could be restored to similar, but not identical, pre-mining conditions. It will not be possible to backfill the pit in a manner that eliminates, or significantly reduces the size of the lake that forms on closure.

The closure plan alternatives that are being evaluated further include:

- Placement of the PAG material in the pit following completion of mining. It may be possible to complete this backfilling during the latter stages of mining without incurring any or a significant number of haul truck trips. Covering the PAG material with a permanent standing body of water is a recognized method for eliminating acid generation in PAG material.
- A “wet cap” closure of the TMF. This would involve creating a vegetated shallow lake or wetlands on the surface of the TMF. Drainage for this area would be seasonal and occur along erosion resistant channels that convey excess water from the upper surfaces of the TMF down to the surrounding natural drainages.

7. MINE LIFE CYCLE

The Project development schedule has been classified into five distinct phases:

- Environmental assessment and permitting;
- Site preparation;
- Construction;
- Mining and processing; and
- Closure and reclamation.

Timelines for these activities will be subject to the receipt of the applicable approvals and permits. The initial EA and permitting activities are described in Section 2.0 and schedules are provided in Figures 2-3 and 2-4. A general Project schedule is detailed in Figure 7-1 and is discussed in more detail below.

7.1 Site Preparation

7.1.1 Activities

Some aspects of site preparation may be undertaken during the environmental assessment review, however, a thorough review will be undertaken to determine which activities may occur prior to any action being undertaken.

The completion of closure of the existing mine facilities will be addressed during this phase. Closure will include the removal of the landfill waste, the sewage treatment plant, some of the buildings and power lines, the industrial waste, the communications tower, and either capping or re-processing the existing tailings, and clean closure of the facility.

Although the Project is a brownfield site, significant regrowth has occurred since mining ceased in 1993. Some recent clearing has been undertaken to support drill programs that have been conducted since 2000. Organic material and topsoil that was removed for continuing exploration programs will be set aside for future reclamation programs.

During the site preparation phase, a number of items with potentially lengthy lead times will be procured, detailed engineering plans will be finalized, and sourcing of personnel will begin.

7.1.2 Manpower Requirements

Manpower requirements are expected to vary over the months, but would likely range from 10 to 40 personnel with their associated vehicles.

7.2 Construction

7.2.1 Activities

The construction phase, which is anticipated to take from one to two and a half years, will start as soon as all the necessary permits and approvals have been acquired and key personnel have been hired and are in place.

Granular construction materials (sands, gravels and cobbles), which have been previously identified, will be excavated and stockpiled. Any bedrock blasted for materials, such as crushed rock, will be crushed and screened to the appropriate size.

Surface drainage ditches, berms, detention and water quality control ponds and subsurface drainage systems will be constructed as required by the Project's water management plan. Environmental monitoring systems will be installed in accordance with an approved plan.

An electrical substation will be constructed adjacent to the proposed process plant site. Power lines will be installed to connect the main power source with the mine maintenance infrastructure, the administration buildings and the camp. A sewage waste treatment plant or plants will be built.

The necessary buildings to house the mining and processing equipment and the administrative, camp and other ancillary structures will be constructed. The plant equipment including the crusher, the mills, and the processing facilities will be installed.

7.2.2 Manpower Requirements

During the construction phase, the workforce is estimated to be between 400 and 500. The company will fill as many of these positions locally as possible, drawing from nearby communities and First Nations.

Hiring full-time operating personnel will be initiated during this phase and training will be provided to prepare them for the operations phase.

7.3 Operations

7.3.1 Activities

Full operations will commence immediately following the construction phase. This will include active mining from the open pit, ore stockpiling, and processing of the ore.

The pit will be mined based on an optimization of its expansion, utilizing a series of pushbacks or mining phases. Mining will be carried out using conventional drilling and blasting techniques. Prodigy will develop the blasting plan, which will be performed by a licensed contractor. It is

expected that the contractor will supply and transport the blasting materials to site, as well as undertake the physical blasting of hole shots.

Blasted ore and waste rock will be hauled from the pit to either:

- The primary crusher, where it will be crushed to a maximum size of 15 cm; or
- The low grade ore stockpile; or
- The WRMF.

Geologic observations, including ore or waste rock sampling and laboratory testing, will be used to identify and separate out the PAG rock. The PAG rock will either be transported to the PAG waste rock storage area or the low grade ore stockpile.

Road maintenance will be carried out with ancillary equipment. This will include bulldozers, small front-end loaders, motor graders, and water trucks for dust suppression. Road maintenance will be routinely conducted on all mine site roads and may also include maintenance on Goudreau Road.

Concurrent reclamation will be ongoing throughout the life of the mine and will start as soon as feasible. All concurrent reclamation activities will be performed in a manner that is in line with defined closure plan activities and objectives.

Hazardous waste will be collected and stored in keeping with a developed and approved waste management plan. At required intervals, all hazardous material will be transported off site to an approved facility for further treatment, storage, or disposal. Inert material will be disposed of in the Project area in a designated location. Municipal-type wastes and recyclable materials will also be transported off site to an approved facility. All activities during the mine operation phase will be carried out in adherence to applicable permits, appropriate environmental regulations, industry standards, and as defined by the environmental management plan.

7.3.2 Manpower Requirements

It is estimated that approximately 300 to 400 positions will be required during the operations phase. Many of these positions will operate on a rotational basis with cross shifts.

The proposed organizational structure for the Project will address the following five main areas:

Health Safety and the Environment

- Occupational Health
- Safety
- Environment
- Community Relations

Technical Services

- Contracts
- Information Technology
- Surface Rights and Mining Claims
- Cost Control and Key Performance Indicators (KPIs)

Operations

- Mine
- Process Plant
- Maintenance
- Metallurgy

Financial Controller

- Accounting
- Commercial Treasury
- Warehouse
- Logistic and Procurement
- Cost Control

Human Resources

- Services
- Personnel
- Employee Training
- Performance Evaluation

7.4 Closure

7.4.1 Activities

Closure will be conducted in accordance with the approved closure plan. Progressive reclamation will be ongoing, where practical, throughout the life of the mine.

All mobile mine equipment will be dismantled and removed from site for sale or disposal. Buildings and supporting infrastructure will be removed, as necessary. Cleared areas will be reclaimed using stockpiled organic and topsoil material as a growth medium, followed by re-vegetation through a combination of native seed application and the planting of native shrub and tree species.

On-site roads that are no longer required for site maintenance and reclamation activities will be deactivated and reclaimed. Surfaces will be ripped to reduce compaction and prepared for re-vegetation.

The open pit will be allowed to fill naturally with water at the end of the operations phase. Littoral zones will be created by a combination of infill and reduction of angles of the upper benches. Shoals may be constructed on some of the benches to mimic natural systems. Vegetation may be planted within the littoral zones and along the shoreline of the pit lake. For safety, a fence will be constructed around the perimeter of the pit until it has filled.

7.4.2 Manpower Requirements

During this period, a smaller team will oversee the closure activities and then gradually demobilize. It is expected that between 5 and 10 on-site staff will initially be required. They will be supported by up to 40 to 50 contractors carrying out demolition work, site earthworks and surface reclamation.

7.5 Post-Closure

7.5.1 Activities

During the post-closure phase, groundwater and surface water monitoring will continue until it can be demonstrated that the closure activities have met targets and closure will be sustainable. Since pit closure may take several decades or more, the time for monitoring pit levels and quality may be extended. Active maintenance, such as the repair of erosion damage, replacement of vegetation, if necessary, etc. will continue for several years until site conditions become more stable.

It is anticipated that the maintenance of the new road constructed around the TMF and WRMF will be assumed by others.

7.5.2 Manpower Requirements

During this period it is expected that the on-site staff will be limited to a site superintendent and several part-time, small construction crews. The collection and reporting of monitoring data will likely be outsourced to local consultants.

8. ENVIRONMENTAL DESCRIPTION

8.1 Existing Physical Environment

8.1.1 Geology

The Project is located in the geological Wawa sub-province of the Canadian Shield. The topography of the area is characterized by low ridges and hills (up to 50 m of relief), flanked by generally flat areas of glacial outwash, swamps, and numerous lakes and bogs. The area is free of permafrost.

Felsic to intermediate pyroclastic metavolcanic rocks grading into mafic metavolcanic rocks occur locally (Figure 8-1). The relationship between the two metavolcanic units represents the upper part of volcanic cycle II (felsic to intermediate metavolcanics) and the lower portion of volcanic cycle III (mafic metavolcanics) as a portion of the greater Michipicoten Greenstone Belt volcanic stratigraphy. These two main metavolcanics are typically separated by variable units of sulphide, oxide, and carbonate iron-carbonate formations. Quartz diorite sills and dikes intrude the metavolcanic and meta-sediment units (banded iron, carbonate, and semi-massive to massive sulphide).

A Granodiorite sill intrudes the cycle III mafic metavolcanics within the Project area; it is east-north-east-striking and has a steep northerly dip. Its surface expression is at least 1,800 m long and up to 300 m wide. The southern contact of the stock is linear and regular, consisting mostly of dark green mafic rocks. The northern contact is irregular and there is some inter-fingering of granodiorite. It is locally foliated and hydrothermally altered and has been affected by green schist metamorphism. The granodiorite contains 5 to 10% veins of carbonate, quartz, tourmaline and pyrite in various orientations. Approximately 3% of the igneous rock contains healed faults and fractures, generally filled with chlorite and carbonate.

8.1.2 Geochemistry of Ore and Waste Rock

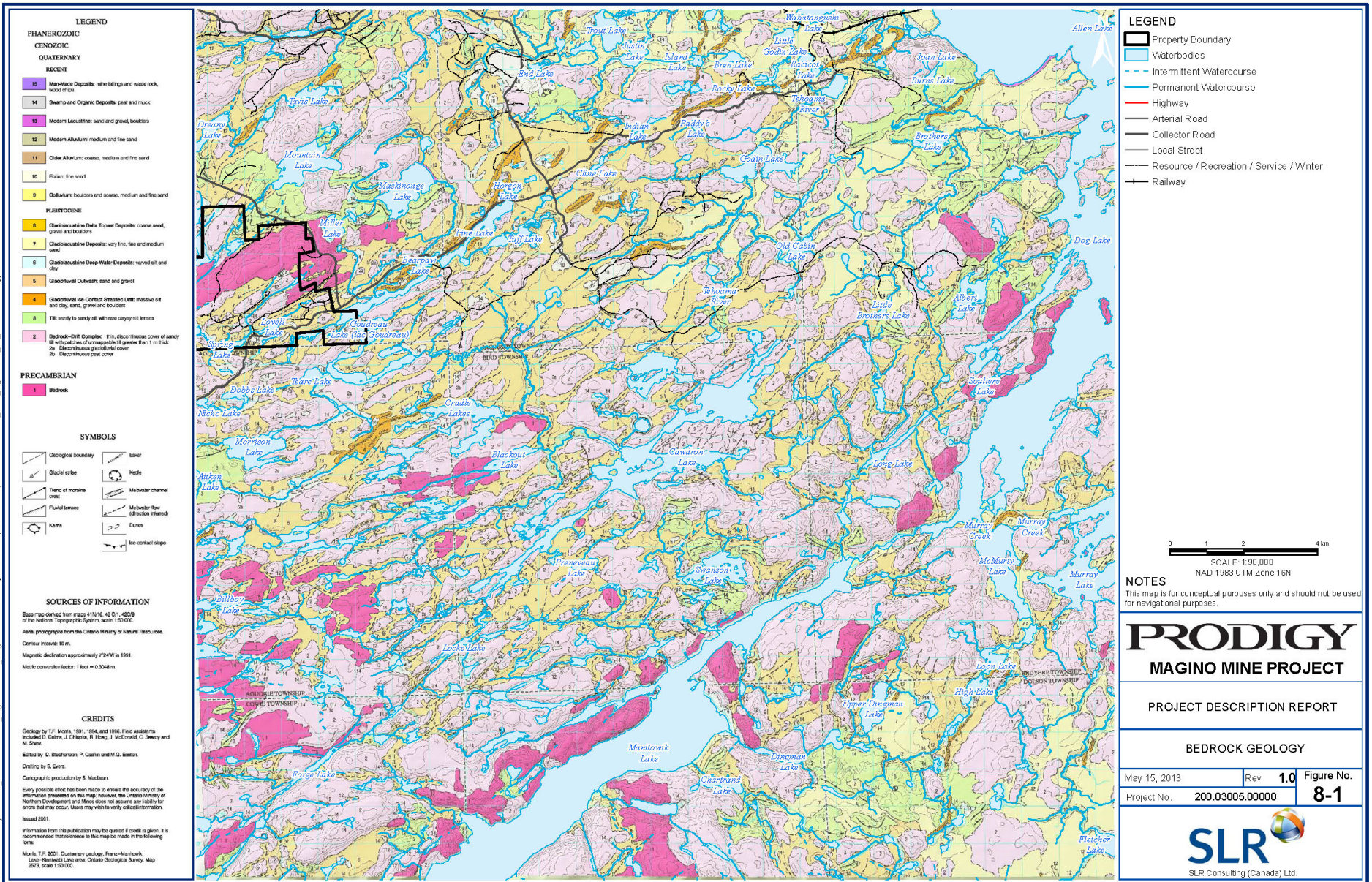
The preliminary geochemical characterization of waste rock from the proposed open pit indicates that the waste rock materials are dominantly NAG with generally low metal concentrations that are not susceptible to metal leaching under neutral conditions.

Samples from a total of eight lithological units in the pit area have undergone ABA testing, whole rock metals analysis, and shake flask extraction metal leaching tests. Materials have been classified into eight units in accordance with Mine Environmental Neutral Drainage (MEND [2009]).

Seven of the eight units tested are classified as NAG. This includes all of the ore samples.

The one unit for which PAG material has been identified is the mixed meta-sediment unit iron formation, associated with zones of massive sulphide. This unit represents ore and approximately 3% of the total mass of waste rock that will be mined.

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It occurs in localized small areas where the iron formation occurs in the pit as shown in Figure 8-2. The dominant form of neutralization capacity in the samples is from carbonate minerals.

Leachable concentrations of aluminum, arsenic, cadmium, copper, selenium, and silver were noted in select samples as exceeding the CCME guideline values for the protection of freshwater aquatic life (FAL). Concentrations rarely exceed the guideline values by an order of magnitude or greater.

Based on the results of the ABA characterization, samples have been selected for the kinetic test program using laboratory humidity cells and field scale testing. These kinetic tests allow for the effect of weathering to be taken into account when characterizing the quality of leachate that may emanate from the material. Humidity cell tests will be conducted to investigate mineral reaction rates and the relative rates of acid generation and neutralization. This will provide information as to whether the sample will actually generate acidic conditions and the onset time to these conditions. Additional mineralogy testing may be completed to correlate the mineralogy of the samples with the metal leaching and mineral reaction rates observed in the humidity cells.

8.1.3 Surficial Geology

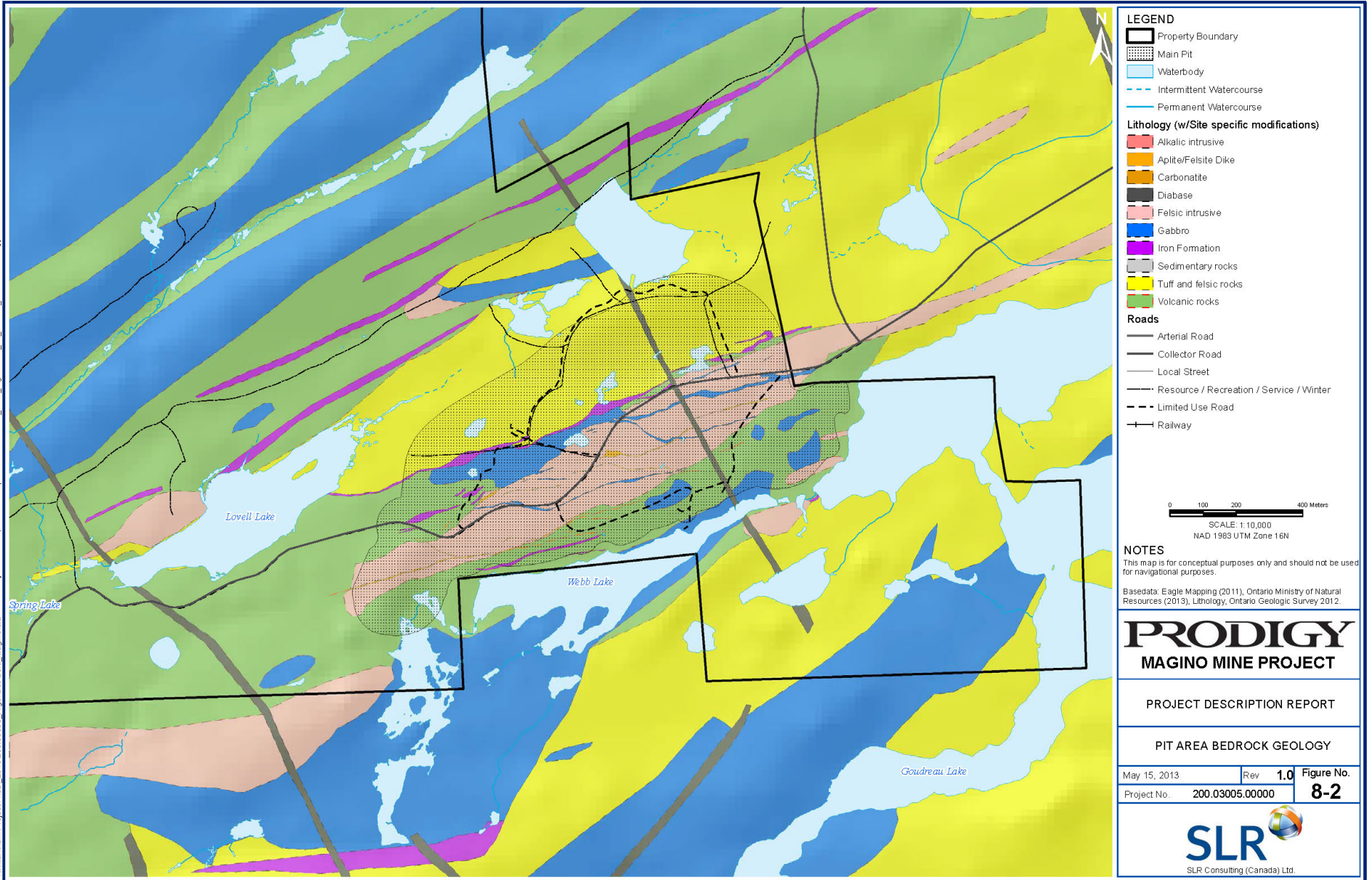
The glacial deposits in the region date to the Late Wisconsinan glaciation and were formed by the Laurentide Ice Sheet. These deposits include till, and glaciofluvial and glaciolacustrine sediments, while fluvial and organic deposits developed in the Holocene Epoch (the last 9,000 years).

Matrix supported till is the most common and most extensive surficial deposit within the Project area. It consists of very poorly sorted bouldery diamicton with a silty, fine to very coarse sand matrix. Granitic and metavolcanic clasts (stones) contained within the till make up 30% of the deposit, on average. Typically, it is moderately well to well drained, however, till units found in low-lying areas may be imperfectly to poorly drained.

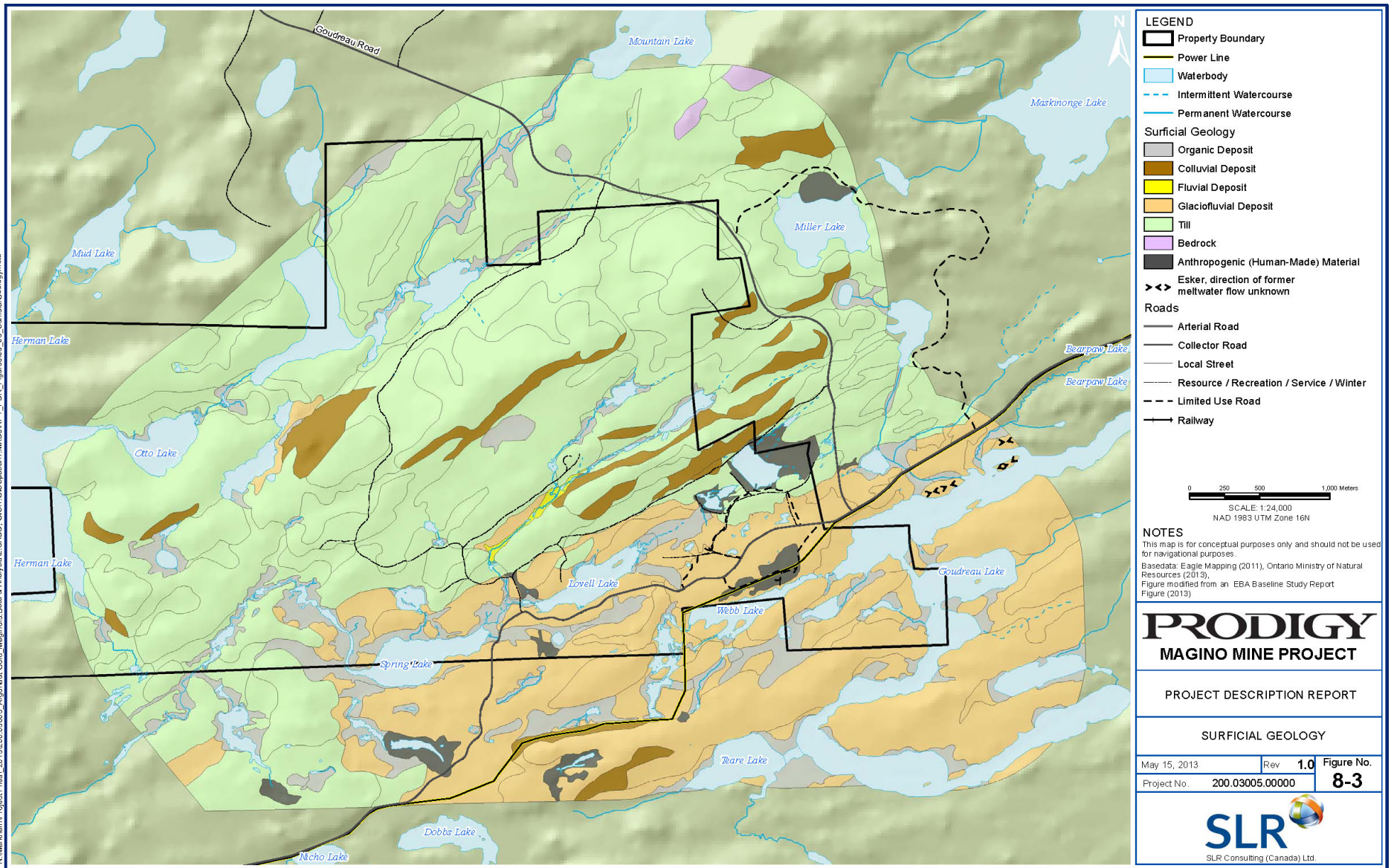
There appears to be a large area of bedrock exposure between Miller Lake and the area just east of Herman and Otto lakes (Figure 8-3). On the surficial geology mapping, this area is characterized by thin discontinuous till found between Maskinonge Lake and Dreany Lake and in areas to the north of these lakes. Thicker till is present in the Maskinonge, Miller, and Mountain lakes area north of the Project site. Several recessional moraines consisting of till and glaciofluvial ice-contact material are found in this area. The regional pattern of sand and gravel outwash with localized organic deposits that fill low-lying areas is locally apparent in the Spring, Lovell, Webb, and Goudreau lake areas.

Much of the southern portion of the site and study area is covered by glaciofluvial sediments. These deposits consist of sand and gravel in varying proportions and form undulating to hummocky terrain, terraces, flat-lying planar units, esker ridges, and blankets or veneers. They are generally moderately to well drained, except for deposits found in low-lying areas, which may be poorly drained.

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- LEGEND**
- Property Boundary
 - Power Line
 - Waterbody
 - Intermittent Watercourse
 - Permanent Watercourse
- Surfacial Geology**
- Organic Deposit
 - Colluvial Deposit
 - Fluvial Deposit
 - Glaciofluvial Deposit
 - Till
 - Bedrock
 - Anthropogenic (Human-Made) Material
- Esker, direction of former meltwater flow unknown
- Roads**
- Arterial Road
 - Collector Road
 - Local Street
 - Resource / Recreation / Service / Winter
 - Limited Use Road
 - Railway

0 250 500 1,000 Meters
 SCALE: 1:24,000
 NAD 1983 UTM Zone 16N

NOTES
 This map is for conceptual purposes only and should not be used for navigational purposes.
 Basedata: Eagle Mapping (2011), Ontario Ministry of Natural Resources (2013),
 Figure modified from an EBA Baseline Study Report Figure (2013)

PRODIGY
MAGINO MINE PROJECT

PROJECT DESCRIPTION REPORT

SURFICIAL GEOLOGY

May 15, 2013	Rev 1.0	Figure No.
Project No. 200.03005.00000		8-3



Colluvial deposits are uncommon within the study area. The few colluvial sites that are encountered in the field include rock falls, sand and collapsed tills. Only one fluvial site north of Lovell Lake has been identified. This deposit consists of clayey, sandy silt that is rich in organic material and overlies very fine sand and till. Fluvial deposits form poorly drained, planar floodplains surrounding small creeks.

Organic deposits are found in association with bogs and fens and can vary widely in terms of the vegetation conditions they may support. Peat probe tests show that wetland peat is commonly 1.0 to 1.6 m thick, but it can be as much as 2.3 m and as little as 250 mm thick. Thicker wetlands thin to veneers at the edges. Organic deposits commonly form planar units and are poorly drained.

8.1.4 Soils

Much of the area is characterized by acidic, coarse-textured mineral podzols with varying humic content near the surface. Rock outcrops and rapidly drained thin soils are common on uplands, with thicker well drained soils in lower lying areas. Organic soils and gleysols are commonly found in depression areas.

Field inspections have been conducted for terrain mapping with soil interpretation at 74 sites. The soil profiles were excavated using a hand shovel and hand auger to a depth of 1.0 m or until the C horizon was located. The field-described soils were compared with known soil units for the area. A total of seven soil units from two catenas were identified and classified.

8.1.5 Climate and Air Quality

8.1.5.1 Climate

The Wawa area climate is humid continental. Temperature extremes are moderated and precipitation patterns are altered by its proximity to Lake Superior. The average annual temperature is 1.7°C with average annual minimum and maximum temperatures of -14.8°C and 14.9°C recorded in January and August, respectively. Extreme temperatures of -50°C and 33.2°C were recorded at Environment Canada's Wawa A station (ID 6059D09¹).

Average total annual precipitation is estimated at 815 mm of which approximately 70% falls as rain and 30% as snow (converted to snow water equivalents)². On average, rainfall occurs on 105 days each year and snowfall on 80 days. Nearly half of the annual snowfall occurs in December and January while maximum rainfall occurs from June to October. Snow is present on the ground from November to April.

A meteorological station was installed at the Project site in October 2011, near the core shack northeast of the town of Dubreuilville. The station consists of a standard 10 m tower with instrumentation to measure wind speed and direction, air temperature, relative humidity, incident

¹ http://climate.weatheroffice.gc.ca/climate_normals/results_e.html?stnID=4099&lang=e&dCode=0&province=ONT&provBut=Search&month1=0&month2=12.

² Based on data from the following stations: White River, Franz, Chapleau and Wawa Airport.

solar radiation, barometric pressure, and water-equivalent precipitation in 15-minute intervals. These site-specific data will continue to be correlated with longer-term records from the Wawa climate station to refine the climatic parameters for the Project.

Figure 8-4 illustrates the maximum, mean and minimum air temperatures at the site from October 2011 to October 2012. Temperatures vary by season, with the minimum temperatures reaching almost -40°C in winter, while the maximum temperatures reached just over 30°C in summer.

The monthly mean precipitation for the Project site is shown in Figure 8-5. Figure 8-6 illustrates the wind speed and direction frequency and the maximum and mean daily wind speeds, respectively. Winds typically range to three meters per second (m/s), and occur in a southwest to south-southwest direction or a north to north-northwest direction. Wind gusts of up to 17 m/s were documented in December 2011. Wind speed at the site was consistently lower than that recorded in Wawa, reflecting the moderation of winds in the 50 km of forest and hills that lie between the site and Lake Superior.

Winds are calm (less than one m/s) 42% of the time. Prevailing winds from the southwest and south-southwest directions occur about 20% of the time. The next most predominant wind direction from the north-northwest and north directions occurs about 14% of the time.

8.1.5.2 Air Quality

Dispersion modelling using the AERMOD model is being conducted in accordance with the Air Dispersion Modelling Guideline for Ontario and Ontario Regulation 419/05. A baseline air quality data collection program is underway to collect data to feed accurate model predictions. It is understood that the Project will require an Environmental Compliance Approval for emissions.

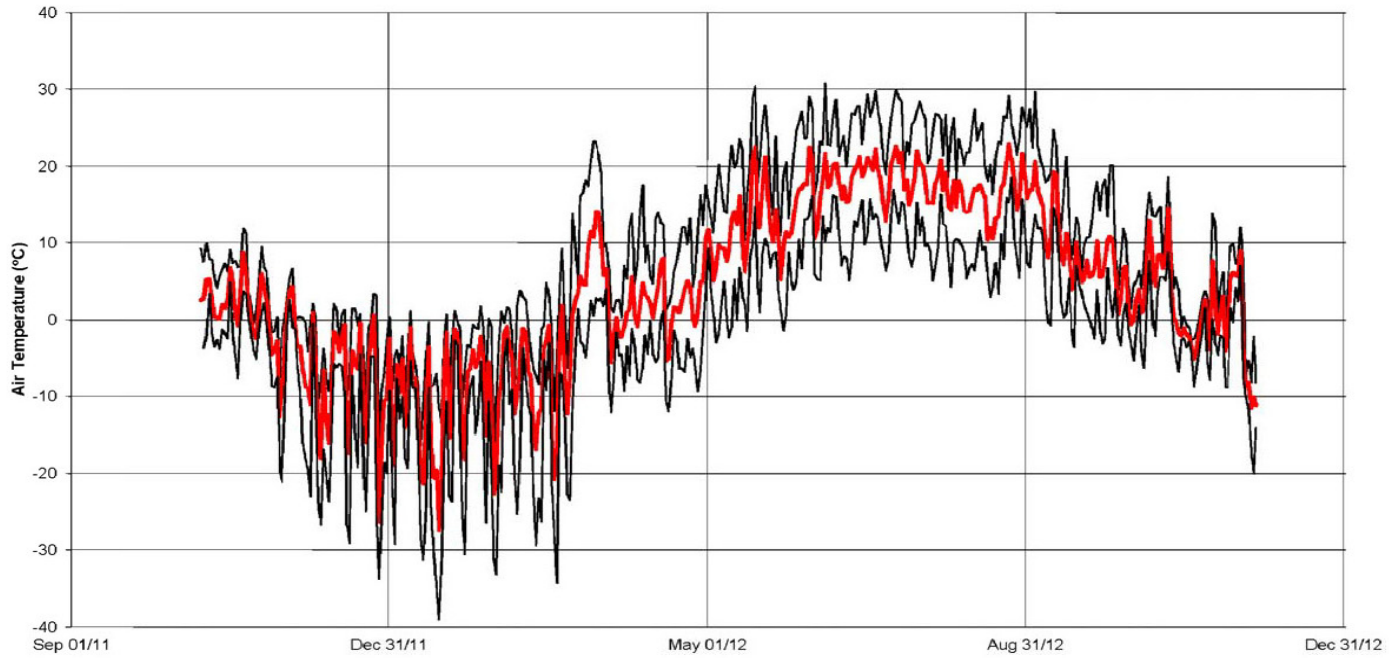
8.1.6 Surface Water Hydrology

The humid continental climate of the study area produces a mean annual potential runoff depth of approximately 350 mm (based on flow measurements conducted by Environment Canada on the Magpie and Michipicoten Rivers)³. Surface flows to the north of the Project from the Dreany Lake area and from McVeigh Creek, which drains the central portion of the Project, flow to the west and then southwards. These flows drain through Herman Lake to Lake Superior by way of the Magpie River. The Webb and Goudreau lake systems, located along the southern boundary of the Project, drain to the east and the south via the Michipicoten River to Lake Superior. Surface drainage from other areas within the Regional Study Area (RSA) also eventually flow to the south and into Lake Superior as shown on Figures 8-7 and 8-8.


The larger watercourses flow year round and are prone to beaver activity. Infiltration of precipitation to groundwater is limited to the thin alluvial and organic deposits, which then move laterally over the relatively impermeable bedrock. In this manner, both runoff and infiltration reports to local surface water bodies as interflow.

³ Magpie River at Steep Hill and Michipicoten River at High Falls.

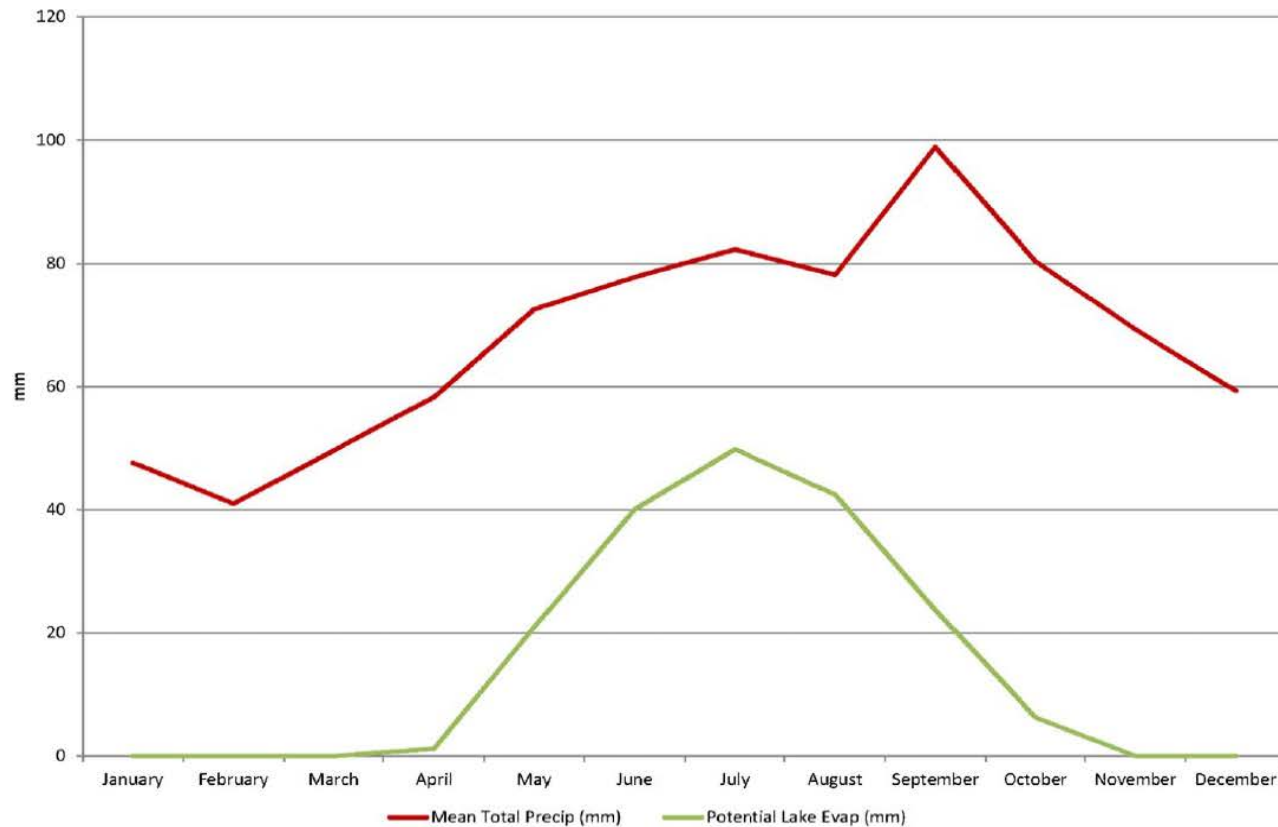
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NOTES:
 Figure modified from an EBA
 Baseline Study Report Figure (2013)

PRODIGY		
MAGINO MINE PROJECT		
PROJECT DESCRIPTION REPORT		
AIR TEMPERATURE		
May 15, 2013	Ver. 1.0	Figure No.
Project No. 200.03005.00000		8-4
 SLR SLR Consulting (Canada) Ltd.		

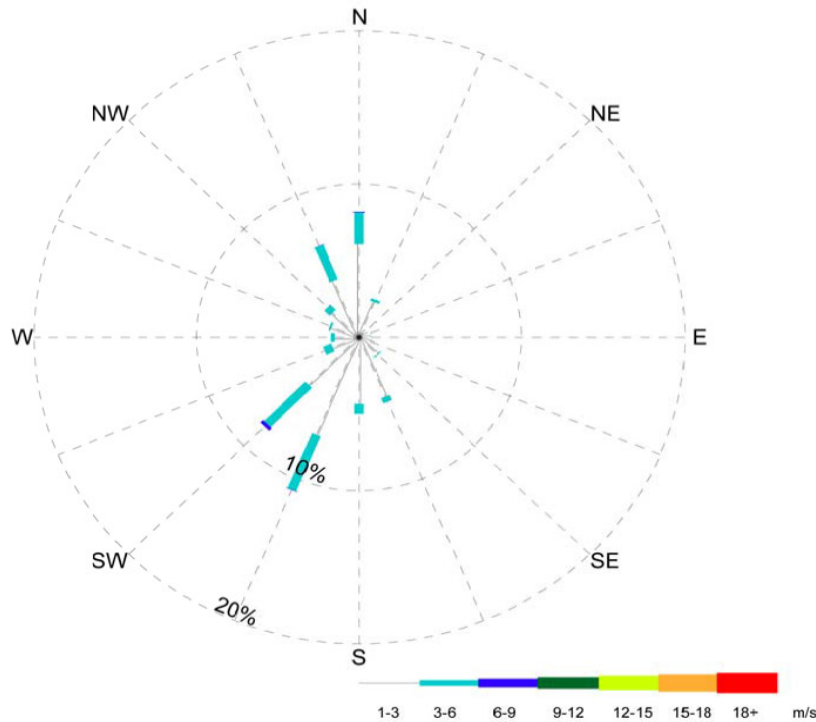
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Figure modified from an EBA
Baseline Study Report Figure (2013)

PRODIGY		
MAGINO MINE PROJECT		
PROJECT DESCRIPTION REPORT		
MONTHLY MEAN PRECIPITATION AND POTENTIAL LAKE EVAPORATION		
May 15, 2013	Ver. 1.0	Figure No.
Project No. 200.03005.00000	8-5	
 SLR SLR Consulting (Canada) Ltd.		

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NOTES:
Figure modified from an EBA
Baseline Study Report Figure (2013)

Station Name: Magino
WSG 84 location:
N48° 21' 42.8" W84° 31' 50.7"
Elev. above SL: 343 m
Tower height: 10 m
Record Length: 402 days
Start Date: October 21, 2011
End Date: November 26, 2012
Comment:

Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)							Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	
ENE	-	0.60	-	-	-	-	-	0.60
NE	-	0.60	-	-	-	-	-	0.60
NNE	-	2.48	0.17	-	-	-	-	2.64
N	-	6.09	2.06	0.04	-	-	-	8.19
NNW	-	3.99	2.46	0.01	-	-	-	6.46
NW	-	2.26	0.49	-	-	-	-	2.75
WNW	-	1.78	0.12	-	-	-	-	1.91
W	-	1.45	0.24	-	-	-	-	1.69
WSW	-	1.71	0.58	-	-	-	-	2.29
SW	-	4.39	3.62	0.22	-	-	-	8.22
SSW	-	6.87	3.88	0.02	-	-	-	10.77
S	-	4.34	0.65	-	-	-	-	4.99
SSE	-	4.18	0.35	-	-	-	-	4.53
SE	-	1.53	0.06	-	-	-	-	1.60
ESE	-	0.99	-	-	-	-	-	0.99
E	-	0.74	0.01	-	-	-	-	0.75
Calm	41.02	-	-	-	-	-	-	41.02
Total (%)	41.02	43.99	14.70	0.29	-	-	-	100.00

PRODIGY

MAGINO MINE PROJECT

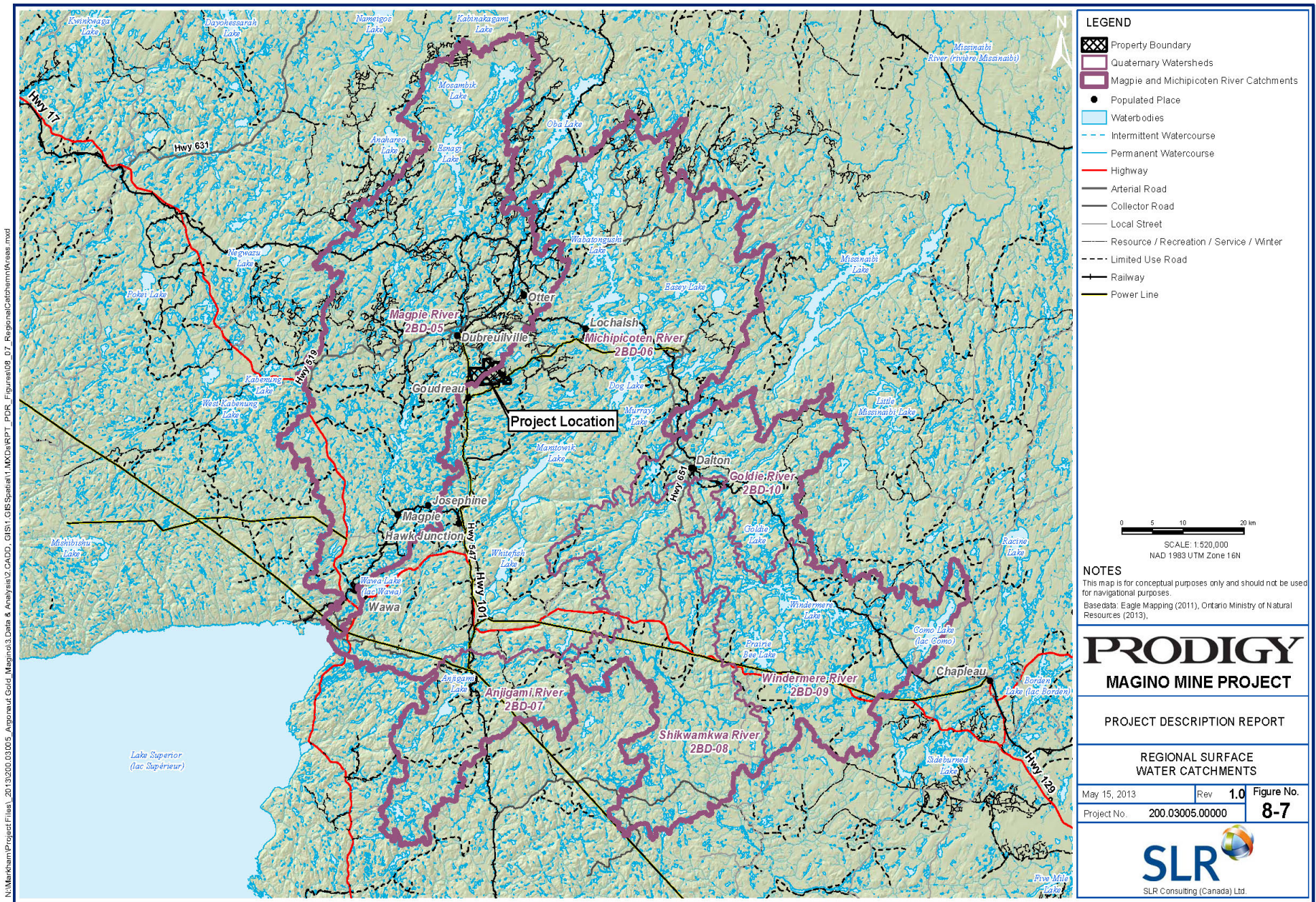
PROJECT DESCRIPTION REPORT

METEOROLOGICAL STATION
WIND ROSE

May 15, 2013	Ver. 1.0	Figure No.
Project No. 200.03005.00000		8-6

SLR

SLR Consulting (Canada) Ltd.



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Approximately 18 lakes are located within the McVeigh, Webb-Goudreau and Herman lake watersheds within or adjacent to the Project area. This includes Dreany Lake which is a reference area outside the Project area. Seven hydrometric stations were installed in October 2011 to monitor surface water flows or lake levels in the vicinity of the Project area (Figure 8-8).

8.1.7 Surface Water and Sediment Quality

A total of 48 lakes, streams, former tailings ponds and seep sites were sampled between October 2011 and October 2012. A complete annual record of water quality has been documented for 16 sites, and an ice-free record for 24 sites.

Dreany Lake was sampled on five occasions, over all seasons, as part of the baseline water quality program in 2011 and 2012. It is considered representative of background water quality within the region as it is outside of any influence of previous mining activities at the Project site.

Water quality is neutral to slightly alkaline and moderately well buffered (pH 6.9-8.5, alkalinity 35 milligrams per litre [mg/L]) and low in dissolved solids, with a conductivity of 67 $\mu\text{S}/\text{cm}$ and total hardness of 35-46 mg/L. Dissolved organic carbon concentrations are low and metals concentrations are, with few exceptions, either not detected or within the guidelines for protection of aquatic life (CCME, 2012). Nutrient concentrations show that lakes are in the oligo-mesotrophic range. Dreany Lake is thermally stratified at a depth of 3 m in summer, and its shallow depth of 8 m results in natural anoxia in the hypolimnetic waters. Hypoxia was also observed in other deeper lakes in the study area at the end of summer and under ice in winter.

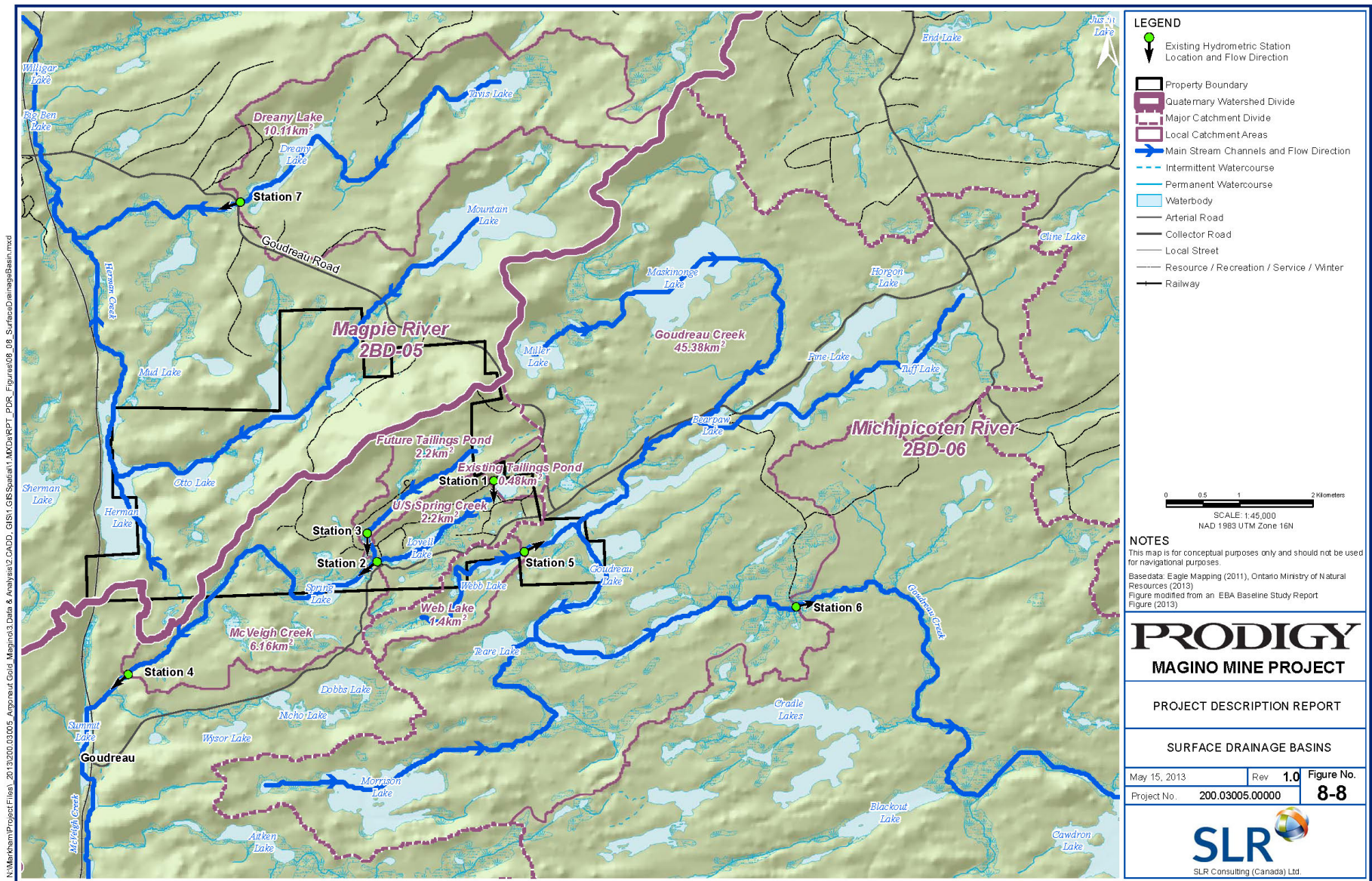
Water bodies in previously mined areas of the site showed similar water quality with the exception of enriched metals concentrations that could indicate either the natural mineralization of the area, or residual impacts from previous mining activities. Lakes in the mineralized areas also showed higher levels of hardness (~95 mg/L) and conductivity (>200 $\mu\text{S}/\text{cm}$).

Creeks draining the study area showed higher alkalinity than lakes, but were otherwise similar in water quality; with higher metals concentrations in areas of former mining activity.

Sediment quality was determined at lake and stream sites as part of the 2012 baseline studies. Lake sediments were generally enriched in organic carbon and nitrogen, which is a typical condition for Precambrian Shield lakes. Metals concentrations were variable and frequently exceeded guideline values in lake samples. This is to be expected in a mineralized region and in lakes in previously mined areas. Creek samples have lower levels of organic carbon and nutrients, which is to be expected as they would not accumulate to the same extent in a creek as in a lake environment. Metals in creek sediments were variable and frequently exceeded guideline values for protection of aquatic life.

8.1.8 Groundwater

Groundwater levels are typically near surface, with variations between several (< 5) m below ground surface to slightly artesian conditions in some low lying areas. Groundwater flow appears to generally mimic topography. Groundwater flow appears to generally occur from the higher elevations, located in the vicinity of the proposed mine waste management area towards



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lower elevations to the north and south. The open pit mine will be on the south flank of this groundwater mound.

Based on the geologic results to date, the open pit mine will be hosted in generally low permeability bedrock. Lineaments are in the south-westerly direction indicating a preferential ground water flow pathway in that direction. The adjacent lakes are parallel to this pattern, but are transverse to the proposed open pit. It is expected that with sufficient thickness of rock between the lake and the pit, there will be minimal potential for significant water movement. Work is ongoing to quantify this as part of the design of the facility.

To date, the groundwater investigation has involved the installation of the following instrumentation:

- 32 monitoring wells;
- Packer testing in three drill holes; and
- 10 vibrating wire piezometers installed as part of the open pit geotechnical program.

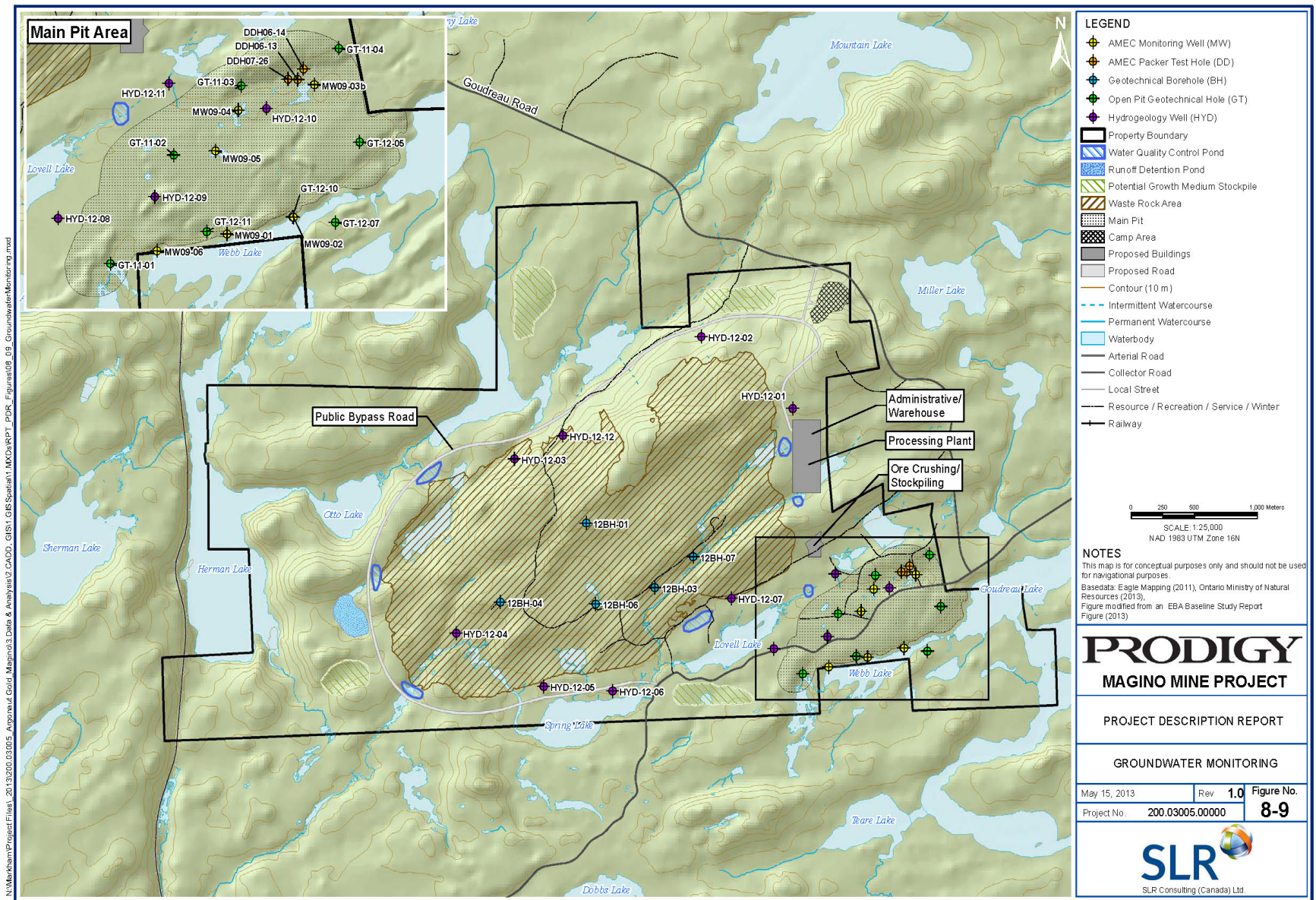
The monitoring wells and vibrating wire piezometers are distributed throughout the Project area to provide adequate spatial coverage for characterization of the groundwater system (Figure 8-9). Instrumentation is being used to:

- Characterize the seasonal and annual groundwater flow system on site;
- Monitor groundwater levels, flow directions and rates;
- Identify groundwater recharge/discharge zones; and
- Monitor baseline groundwater quality.

Future work will involve the continued monitoring of groundwater levels and groundwater quality, as well as hydraulic testing of the monitoring wells. Three-dimensional groundwater modelling that will simulate the observed groundwater conditions and couple them with the mining plan to aid in the EA for the Project is being conducted. The groundwater model will also be used to assess the groundwater contribution to the mine water balance and will be helpful in identifying information gaps. The quality of the groundwater inflows are not expected to be an issue, but they will need to be monitored to determine appropriate mitigation should any be needed.

8.1.9 Groundwater Quality

Groundwater sampling was initiated in late 2012 and is being conducted in concert with surface water quality sampling to examine the relationship between both. Water quality results will be used to provide a baseline characterization of the natural conditions in the subsurface groundwater. The operating condition of the mine and its ancillary facilities will be compared with this baseline during operational and environmental monitoring.



The initial results indicate bicarbonate-poor water within a potassium-sodium-chloride system. The dominance of bicarbonate is due to the nearly neutral pH of the natural groundwater, which ranges from 6.5 to 7.8. Total dissolved solids (TDS) in the water are low and range from 80 to 240 mg/L in the natural setting. The water is more mineralized at depth with higher TDS, indicating longer residence time for the deep groundwater in the deeper bedrock. Iron concentrations are typically 0.1 to 0.9 mg/L, occasionally reaching 2.0 mg/L.

No private water supply wells are present in the watersheds hosting the Project area. Therefore, no background sampling of private wells is necessary at this time.

8.2 Existing Biological Environment

The Project lies within the Lake Abitibi Ecoregion 3E, defined by a unique combination of primary bedrock (mixed acidic and calcareous), temperature and precipitation. Mixed forest dominates the landscape, with conifer secondary. It forms a portion of the Ontario Shield Ecozone that encompasses the entire Ontario portion of the Boreal Shield Ecozone. Winters tend to be long and cold, offset by short, warm summers that in combination with ample precipitation, result in soils high in organics. Fire is a dominant driver of natural renewal, followed by wind and insects.

The Foleyet Ecodistrict, nested within the Ecoregion 3E is framed by the clay belt to the north and the moraines and sand plains hemming in the Lake Temagami Ecoregion 4E to the south. The southern boundary roughly coincides with the Hudson Bay Watershed, with portions in the west and extreme southeast draining to the Great Lakes.

Detailed baseline studies are continuing in order to assess conditions at the study site and provide the necessary baseline information for the EA. Results of field work completed in 2011 and 2012 are currently being reviewed as part of the Gap Analysis for the Project. In addition, any required additional sampling will be completed in 2013. This PDR provides the current understanding of site conditions and summarizes the additional studies required to complete the baseline. The results will be provided in future reports describing baseline details and in the relevant sections of the EA documentation.

8.2.1 Aquatic Resources

The aquatics baseline studies were undertaken in 2011 and 2012 and include physical habitat characteristics, periphyton (attached algae), phytoplankton (floating algae), zooplankton, benthic invertebrates, forage and predator fish, and fish tissue contaminant studies in the lakes and streams of the Project area. Preliminary results are summarized in following sections.

8.2.1.1 Sampling

The aquatics baseline studies serve to document existing fish and fish habitat characteristics within the Project area and will identify how proposed activities might affect the aquatic environment. Water bodies within the McVeigh Creek and Webb-Goudreau Lake watersheds were sampled within the Project area. Fish and aquatic habitat assessments in these two

watersheds were conducted in October 2011, April 2012, and July 2012. Additional studies were completed in October 2012 in a third watershed, the Herman Lake system, located to the north of the McVeigh system. Sampled water bodies are shown on Figure 8-10.

8.2.1.2 Stream Habitat

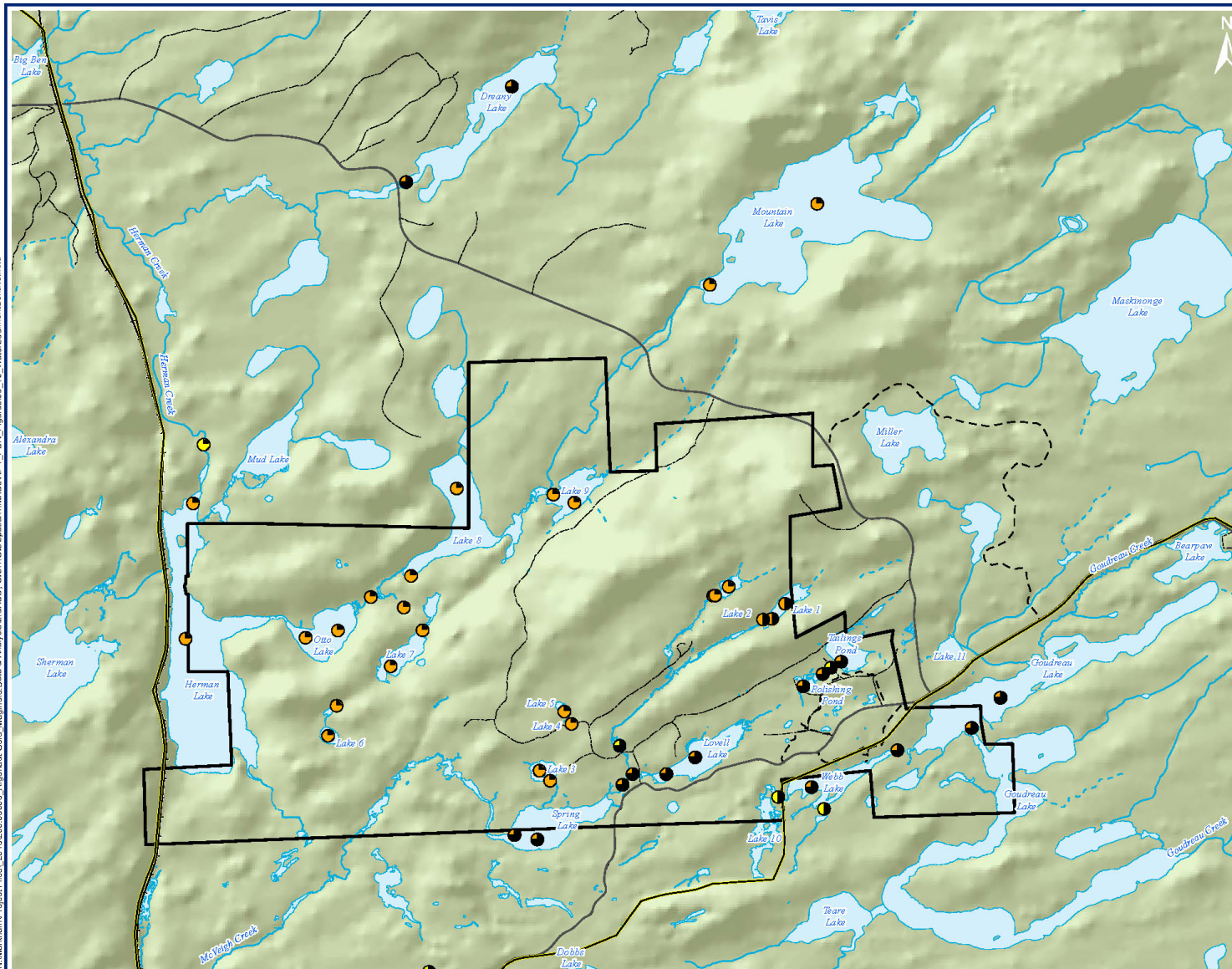
McVeigh Creek is heavily influenced by organic input between Lovell Lake and Spring Lake and is characterized by slow flow and a lack of overhead cover (i.e., shade). Further downstream, near the confluence with Summit Lake, the creek shows riffle-pool morphology with cobble dominated substrate. Boreal forest riparian vegetation provides considerable cover. These habitat differences do not appear to influence fish community composition strongly, but may affect abundance and habitat functions including spawning, rearing young, and adult growth.

The McVeigh Creek tributary originates from Lake 1 and Lake 2, approximately 2 km upstream of its confluence with McVeigh Creek (Figure 8-9). Throughout its length, the habitat in this stream is heavily influenced by a series of beaver dams and associated ponds, which are evident from 400 m upstream of the confluence with McVeigh Creek to the headwater lake. A combination of habitat factors, including beaver dams, low water flows and limited overwintering habitat likely restricts fish presence to small-bodied species. Mottled Sculpin were collected from McVeigh Creek near Summit, Spring and Lovell lakes, indicating that potential groundwater upwelling moderates summer water temperatures. White Suckers were collected from McVeigh Creek where it flows into Summit Lake. McVeigh Creek may provide spawning habitat at this location for the Summit Lake White Sucker population.

The streams sampled in the Herman Lake watershed exhibit a range in habitat characteristics. The creek upstream of Otto Lake was larger than at other upstream locations and contains riffles and pools with boulder-cobble substrates. In comparison, the small creek within the chain of lakes upstream of Herman Lake consists of an organic substrate and glide morphology. The outlet stream from Herman Lake is made up of deep pools and riffle-pool morphology and shows evidence of periodic high flash flow conditions. Fish species collected from watercourses in the Herman Lake catchment are dominated by small bodied species. White Sucker was collected from the Herman Lake outlet stream and the Lake 8 outlet to Otto Lake. White Suckers typically migrate between lake and flowing water environments for spawning and may indicate fish movement corridors in and out of Herman and Otto lakes.

In general, watercourses appear to provide habitat primarily for small-bodied fish with a few exceptions. Herman Creek provides in-stream habitat for small and large-bodied species including White Sucker, which typically spawn in streams. Each of the connecting streams also provide water conveyance, transfer of nutrient functions, and potential corridors for fish movement where beaver dams do not impede fish migration. Detailed functions for each watercourse will be provided in the EA report.

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LEGEND

- Property Boundary
- Power Line
- Intermittent Watercourse
- Permanent Watercourse
- Waterbody
- Highway
- Arterial Road
- Collector Road
- Local Street
- Resource / Recreation / Service / Winter
- Limited Use Road
- Railway

Number of Times Sampled

- 1
- 2
- 3

Sample Type

- Water Quality Station
- Water and Sediment Quality Station

0 250 500 1,000 Meters
SCALE: 1:30,000
NAD 1983 UTM Zone 16N

NOTES
This map is for conceptual purposes only and should not be used for navigational purposes.
Basedata: Eagle Mapping (2011), Ontario Ministry of Natural Resources (2013), Figure modified from an EBA Baseline Study Report Figure (2013)

PRODIGY
MAGINO MINE PROJECT

PROJECT DESCRIPTION REPORT

WATER, SEDIMENT AND BENTHIC SAMPLING

May 15, 2013	Rev 1.0	Figure No.
Project No. 200.03005.00000		8-10

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8.2.1.3 Lake Habitat

The riparian zones of the assessed lakes appear to be typical of the boreal forest found throughout northern Ontario. Near shore substrate appears to be dominated by sand and gravel with lesser components of cobbles and fines, or fines and organics. Some lakes have large boulders or bedrock outcroppings along portions of their shorelines. Emergent vegetation is present on most lakes within the littoral zones. Floating and submerged vegetation is present on several of the shallower lakes, particularly Lovell and Spring lakes. The substrate of these two lakes and the shallow numbered lakes is dominated by organic muck beyond the littoral zones.

Most of the lakes (e.g., Mountain Lake, Dreany Lake, Lovell Lake, Spring Lake, Lake 1, Goudreau Lake, and Webb Lake) are sufficiently deep and provide access to support both 'minnow'-type fish and larger fish species. The presence of emergent vegetation in the littoral zones of most lakes provides cover and spawning opportunity for a variety of species. Coarse substrates near shore (predominantly sand and gravel) also provide spawning habitat for select species.

The existing TMF contains suitable habitat for 'minnow' and larger fish, but is disconnected from downstream fish habitat by the tailings embankment. As described further in Section 8.2.1.5, no fish were captured or observed in the Tailings Pond behind the embankment.

The polishing pond associated with the existing TMF and Lake 2 does not contain sufficient depth to support large fish. As described further in the subsection entitled "Fish Capture", only 'minnow' species were caught during the two sampling events in each of these water bodies.

Lakes within the study area can be classified into three groups based on depth and area. Fish species associations and trophic-level complexity characterize lakes within each of these groups.

Large Area and Deep

Mountain Lake, Herman Lake, Goudreau Lake and Lake 8 are the four largest lakes in the study area and each are greater than 20 m deep. Each lake supports multiple trophic levels and feeding groups including top fish-eating species (piscivores), large-bodied benthic invertebrate feeders, and small-bodied forage base species. Mountain and Herman lakes support fish eating species that prefer cold water temperatures. Goudreau Lake supports a forage base species that prefers cold water temperatures. Each of these large, deep lakes contain what are considered sport fish and recreational fishing occurs on three of these.

Medium Area, Moderate Depth, 3 to 10 m

Lake 9, Dreany Lake, Webb Lake, the Tailings Pond, and Otto Lake are considered medium area and moderate depth. As with the large area lakes, these lakes likely stratify during the summer months with relatively warm water near the surface and relatively cool water below the 7 to 8 m depth. These lakes also support multiple trophic levels and feeding groups including fish eating species, benthic invertebrate feeders and forage base species, except for the

Tailings Pond from which no fish were collected during any sampling event. Whitefish, a cold water species, were collected from Otto Lake in a fall sampling event. Otto Lake appears too shallow to provide sufficient cold water habitat to support Whitefish during the summer months, however, they spawn in the fall and likely moved from Herman Lake to spawning areas in Otto Lake. Each of the lakes containing fish supported at least one species considered a sport fish. Recreational fishing occurs in Dreany and Otto lakes, and also possibly in Webb Lake.

Small Area, Shallow, Under 3 m Depth

The group of small, shallow lakes includes Lovell and Spring Lakes, the Polishing Pond, and Lakes 1 through 7. No fish were collected from lakes 4 and 5 during any sampling event. The other lakes supported generalist and benthic insect feeding fish. No sport fish were collected from the small, shallow lakes.

8.2.1.4 Fish Sampling Results

A variety of gear including gillnets, minnow traps and electro fishing were deployed to collect representative fish samples from lake and stream environments. Fish collection results are summarized in Table 8-1. Except for White Sucker, no small-bodied species were collected from watercourses within the study area. Each species collected from a watercourse was also collected from a lake within the study area.

Table 8-1: Fish Species Collected from Lakes and Streams

FISH SPECIES	LOCATION OF CAPTURE	
	LAKE	STREAM
Lake Trout <i>Salvelinus namaycush</i>	X	
Lake Whitefish <i>Coregonus clupeaformis</i>	X	
Northern Pike <i>Esox lucius</i>	X	
White Sucker <i>Catostomus commersonii</i>	X	X
Yellow Perch <i>Perca flavescens</i>	X	
Walleye <i>Sander vitreus</i>	X	
Spottail Shiner <i>Notropis hudsonius</i>	X	X
Northern Pearl Dace <i>Margariscus nachtriebi</i>	X	X
Brook Stickleback <i>Culaea inconstans</i>	X	X
Mottled Sculpin <i>Cottus bairdii</i>	X	X

Fish age estimates and tissue samples for metals analysis were collected from fish captured in gillnets. Age estimates were obtained for large-bodied fish captured from sampled lakes during each sampling period. Tissue samples and aging structures were collected for the following lakes and submitted for analysis: Webb Lake; Goudreau Lake; Dreany Lake; Lovell Lake; Lake 1; Spring Lake; Lakes 7, 8 and 9; Otto Lake, Herman Lake; and Mountain Lake. Fish species analyzed included Spottail Shiner, Northern Pike, Walleye, White Sucker, and Yellow Perch. (Figure 8-10)

Lead concentrations greater than the Canadian Food Inspection Agency (CFIA) guidelines were only found in the livers of White Suckers, a bottom feeder captured in Webb Lake. Lead does not biomagnify within a food chain, consequently elevated concentrations are less likely in predatory fish such as Walleye and Northern Pike. Elevated selenium and mercury concentrations in fish were also observed.

8.2.1.5 Preliminary Fisheries Findings

Preliminary assessment of commercial, recreational and aboriginal or subsistence fisheries have been completed for 11 of the lakes and ponds that were assessed during the October 2011, April 2012, and July 2012 sampling events:

- Dreany Lake (reference lake) – Sampling confirmed the following sport fish species: Walleye, Yellow Perch and Northern Pike. A moderately diverse forage base supports piscivorous sport fish in the lake. Recreational fishing is known to occur on this lake.
- Mountain Lake (reference lake) – Sampling confirmed the following sport fish species: Lake Trout and Whitefish. Northern Pearl Dace represents the forage base supporting the piscivorous sport fish in the lake. Recreational fishing is known to occur on this lake.
- Herman Lake – Sampling confirmed the following sport fish species: Northern Pike, Walleye and Whitefish. This lake has a healthy trophic system with a suitable food supply for lower trophic-level fish (Northern Pearl Dace and Spottail Shiner) that in turn support the dietary needs of the piscivorous sport fish in the lake. Recreational fishing is known to occur on this lake.
- Goudreau Lake – Sampling confirmed the following sport fish species: Walleye, Yellow Perch and Northern Pike. A moderately diverse forage base supports piscivorous sport fish in the lake. Recreational fishing is known to occur on this lake.
- Otto Lake - Sampling confirmed the following sport fish species: Northern Pike and Whitefish. This lake supports a healthy trophic system with a suitable food supply for lower trophic-level fish that in turn support the dietary needs of the piscivorous sport fish species in the lake. Recreational fishing is known to occur on this lake.
- Webb Lake – Sampling confirmed the following sport fish species: Yellow Perch and Northern Pike. No forage base fish species to support piscivorous sport fish in the lake were collected during fish sampling events. Recreational fishing potentially occurs on this lake.
- Spring Lake and Lovell Lake – Sampling confirmed the following: A relatively diverse forage base supports a limited sport fish community in these lakes. Although sport fish

captured from Lovell Lake includes Yellow Perch and sport fish captured from Spring Lake includes Northern Pike and Walleye, no recreational fishing is observed.

- Lakes 8 and 9 – Sampling confirmed the following: A limited forage base supports piscivorous sport fish collected from these lakes. No recreational fishing is observed for these lakes. (Figure 8-10)
- Lakes 1, 2, 3, 6 and 7, and the Polishing Pond – No sport fish were collected from these water bodies during fish sampling events, although a diverse forage fish base is observed in some of these lakes.
- Lakes 4 and 5, and the Tailings Pond – No fish were collected during fish sampling events.

There are no commercial fisheries in the area. Recreational fishing occurs at Goudreau and Herman lakes, where there are cottages or camps. Recreational fishing also occurs at Otto, Dreany and Mountain lakes. There may be occasional fishing at Webb Lake, but no other lakes in the mine footprint area are likely fished. Prodigy plans to collect additional information in collaboration with local community and aboriginal groups in the area to further clarify sport, traditional, and subsistence use of these lakes.

In addition to the above fisheries data, the following sampling has been conducted in accordance with the British Columbia Field Sampling Manual (Clark, 2003) and in Ontario Stream Assessment Protocol, Version 7.0 (Standfield, 2005):

- Benthic invertebrates
- Periphyton
- Phytoplankton
- Zooplankton

Sampling locations are shown on Figure 8-10.

8.2.2 Terrestrial Resources

Baseline studies were undertaken in 2012 to document provincial parks, conservation and/or wildlife reserves, vegetation and wildlife communities, and plant and wildlife species. The studies are also being used to identify sensitive natural heritage features and functions and to determine the home ranges of megafauna and their landscape interactions. This information is then used to identify Project-specific impacts and the need for mitigation.

8.2.2.1 Vegetation

Vegetation mapping and analysis incorporated data obtained from the Natural Heritage Information Centre, Forest Management Plans for the Algoma and Magpie Forests, and consultation with local MNR biologists. Based on a review of aerial photography (high resolution imagery acquired during a Light Detection and Ranging [LIDAR] survey) consultation

with MNR regarding the need for moose and bear inventory, analysis and watersheds, led to identification of three study areas (Figure 8-11):

- Project Study Area (PSA): defined by the limit of disturbance of the mine and associated waste piles, outbuildings, etc.;
- Local Study Area (LSA): defined by watersheds and one km proximity to the PSA; and
- RSA: defined by a seven km radius from the mine site, based on the home ranges of bear and moose.

Polygons reflecting appropriate homogeneous vegetation cover, landform, topography, aspect and hydrological conditions were delineated. They were then classified using the Ecosites of Ontario, Boreal Region (MNR, 2009).

The field program included plot analysis (site, percent of vegetation cover and soils data) for 59 points within the PSA and LSA, and a further 196 points assessed visually in the RSA at one km intervals (geographic coordinate, photographs, ecosite, and other notes). Incidental observations were also documented.

In the PSA, mixed hardwood/conifer forest dominates, with coniferous forest concentrated in the vicinity of Spring Lake and Lovell Lake. A few scattered tableland conifer swamps growing on organic soils occur roughly parallel to the drainage patterns. Organic thicket swamps and marsh border the McVeigh Creek Tributary and extend west from Lake 1 and Lake 2. Fen occurs along the Lovell Lake and Spring Lake portion of McVeigh Creek, combined with organic swamps downstream toward Summit Lake. The RSA is dominated by the mixed boreal and Great Lakes – St. Lawrence Forest (67%), which surrounds wetlands comprised of conifer and shrub swamps, fen, bog and marsh (19%). Open water in the form of lakes and watercourses comprise a further 11%. (Figure 8-12) Constructed and remnant disturbance from past mining activities comprise 3%. A similar distribution of vegetation types occur in the LSA.

Hardwood forests in the area are largely composed of trembling aspen (*Populus tremuloides*) and white birch (*Betula papyrifera*), with balsam poplar (*Populus balsamifera ssp. balsamifera*) occurring on more moist sites. Conifer species common to the area include black spruce (*Picea mariana*), white spruce (*Picea glauca*), balsam fir (*Abies balsamea*), and jack pine (*Pinus banksiana*).

Wetlands, which are largely associated with the drainage patterns are 58% organic (swamps, fens and bogs on organic soils), with the remaining marsh and thicket swamps on inorganic substrates.

The swamps are characterized by black spruce (*Picea mariana*) with tamarack (*Larix laricina*) and balsam fir (*Abies balsamea*), speckled alder (*Alnus incana*), which is often dominant, red-osier dogwood (*Cornus stolonifera*), sweet gale (*Myrica gale*) and dwarf birch (*Betula pumila*).

Bogs are dominated by black spruce (*Picea mariana*) with lesser amounts of balsam fir (*Abies balsamea*) and tamarack (*Larix laricina*). Fens are dominated by stunted tamarack (*Larix*

laricina) and black spruce (*Picea mariana*) and a slightly more nutrient-rich mix of sedges and herbs. Lichen and bryophytes include reindeer lichen (*Cladina rangiferina*) and coral lichens.

8.2.2.1 Rare Plant Species and Vegetation Communities

Lists of rare plant species and vegetation communities potentially occurring within the RSA and LSA were compiled from various sources, including databases maintained by the Natural Heritage Information Centre (NHIC), Species at Risk in Ontario (SARO) (e.g., Oldham and Brinker, 2009), the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and forest management plans developed for the Magpie and Algoma forest management units. Most species listed as being “at risk” by COSEWIC are also legally protected under the federal *Species at Risk Act* (SARA). Species considered to be “at risk” in Ontario are legally protected under the province’s *Endangered Species Act* (ESA). Potentially rare vegetation community information was also compiled from the Ontario Ministry of Natural Resources (OMNR) (OMNR, 2000) publication “*Significant Wildlife Habitat Technical Guide*” and the forest management plans developed for the Magpie and Algoma forest management units. No specific rare vegetation community types have been described for Algoma County.

Efforts were made to identify unusual substrates and vegetation patterns during the preliminary stages of ecosystem map development. None were identified. These unusual landscape features will be targeted for later field inspections. Features such as wetlands and rock outcrops were of particular interest due to the potential for rare species occurrence.

The background review identified the potential for 48 rare species (i.e., species ranked S1 to S3 by the NHIC), including Butternut (endangered) and Dense Blazing Star (threatened). Flooded Jellyskin (a lichen) was also identified as potential, however the centre of distribution for this lichen is close to Ottawa, so the potential for occurrence is low. No rare plants or vegetation communities were documented within the study area during the field survey in 2012.

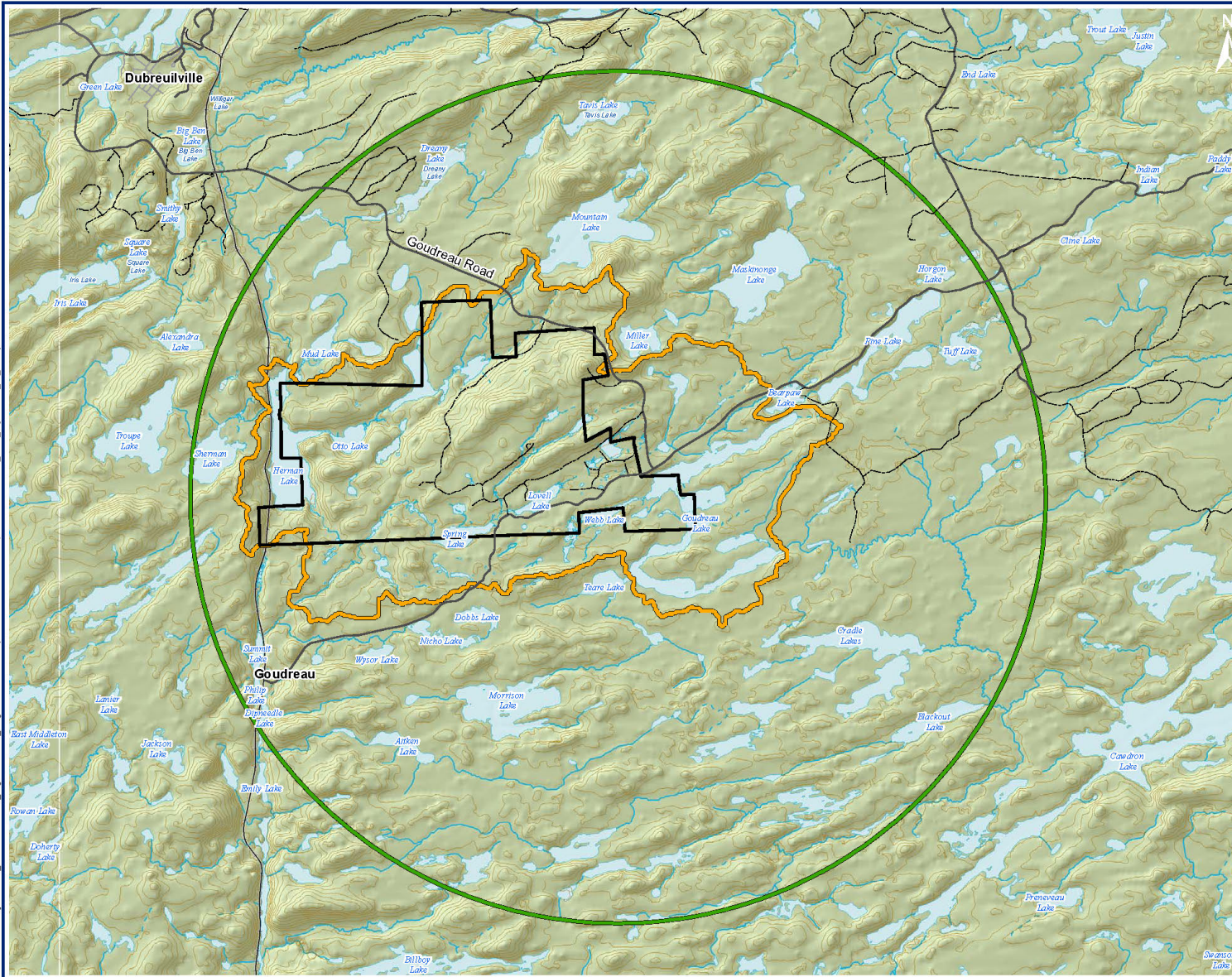
8.2.2.2 Wildlife and Wildlife Habitat

The same regional and local study areas described for ecosystems and vegetation were used to describe the baseline conditions for wildlife species. The RSA provides a broader geographical context for understanding the Project. It is centered on the historical mine site and extends in a radius of approximately seven km, encompassing over 15,000 ha (Figure 8-11). The buffer size was conservatively selected to capture both the landscape variability over a broader scale and the potential movements of wildlife. It is expected that there will be minimal effects, if any, at the perimeter of the RSA.

The LSA is defined as the maximum area where potential Project-specific environmental effects can be predicted or measured with a reasonable degree of accuracy and confidence. The LSA consists of approximately 3,382 ha. The LSA was established by buffering (one km) the perimeter of the property boundary. The buffer size was selected to provide local context and a focused study area.

A review of Land Information Ontario’s (LIO) Warehouse (i.e., spatial database) provided baseline data for the study area.

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- LEGEND**
- Property Boundary
 - Local Study Area
 - Regional Study Area
 - Contour (10 m)
 - Intermittent Watercourse
 - Permanent Watercourse
 - Waterbody
 - Arterial Road
 - Collector Road
 - Local Street
 - Resource / Recreation / Service / Winter
 - Railway

0 0.5 1 2 Kilometers
SCALE: 1:60,000
NAD 1983 UTM Zone 16N

NOTES
This map is for conceptual purposes only and should not be used for navigational purposes.
Basedata: Eagle Mapping (2011), Ontario Ministry of Natural Resources (2013),
Figure modified from an EBA Baseline Study Report Figure (2013)

PRODIGY

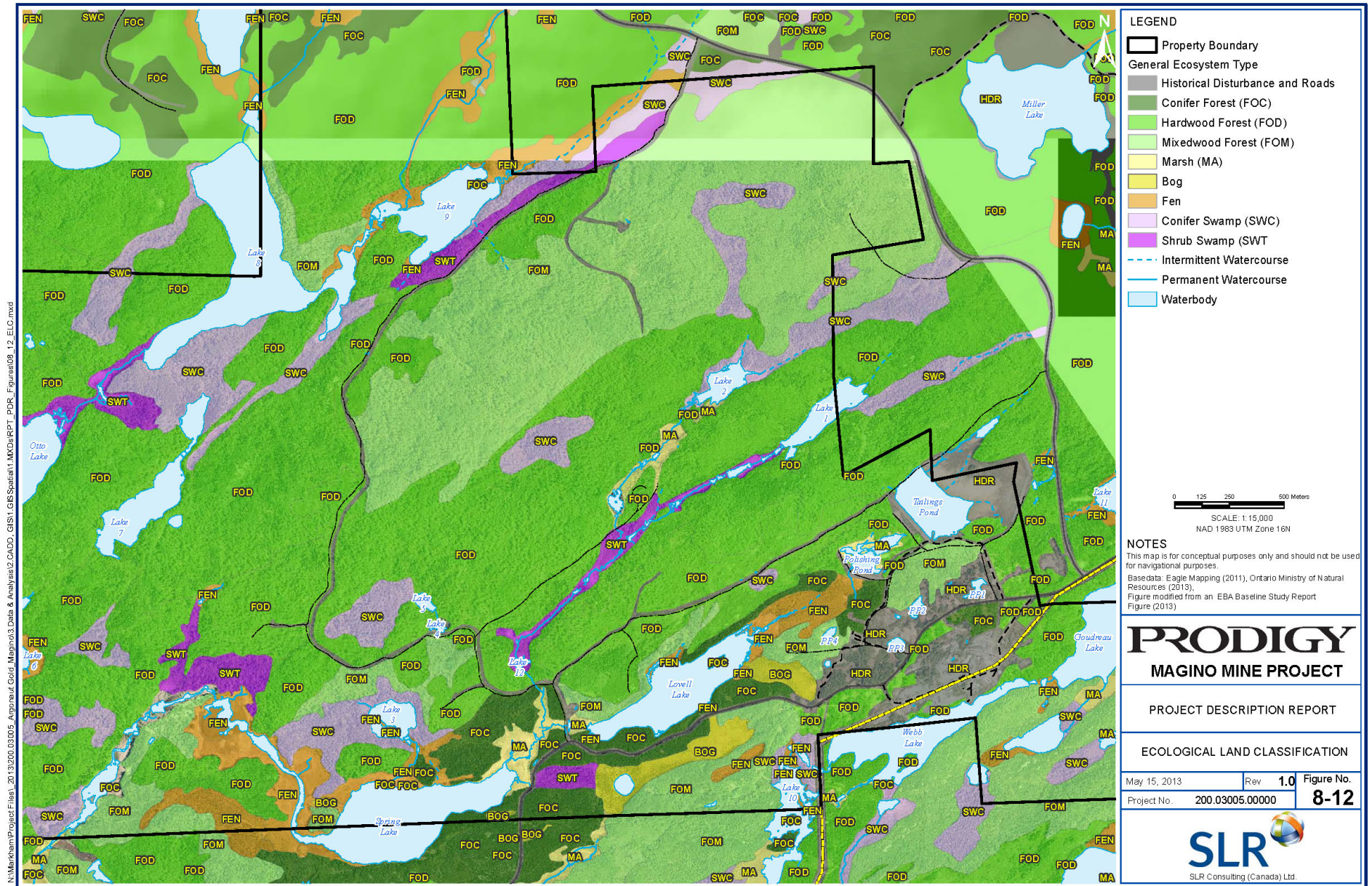
MAGINO MINE PROJECT

PROJECT DESCRIPTION REPORT

ECOSYSTEM STUDY AREAS

May 15, 2013	Rev 1.0	Figure No.
Project No. 200.03005.00000	8-11	

SLR Consulting (Canada) Ltd.



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Surveys were undertaken following protocols provided in “*Wildlife Monitoring Programs and Inventory Techniques for Ontario*” (Konze and McLaren, 1997) and other accepted methods such as BC’s Resource Inventory Standards Committee (RISC) Standards and Protocols and supplemented with species-specific protocols when necessary. The Marsh Monitoring Program Protocols (Bird Studies Canada et al. 2009) and the Standardized North American Marsh Bird Monitoring Protocol (Conway, 2009) were used for amphibians and marsh birds. Table 8-2 provides the survey effort conducted in 2012.

Table 8-2: 2012 Wildlife and Habitat Baseline Surveys

DATE	SURVEY TYPE	COMMENTS
May 30 – June 10, 2012	Upland Breeding Birds, Species at Risk Habitat	A total of 56 point count survey plots were established in the LSA and surrounding RSA from May 30 to June 10. Plots were located in habitat types representative of the Project area.
May 30 – June 10, 2012	Marsh Birds	Marsh bird broadcast surveys were conducted at seven wetlands in the LSA and RSA from May 31 to June 6.
May 30 – June 10, 2012	Yellow Rail	Yellow Rails were surveyed at each of the Marsh Bird broadcast survey stations. An additional three distinct Yellow Rail broadcast surveys were conducted. Yellow Rail surveys were conducted in the LSA and RSA from May 31 to June 9.
May 30 – June 10, 2012	Waterfowl	Waterfowl were surveyed at a total of 15 ponds and lakes in the LSA from June 2 to 10. Waterfowl were surveyed visually from shoreline stations or from a zodiac.
May 30 – June 10, 2012	Common Nighthawk, Whip-poor-will	Common Nighthawk and Whip-poor-will broadcast surveys were conducted from May 29 to June 8 (when the moon was at its fullest) at 38 stations along existing roads/trails in the LSA and RSA.
June 22, 2012	Raptor Nest, Ungulate	Aerial survey consisting of north-south transects flown across the RSA.
June 18-25, 2012	Habitat, Species at Risk	Plot-based in association with vegetation surveys.
October 15, 2012	Fall Ungulate	Aerial survey consisting of north-south transects flown across the RSA.
Winter 2013	Aerial Ungulate	Planned winter aerial survey across the RSA following the October 15 survey transects.

Key wildlife in the study area are listed in Table 8-3. They represent a species that are of management concern, potentially important to aboriginal peoples and/or listed under the ESA, 2007. The preliminary bird surveys identified 86 species of birds within the RSA and LSA. Of these, 71 are listed under the Migratory Birds Convention Act. Species such as grouse, several owls, chickadees, jays, finches, Common Raven and Red-breasted Nuthatch (20 in total) are resident species.

Table 8-3: List of Focal Wildlife Species Considered

GROUP/SPECIES	CONSERVATION STATUS (PROVINCIAL/ NATIONAL)	CULTURALLY SIGNIFICANT	SENSITIVE TO DISTURBANCE	REPRESENTATIVE OF LOCAL AREA/VEC
Mammals				
Moose	None	Yes	No	Yes
Black bear	None	Yes	No	Yes
American marten	None	Yes	Yes	Yes
American beaver	None	Yes	No	Yes
Little brown bat	Endangered (COSEWIC)	No	Yes	Unknown*
Northern Myotis	Endangered (COSEWIC)	No	Yes	Unknown*
Birds				
<i>Upland Nesting</i>				
Canada warbler	Threatened (COSEWIC/SARA)	No	Yes	Yes
Common nighthawk	Threatened (COSEWIC/SARA)	No	Yes	Yes
Olive-sided flycatcher	Threatened (COSEWIC/SARA)	No	Yes	Yes
Pileated Woodpecker	None	No	Yes	Yes
Rusty blackbird	Special Concern (COSEWIC/SARA)	No	Yes	Yes
Whip-poor-will	Threatened (COSEWIC/SARA)		Yes	
<i>Raptors</i>				
Bald eagle	Special Concern/ Not at Risk (COSEWIC)	Yes	Yes	Yes
Short-eared owl	Special Concern (COSEWIC/SARA)	No	Yes	Yes

GROUP/SPECIES	CONSERVATION STATUS (PROVINCIAL/ NATIONAL)	CULTURALLY SIGNIFICANT	SENSITIVE TO DISTURBANCE	REPRESENTATIVE OF LOCAL AREA/VEC
Waterfowl/ Waterbirds				
Black tern	Special Concern/ Not at Risk (COSEWIC)	No	Yes	Yes
Yellow Rail	Special Concern (COSEWIC/SARA)	No	Yes	Unknown

*Bats (*Myotis sp.*) are currently a species of concern because of a significant recent outbreak of White-nosed Syndrome (WNS). At the request of the MNR Area Biologist, any potential bat roosting habitat will be surveyed (Kerrie Jackson, pers. comm., September 17, 2012).

Based on the outcome of field studies, significant wildlife habitat will be identified (MNR, 2000) (i.e., areas that are ecologically important in terms of features, functions, representation, or amount, and which contribute to the quality and diversity of an identifiable geographic area or Natural Heritage System). Areas or features such as moose (*Alces alces*) over wintering habitat, snake hibernacula, bat roosts, marten (*Martes americana*) and fisher (*Martes pennanti*) dens, habitat for species of conservation concern, rare vegetation communities, interior forest habitat, animal movement corridors, and woodlands supporting amphibian ponds are all examples of significant wildlife habitat (MNR, 2000).

8.2.2.3 Proposed Wildlife Monitoring Plan

The wildlife baseline study is ongoing and will provide the necessary technical information for any long-term monitoring that may be required or indicated. Once the baseline study has been completed, suitable monitoring protocols will be developed and recommendations provided. Coordination and input from MNR and potentially affected Aboriginal groups will be sought during the development of the monitoring plan.

Currently, Prodigy has the following procedures in place:

- Track and report all wildlife incidents to the authorities as appropriate (i.e., wildlife vehicle collisions, nuisance wildlife occurrences, bear encounters or problem bears);
- Log and report sightings of any listed Species at Risk to MNR;
- Inspect facility areas, tailings ponds, and ditches daily; and
- Monitor the effectiveness of wildlife deterrents.

8.3 Existing Human Environment

8.3.1 Socio-Economic Settings

Two communities potentially affected by the proposed Project include the Township of Dubreuilville and the Municipality of Wawa in the Algoma District. Two other communities situated in the Algoma District include the Township of White River, which is 93 km north of

Wawa, and the small community of Hawk Junction, which is approximately 30 km northeast of Wawa (Figure 1-1). The closest community in the neighbouring Sudbury District is the Township of Chapleau, which is approximately 50 km east of Wawa. It is expected that the Project will draw workers principally from Dubreuilville and Wawa, the closest service communities.

8.3.1.1 Community of Dubreuilville

Dubreuilville is situated in the Magpie Forest at the end of Highway 519, east of the TransCanada Highway (Figure 1-1) approximately 14 km northwest of the mine site. It is a predominantly francophone community of approximately 600 people.

Economy

Historically, forestry and mining have been major contributors to Dubreuilville's economy. In November 2007, Dubreuil Lumber Inc. filed for bankruptcy protection and ceased its logging operations. In 2008, the company was reduced to four employees. The collapse of the forestry industry has dramatically impacted the town, leaving hundreds without work (Ross, 2011).

Richmont Mines operates the underground Island Gold Mine and Mill located near Dubreuilville. They are proposing to add a shaft and to deepen the mine from approximately 400 m to 1,000 m. The creation of a "*basic underground hard-rock miner common-core program*" offered by the Northern College in partnership with Richmont Mines, reflects an effort to address the challenge of a labour force lacking mining experience (Cowan, 2012).

Regionally, the resource-based economy is trying to recover from a recession which started in 2009. A number of obstacles remain, including:

- Out-migration of the younger population looking for work in Southern Ontario;
- An aging workforce; and
- A shortage of skilled and trained labour to support industrial development.

Demographics

Statistics Canada data shows that Dubreuilville's population steadily decreased from 990 people in 1996 to 635 people in 2011. The median age of the total population in 2006 was 36.8 years and in 2011 it was 35.4 years.

Community Facilities and Services

Educational facilities include a Catholic elementary school and a public high school, both of which are francophone and have small class sizes. Students must travel to Wawa for English education. Daycare services are also offered. Residents have access to Contact North, which offers access to university and college courses through distance learning and online education.

The Dubreuilville Health Centre has two full-time registered nurses and receives six physician visits per month. The community also offers homecare, tele-health video consultations and

mental health referrals. In addition, Dubreuilville provides community support services such as a food bank. The nearest hospital is the Lady Dunn Health Centre, approximately 75 km away in Wawa.

Transportation Infrastructure

Dubreuilville is accessible by car or train. The town is on the Algoma Central Railway and is served by the train three days per week, year round.

8.3.1.2 Community of Wawa

The Municipality of Wawa (Municipality) is located approximately 40 km southwest of the mine site. The Municipality consists of three Settlement Areas – Wawa, Michipicoten River Village and Michipicoten Harbour. The Wawa Settlement Area is located on the shores of Lake Wawa, approximately 7 km from Lake Superior. The Michipicoten River Village and Michipicoten Harbour Settlement Areas border Lake Superior.

Administration for Wawa consists of a Mayor, a Chief Administrative Officer and four councillors.

Economy

Wawa and the surrounding area have a long history of resource development, including multiple “boom and bust” cycles associated with mining (Pace, 2012). Wawa is home to a range of metal mining activities and an increasing number of small and large-scale operators have established themselves in the area. There are currently two active gold mines in the area including the Island Gold Mine and the Eagle River Mine. A number of mining claims have also been staked around these mines. Following a mining downturn in 1997, there was recognition that economic diversification was needed and forestry, tourism and other economic activities have since contributed to the local economy. In 2010, there were 290 businesses operating in the Municipality (Economic Development Corporation of Wawa, 2010), however, since then the number of businesses have decreased, a trend consistent with the population decline.

Tourism in the Municipality is an increasing component of the local economy. The Municipality’s natural surroundings and availability of outdoor activities attract visitors from the surrounding area and beyond.

Demographics

The Municipality’s population has been steadily declining since 1986. In 2011, the population was reported to be approximately 2,975 persons (Statistics Canada, 2012a and 2012b), down from 4,145 in 1996.

The median age in 2006 was 40.6 years and 44.1 years in 2011.

Community Facilities and Services

The Municipality is served by seven schools providing education from junior kindergarten up to Grade 12. There are options for both French and English learning environments.

One of nine Confederation College campuses is located in Wawa. The College, which serves aboriginal and non-aboriginal communities in the surrounding area provides a range of program and degree opportunities.

The Municipality is a sub-regional centre for health and social services. Residents have access to physicians, dentists, and specialists through a regional hospital: the Lady Dunn Health Centre. A 20-person Ontario Provincial Police (OPP) detachment patrols an area of approximately 482 square kilometres (km²) in the Wawa area. The Municipality is protected against fire by a Volunteer Fire Department.

Transportation Infrastructure

Wawa is situated at the intersection of the TransCanada Highway (Highway 17) and Highway 101. Freight and passenger service are provided by CN and the Algoma Central Railway (Economic Development Corporation of Wawa, 2010).

8.3.2 First Nations and Métis Communities

8.3.2.1 Michipicoten First Nation

The Michipicoten First Nation are members of the Ojibwe community in Northern Ontario. They are descendants of the earliest ancestors and inhabitants of the harbour at the mouth of the Michipicoten River, located on the northeast shore of Lake Superior. The 1850 Robinson-Superior Treaty recognized the traditional territory of the Michipicoten First Nation, which now has access to approximately 590 ha for their use and benefit, which incorporates the Project site.

Traditionally, Michipicoten First Nation citizens lived, hunted, and trapped throughout the area surrounding the Michipicoten River and harbour. For centuries, their ancestors lived a traditional way of life: *“making a large part of their livelihood by fishing and trading furs with the Hudson’s Bay Company and other settlers”*. Their lifestyle required travelling throughout the area at various times of the year for hunting and trapping.

In 1877, Michipicoten First Nation citizens moved to a small village known as Mission, located at the mouth of the Michipicoten River. In 1897, much of the village site was sold to a development company when gold was discovered. Throughout 1899 and 1900, approximately 600 ha of the Gros Cap Indian Reserve #49 were sold to the Algoma Central Railway. In the 1900’s, residents of the former reserve dispersed with some residents remaining in the small coastal community of Whitesands and others migrating to the Gros Cap Peninsula. In the 1970s, citizens began moving into the Gros Cap Indian Reserve #49, which is located within their traditional territory, over 40 km to the southwest of the Project.

Demographics

Michipicoten First Nation is a community of approximately 1,055 members, 70 of whom live on the reserve. There has been no population growth as a result of births, so population growth on the reserve is due to in-migration.

Local and Regional Economic Overview

The area has a long history of resource development activity, including multiple cycles associated with mining. Local and regional opportunities associated with resource development activities are recognized. In 2010, mining constituted a major business sector for the area. Historically, mining and forestry were key industries, however, economic downturns and facility closures have resulted in the need for diversification.

Employment and Labour Force

Based on the 2006 Census data, Michipicoten First Nation members worked in; agriculture and other resource-based industries, construction, and manufacturing (Statistics Canada, 2007).

Michipicoten First Nation on the Gros Cap Indian Reserve #49 worked primarily in trades; transport and equipment operators and related occupations; occupations unique to processing, manufacturing and utilities; occupations unique to primary industry; sales and service occupations; occupations in social science, education, government science and religion; and business, finance and administration.

Transportation/ Accessibility

A semi-paved, two-lane road provides access to the Gros Cap Indian Reserve #49 from the Municipality. The road is connected to the broader Municipality transportation network and provides access to the Michipicoten Harbour Settlement Area. Signage along the roadside indicates when travelers enter the Michipicoten First Nation territory.

8.3.2.2 Missanabie Cree First Nation

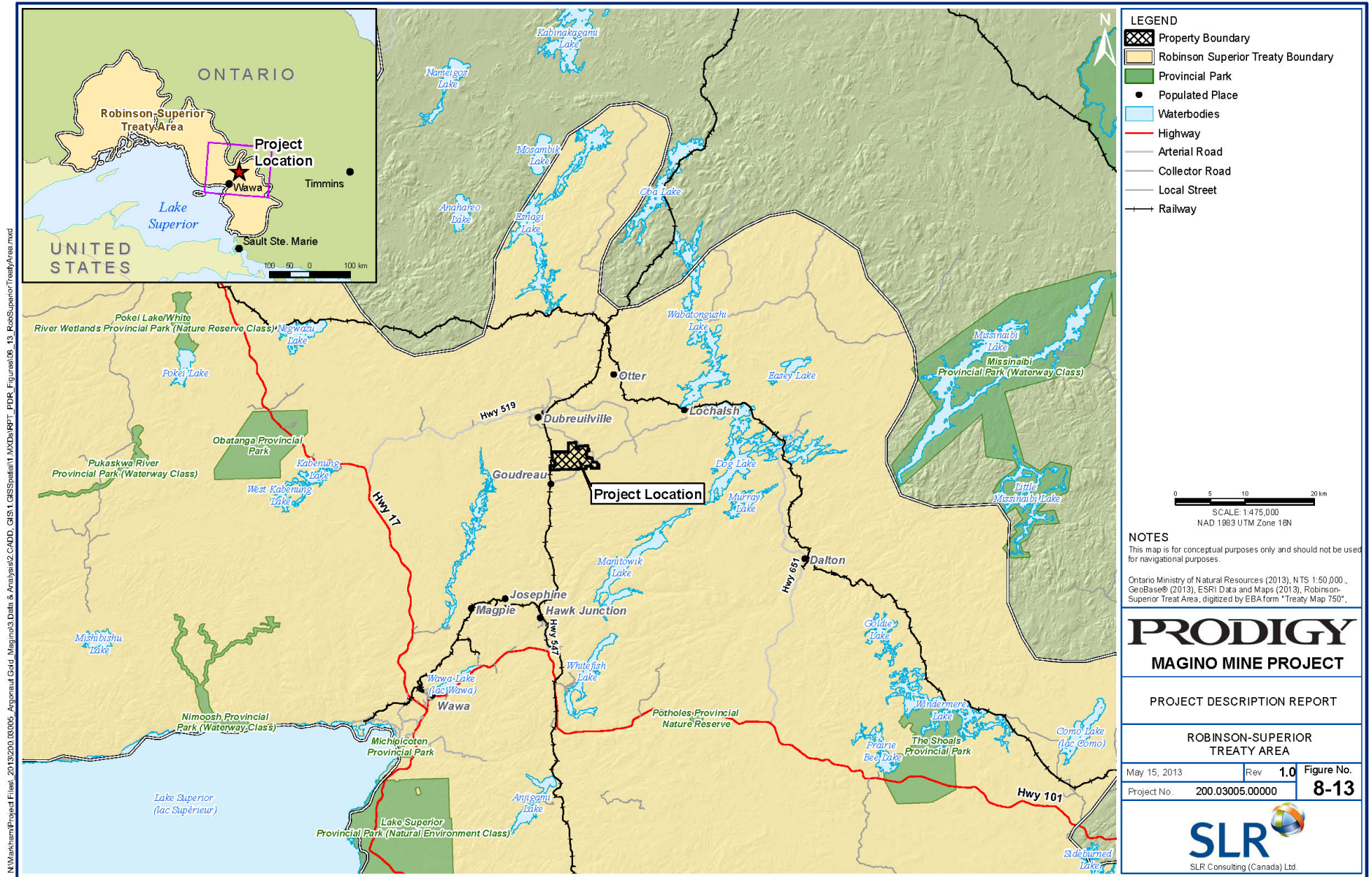
The traditional territory of the Missanabie Cree First Nation is situated in and around Missanabi Lake in the Treaty 9 area. The Project is situated outside of this treaty area, approximately 20 km south of its southern boundary (Figure 8-13).

The Missanabie Cree First Nation has filed a claim with the Government of Canada and discussions are ongoing. As of 2012, the First Nation and the Government of Ontario signed an agreement for a land transfer of 15 square miles of Crown land located in the Dog Lake area, approximately 25 km to the east of the Project. The First Nation and the Government of Canada are also negotiating for loss of use compensation under the Treaty Land Entitlement claim.

There are 360 members of the First Nation, but because they do not have a reserve, they live in different communities in the area.

8.3.3 Métis Nation of Ontario

In 1993, the Métis Nation of Ontario was established. They have a centralized registry of over 15,000 Métis citizens and have approximately 30 Chartered Community Councils across the province, which represent Métis citizens at the local level.



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They have a provincial governing body that is elected by ballot box every four years and have an Annual General Assembly where regional and provincial Métis leaders are required to report back to Métis citizens yearly between elections.

Community councils nearest to the Project site include Chapleau, Terrace Bay, Thessalon, and Thunder Bay. Membership numbers are not available. The Métis Nation of Ontario may have conducted harvesting activities in the area; these activities will be explored through on-going consultation.

8.3.4 Pic Mobert First Nation

The Pic Mobert First Nation is an Ojibwe community located along the northern coast of Lake Superior, within the Robinson-Superior Treaty. The community is situated on the southern shores of White Lake. Pic Mobert First Nation identifies itself as being part of the Anishinabek Nation, and more specifically, as part of the Netamisakomik people. Pic Mobert First Nation is one of five member nations of the Nokiiwin Tribal Council.

The Pic Mobert First Nation community has two separate, but adjacent, reserve lands on White Lake with a combined land area of 2.07 km² (Statistics Canada, 2007). The CP rail corridor runs through this community as it moves east-to-west across the southern extent of White Lake.

The Pic Mobert First Nation community is comprised of approximately 942 registered members, 352 of whom live on-reserve (Aboriginal Affairs and Northern Development Canada [AANDC], 2006). In recent years, the on-reserve population has shown a decline of 21.5% in population between 2001 and 2006 (Statistics Canada, 2007).

8.3.5 Red Sky Métis Independent Nation

The Red Sky Métis Independent Nation are an autonomous group distinct from the Métis Nation of Ontario.

Today the Red Sky Métis Independent Nation reports that there are approximately 8,000 members living within the Robinson-Superior Treaty area, Canada, and abroad (Red Sky Métis Independent Nation, 2013).

9. POTENTIAL ENVIRONMENTAL EFFECTS

Although the Project is located within a brownfield site that supported previous mining activity, there is still the potential to effect the environment. The Project design will take the environmental setting into account and will endeavour to avoid creating impacts where possible. Where it is not possible to avoid encroachment on or removal of natural features and functions, then mitigation and/or compensation plans will be identified. Potential effects are summarized in Table 9-1. The effects of each of the elements discussed in Section 8.0 “Environmental Description” and the rationale for the summary in Table 9-1 is described below.

Table 9-1: Potential Environmental Effects and Mitigation Measures

MEDIA OR ASPECT OF PROJECT	POTENTIAL EFFECTS	MITIGATION & ADAPTIVE MANAGEMENT CONSIDERATIONS (Note: (1) management, (2) monitoring, and (3) adaptive management plans are part of the mitigation measures listed below.)
Surface Soils	<ul style="list-style-type: none"> - Soils will be removed and stockpiled during the construction and operations phases and replaced during progressive reclamation efforts concurrent to operation and utilized at end of mine life for closure - The pit will be closed as a lake and will result in a permanent loss of soils - There may be disturbance of soil outside the Project footprint if additional sand and gravel sources are required 	<ul style="list-style-type: none"> - Recover and stockpile soils before construction - Use stockpiled soils for closure and reclamation - Minimize creating sand and gravel sources outside the Project footprint to the extent practicable - Reclaim and re-vegetate any sand and gravel sources used - Develop pit lake as an aquatic resource
Air Quality	<ul style="list-style-type: none"> - Increases in the emission of greenhouse gas, nitrous and sulfur oxides, and particulates from mobile equipment during construction and operations - Increases in fugitive dust emissions from disturbed surfaces such as gravel roads and from activities such as blasting 	<ul style="list-style-type: none"> - Select mobile equipment with lower emissions - Maintain mobile equipment in good working order - Install emission controls on stationary equipment - Implement dust control measures (e.g. water sprays) - Participate in government greenhouse gas emission control programs

MEDIA OR ASPECT OF PROJECT	POTENTIAL EFFECTS	MITIGATION & ADAPTIVE MANAGEMENT CONSIDERATIONS (Note: (1) management, (2) monitoring, and (3) adaptive management plans are part of the mitigation measures listed below.)
Surface Water and Sediment	<ul style="list-style-type: none"> - Loss of small ponds and streams - Reduced water quality due to turbidity or dissolved constituents - Reductions in stream flow and lake levels - Increases in stream flow in certain areas (discharge of treated water) - Degradation of sediment quality by the deposition of mineralized soils - Potential fuel and chemical spillages creating an impact to soil or surface water 	<ul style="list-style-type: none"> - Minimize the Project's footprint to the maximum extent practicable - Divert natural run-off around mine facilities - Design to minimize disruption to the extent practicable - Maximize water re-cycling - Provide for erosion protection in disturbed areas - Provide for appropriate treatment of released impacted water, as necessary <ul style="list-style-type: none"> o Detention ponds for sediment removal o Active treatment plant for dissolved metals - Re-introduce treated water in an environmentally sound manner - Reclaim and re-vegetate mine features during closure - Balance pit lake filling with impact on local surface water availability
Groundwater	<ul style="list-style-type: none"> - Reduction in water levels in the mine area due to pit dewatering (There are no known water supply wells of concern) - Consequential reductions in lake level and stream flow - Water quality impacted due to seepage loss from mine waste management facilities 	<ul style="list-style-type: none"> - Prevent shallow groundwater from entering the pit with seepage barriers - Conduct hydrogeologic studies and modelling to determine effects on surface waters and design engineered controls, if necessary - Install appropriate seepage barriers and/or liner systems for the mine waste management facilities

MEDIA OR ASPECT OF PROJECT	POTENTIAL EFFECTS	MITIGATION & ADAPTIVE MANAGEMENT CONSIDERATIONS (Note: (1) management, (2) monitoring, and (3) adaptive management plans are part of the mitigation measures listed below.)
Aquatic Resources	<ul style="list-style-type: none"> - Loss of fish and fish habitat associated with several small unnamed lakes and streams (not identified as sport fishing lakes) - Effects on stream flows and lake water levels could effect fish population and habitat - Effects on surface water quality could effect fish population and habitat - Blasting impacts on fish, fish eggs and larvae 	<ul style="list-style-type: none"> - Provide habitat compensation - Engineer facilities designs that minimize impacts to the extent practicable - Implement similar measures to those described above under "Surface Water and Sediment" and "Groundwater" - Incorporate habitat restoration in the design of flow diversions and ponds to the extent practicable - Design blasting program to Department of Fisheries and Oceans requirements - Reclaim habitat in a progressive manner
Ecosystems and Vegetation	<ul style="list-style-type: none"> - Some permanent and unavoidable changes in local terrestrial ecosystems (short-term loss and long-term change in vegetation, communities and habitat) 	<ul style="list-style-type: none"> - Avoid habitat during the design of the mine facilities - Maximize reclamation during operations, to the extent practicable
Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> - Wildlife species and migratory birds <ul style="list-style-type: none"> o Loss of habitat and avoidance of area o Loss of habitat for potential species at risk and migratory species 	<ul style="list-style-type: none"> - Install fencing, as necessary
Socio-Economics	<ul style="list-style-type: none"> - Additional 400 to 500 construction jobs - Additional 300 to 400 operations jobs - Increase in indirect spending and jobs in the area 	<ul style="list-style-type: none"> - Provide job training opportunities for the local work force
Individuals, Family and Community	<ul style="list-style-type: none"> - Increased earning potential - Social Issues - Increases followed by decreases in income - Increased demand for community-based services 	<ul style="list-style-type: none"> - Support community programs - Implement Human Resources policies - Set up health and safety policies and training for Project personnel - Make provisions for daily commuting for community-based personnel - Include operational personnel in consultation programs to identify best practices

MEDIA OR ASPECT OF PROJECT	POTENTIAL EFFECTS	MITIGATION & ADAPTIVE MANAGEMENT CONSIDERATIONS (Note: (1) management, (2) monitoring, and (3) adaptive management plans are part of the mitigation measures listed below.)
Traditional Culture and Land Use	<ul style="list-style-type: none"> - Effect on traditional fishing and hunting opportunities - Potential removal of plant and animal habitat of cultural importance; to be identified through consultation 	<ul style="list-style-type: none"> - Continue consultation and conduct studies - Establish appropriate mitigation measures
Non-Traditional Land and Resource Use	<ul style="list-style-type: none"> - Limited interference with recreational and tourist activities - Limited effect on local tourism due to increased traffic - Competition for labor and social services with other industries 	<ul style="list-style-type: none"> - Implement programs to minimize any negative impacts - Co-ordinate with activities such as snowmobiling to minimize interference with trails in winter - Include local users in consultation program to identify best practices
Cumulative Effects	<p>Effects caused by the Project, the adjacent Island Gold Mine and other potential industrial projects:</p> <ul style="list-style-type: none"> ○ Groundwater ○ Surface water systems due to use and discharge ○ Aquatic and terrestrial ecology ○ Community lifestyle such as hunting and fishing ○ Improvement in the local economy and employment ○ The effects of increased power demand by the Project, Island Gold Mine and potentially other industrial development 	<ul style="list-style-type: none"> - Consult and co-ordinate with other mining and resource-based industries in the area - Support establishing appropriate regional programs

9.1 Physical Effects

9.1.1 Surficial Geology and Soils

The surficial materials and soils in the area have the potential to be affected by the physical footprint of the Project. The area disturbed by the Project is reduced because of the presence of already impacted areas from historic mining activities. Site preparation and construction activities will involve grubbing, removal, and stockpiling of topsoil. The mine pit excavation will result in the removal of soils and surficial materials for up to two decades. Thereafter, the disturbed areas will be recovered with topsoil and, where possible, re-vegetated with species similar to those that are naturally occurring in the area. The pit area will result in a permanent loss of soils and these will ultimately be replaced by open water.

In the event sand and gravel sources outside the footprint of any of the Project facilities are needed, burrow pits will be established. These will involve temporary removal of topsoil and excavation of the needed materials, followed by rehabilitation and re-vegetation using the stockpiled topsoil. The extent of these disturbed areas will be minimized as the use of pre-existing disturbed areas for mine infrastructure will be maximized where practical.

Waste rock removed from the pit as mining proceeds will be transported to the on-site WRMF. Some of this material will be reused in construction of the impoundment berms for the TMF, thereby limiting the size of the WRMF.

9.1.2 Climate and Air Quality

The Project will have no impact on the climate of the area or on local patterns of weather. The mine vehicle fleet will be fuelled by conventional fossil fuels (diesel and gasoline). Although these will emit greenhouse gases, they represent a very small increase in overall loadings for the region, the province, or the country. Prodigy will abide by any greenhouse gas reduction programs implemented by the government.

Diesel power generation, vehicle and heavy equipment use, drilling, blasting, and waste oil combustion will release particulates; CO, CO₂, NO_x, SO₂ and VOCs to varying degrees during each phase of the mine. Prevailing winds are out of the southwest and the north. There do not appear to be any receptors of fugitive airborne contaminants from the site.

Dust control measures will be incorporated in the designs of the Project and will be implemented during operations to reduce the emission of particulates. Emissions of the other constituents will be minimized by appropriate equipment selection and maintenance.

A baseline air and climate study has been initiated and an air quality monitoring program that will be established prior to any site preparation and construction activities will continue through the life of the mine. The results of the monitoring program will be used to assess the need for additional emissions control and mitigation measures as part of adaptive management.

9.1.3 Surface Water Hydrology

Proposed mining activities have the potential to change the local surface water conditions.

Development of the Project will involve drainage and fill of several small ponds to facilitate the construction of mine-related infrastructure. Diversions will be established to reduce the volume of surface water entering the mine pit and divert clean water away from mine contact areas, causing slight changes in surface flow patterns. Grading plans will keep diverted waters within their watersheds and hydrologic events such as storm response will be minimally affected.

Water will be drawn from lakes on and near the Project site to provide potable water for the mine camp, makeup water for processing, and for other uses such as dust suppression. Water will be withdrawn within acceptable limits to protect fish habitat, as well as under the regulation of a Permit to Take Water from the Ontario MoE. Water for ore processing will be minimized by recirculating water from the mine pit and recycling from the TMF.

There will be a water surplus during the latter stages of mine operation, which will be discharged to the receiving environment under the regulation of an Environmental Compliance Approval from the Ontario MoE at a rate that does not significantly alter the natural hydrologic regime.

Construction of the pit may alter surface water flows by diverting surficial groundwater away from streams, lakes and wetlands into the pit. These flows will be modelled and appropriate mitigation employed to maintain hydrologic and ecological processes.

Surface water quality is not anticipated to be affected by the Project. Geologic materials present at the mine are mostly low in metals content and are predominately non-acid generating.

McVeigh Creek will be divided by a road crossing that will be constructed in connection with the Project. The road crossing will be located west of Spring Lake, enabling construction of a public roadway that does not pass through the mine pit and plant area. The crossing will be engineered to allow for surface water flows at this location. All water crossings required for site access will be engineered to provide for normal and storm flows.

Long-term hydrologic effects will be minimized through reclamation, which will involve capping the tailings storage impoundment. After closure the mine pit will fill with groundwater and surface water to form a water feature. Some additional makeup water may be taken from local lakes to reduce the filling time for the pit. If this alternative is chosen, then water will be withdrawn within acceptable limits to protect fish habitat under the regulation of a Permit to Take Water from the Ontario MoE.

A surface water hydrology study and complete site water budget will be completed for each year of construction, operations, and closure to quantify and evaluate these impacts in detail and to conceptualize appropriate mitigation measures that will minimize effects should flooding or other ecologic conditions occur. In addition, a water management plan will be prepared to protect the environment while at the same time providing for a sufficient operational water supply.

9.1.4 Surface Water and Sediment Quality

There are several key pathways of potential effects to surface water and sediment quality from the Project. These include:

- Sediment-laden surface water discharged from disturbed areas:
- Contact of surface runoff with contaminants in altered areas and consequent contamination with suspended solids and blasting residues;
- Disposal of treated sewage effluent;
- Disposal of pit water;
- Disposal of TMF water;
- Runoff and seepage from waste rock and ore storage areas;
- Dust fall;

- Fuel and chemical spills and malfunctions; and
- Closure discharges.

The Project will be designed, built, operated, and closed under an approach of “mitigation by design” to minimize the exposure of surface water to contaminants and the resultant potential for degradation. Designs will:

- Divert clean water away from and around potential contaminant sources (reduction);
- Route runoff that contains suspended soils from disturbed areas through sediment detention ponds before discharging;
- Capture contact water from surface infrastructure, waste rock and ore storage areas, and the open pit in water quality control ponds and the TMF, recycle or treat as necessary, and discharge to natural drainages;
- Discharge treated water under the MMER and the control of an ECA from the MoE. Water quality in receiving waters will be maintained within PWQO and CCME Guidelines, outside of a small mixing zone;
- Treat cyanide in the tailings before discharge to the TMF;
- Contain and isolate (i.e. by impervious cover or subaqueous disposal) all potential contaminant sources such as PAG rock and metals seepage during operations and closure to prevent loss of contaminants to surface water;
- Implement site and waste management practices that prevent and avoid losses of contaminants to surface water from spills and routine operations. Any impacts will be mitigated by spills response and cleanup procedures;
- Manage and control dust on site to reduce its transport and deposition to surface waters;
- Treat sewage at an on-site package plant and discharge, either to a local receiver (lake or wetland) under the regulation of an MoE ECA or to the TMF for reuse in the mill circuit; and
- Cover the TMF and test the runoff to verify that it meets water quality objectives at closure. PAG waste rock will be secured and covered (dry or wet cover) to ensure that there is no ongoing reaction and loss of acid or metals to the aquatic environment. All potential contaminant sources will be removed or managed to prevent any ongoing water quality issues.

Prevention of significant adverse effects to surface water and sediments from mine activities will help prevent impacts to the aquatic ecological environment (fish, invertebrates and algae) and minimize the potential for uptake of contaminants into the aquatic or human food chain.

Environmental monitoring will be undertaken according to the requirements of the MMER and ECA. An adaptive management plan and trigger levels will be developed to deal with adverse effects should any be detected.

9.1.5 Groundwater

In the short term, the local groundwater flow regime may be slightly affected by the Project. The mine pit will temporarily become a groundwater sink, causing groundwater to flow towards it and locally affecting groundwater flow directions and rates. The radius of influence will be determined by groundwater modelling as part of the EA. Preliminary estimates of the amount of groundwater to be pumped and the potential drawdown effect are provided in Section 3.4.1. There are no water wells in the area and given the low permeability bedrock, the radius of influence is not anticipated to be large. After mine closure, once the pit has naturally filled it is intended to be a lake, at which point a normal riparian groundwater flow regime will become established, similar to that around existing lakes. Similarly, the filling of several small lakes by mine facilities could change local groundwater flow properties slightly.

The TMF would be provided with seepage controls such as a hydraulic barrier on the inside of the containment embankment, which is keyed into the underlying bedrock, or a liner system. The increased head associated with a hydraulic barrier would cause groundwater mounding within the TMF, which would manifest itself in some downward seepage. As part of the design, the embankment alignment will be drilled and investigated for discrete fractures and lineaments to identify and mitigate potential flow pathways, as necessary.

Mining activities are not expected to negatively affect groundwater quality as the open pit will be a hydraulic trap with groundwater flowing towards it. Water from the pit will be monitored for water quality and can be managed accordingly. Mine infrastructure (e.g. conveyors, crushers, process buildings, etc.) is not expected to negatively affect groundwater quality because engineering and mitigation measures are available to capture and control surface water.

Similarly, minor and very local temporary alterations to the groundwater flow regime could also be expected from the construction of diversion ditches. Since the ditches are typically constructed along low lying areas, these will be very minor in nature and groundwater flow pathways will be retained. On-site disposal of treated domestic sewage could result in some surface discharges of treated water, but would not affect the water table significantly.

Local geologic materials are generally NAG and do not contain elevated metals concentrations. In general, seepage from the WRMF is not therefore anticipated to increase metals, dissolved solids, or cause pH concerns. However, the exposure and increased surface area of these materials, coupled with the steady exposure to meteoric water and aerobic surface conditions, may mean a limited release of some parameters. Kinetic leach testing is currently underway to further assess these potential aspects, the results of which will govern the monitoring and design of the WRMF. Seepage collection systems would be provided for any poor quality water, as necessary.

Implementation of effective management plans for dealing with explosives handling, blasting practices, spill response and in-pit water management, coupled with monitoring and adaptive management will help mitigate effects on groundwater quality. Upon closure, the flooding of the mine pit is not anticipated to result in significant long-term water quality issues. Monitoring of the stabilization of the pit water quality will be undertaken as the pit slowly fills after mining is complete. This will allow for the implementation of any corrective measures should they be needed to improve pit lake water quality.

9.2 Biological Effects

9.2.1 Aquatic Resources

The Project has the potential to affect aquatic resources, specifically fish, fish habitat, and water, within the mine footprint area. The components of the aquatic environment are interlinked, so environmental changes generally have a cascading effect. The following direct and indirect potential effects of the Project on the aquatic environment are based on preliminary assessments of current mine plans. Habitat compensation plans will be developed and implemented, as required, to satisfy DFO policy. Some habitat restoration will, to the extent practicable, be incorporated in the design of the diversion and storage systems at the Project.

Affects to aquatic resources are addressed as potential impacts to fish, fish habitat and fish contaminant levels, as well as potential impacts to primary producers (algae) and secondary producers (zooplankton and benthic invertebrates). The assessment is focused on fish because of their importance as Valued Ecosystem Components (VECs) identified by user groups and First Nations and because of the direct relevance of the Fisheries Act.

Non-fish aquatic resources will be impacted by the same processes and pathways as fish and potential Project impacts are therefore assessed by comparison of changes in water quality with guidelines for protection of aquatic life such as those of the MoE (PWQO, MoE 1994) or CCME (2007). Water quality standards have been developed using data from fish, invertebrates and algae and are intended to protect all of these groups. Therefore, interpretation of impacts of water quality based on these standards allows the potential impacts to fish, as well as other aquatic resources to be determined. Changes to habitat induced by dewatering or physical alterations can also be assessed with similar significance for fish as for and other aquatic resources.

9.2.1.1 Direct Effects

The main direct effects addressed here include those related to the footprint associated with the proposed pit, the waste rock and tailings management facilities, detention and water quality management ponds, and the mine site buildings area shown in the conceptual design (Figure 2-1):

- A portion of McVeigh Creek will be realigned to accommodate the WRMF and TMF. Care will be taken to design a stable channel to convey water and maintain fish habitat and passage in other water bodies to the extent practicable;
- Part of Lake 1 and Lakes 2, 3, 4, 5 and 7 and potentially 6 will be removed to accommodate the WRMF and TMF (Figure 8-10). Removal of these lakes, or parts of them, represents removal of fish habitat and displacement of fish from the four lakes that supported fish. No sport fish species were captured from these lakes during sampling events;
- The proposed water quality pond and runoff detention pond to the west of the TMF may result in the removal of Lake 6. As indicated above, Lake 7 is removed to accommodate the west end of the TMF. These lakes flow into Lake 8 and represent a removal of

drainage area in the Herman Lake catchment. Some fish and other aquatic resources will be displaced and fish habitat will be removed, however, no sport fish species were collected from Lake 6 and Lake 7 during fish sampling events;

- The existing Tailings Pond will be removed for reprocessing or covered and revegetated in compliance with closure requirements. The effects of this are minimal from a fish and fish habitat perspective; no fish were collected from this water body during fish sampling events. Although tailings ponds can support some aquatic life, they are generally poor habitat and will be of no significance to the aquatic system;
- The pit perimeter will be closer to the north shore of Webb Lake and the west shore of Goudreau Lake. Seepage control facilities (such as subsurface barrier walls) may be needed to isolate the pit from the water in these lakes; and
- Blasting in or near water produces shock waves that can damage a fish swim bladder and rupture internal organs. Blasting vibrations may also kill or damage fish eggs or larvae if the source is close enough. Site-specific vibration analyses will be conducted and used in conjunction with DFO blasting guidelines, to establish blasting procedures that are protective of fish and fish habitat.

9.2.1.2 Indirect Effects

Indirect effects include those related to potential changes in groundwater quality and quantity associated with seepages from mine facilities, altered surface water quality associated with runoff and mine activities, altered surface water quantity associated with realigned drainage networks, and the taking of surface water and groundwater for mine operations. Other effects include those attributed to sedimentation associated with mine construction, operation and closure.

- Downstream water and sediment quality in McVeigh Creek could potentially be affected in the event of impacted water releases from the TMF and the WRMF. Runoff from the WRMF will be collected in a system consisting of a perimeter ditch and detention ponds to reduce total suspended solids (TSS) and either released or pumped to the TMF. Discharge from the TMF will be regulated to levels that are considered safe for aquatic life by the MMER and the MoE ECA. No significant adverse effects on water quality are expected. This water will be treated as necessary.
- Pit runoff can contain ammonia and nitrate residues from blasting, metals and acid materials leached from the pit face, and solids and hydrocarbons spilled or leaked from mine equipment in the pit. Pit wall runoff will be collected in the pit sump and pumped to the TMF for reuse in the mill circuit and eventual discharge under regulation of the MMER and ECA, as described above. Analysis indicates no significant adverse effects to surface water quality are expected and hence no effects to aquatic life. A program will be implemented to monitor surface water quality and trigger mitigation action if results differ from mine monitoring environmental requirements.
- Alteration to the drainage network as a result of mine construction, operation and closure may alter hydrology and negatively affect aquatic species and functions. A hydrology study will quantify and evaluate hydrological effects in detail. This study will form the

basis for a water management plan to protect the environment while providing sufficient operational water supply.

- Road construction requires vegetation clearing and results in soil disturbance, which can cause soil erosion and sedimentation of watercourses. Aquatic biologists will work together with the engineers to implement designs that minimize disturbance and facilitate fish passage. Sediment and erosion control will be implemented to protect aquatic environment features and aquatic resources.
- Accidental spills of fuel or process chemicals into surface water bodies or groundwater would likely result in a degradation of water quality, which could negatively affect fish and fish habitat. An environmental management plan will be prepared to protect sensitive features of the environment.

In most cases adverse effects can be mitigated, or when necessary compensated for, through knowledge of existing (baseline) environmental characteristics and careful planning. Mitigation will be designed to minimize effects on these resources. If required, habitat compensation to satisfy present and future DFO policy will be implemented.

9.2.2 Ecosystems and Vegetation

As with the surficial materials and soils, the ecosystems and vegetation in the area have the potential to be affected by the placement of site infrastructure. Certain activities, such as the excavation of the open pit and construction of roads that will remain in place post-closure, are likely to result in a permanent and unavoidable change to the ecosystems and vegetation in these particular areas. Avoidance and minimization of the overall Project footprint are the best strategies to implement in order to reduce potential effects to ecosystems and vegetation. Where avoidance is not possible, other effective mitigation options include maximizing the use of existing disturbed areas for mine infrastructure and progressively reclaiming disturbed areas to minimize erosion and encourage the re-establishment of productive ecosystems. Prodigy plans to stockpile topsoil and organic materials for reclamation purposes wherever possible.

9.2.3 Wildlife and Wildlife habitat

All stages of the Project include activities that may potentially affect wildlife and wildlife habitat. During construction, the clearing and grubbing of vegetation will represent the single largest form of direct removal or alteration of wildlife habitat. During construction and operations, the level of human activity combined with noise from the operation of equipment and blasting have the potential to result in wildlife avoidance of the Project site and loss of habitat. Furthermore, the traffic on Project access roads can lead to vehicle wildlife collisions and wildlife mortality.

Given the extent of corresponding habitat in surrounding areas, changes introduced by the Project are considered not significant in terms of their effects on the viability of wildlife populations. Prodigy will develop mitigation measures for protecting VECs, if required. The Project will not pose a substantial mortality risk or affect wildlife movement.

Any general trends will be addressed by the Environmental Manager under an Adaptive Management Plan and in coordination with the MNR Regional Biologist and other wildlife managers.

9.3 Human Effects

9.3.1 Socio-Economic Benefits

The Project will provide approximately 400 – 500 construction (short-term) and 300 – 400 operations (long-term) jobs, plus additional indirect jobs through increased spending in the region (See Section 7.0). Tax revenue will also be generated at the municipal, provincial and federal levels.

Short-term and long-term employment opportunities will be offered for a range of skill levels throughout the construction and operation of the mine. The mine will also create indirect opportunities for local and regional businesses to participate in construction, maintenance and logistics opportunities. The increase in direct and indirect employment will benefit the region.

The Project's consultation program is intended to assist in developing economic benefits.

9.3.2 Potential Individual, Family and Community Effects

Potential effects to individuals, family and communities from the mine may be influenced by:

- Employment opportunities;
- Changes in income levels;
- Spending patterns of individuals with Project-related employment;
- Duration of work periods for an individual spent away from home; and
- Capacity of community-based services to accommodate increased demands for services.

The minimum age required by regulations under the Canadian Centre for Occupational Health and Safety (CCOHS) for work in a surface mine is 16. There is a risk that community youth will drop out of school to take employment at the mine. Although this would result in some work experience and on-job training, it might, in some instances, result in limited educational qualifications for certain other types of employment. Minimum employment ages will be used to mitigate this risk.

Subsequent to construction of the Project, many short-term workers may experience a decrease in income and, if Project-related income is not saved, they could experience the stress of that reduced income. For workers employed for longer periods, particularly during the operations and maintenance phases of the Project, it is predicted that individuals and families will learn to better manage income and experience positive effects with respect to individual and family wellness.

There is the potential for an increased demand for community-based services, such as health and police services. Community health centers may experience increased demand due to Project-related injuries and/or occurrence of social behavioural issues due to the influx of additional people. Police resources may see an increased work load related to increased traffic along Highway 519 and Goudreau Road, potential calls from increased behavioural issues, or calls for service from the mine camp.

As the Project proceeds, plans will need to be developed to address the potential negative effects on individuals, families and communities. The responsibility to manage those effects will reside with Project managers, individual workers and government service providers. Some measures that will be incorporated into the Project's policies to mitigate these issues include:

- Community programs supported by the Project;
- Human resources policies;
- Comprehensive and clear Project safety policies and practices;
- Safety and first aid training for all on-site personnel; and
- Provision for daily commuting opportunities to work sites when located close to a worker's home.

9.3.3 Potential Effects on Traditional Culture and Land Use

Potential Project-related effects on traditional culture and land use will be assessed in TK and traditional land use studies, socio-economic assessments, and the results of Aboriginal engagement, where required in the context of the duty to consult. It is noted that the development of the Project will directly affect a small geographical area in relation to the general region.

9.3.4 Potential Effects on Non-Traditional Land and Resource Use

There will be little effect on non-traditional land and resources during the construction and operation of the Project. Considerations during the planning, construction and operations phase of the Project are as follows:

- Commercial activities in the area include mining and forestry activities, which may compete for labour and social services. Prodigy has engaged with Richmond and DFP and will continue to do so to identify and mitigate any potential effects to their operations.
- Recreational activities may be affected by mine-related disturbance (e.g., noise and use of roads for snowmobiling) at locations within close proximity to the mine and from increased mine-related traffic along Highway 519. Roads will be used primarily to transport site workers, supplies, and gold Doré bars during operations. Vehicles are likely to be a combination of buses, personal vehicles (cars, pick-up trucks), tractor-trailers, and armoured vehicles.
- Tourism activities do occur in the Project area. Primary effects will be increased mine-related traffic along Highway 519 and Goudreau Road.

- Access to the Project site already exists; however, it is not yet determined if existing access roads will be upgraded (and, if so, additional maintenance would likely be required to improve and maintain road standards), or if new access roads or road sections will be developed to access the site.
- The Project is not located within or near protected areas, such as parks or wildlife reserves, so no effect is anticipated.

Recreational users will be included in Prodigy's consultation process in order to identify best practices for dealing with any conflicts. Mitigation measures that will be considered include coordination of the Project's transportation activities with other users such as snowmobiling in order to minimize interference.

9.3.5 Archaeology

Archaeological resources are protected through various federal and provincial legislation and regulations. Stage 1 archaeological assessments have been concluded on the Project site. This assessment process, which included a record review, consulting existing databases on known and registered archaeological sites, review of the cultural prehistory, and satellite and air photo interpretation, culminated in the field inspections. Field archaeological investigations were conducted in June and September 2012 for the proposed pit and Webb Lake areas and in June 2013 in the rest of the Project area. No Stage 2 assessments were recommended. These investigations complied with the Ontario Ministry of Tourism, Culture and Sport's (MTCS's) 2011 Standards and Guidelines, including consideration of areas within 150 m of a significant water source that are considered to have high archaeological potential.

9.4 Cumulative Effects Assessment

The potentially more important cumulative effects that require evaluation include, amongst others:

- Regional effects on groundwater from the Project and the adjacent Island Gold Mine.
- Regional effects on surface water systems due to use and discharge from both the Project and the Island Gold Mine.
- Regional effects on aquatic and terrestrial ecology due to development activities at the Project, the Island Gold Mine, and other potential industrial projects such as forestry.
- Regional effects on community lifestyle such as hunting and fishing due to development activities at the Project, the Island Gold Mine, and other potential industrial projects such as forestry.
- Regional effects or an improvement in the local economy and employment due to development activities at the Project, the Island Gold Mine, and other potential industrial projects such as forestry.

- The effects of increased power demand by the Project, Island Gold Mine⁴ and potentially other industrial development.

Prodigy will follow federal requirements to conduct a Cumulative Effects Assessment (CEA) of the Project. The Canadian Environmental Assessment Act, 2012 requires a cumulative effects assessment under Section 19.1 (a), factors to be considered as *“any cumulative effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out.”*

The Province of Ontario also cites a cumulative effects assessment as a technique to be considered in the evaluation of significance for projects undergoing Class EAs. In this context, a CEA for MNR Class EA projects in Ontario have been described as *“the total effect on the environment within the defined study area from two or more projects. Sometimes the effects of more than one project can accumulate so that they reach a critical threshold, or they can be compounded so that they create an effect that is greater than the sum of individual effects, (MNR 2003)”*.

Prodigy will link project-specific environmental, cultural and socio-economic effects with current and foreseeable future projects in the general regional area associated with the Project. The CEA approach will include scoping, analysis of effects, identification of mitigation measures, evaluation of significance, and identification of follow-up measures to deal with current and foreseeable projects.

Mitigation measures to be considered include establishing co-ordinating with other mines and industries in the area to develop and promote appropriate regional support programs.

⁴ Island Gold is planning to deepen their mine to 1,000 m from 2013 through 2015. This will involve increases in power and water requirements.

10. CONSULTATION WITH FIRST NATIONS AND MÉTIS

10.1 Consultation

First Nations and Métis that may be interested in or potentially affected by the Project were identified by CEAA as:

- Michipicoten First Nation
- Missanabie Cree First Nation
- Métis Nation of Ontario
- Pic Moberg First Nation
- Red Sky Métis Independent Nation

Prodigy has initiated consultation with the Missanabie Cree First Nation, the Michipicoten First Nation and the Métis Nation of Ontario. To date, the engagement activities have focused on the sharing of information about the Project, listening to questions, opinions and comments, and working toward developing long-lasting relationships. Relationship building, consultation and communications will be ongoing as the Project evolves.

Notification will be forwarded to all first Nation and Métis organizations. Contact information for the identified First Nations and Métis is provided in Tables 10-1 and 10-2.

Table 10-1: First Nation and Métis Contact Information

ABORIGINAL GROUP	CONTACT INFORMATION
Michipicoten First Nation	Chief Joseph Buckell Box 1, Site 8, Rr1, Wawa Ontario Pos 1k0 Phone: (705) 856-1993 Ext 215 Email: jbuckell@michipicoten.com Fax: (705) 856-1642
	Carol Sanders, Band Manager, Michipicoten First Nation Box 1, Site 8, Rr1, Wawa Ontario Pos 1k0 Phone: (705) 856-1993 X 213 Email: csanders@michipicoten.com Fax: (705) 856-1642
	Mishele-Lee Lapham, Executive Secretary, Michipicoten First Nation Box 1, Site 8, Rr1, Wawa Ontario Pos 1k0 Phone: (705) 856-1993 X 214 Email: slapham@michipicoten.com Fax: (705) 856-1642

ABORIGINAL GROUP	CONTACT INFORMATION
Missanabie Cree First Nation	<p>Chief Kim Rainville 559 Queen St. East, Sault Ste. Marie Ontario 6pa 2a3</p> <p>Phone: (705) 254-2702 X 236 Email: krainville@missanabiecree.com Fax: (705) 254-3292</p>
	<p>Gladys Hawkins, Administrative Assistant 559 Queen St. East, Sault Ste. Marie Ontario 6pa 2a3</p> <p>Phone: (705) 254-2702 X 231 Email: ghawkins@missanabiecree.com Fax: (705) 254-3292</p>
	<p>Roy Gideon, Council Missanabie Cree First Nation Whole Earth Committee 17b Hwy 7 East, Garden River, Ontario 6pa 6z1</p> <p>Phone: (705) 254-2702 X 505 Email: rgideon@missanabiecree.com Fax: (705) 254-3292</p>
	<p>Jason Gauthier, Council Missanabie Cree First Nation Whole Earth Committee 413 Preston Street, Timmins, Ontario</p> <p>Phone: (705) 951-0449 Email: jgauthier@missanabiecree.com Fax: (705) 254-3292</p>
Métis Nation of Ontario Lands and Resources	<p>Mark Bowler, Director of Lands, Resources & Consultation 311-75 Sherbourne Street, Toronto Ontario, m5a 2p9</p> <p>Phone:(416) 977-9881 Ext 114 Email: markbowler@metisnation.org</p>
	<p>Cameron Burgess, MNO Councillor & Chair of the Lakehead Nipigon Michipicoten Regional Consultation Committee 841 Brodie Street North, Thunder Bay, ON P7C 3V1</p> <p>Phone: (807) 627-8111 Email: cameronb@metisnation.org</p>
	<p>Kevin Muloin, Fisheries, Habitat liaison Officer, the Lakehead Nipigon Michipicoten Regional Consultation Area 231 Brodie St. South, Thunder Bay, Ontario, P7E 1C1</p> <p>Phone: (807) 626-9876 ESxt 401 Email: kevinm@metisnation.org Fax: (807) 626-9315</p>

ABORIGINAL GROUP	CONTACT INFORMATION
Pic Mobert First Nation	Chief Johanna Desmoulin P. O. Box 717 Mobert, ON, P0M 2J0 Email: chiefjohanna@picmobert.ca
	Elaine Stewart, CMA Director of Operations Phone: 807-822-2134 ext 229 Fax: 807-822-2850 Email: estewart@picmobert.ca
Red Sky Métis Independent Nation	Chief Troy DeLaRonde 406 East Victoria Avenue Thunder Bay, ON, P7C 1A5 Phone: 807-623-4635 Fax: 807-623-9331
	Donelda Delaronde Executive Director Phone: 807-623-4635 Ext. 111 Fax: 807-623-9331 Email: rsmin@tbaytel.net

Table 10-2: Government Contacts for First Nation and Métis Engagement

CONTACT INFORMATION	
Canadian Environmental Assessment Agency	Corey Dekker Senior Advisor, Aboriginal Affairs, Ontario Regional Office 55 St. Clair Avenue East, Room 907 Toronto, Ontario M4T 1M2 Phone: (416)954-7357 corey.dekker@ceaa-acee.gc.ca
Mineral Development and Lands Branch, Ministry of Northern Development and Mines	David Bell Exploration and Development Consultant 6th Floor - 933 Ramsey Lake Road, Willet Green Miller Centre Sudbury, Ontario P3E 6B5 Phone: (705) 670-3016 Email: Dave.K.Bell@Ontario.Ca

CONTACT INFORMATION	
Ministry of Northern Development and Mines	Pierre Lefebvre Senior Aboriginal Liaison Officer, Aboriginal Relations Branch Ontario Government Complex – E Wing P.O. Bag 3060, 5520 Hwy. 101 East South Porcupine Ontario, P0N 1H0 Phone: (705) 235-1621 E-Mail: pierre.lefebvre@ontario.ca Fax: (705) 235-1620

Key Comments to Date

A summary of the key comments and concerns expressed by Aboriginal groups, including the responses provided to these groups, are as follows:

Michipicoten First Nation

Primary comments expressed relate to:

- Potential impacts to the environment;
- Have an interest in business, training and employment opportunities; and,
- Have a formal Memorandum of Understanding in place, prior to the initiation of studies (e.g., TK, Socioeconomic).

General comments expressed include: long-term community benefits; opportunities for participation in the Project; impacts to Michipicoten Aboriginal and Treaty Rights; and consideration of an Impact Benefit Agreement with Prodigy.

Missanabie Cree First Nation

General comments relate to:

- Potential project impacts;
- Communications protocols;
- Resourcing for participation in the Project;
- Employment, training and business opportunities; and,
- Long-term community benefits.

Métis Nation of Ontario

Primary comments expressed relate to:

- Potential impacts to the environment;

- Project impacts on use in the area;
- Opportunities for participation in the Project, including employment, training, business opportunities; and
- Long-term benefits through the development of the Project.

10.2 Ongoing Consultation

Prodigy is continuing with ongoing consultation and engagement activities and will work with affected Aboriginal groups to address concerns and questions. Input on the following items will be sought from affected Aboriginal groups:

- Past and current practices, traditions or customs within the Project area;
- How the Project may impact the above; and
- Information relevant to the baseline studies being conducted for the EA.

11. CONSULTATION WITH COMMUNITY AND REGIONAL GROUPS

11.1 Consultation

Prodigy has actively engaged community and regional groups in the area surrounding the Project to discuss and obtain input on their proposal to re-open the Magino Mine. Consultation activities have been undertaken in Wawa and Dubreuilville to better understand local communities and make note of questions and key comments, and to work towards developing strong, long-term working relationships. Prodigy has also been consulting with the regulatory agencies, as described at the end of the section.

The following section briefly summarizes the results of consultations conducted to date and outlines key comments raised at regional and local levels. These comments are derived from meetings with elected municipal officials, regional interest groups, and community members.

11.2 Key Issues Raised

11.2.1 Anticipation and Expectations

Groups expressed concern that the Project may not be developed. The following comments were made:

- The excitement sparked by the Project in communities could lead to disappointment if it is not built;
- Community members and elected officials stated that they would like assurances that the Project is a “sure thing”;
- Concern that if the gold price drops significantly, then the Project may not proceed; and
- There is widespread interest in learning about the Project’s next steps.

11.2.2 Ongoing Community Involvement

Groups expressed a desire that the Project involve affected communities on a continuing basis and had the following comments:

- Concern that local communities will not benefit if the Project has a “fly-in and fly-out” approach;
- Hope was expressed that the Project would directly benefit local communities and the entire region (e.g., the communities of White River, Chapleau, Wawa and Dubreuilville); and
- Desire was expressed for population growth (new permanent residents) supported by local employment opportunities.

11.2.3 Interest in a Camp and its Possible Location

Groups wanted to know whether there would be a camp and where it would be located. The following questions were raised:

- Whether a camp would be required; and
- Where the camp would be located; at the mine site, or in Wawa or Dubreuilville. Concern was expressed that a camp away from communities would not benefit local and regional economies.

11.2.4 Use of Existing Infrastructure, Services and Housing

There is a desire that the Project make best use of available resources and infrastructure. The following questions and ideas were provided:

- Interest in the types of infrastructure that would be required to support the mine site;
- Belief that the communities of Wawa and Dubreuilville are capable of accommodating new growth; and
- Specifically, the opinion was expressed that vacant homes in Wawa and serviced lots in Dubreuilville are capable of accommodating population growth.

11.2.5 Information Sharing and Communications

Community members requested that they be kept abreast of Project developments and milestones. In addition, members expressed:

- An interest in local representation (e.g., local community members) on the Project's management team; and
- A desire for Prodigy to make the Project Team's contact information available.

11.2.6 Mine Operations

There was general interest in when the Project would commence and its duration. The following comments were expressed:

- Interest in when construction and operations would commence;
- A suggestion was made for two mine entrances to enhance mine safety and ease of access;
- An interest was expressed in obtaining aggregate (particularly crushed rock) generated by the mining operations for construction of driveways and other infrastructure in Dubreuilville;
- The requirement for sound environmental practices was raised; and
- Sacred sites (e.g., the cemetery near Goudreau) should be respected when siting mine facilities.

11.2.7 Staffing and Training

There was a high degree of interest in the range of jobs and training opportunities that would be available. The following matters were raised:

- General interest was expressed in learning what levels of formal education, and skills and trades training would be required for new jobs at the mine;
- Interest was expressed in learning how Wawa and Dubreuilville community members could take advantage of new employment opportunities;
- Interest in learning how employment recruitment will be undertaken; and
- Interest in working proactively with Prodigy to encourage the development of training programs with potential public partnerships. Belief that new employment opportunities could attract former residents back to their local communities.

11.2.8 Transportation and Roads

Accessibility of the mine was another concern. The following questions were raised:

- Interest in learning what access routes are being considered;
- Belief that an alternative access point through Hawk Junction could reduce commute times and benefit communities in the region; and
- Concern regarding additional traffic volumes in the local communities that may result from the construction of a new road.

11.2.9 Prodigy Responses

Prodigy will evaluate and consider the comments raised by the public. A jobs description table, which outlines the positions at the Project and the associated skill levels will be made available. Wawa and Dubreuilville will be the local study communities and White River and Hawk Junction will be part of the regional study communities.

Prodigy supports providing accommodations for operational workers in the local communities, however, it believes a supplementary housing camp will still be needed since the number of workers will be large compared to the existing population of the local communities. Prodigy has studied upgrading and/or rebuilding a road from Hawk Junction to the Project and concluded it is not as viable as the roads identified in Section 3.6 since it would increase environmental impacts and costs and involve potentially complex landowner approvals. Argonaut, Prodigy's parent company, indicated it is financially robust and the Project is still economically viable at a lower gold price.

11.3 Planned Consultation

Consultation is ongoing and will continue through the life of the Project. Prodigy will continue to meet with nearby communities to provide timely updates, receive feedback, and continue with

dialogue and with building community relationships. A formal Communication Plan is being developed and background (baseline) materials will be prepared.

The general public and stakeholders will be consulted in a variety of ways during the EA of the Project as summarized below.

The expectations of federal agencies and the Province of Ontario will be confirmed with respect to consultation and the Communications Plan will support these expectations.

Opportunities for participation will be provided to the communities through various meetings such as open houses, individual discussions, and in more formal settings as the Project evolves.

11.3.1 Engagement Techniques

A variety of techniques will be used during the consultation program, including the following:

- Open House sessions
- Project updates and meetings
- Print material
- Electronic material

The community requested that Prodigy also consider the following additional means of communicating:

- Facebook, radio, newspapers
- Mail box drop offs
- Word of mouth
- Bulletin boards around the towns

11.3.2 Notification Protocols

Notification protocols for the consultation program will be part of the Communication Plan. Proposed components are as follows:

- Project notices will be posted one to two weeks prior to a public event;
- Public-information announcements will be aired on the radio and placed in local newspapers;
- E-mail notices will be sent to the community leadership and all identified interested parties; and
- Project notices will be sent by mail/e-mail to all known third parties, e.g., outfitters, trappers, and other industrial operations in the area.

11.3.3 Documentation and Issues Management

Prodigy is documenting all consultation activities and comments to ensure that relevant information is recorded and responded to as appropriate. Information collected during consultation will also be documented if it is incorporated into the Project design. The information in this tracking mechanism will form part of the public consultation report that will be submitted with the EA documentation. This will provide the Project Team with a better understanding of the matters that are important to stakeholders.

Table 1-3 provides a concise summary of the interactions between Prodigy and the assessment and regulatory agencies to date.

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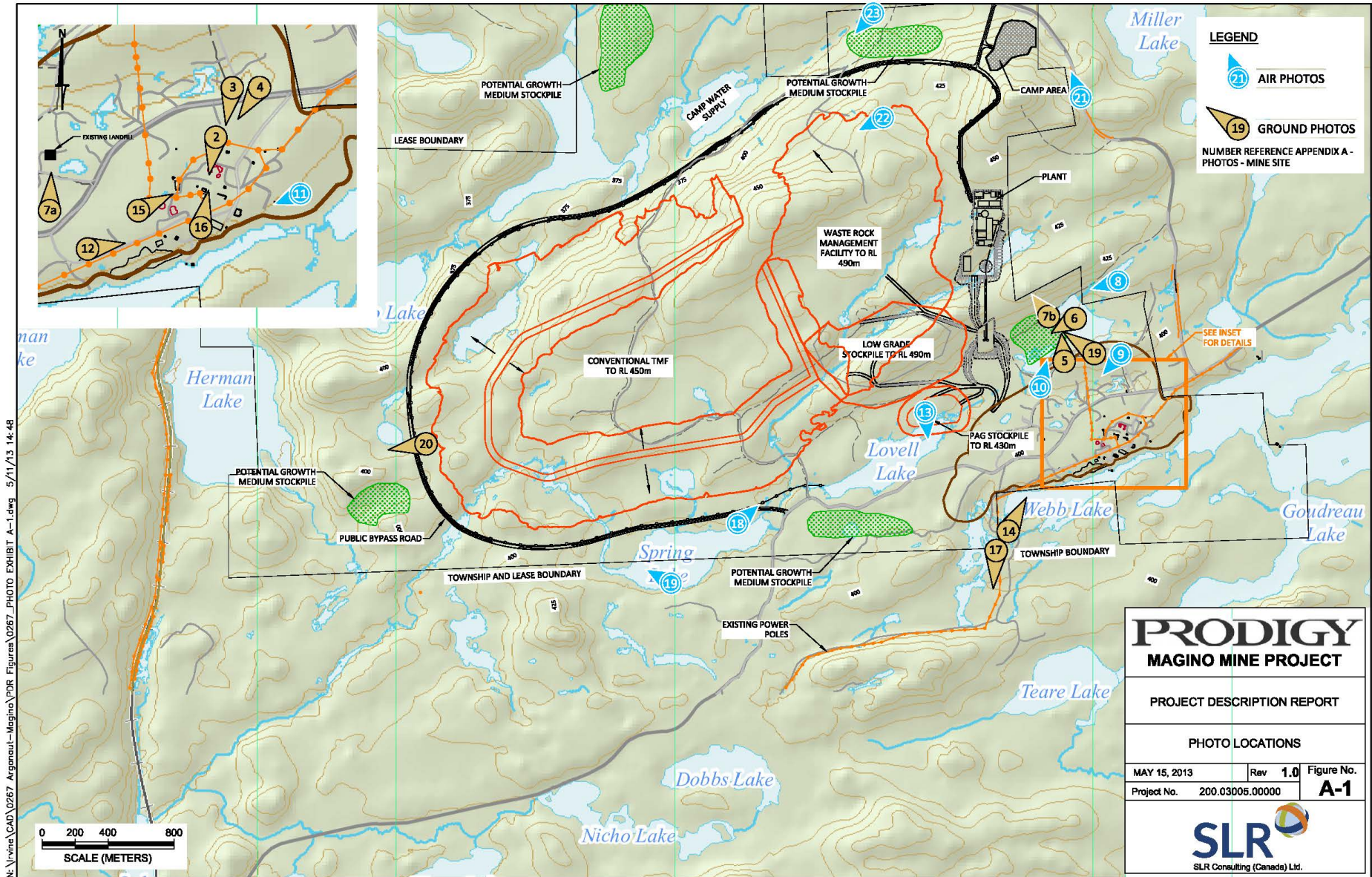
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APPENDIX A

Photos – Mine Site



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Picture 1
Existing Mine Site with Exploration Drills – Facing East
(Project Pit)



Picture 2
Existing Mine Site – Process Plant Pad and Old Offices - Facing South
(Project Pit)



Picture 3
Existing Mine Site with Exploration Drills – Facing East
(Project Pit)



Picture 4
Existing Mine Site – Facing South
(Project Pit)



Picture 5
Existing Tailings Facility - Facing Northeast
(To be closed)



Picture 6
Existing Tailing Facility Polishing Pond - Facing West
(To be closed)



**Picture 7(a)
Existing Tailings Facility Centre Dam – Facing North
(To be closed)**



**Picture 7(b)
Existing Tailings Facility Centre Dam - Facing North
(To be closed)**



Picture 8
Existing Tailings Facility - Facing West
(Project Waste Rock and Tailings Management Facilities to be located on the right half of photo)



Picture 9
Existing Mine Operations and Tailings Facility – West Facing
(Project Pit Area)



Picture 10
Existing Tailings Facility - Facing Northeast
(Project Process Facility and Camp to be located in top right hand corner of photo)



Picture 11
Existing Mine Facilities - Facing West
(Project Pit)



Picture 12
Existing Landfill Area - Facing North
(Clean closed as part of Project)



Picture 13
Lovell Lake - Facing North
(Project Waste Rock Management Facility to be
located off the far bank of the lake)



Picture 14
Looking North East South Across Webb Lake



Picture 15
Looking Easterly Across Previous Mine Workings,
North Shore of Webb Lake
(Project Pit)



Picture 16
Waste Rock Piles,
North Shore of Webb Lake
(Project Pit)



Picture 17
Existing Electric Transmission Corridor,
West End of Webb Lake
(Project may require increased capacity)



Picture 18
Aerial View with Proposed Project Facility Locations



Picture 19
Looking North West from Spring Lake in Foreground to Herman Lake in Background
(Across the western toe area of the Project WRMF)



Picture 20
Looking West at Herman Lake in Background



Picture 21
Looking North West Along Goudreau Road
(Project Camp located in central photo on left hand side of road)



Picture 22
Looking South West Along Ridgeline to North of WRMF
(Project TMF and WRMF will be located on left hand side of road)



Picture 23
Looking South West From Goudreau Road
(Trail through centre of photo approximates alignment of Project's New Bypass Road)



Picture 24
Aerial View of Project Area

APPENDIX B

Federal and Provincial PDR Requirements

APPENDIX B-1

Federal Agency Project Definition Requirements

**Appendix B-1:
Federal Agency Project Definition Requirements**

CEAA Regulation SOR/2012-148 Schedule Number	CEAA Guide to Preparing a PDR			Prodigy PDR Section Number
	Section Number	Section Summary	Section Description	
	1.0		General Information and Contacts	
1	1.1	Project Name	The project's name, nature and proposed location.	1.1
2	1.2	Proponent	The proponent's name and contact information and the name and contact information of their primary representative for the purpose of the description of the project <i>(including the CEO and Primary Contact Person)</i> .	1.2
3	1.3	Consultation List	<i>Provide a list of any jurisdictions and other parties including Aboriginal groups and the public that were consulted during the preparation of the project description. (A description of the result of any consultations undertaken is to be provided in sections 6 and 7).</i>	1.4, 1.5
4a, 4b	1.4	Regulatory Framework Environmental Studies	Other relevant information, including a) the environmental assessment and regulatory requirements of other jurisdictions; and b) information concerning any environmental study that is being or has been conducted of the region where the project is to be carried out.	a)1.6, 2.3 b)2.4
	2.0		Project Information	
5	2.01	Project Context	A description of the project's context and objectives.	2.1.2
6	2.02	Regulation Designating Physical Activities	The provisions in the schedule to the Regulations Designating Physical Activities describing the project in whole or in part.	1.6.1
	2.1		Components and Activities	
7		Physical Works	<i>(Include existing structures or related activities that will form part of or are required to accommodate or support the designated project).</i>	3, 4
8		Project Capacity	b) The anticipated production capacity of the project (<i>with reference to thresholds set out in the Regulations Designating Physical Activities</i>) and a description of the production processes to be used, the associated infrastructure and any permanent or temporary structures.	2.1.2
		Expansion	c) <i>If the designated project or one component of the designated project is an expansion, the percent of increase in size or capacity from the existing project (relative to the thresholds set out in the Regulations Designating Physical Activities).</i>	N/A
9		Activities	d) A description of all activities to be performed in relation to the project.	3, 4
	2.2		Emissions, Discharges and Waste	
10		Emissions Discharges Wastes	A description of any solid, liquid, gaseous or hazardous waste that is likely to be generated during any phase of the project and of plans to manage those wastes, <i>including the following:</i> a) <i>Sources of atmospheric contaminant emissions during the designated project phases (focusing on criteria air contaminants and greenhouse gases, or other non-criteria contaminants that are of potential concern) and location of emissions.</i> b) <i>Sources and location of liquid discharges.</i> c) <i>Types of wastes and plans for their disposal (e.g., landfill, licensed waste management facility, marine waters, or tailings containment facility).</i>	5

**Appendix B-1:
Federal Agency Project Definition Requirements**

CEAA Regulation SOR/2012-148 Schedule Number	CEAA Guide to Preparing a PDR			Prodigy PDR Section Number
	Section Number	Section Summary	Section Description	
	2.3		Construction, Operation, Decommissioning and Abandonment	
11		Project Phases Project Schedule	A description of the anticipated phases of and the schedule for the project's construction, operation, decommissioning and abandonment, <i>including the following:</i> a) <i>Anticipated scheduling, duration and staging of key project phases, including preparation of the site, construction, operation, and decommissioning and abandonment.</i> b) <i>Main activities in each phase of the designated project that are expected to be required to carry out the proposed development (e.g., activities during site preparation or construction might include, but are not limited to, land clearing, excavating, grading, de-watering, directional drilling, dredging and disposal of dredged sediments, infilling and installing structures).</i>	7
	3.0		Project Location	
12			A description of the project's location, including	
12. a)	3.01	Geographic Coordinates	its geographic coordinates <i>for the centre of the facility</i>	2.2.1
12. b)	3.02	Site Maps	site maps produced at an appropriate scale in order to determine the project's overall location and the spatial relationship of the project components;	2.1.3
	3.03	Additional Maps	<i>maps at an appropriate scale showing the location of the designated project components and activities relative to existing features, including but not limited to:</i> a) <i>watercourses and waterbodies with names where they are known;</i> b) <i>linear and other transportation components (e.g., airports, ports, railways, roads, electrical power transmission lines and pipelines);</i> c) <i>other features of existing or past land use (e.g., archaeological sites, commercial development, houses, industrial facilities, residential areas and any waterborne structures);</i> d) <i>location of Aboriginal groups, settlement land (under a land claim agreement) and, if available, traditional territory;</i> e) <i>federal lands 3 including, but not limited to National parks, National historic sites, and reserve lands;</i> f) <i>nearby communities;</i> g) <i>permanent, seasonal or temporary residences;</i> h) <i>fisheries and fishing areas (i.e., Aboriginal, commercial and recreational);</i> i) <i>environmentally sensitive areas (e.g., wetlands, and protected areas, including migratory bird sanctuary reserves, marine protected areas, and National Wildlife areas); and</i> j) <i>provincial and international boundaries.</i>	8
	3.04	Photographs	<i>Photographs of work locations to the extent possible.</i>	App A
12. c)	3.05	Legal Description	the legal description of land to be used for the project, including the title, deed or document and any authorization relating to a water lot;	2.2.2
12. d)-f)	3.06	Proximity	the project's proximity to: a) any permanent, seasonal or temporary residences; b) to reserves, traditional territories as well as lands and resources currently used for traditional purposes by Aboriginal peoples; and c) any federal lands.	2.2.3.4

**Appendix B-1:
Federal Agency Project Definition Requirements**

CEAA Regulation SOR/2012-148 Schedule Number	CEAA Guide to Preparing a PDR			Prodigy PDR Section Number
	Section Number	Section Summary	Section Description	
	3.1	Land Use Water Use Marine	Land and Water Use <i>To the extent that is known at this time, describe the ownership and zoning of land and water that may be affected by the project, including the following:</i> a) Zoning designations. b) Current land ownership, including sub-surface rights. c) Any applicable land use, water use (including ground water), resource management or conservation plans within and near the project site. d) For the proposed construction, operation, decommissioning and abandonment of a marine terminal, state whether or not the lands are routinely, and have been historically, used as a marine terminal, or are designated for such use in a land use plan that has been the subject of public consultation. e) If the project is to take place within the waters or lands administered by a Canada Port Authority under the Canada Marine Act and its regulations, describe applicable land status and zoning under the Port Land Use Plan. f) Describe whether the designated project is going to require access to, use or occupation of, or the exploration, development and production of lands and resources currently used for traditional purposes by Aboriginal peoples.	a)2.2.3.5 b)2.2.2 c)2.2.3.3, 2.2.3.5 d)N/A e)N/A f)2.2.3.2
	4.0		Federal Involvement	
13	4.1	Federal Financial Support	A description of any financial support that federal authorities are, or may be, providing to the project.	2.3.1
14	4.2	Federal Land	A description of any federal land that may be used for the purpose of carrying out the project. <i>This is to include any information on any granting of interest in federal land (i.e., easement, right of way, or transfer of ownership).</i>	2.3.1.2
15	4.3	Regulatory Requirements	Any federal legislative or regulatory requirements that may be applicable including a list of permits, licences or other authorizations that may be required in order to carry out the project.	2.3.1.3
	5.0		Environmental Effects	
16	5.1	Physical and Biological Setting	A description of the physical and biological setting, <i>including the physical and biological components in the area that may be adversely affected by the project (e.g., air, fish, terrain, vegetation, water, wildlife, including migratory birds, and known habitat use).</i>	8, 9
17 a)-c)	5.2	Fisheries SARA Migratory Birds	A description of any changes that may be caused, as a result of carrying out the project, to a) fish as defined in section 2 of the Fisheries Act and fish habitat as defined in subsection 34(1) of that Act; b) aquatic species, as defined in subsection 2(1) of the Species at Risk Act; and c) migratory birds, as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994.	9.2
18	5.3	Description of Changes	A description of any changes to the environment that may occur, as a result of carrying out the project, on federal lands, in a province other than the province in which the project is proposed to be carried out or outside of Canada.	N/A
19	5.4	Effects on Aboriginal peoples	Information on the effects on Aboriginal peoples of any changes to the environment that may be caused as a result of carrying out the project, including effects on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes or on any structure, site or thing <i>that is of historical, archaeological, paleontological or architectural significance.</i>	9.3, 10

**Appendix B-1:
Federal Agency Project Definition Requirements**

CEAA Regulation SOR/2012-148 Schedule Number	CEAA Guide to Preparing a PDR			Prodigy PDR Section Number
	Section Number	Section Summary	Section Description	
	6.0		Proponent Engagement and Consultation with Aboriginal Groups	10
			<i>Provide the following information to the extent that it is available or applicable:</i>	
	6.1	List of Interested Aboriginal Groups	<i>A list of Aboriginal groups that may be interested in, or potentially affected by, the designated project, including contact information (location, name, mailing address, email address, and fax and telephone numbers).</i>	10.1
	6.2	Consultation Activities to Date	<i>A description of the engagement or consultation activities carried out to date with Aboriginal groups, including: a) names of Aboriginal groups engaged or consulted to date with regard to the project; b) date(s) each Aboriginal group was engaged or consulted; and c) means of engagement or consultation (e.g., community meetings, mail or telephone).</i>	10.3
	6.3	Key Comments	<i>An overview of key comments and concerns expressed by Aboriginal groups identified or engaged to date, including any responses provided to these groups.</i>	10.4
	6.4	Traditional Land Use	<i>An overview of information on current use of lands and resources for traditional purposes by Aboriginal groups or peoples (e.g., information provided verbally or in writing, and past or present studies).</i>	2.2.3.2
	6.5	Consultation Plan	<i>A consultation and information-gathering plan that outlines the ongoing and proposed Aboriginal engagement or consultation activities, the general schedule for these activities and the type of information to be collected (or, alternatively, an indication of why such engagement or consultation is not required).</i>	10.5, 11.2
	7.0		Consultation with the Public and Other Parties (other than Aboriginal consultation included above)	
			<i>Provide the following information to the extent that it is available or applicable:</i>	
	7.1	List of interested Stakeholders	<i>A list of stakeholders that may be interested and potentially affected by the carrying out of the designated project. In addition, please describe consultation activities carried out to date with stakeholders, including: a) names of stakeholders previously consulted; b) date(s) each stakeholder was consulted; and c) means of consultation (e.g., community meetings, mail or telephone).</i>	a-c) Tables 1-1 and 1.3, Table 10-1, Appendix C
	7.2	Key Comments	<i>provided.</i>	1.5, 10.4, 11.2
	7.3	Consultation Plan	<i>An overview of any ongoing or proposed stakeholder consultation activities.</i>	11.2
	7.4	Other Consultations	<i>A description of any consultations that have occurred with other jurisdictions that have environmental assessment or regulatory decisions to make with respect to the project.</i>	11.0
	8.0		Summary	
20		Summary	An executive summary of the information required under sections 1 to 19 of the regulation, or sections 1-7 of the guide, in French and English	Seperatley Bound Executive Summary
			Additional Information provided in other recent mining PDRs	
			Overview of Potential Environmental Effects (Griffith, Cliffs, Bending Lake)	Table 9.1
			Alternatives Assessment (Cliffs, Bending Lake)	Section 6
			Neighboring Private/Crown Land Use (Cliffs)	2.2.3.4
			Neighboring Provincial Parks (Cliffs)	Section 2.2, Figure 2-2
			Pipelines/international transmission lines (Bending Lake)	N/A

Note: Information taken directly from CEAA Regulation SOR/2012-148 (regular font) and the CEAA Guide to Preparing a Description of a Designated Project under the CEAA, 2012 (*italics*)

APPENDIX B-2

Provincial Project Definition Requirements

**Appendix B-2:
Provincial Project Definition Requirements**

Section	Project Description Template Topic	Section of PDR
1.	Introduction and Summary	
1.1.	Name, address and corporate description of the proponent, and name, address and description of Provide official company names	1.2 1.2
	Provide names of consultants/agents representing your company	1.2
1.2.	The name(s) of any co-proponent(s), such as joint venture partner, corporation, government department or agency, municipality or other organization.	N/A
1.3.	Summary of the purpose, nature and scope of the project	1.1
1.4.	Any consultations held regarding the project with federal authorities, provincial or municipal governments, Aboriginal groups, the public, etc?	1.5
1.5.	Information identifying any federal government department or agency that is, or may be; granting federal land, providing financial support to the project (include indirect funding support, such as for infrastructure and training), or potentially granting authorizations	2.3.1
1.6.	The name and contact information of one or two persons from whom government coordinator may obtain more information	1.2
2.	General Site Information	
2.1.	Project Name	1.1
2.2.	Previous Name (historical or alternate /operating names)	2.2.3.1
2.3.	Current Status of the proposal (what stage of permitting/feasibility study - i.e. new / revised,	1.1
2.4.	Ownership of Project (current and proposed)	1.2
2.5.	Latitude/Longitude or UTM coordinates	2.2.1
2.6.	Geographic Information: description of location, and access to site (District/Township)	2.2.1, 1.1
2.7.	Site Address and Site Contact Information:	1.2
3.	Land Tenure for the Project	
3.1.	Surface and mineral rights tenure (include proponent's interest in the properties)?	2.2.2
3.2.	Ownership of timber affected by the project?	2.2.3.5
3.3.	Ownership of sand and gravel resources used?	2.2.2
3.4.	Other neighbouring private land affected (potentially affected) by the project?	2.2.3.4
3.5.	Crown land (Federal and Provincial) involved?	2.2.2, 2.3.1.2
3.6.	Indian reserves where facilities may be located?	2.2.3.2
3.7.	Other easements and reservations and allocations, including forest resource licence holders etc?	2.2.2
4.	Site Plans	
4.1.	Regional Scale: e.g. Topographic setting, watershed areas, settlement areas, neighbours,	2
4.2.	Property Scale: e.g. topographic contours, water bodies and wetlands, data points such as : known	8
4.3.	Site Plan: e.g. indicating the proposed location and arrangement and scale of, existing and proposed	3
5.	Project Details	
5.1.	Mining Activities	
5.1.1.	Any existing/previous development, operations and facilities?	2.2.3.1
5.1.2.	Current status of the site (e.g. operating mine, inactive, undeveloped, advanced exploration, etc.)?	1.3
5.1.3.	Targeted mineral(s), geology, and mineralogy	1.1, 3.1
	Any mineral resources identified?	3.1
5.1.4.	Geochemical and geotechnical considerations. (e.g. potential Acid Rock Drainage and Metal	3.3
5.1.5.	Proposed principle mining methods (e.g. underground vs. open pit; ramp access vs. shaft; equipment	3.4
	Proposed major equipment and installations	3.4
5.1.6.	Open pit / underground conceptual development plan with illustrations	3.3
5.1.7.	Proposed Haulage and handling operations (i.e. haul routes, crushing facilities; size and location etc.)	3.5, 3.6
5.1.8.	Proposed project duration and rate of mining	2.1.2
5.1.9.	Major operational phases	2.1.2
5.1.10.	Work force requirements and work schedule (i.e. construction, operations)	7.2.1, 7.2.2,

**Appendix B-2:
Provincial Project Definition Requirements**

Section	Project Description Template Topic	Section of PDR
5.2.	Processing	
	Describe any proposed milling, smelting, refining. Include a high level description of the proposed	3.5
5.3.	Facilities and Infrastructure	
5.3.1.	Roads and Railways	
	Any expansions and/or improvements anticipated to existing public or private roads?	3.6
	Any proposed new roads on crown lands, including their anticipated length, proposed route, water	3.6
	Indicate if contemplated roads will be seasonal or all weather	3.6
	Include a description of any new provincial highway alignments, new or existing entrances,	3.6
	Include description of new or existing rail lines and facilities and crossings	6.8.2
5.3.2.	Any marine or inland water transportation routes and cargo carried?	N/A
5.3.3.	Description of any contemplated port or dock facilities, including dredging requirements	N/A
5.3.4.	Will any airfields be required and, if so, describe anticipated runway length and type and volume of	N/A
5.3.5.	Power Supply	
	What is the proposed method of regular power supply to the project?	3.9
	total electrical demand/consumption anticipated	3.9
	total generating capacity of primary use diesel generators	3.9
	standby generation facilities/ capacity	3.9
	length, capacity and proposed route of power transmission lines, if any	3.9
	location of substations and connections to existing grid	3.9
	onsite power distribution plan	3.9
5.3.6.	Any fuel, natural gas or other pipelines anticipated, including their capacity, length, proposed route	3.10
5.3.7.	Any anticipated dams, dikes and diversions or other facilities in or near water bodies planned, or potentially needed?	4.1, 9.1
5.3.8.	Will any major buildings and large equipment be needed?	3
5.3.9.	If a camp and associated services are required, include a description of the:	3.7
	accommodation capacity	2.2, 7.2.2,
	water, sewage and waste facilities	5.6, 5.7
	other facilities (e.g. medical, fire)	3.7
5.3.10.	Will there be any aggregate requirements and, if so, describe any proposed pits, quarries including;	3.1.3
	Anticipated annual production requirements, and whether material will be collected from above or below the water table	
5.3.11.	Storage Sites	3.8
	Describe the following:	
	Petroleum storage sites, including capacity, containment and handling facilities, fuel consumption, chemicals, and reagents facilities,	3.8.2
	hazardous or toxic substances facilities, storage	3.8.1
	explosives facilities and storage	5.7.3
		3.8.3
5.4.	Tailings, Waste Rock and Other Mine Stockpiles	
5.4.1.	Anticipated production rates (tonnes, cubic metres per day/year?)	2.1.2
5.4.2.	Proposed disposal location, method and treatment necessary	4
5.4.3.	Expected size, physical and chemical nature of the all waste and stockpiles	4
5.4.4.	Summarize any previous operation experience and performance, if applicable	1.6
5.4.5.	Overview of any metal leachate, acid rock or other appropriate survey that is underway or proposed	4.1
5.5.	Water Management	
5.5.1.	Water Taking Requirements	
	Provide a description of anticipated water taking requirements including; uses, rates, sources intake	3.5.6
	Describe potential impacts to ground and surface waters resulting from proposed water taking and indicate and if mitigation is believed necessary	9.1.3, 9.1.4, 9.1.5
	Summarize any previous operation experience and performance, if applicable	1.2
	Provide an overview of any groundwater monitoring or model programs planned or underway	8.1.8, 8.1.9

**Appendix B-2:
Provincial Project Definition Requirements**

Section	Project Description Template Topic	Section of PDR
5.5.2.	Water Treatment and Disposal Requirements	
	Provide a description of anticipated major waste water treatment systems, e.g. mine water, storm	4.5
	Describe or illustrate the anticipated physical facilities for such systems. (e.g. treatment process ponds, dams, pipelines, ditches, discharge locations, sampling points etc.)	4.5
	Indicate the expected performance, including an estimate of effluent quantities and qualities and parameters of concern	3.10, 4.5.5
	What is the anticipated impact on receiving water?	9.1.4
	Summarize any previous operation experience and performance, if applicable	1.2
5.5.3.	Waste Disposal and Management Systems	
	Describe the nature of any solid, liquid or gaseous wastes likely to be generated by the project. What are the anticipated disposal procedures for any toxic/hazardous materials to be used or by-products of the project?	5
	Anticipated production rates of these materials?	5
	Anticipated handling, disposal locations and methods?	5
	Summarize any previous operation experience and performance, if applicable	1.2
5.5.4.	Closure and Rehabilitation	
	Describe any closure and rehabilitation considerations	3.14
	Summarize any previous rehabilitation and performance, if applicable	N/A
6.	Project Location Information and Environmental Baseline Data	
6.1.	Current Land Use	
6.1.1.	Describe the current land use(s) (e.g., mining, agricultural, traditional, recreational, industrial etc.) at the project site and in the adjacent area	2.2.3.3
6.1.2.	Provide any information on previous activities on the site, including potential for contamination or hazards from past land use	2.2.3.1
6.1.3.	Are there any neighbouring land uses and occupants?	2.2.3.4, 8.3.1
6.1.4.	Indicate the proximity of the project and related facilities and infrastructure to potentially affected Aboriginal communities, Indian reserves and lands that are currently used or have been traditionally used by Aboriginal people or Metis?	2.2.3.2, 8.3.2
	Describe any proposed archaeological or Traditional Ecological studies	8.3.4, 8.3.5
	Describe the project proximity to any land claims, if known.	8.3.2
6.1.5.	Indicate the project proximity to important or designated environmental or cultural sites, such as national parks, heritage sites, historic canals, Areas of Natural or Scientific Interest (ANSI), and other sensitive other protected areas	8.3.5
6.1.6.	Indicate the project proximity to recreational, residential and other urban areas	2.2.1, 2.2.3.3
6.1.7.	What is the current municipal zoning/designation of the proposed site/ related facilities and adjacent areas?	2.2.3.5
6.2.	Environmental Features and Baseline Information	
6.2.1.	Topography and Landforms	
	Provide a summary of the physical setting and components in the area likely to be affected by the project, such as terrain and topography, special landforms climate etc. attach maps as necessary	8.1
6.2.2.	Terrestrial Plant and Animal Life Communities	8.2.2, 8.2.3
	Provide any information characterizing terrestrial plant and animal life communities in the project area. For example, include known rare, threatened or endangered species, migration routes, nesting areas etc in relation to the project.	8.2.2, 8.2.3
	Provide an overview of existing or proposed biological monitoring programs	8.2.2, 8.2.3
	Include the maps with locations of sampling or survey points as necessary.	8.2.2, 8.2.3
	Describe methods and frequency of monitoring, the biological communities to be monitored	8.2.2, 8.2.3
	Attach any maps showing these areas, if available	8.2.2, 8.2.3

**Appendix B-2:
Provincial Project Definition Requirements**

Section	Project Description Template Topic	Section of PDR
6.2.3.	Surface Waters Information	
	Provide any information characterizing surface waters that may be affected by the project, including information on the existing quality and quantity of surface water and existing uses, if available	8.1.6, 8.1.7
	Provide a description of freshwater/marine environmental features in the area	8.2.1
	Provide a Map of the watershed area showing water bodies and any existing or proposed sampling sites	8.1.7
	Illustrate or describe the project proximity to water bodies (freshwater and marine) (e.g., water bodies including names of watercourses, coastal areas, etc.)	8.1.7, 8.2.1
	Describe or illustrate the physical characteristics of the waterway, i.e., length, width, depth, seasonal flow and fluctuations	8.2.1
	Provide any information on fish and fish habitat (e.g., fish presence and species, benthos)	8.2.1
	Provide a qualitative and quantitative description of the fish habitat	8.2.1
	Provide an overview of existing or proposed surface water monitoring programs including method and frequency of sampling	8.1.7
	Describe the existing use of the waterway and its navigability (e.g., kind, size and frequency of vessels, description of existing obstructions in the waterway)	N/A
	Provide any information on commercial, recreational or Aboriginal/subsistence fisheries in the area	8.2.1.5
6.2.4.	Aquatic Plant and Animal Communities	
	Provide any information characterizing aquatic plant and animal communities in the project area. Include known rare, threatened or endangered species.	8.2.1
	Provide maps showing these communities, if available	8.2.1
	Provide an overview of existing sampling and/or monitoring programs including; method, location and frequency of sampling	8.2.1
6.2.5.	Ground Water Information	
	Provide any information characterizing the quality and quantity of ground waters potentially impacted by the project, including the identification of aquifers and existing groundwater uses on site and in the area	8.1.8, 8.1.9
	Provide an overview of existing or proposed groundwater monitoring programs including; method and frequency of sampling	8.1.8
	Provide maps showing the current or proposed groundwater monitoring locations	8.1.8
6.2.6.	Air Emission Information	
	Describe the nature of any possible emissions and the anticipated treatment technology/processes	5.1, 9.1.2
7	Project Schedule	
7.1	Describe the proposed overall development schedule, including; feasibility / engineering studies, permitting and approvals and construction schedule	2.1.2, 2.3.1.4, 2.3.2.1
7.2	Provide an overview of major construction issues and proposed schedule of development, include time of year, frequency, duration, special environmental engineering or access issues, resources and workforce required	2.1.2
7.3	Regulatory Processes and Schedule	
7.3.1	Provide an overview of the regulatory process that is currently underway and what existing approvals are in place	2.3
	Include an overview of any environmental assessment processes, approvals or licence requirements (federal, provincial, municipal) that the proponent believes may be applicable to the project	2.3
7.3.2	Include a list of ongoing or planned site and regional assessment work (with anticipated completion dates) to support the regulatory process. Include work such as:	8
7.4	Public & Aboriginal Consultation	
	Describe the level of public and or aboriginal involvement to date as well as a summary of major discussions, considerations and impacts and any planned future consultations	1.5, 10, 11
	Provide a list of Aboriginal groups potentially affected by the project	10.1
	Provide a list of stakeholders potentially affected by the project	11

Note: Topics are from the Project Definition Template for Advanced Exploration and Mine Development Projects, Ontario Ministry of Northern Development and Mines.